REPORT

Chapter 1.0 Program Overview

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

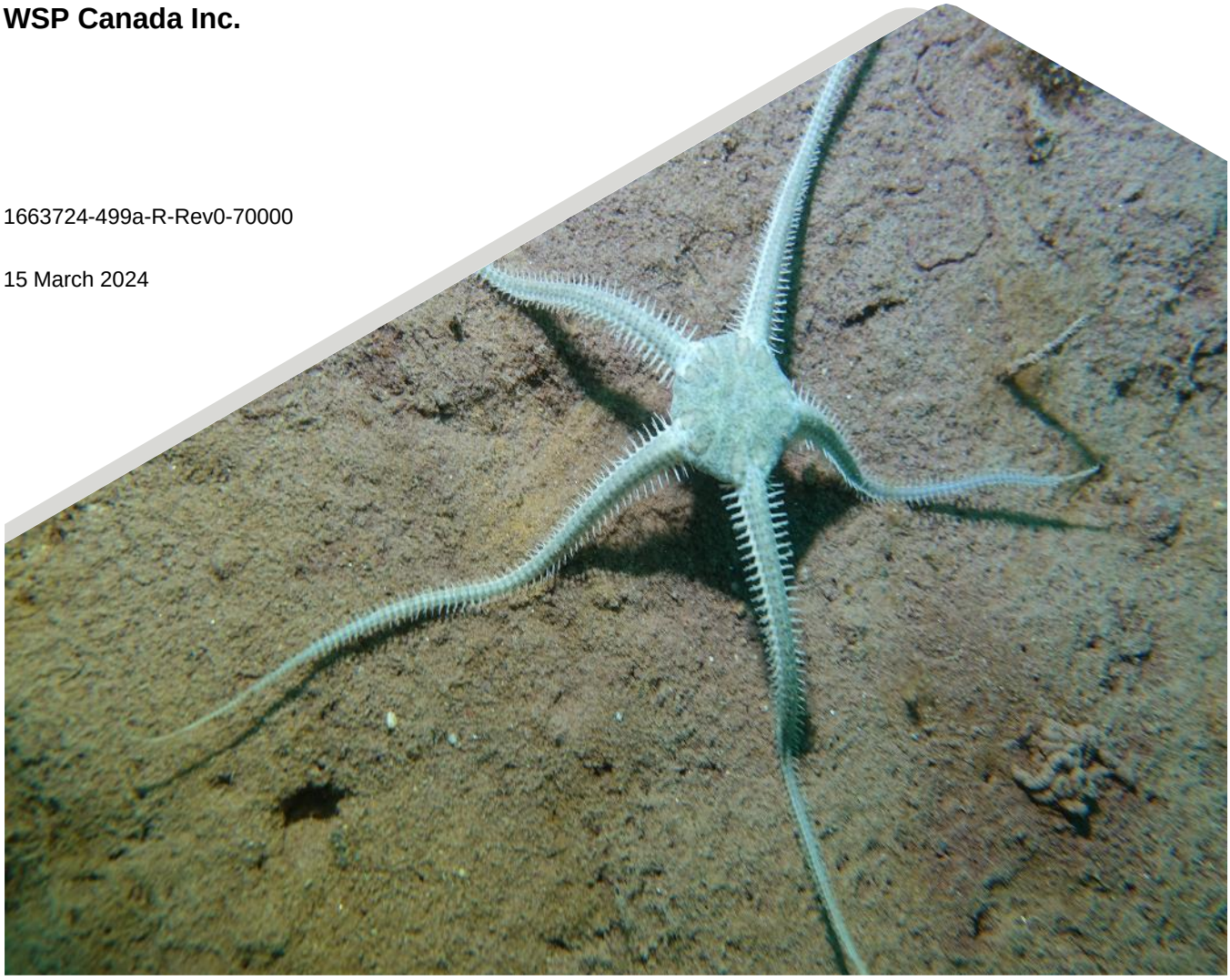
Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario, L6H 6K8
Canada

Submitted by:

WSP Canada Inc.



1663724-499a-R-Rev0-70000

15 March 2024

Executive Summary

Baffinland Iron Mines Corporation (Baffinland) owns and operates an open pit iron ore mine (the Project) located in the Qikiqtani Region of North Baffin Island, Nunavut, in accordance with Terms and Conditions of its Project Certificate (PC) No. 005. Ore is transported to market during the open water season by chartered vessels that receive the ore in Milne Port, located at the head of Milne Inlet at the western end of Eclipse Sound. Shipping commenced in 2015 and is expected to continue for the life of the Project (20+ years).

As a part of regulatory commitments, Baffinland has developed and implemented a multi-disciplinary Marine Environmental Effects Monitoring Program (MEEMP). The MEEMP is designed to evaluate potential Project-related effects on the marine environment as predicted in the Final Environmental Impact Statement (FEIS) and FEIS addenda (Baffinland 2012, 2013). The MEEMP includes monitoring of marine water and sediment quality, marine benthic invertebrates, marine vegetation, and fish and fish habitat. The sampling design is generally based on the Metal Mining Environmental Effects Monitoring (EEM) technical guidelines (Environment Canada 2012) and includes statistical approaches for detecting potential Project-induced impacts on the marine environment. Nonindigenous Species/Aquatic Invasive Species (NIS/AIS) monitoring is an integral component of the MEEMP and is designed to address the potential risks of species introductions to the marine environment from ship ballast water and hull biofouling.

This report presents the results of the MEEMP and NIS/AIS monitoring programs conducted in Milne Inlet during the 2023 open-water season, the ninth consecutive year of monitoring.

MARINE WATER QUALITY (CHAPTER 2.0)

The marine water quality component of the MEEMP involves monitoring of water quality in the Milne Inlet receiving environment to confirm that site discharges are in compliance with requirements outlined in the Type A Water License and satisfy Project Certificate (PC) Conditions No. 76, 83(a), 87, 89 and 99(a). Water quality samples are collected at four sampling stations in Milne Inlet downstream from the primary discharge point (MP-05), as well as four sampling stations downstream from a second discharge point (MP-06) at Milne Port. These receiving environment stations are distributed in a radial design up to approximately 250 m from each discharge point to monitor for potential changes in water quality due to site drainage and operational discharges, including iron ore stockpile run-off.

In 2023, reported analytical results for water quality parameters (i.e., major ions, nutrients, metals, hydrocarbons, and polycyclic aromatic hydrocarbons [PAHs]) were generally within ranges observed during previous MEEMP sampling programs (2015 to 2022). Consistent with previous programs, hydrocarbons and PAHs were not detected in the 2023 water samples. In fact, a substantial proportion of parameters analyzed in the water samples from Milne Inlet were not detected at all in downstream sampling stations. All parameters were below relevant water quality guidelines (i.e., Canadian Council of Ministers of the Environment Water Quality Guidelines; CCME WQGs).

Collectively, measured concentrations of metals, nutrients, hydrocarbons were either not detected or were present at low concentrations, such that adverse impacts to the biota in the Milne Inlet receiving environment are unlikely to occur. Increased iron deposition in the marine environment as a result of Project activities is a primary interest for local Inuit. Given that CCME marine WQGs for iron have not been developed, 2023 data were compared to iron data collected during previous MEEMP programs (2017 to 2022) to evaluate whether increases in production at Milne Port have led to associated increases in iron concentrations. Total iron concentrations in marine water samples collected in 2023 were below the concentrations measured in previous years in the receiving environments of the MP-05 and MP-06 site discharges. Dissolved iron concentrations were below detection limits in each of the samples collected in 2023, meaning the majority of detectable iron concentrations were driven by the particulate form and less bioavailable for uptake by aquatic biota. Results of the trend analysis indicated that 2023 MP-06 total iron concentrations were statistically lower than previous sampling years, with effect sizes ranging from -83% (comparison between 2023 and 2022 for ENE station) and -3% (comparison between 2023 and 2021 for Source station). The 2023 MP-05 concentrations were lower in 2023 than measured in 2022, however statistical significance was not seen in the trend analysis.

Total copper had higher variability observed in 2022 relative to previous years. The observed variability in total copper did not appear to be an issue in the 2023 sampling program, with average concentrations roughly 3-times lower than those observed in 2022; further, dissolved copper concentrations were below detection limits in 24 of the 40 samples collected.

Overall, results indicate that, to date, water discharged from site into the marine receiving environment meets the requirements of the Type A Water License and that water quality parameter concentrations remain below thresholds of harm for marine biota. Moving forward, continued compliance monitoring for water quality is recommended.

MARINE SEDIMENT QUALITY (CHAPTER 3.0)

To satisfy PC Conditions No. 83(a) and 99(a), sediment samples were collected along four transects, including three transects (West, East, and Northwest) surveyed from 2014 to 2018, and an additional transect, the Northeast transect, which was added in 2019 to account for potential future changes to Milne Port infrastructure. The radial gradient sampling design enables effects to be monitored as a function of distance from the Ore Dock (potential point source), in consideration of potential contaminant sources (e.g., ore dust, hydrocarbon deposition) and/or physical impacts (sediment re-suspension and transportation) in the marine environment.

In 2023, analyses of the physical and chemical composition of sediments were conducted on samples collected from a total of 45 stations for particle size, metals, and organic parameters. In general, concentrations of metals were determined to be less than applicable sediment quality guidelines, with few exceptions. Concentrations of organic parameters were largely not detected in the sediments sampled. Statistical spatial and temporal trend analyses did not suggest that sediment metal concentrations were accumulating at elevated levels in proximity to the Ore Dock relative to other locations sampled within Milne Inlet.

Some minor exceedances of Interim Sediment Quality Guidelines (ISQGs) were noted for arsenic, nickel, and copper but are not considered to be Project-related, as these metals are not associated with ore processing at Mary River and tended to increase with greater distance away from the Ore Dock. The low magnitude of exceedances in some samples are most likely reflective of background conditions and related to physical sediment properties (i.e., percent fines), rather than Project activities. As demonstrated through statistical

analyses, distribution of fine sediment (which is strongly related to sediment metals) in Milne Inlet is largely not influenced by Project activities but, rather by natural coastal processes that differed between the Northern Offshore Transects and the Coastal Transects. The exception is the finding of likely localized scouring effects (associated with propeller wash) in the immediate vicinity of the Ore Dock area on the coastal West Transect, as predicted in the Final Environmental Impact Statement (FEIS). These effects are expected to stabilize over time. Importantly, associated impairment of the benthic community was only documented in 2020 at one station (SW-2) in this area, with both density and richness continuing to rebound in 2023.

As observed for the fines content of the sediments, while the 2023 MEEMP found that spatial trends in the sediment iron continued to differ between the four monitored transects, more subtle temporal trends or a lack of trends were evident over time. Results found that in general the iron content of sediments sampled from Milne Inlet in 2023 was not significantly greater than that measured under baseline conditions, thus, indicating sediment iron concentrations have not increased over time in the Milne Inlet study area. Similar to other metals, iron was not present in elevated concentrations close to the Ore Dock area, and concentrations up to 250 m from the Ore Dock area were either stable or exhibited a decrease over time.

Sediment monitoring to date suggests that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not adversely affected marine sediment within the Milne Inlet study area. Given that there will be continued use of larger ore carriers (Baby Cape and Capesize) at Milne Port, Baffinland has committed to a frequency of annual sampling of the eight Capesize monitoring stations for a minimum of three years (2023 to 2025) to identify Project-related effects due to the change in vessel types.

Overall, results indicate that, to date, marine sediment quality results remain within FEIS predictions and subsequent addenda, which forecasted no significant residual effects on sediment quality but indicated the potential for minor localized sediment disturbance associated with propeller wash, which is expected to stabilize over time.

BENTHIC INFAUNA (CHAPTER 4.0)

To satisfy PC Conditions No. 99(a) and 99(c), the 2023 benthic infauna component involved the collection of benthic infauna samples (co-located with sediment stations) along two Coastal Transects (East and West) and two Northern Offshore Transects (Northeast and Northwest) according to a radial study design. The radial gradient sampling design enables effects to be monitored as a function of distance from the Ore Dock (potential point source), in consideration of potential contaminant issues (e.g., ore dust, hydrocarbon deposition) and/or physical impacts (sediment re-suspension and transportation) in the marine environment. Additionally, three new benthic infauna stations (SE18-1, SCV-1, and SCV-2) were included in the 2023 program for developing an existing conditions characterization of stations for the Capesize vessel sampling program to identify Project-related effects due to the use of larger ore vessels (Baby Cape and Capesize) at Milne Port in accordance with Project Term and Condition 83(a). Eight stations in total comprise the stations to be monitored for the effects of larger ore carriers (stations SW-1 through SW-4, SE18-1, SNW-1, SCV-1 and SCV-2). Samples were collected as a composite of three Van Veen sediment grabs from each station, processed in the field, and preserved for laboratory analysis. Infaunal organisms were subsequently identified to the lowest practical taxonomic level and enumerated by experienced marine benthic taxonomists at Biologica Environmental Services Ltd. (taxonomic laboratory).

As observed in previous years, benthic infauna communities in Milne Inlet were mainly dominated by polychaetes. Malacostraca crustaceans were somewhat co-dominant with polychaetes along the Coastal East Transect, whereas further offshore in deeper waters, polychaetes occasionally co-existed with Malacostraca crustaceans, bivalves, and ostracods. Statistical analysis was focused on four key benthic infauna endpoints – invertebrate density, richness, diversity, and evenness – consistent with previous MEEMP years. Analysis of the data revealed spatial variability in community endpoints, particularly between nearshore and offshore environments, which is expected given that density and biomass of marine benthic infauna tends to decrease with increasing water depth and distance from land. Spatial variability within the Coastal Transects was also observed, attributed to the coastal topography and processes, such as freshwater input from Phillips Creek. Invertebrate densities were either higher in 2023, or were not significantly lower relative to 2018, 2019, or 2020. Densities were not monitored in 2021 and 2022 as, following the 2020 sampling year, the radial sampling design is sampled every three years.

Benthic infaunal communities in 2023 were diverse throughout the study area. There were no consistent differences between years (2023 vs 2018, 2019, and 2020) in benthic community indicators along the four transects and, in isolated instances where indicators were significantly different between years, endpoints tended to be different only when comparing 2023 to 2019. Statistical differences also tended to occur at greater distances from the Ore Dock compared to closer to the dock. These results do not align with the community response pattern typical of a toxicological impairment due to contaminant exposure, which manifests as a significant decrease in both density and richness as contaminant-sensitive taxa disappear or numbers are diminished, leaving more tolerant taxa to dominate the community. Rather, the 2023 results are more consistent with expected natural variability for these benthic habitat types within Milne Inlet, as there appears to be no evidence to suggest impairment of benthic communities related to the Project.

Monitoring results for 2023 remained within original FEIS predictions, which forecasted no significant adverse residual effects to Arctic char habitat. The 2023 results, in combination with those from sediment monitoring to date, suggest that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not had adverse, lasting effects on benthic infaunal communities in the study area. Given that there will be continued use of larger ore carriers (Baby Cape and Capesize) at Milne Port, Baffinland has committed to a frequency of annual sampling of the eight Capesize monitoring stations, for a minimum of three years to identify Project-related effects due to the increased vessel traffic.

Overall, results to date indicate that construction and operational activities at Milne Port do not appear to have resulted in adverse effects on benthic infauna in the marine receiving environment. Existing benthic infaunal communities continue to be diverse and well established in both nearshore and offshore habitats.

SUBSTRATE, MACROFLORA, AND BENTHIC EPIFAUNA (CHAPTER 5.0)

Sampling of substrate, macroflora, and benthic epifauna fulfills PC Condition No. 99(a) and (c) and is relevant to PC Conditions No. 76, 83(a), 84 and 87. To evaluate potential project-related effects on substrate, macroflora, and benthic epifauna, standardized underwater visual census methods were employed by SCUBA-based scientific divers to survey algae, invertebrate, and fish species and to record habitat type within a series of survey quadrats permanently installed on the seafloor in both an exposure area (Milne Port) and a reference area. Specimens were opportunistically collected and sent to an accredited taxonomy laboratory (Biologica Environmental Services Ltd.) for taxonomic identification. Indicators included percent cover (%) of substrate type, benthic macroflora, and sessile benthic epifauna, density (counts) for motile epifauna, and diversity indices (i.e., taxa richness and Simpson's Diversity Index [SDI]) for macroflora and epifauna.

Quadrat sampling in 2023 indicated the benthic environment of Milne Port and the reference area mainly consisted of soft substrate, primarily silt and sand. Interannual differences were observed in the proportion of the bottom covered by soft substrate, with lower mean soft substrate in 2022 compared to 2021 and 2023. Similar macroflora and epifaunal taxa were observed in 2023 as in previous years (2021-2022). Community indicators (i.e., percent cover, density, taxa richness, and SDI) were variable among quadrats, but were not significantly different between Milne Port and reference area in 2023 except for macroalgae taxa richness, which was lower in Milne Port compared to the reference area. Additionally, macroalgae percent cover differed significantly only within the reference area among sampling years, with mean macroalgae percent cover highest in 2021. Motile epifauna density significantly differed among years within each area, with density significantly higher in 2023 than in 2021 in Milne Port and density significantly higher in 2022 than in 2021 and 2023 in the reference area. Interannual differences were observed in macroalgae taxa richness in the reference area (lower in 2023 than in 2022) and SDI in Milne Port (lower in 2023 than in 2021 and 2022).

As was done in previous years, effect size was explored using a power analysis simulation to detect Project-related change based on levels of observed variability among quadrats. The power analysis found sufficient power to detect large changes in soft substrate, epifauna and macroflora. Given the low statistical power to detect effect sizes that may be of biological relevance, going forward, it is recommended that conclusions are not made based on strict adherence to statistical significance. Instead, effect size, uncertainty, and statistical significance and power should be considered together before ruling out spatial and temporal changes in benthic infauna.

Overall, macrofloral and benthic epifaunal community assemblages were comparable between exposure and reference areas. Interannual variations in some indicators were likely driven by regional environmental factors. Monitoring efforts to date revealed no evidence of overarching spatial or temporal trends that might be associated with Project-induced effects from construction or operation activities. Monitoring of macroflora and benthic epifauna assemblages is recommended to continue, using the same sampling and statistical design. Further, it is recommended to increase collections of unknown taxa, when possible, for analyses and identification. Where possible, such taxa should be collected outside the permanent quadrats to minimize impacts on community composition within the quadrats.

Overall, while noting the statistical limitations of this component (i.e., high variability leading to generally low statistical power), the 2023 survey results indicated that Project activities to date have not resulted in adverse effects on macrofloral and epifaunal communities in Milne Port.

MARINE FISH COMMUNITY (CHAPTER 6.0)

To satisfy PC Conditions No. 99(b)(ii), 99(c), 113, and 114, sampling was conducted to assess the relative abundance of Arctic char (*Salvelinus alpinus*) and other fish species in the Milne Port area. Multiple sampling methodologies (e.g., gill nets, angling-jigging, angling-trolling, hoop nets, Fukui traps, and trawling) were used to target different fish species and habitat types. Collected fish were identified to the lowest practicable taxonomic level, typically to species level, before being released. Fish not identified to species level in the field were retained for subsequent identification by an accredited taxonomic laboratory. Fish community composition (diversity), abundance, and catch per unit effort (CPUE) were compared among years and CPUE was compared between two fishing areas (FAs) defined for the port: Direct Project Footprint (DPF) and Indirect Project Footprint (IPF), delineated by habitat features and their proximity to existing port infrastructure and operational activities.

A total of 422 fish belonging to 12 known taxa were recorded in Milne Port from 82 fishing events (efforts) using a combination of methods during the 2023 open water survey season. Similar to previous sampling years, Arctic Char (*Salvelinus alpinus*), Fourhorn Sculpin (*Myoxocephalus quadricornis*) and Shorthorn Sculpin (*Myoxocephalus scorpius*) were the most abundant species. Other fish captured were Arctic Staghorn Sculpin (*Gymnocanthus tricuspis*), Ribbed Sculpin (*Triglops pingelii*), Pacific Cod (*Gadus macrocephalus*; formerly *G. ogac,* which is no longer considered an accepted species), Arctic Alligatorfish (*Aspidophoroides olrikii*), Arctic Sculpin (*Myoxocephalus scorpioides*), Spatulate Sculpin (*Icelus spatulata*), and single instances of a juvenile Polar Cod (*Boreogadus saida*), a Saddled Eelpout (*Lycodes mucosus*), an Atlantic Spiny Lumpsucker (*Eumicrotremus spinosus*), and an unidentified juvenile cod (*Gadus* sp.). This was the first record of Atlantic Spiny Lumpsucker as a capture of the fish community monitoring program, but this species was previously observed during visual monitoring of Milne Port and is not considered to be a non-indigenous species.

The composition and abundance of the fish community captured in 2023 was generally comparable to those of the 2020-2022 monitoring programs, however the species richness was the highest recorded since 2020 (12 known taxa as compared to 9-10 known taxa in years 2020 through 2022) and abundance, uncorrected for fishing effort, was the lowest since 2020 (422 individuals as compared to 482-852 individuals in 2020-2022).

Results of statistical analyses of the CPUE (i.e., catch rates corrected for fishing effort) supported the conclusion that existing mitigation measures were functioning as intended and that current Project activities were not resulting in adverse effects on the local marine fish communities in Milne Port. No reduction in fish abundance was associated with activities in the DPF; fish CPUE in the DPF was generally higher or no different than the CPUE in the IPF. Analyses of total CPUE (all fish species combined) indicated higher CPUE in the DPF compared to the IPF for angling-jigging, gill net, and hoop net catches and no effect of fishing area for angling-trolling and Fukui trap catches. For Arctic Char, there was no significant difference in CPUE between the DPF and IPF for gill netting, the only fishing method that could be analyzed. For Fourhorn Sculpin, was area comparisons of CPUE were conducted for angling-jigging and gill net fishing methods (the major methods by which Fourhorn Sculpin was captured) and both indicated CPUE was higher in the DPF compared to the IPF. This may relate to the use of constructed rocky reef habitat around the project's Ore and Freight docks by Fourhorn Sculpin.

Modifications to the monitoring program for the fish community over the past several years have focused on improving the statistical power of the monitoring. One approach to do so, that is under consideration for 2024, would be the elimination of sampling methods that yield relatively lower catches of fish, and enhanced focus on the more effective fishing methods. As in previous years, it was observed in 2023 that gill nets, angling-jigging and hoop nets were effective fishing methods. Gill nets were particularly effective for capturing Arctic Char, which were rarely caught by other methods. In most years, the majority of Fourhorn Sculpin were caught via angling-

jigging, but gill nets were more successful in capturing Fourhorn Sculpin in 2023. Trawling, while often not resulting in a high CPUE unless a school of fish were encountered, often captured taxa not sampled by the other methods used in this program. Fukui traps and angling-trolling are fishing methods that may not offer as much value as others in the program. A suggestion from the MEWG that hoop nets might replace Fukui traps resulted in a comparison of hoop net versus Fukui trap catches conducted as a three-year trial from 2020-2022. An additional year of comparative fishing was conducted in 2023 with closer matching of fishing effort and deployment location of the two methods. Over the full trial study period, hoop nets sampling events yielded twice as many captured fish (n=191 from 2020 – 2023; n=40 from 2023) compared to Fukui traps (n=75 from 2020 – 2023; n=4 from 2023), despite being deployed fewer than half the number of total efforts (i.e., sampling events) and half the number of total set hours summed over all years. The effectiveness of angling-trolling versus angling-jigging was also reviewed in 2023 to determine if one of these methods should be discontinued. Over the years 2020-2023 and the two FAs, the CPUE of angling-trolling ranged from 0-3.63 fish*hr^{-1}*rod^{-1} (with three occurrences of 0 fish*hr^{-1}*rod^{-1}) whereas CPUE of angling-jigging ranged from 0.96-8.92 fish*hr^{-1}*rod^{-1}. High occurrences of zero catch rates limited the ability to statistically analyse the angling-trolling data. Taxa captured by angling-trolling were commonly caught via other fishing methods during open-water surveys.

Measures recommended for the 2024 MEEMP sampling program include the following:

- Removal of angling-trolling and Fukui traps as fishing methods from the 2024 program due to low catch efficiency. These sampling efforts could be replaced by angling-jigging and hoop nets, respectively.
- As power analyses continued to indicate the power of statistical comparison was relatively low, due to the high variability of fish catch, the number of efforts (i.e., sampling events) per area of each fishing method (i.e., angling-jigging, gill nets, and hoop nets) should be increased in 2024 with a target of 40% effect size detection for fishing methods. Trawling would be retained in the program as a contributor to understanding fish diversity in Milne Port, but this sampling technique is not expected to meet a statistical effect size target.
- If the changes described above do not sufficiently increase statistical power to overcome the currently observed limitations on statistical power, consideration may be given to assessing differences between Fishing Areas using effect sizes rather than a strict adherence to statistical significance.

Overall, fishing methods were deemed effective in characterizing the marine fish community in terms of species presence and relative abundance. The program continues to improve its methodology with regard to efficiencies of capture, representation of the fish community, and statistical power, and the delineation of fishing areas and standardization of measures of fishing effort time series that commenced in 2021 will continue to allow for ongoing assessments of interannual change in relative fish abundance and distribution at Milne Port.

FISH HEALTH AND TISSUE CHEMISTRY (CHAPTER 7.0)

To satisfy PC Conditions No. 76, 83 (a), 99 (a), 113, and 114, sampling was conducted to assess fish health and tissue chemistry in the Milne Port area. Fish health endpoints were assessed in two species, Fourhorn Sculpin (*Myoxocephalus quadricornis*), a marine fish, and wrinkled rock-borer (*Hiatella arctica or H.arctica*), a marine bivalve. The two species were collected from the Milne Port area and two reference areas, Koluktoo Bay for the finfishes and Tugaat River Estuary for the shellfish (bivalve). Arctic Char were also included in the fish health and tissue chemistry monitoring program but were collected opportunistically from the fishing efforts in the Milne Port area only. Tissue chemistry was assessed in Fourhorn Sculpin, Arctic Char (*Salvelinus alpinus*), and *H. arctica*. Fish health assessments included consideration of survival, growth, condition, and reproductive endpoints, and were considered separately for species and sexes, as relevant. Statistical comparisons of fish health endpoints were completed between Milne Port and the reference areas for Fourhorn Sculpin and *H. arctica* using data collected in 2023, as well as among recent sampling years (i.e., 2020, 2021, 2022, and 2023) for all species.

Fourhorn Sculpin were targeted using both active (i.e., angling by jigging and trolling, trawling) and passive (i.e., Fukui traps, hoop nets, and gill netting) capture methods in the Milne Port area and the Koluktoo Bay reference area. Incidental mortalities of Arctic Char during fishing efforts were retained for analysis of age, stomach contents, and tissue chemistry. *Hiatella arctica* were collected from the Milne Port area and the Tugaat River Estuary reference area from benthic infauna samples, with specimens being selected for processing if the animal was greater than 15 mm in length with an intact shell and had no indications of damage to the umbo or hinge area. Collected fish and *H. arctica* were processed for fish health endpoints and tissues were retained for tissue chemistry analysis.

A total of 22 incidental mortalities of Arctic Char were kept in 2023, comprising five adult females, nine adult males, and eight juveniles of unknown sex. Age ranges of Arctic Char processed in 2023 (4 to 25 years) were similar to those in 2021 and 2022; however, the median age in 2022 (11.5 years) was greater than in 2021 or 2023 (8.5 and 9.0 years). Condition factor of Arctic Char differed among sampling years. Mean condition factor in 2023 was lower than in 2022 but did not differ among other years.

A total of 40 Fourhorn Sculpin were processed from the Milne Port area in 2023, comprising 20 adult females and 20 adult males. In addition, a total of 25 Fourhorn Sculpin were processed from the Koluktoo Bay reference area, comprising 18 adult females and seven adult males. Differences in fish health endpoints were observed for female and male Fourhorn Sculpin between the Milne Port area and the Koluktoo Bay reference area. Females from the Milne Port area were significantly larger at age (i.e., greater size-at-age) and heavier at length (i.e., greater relative weight), but had significantly lower relative liver and relative gonad weights compared to female fish from Koluktoo Bay. Differences in size-at-age, relative weight, and relative gonad weight exceeded the critical effect size (CES) for female fish. For male fish, mean age was significantly lower but size-at-age was significantly greater in Milne Port compared to Koluktoo Bay. The difference in size-at-age exceeded the CES for male fish. Differences in fish health endpoints were also observed for female and male Fourhorn Sculpin among sampling years within Milne Port; age, relative weight, relative liver weight, and relative gonad weight differed among sampling years for female fish, and age, size-at-age, relative weight, relative liver weight, and relative gonad weight differed among sampling years for male fish. For both sexes, no consistent trends in differences were observed for any endpoint, suggesting interannual variability was the main contributor to observed differences in Fourhorn Sculpin fish health endpoints among years.

In 2023, a total of 40 *H. arctica* were collected from Milne Port, and a total of 17 *H. arctica* were collected from the Tugaat River Estuary reference area. All individuals collected were processed for fish health endpoints. No differences in survival (as length-frequency distribution), growth (as whole animal wet weight), condition (as relative weight and relative shell weight), or reproduction (as mantle somatic index) were observed when comparing Milne Port with Tugaat River Estuary. When evaluating fish health endpoints for *H. arctica* within Milne Port among sampling years, differences were observed for whole animal wet weight, relative weight, relative shell weight, and mantle somatic index. No consistent trends in differences were observed for any endpoint, suggesting interannual variability was the main contributor to observed differences.

A total of 24 tissue samples of fish from Milne Port were submitted for tissue chemistry metals analysis in 2023, from Arctic Char (n = 8), Fourhorn Sculpin (n = 8), and *H. arctica* (n = 8). An additional 12 samples from each of Fourhorn Sculpin and *H. arctica* collected from the reference areas were submitted for metals analysis in 2023. Constituents of potential concern (COPCs) were identified based on the primary constituents of the Project iron ore (i.e., aluminum, magnesium, and iron), as well as metals with existing regulatory guidelines for fish tissue (i.e., mercury and selenium). Statistical comparisons of COPCs (i.e., aluminum, iron, magnesium, mercury, and selenium) were completed for each species, separately, between the Milne Port area and the relevant reference area within 2023, as well as among sampling years (i.e., 2018 to 2023). Other metals were considered qualitatively for general trends over time.

When comparing Fourhorn Sculpin and *H. arctica* tissue chemistry between the Milne Port area and relevant reference areas, few differences were observed. Concentrations of most metals in Fourhorn Sculpin tissues were similar among sampling areas, although some metals exhibited greater spatial variability (e.g., arsenic, lead, manganese). Concentrations of COPCs were generally not different between sampling areas, with the exception of selenium: after adjusting for fish length, selenium concentrations were significantly lower (-12%) in Milne Port compared to Koluktoo Bay. For *H. arctica*, concentrations of most metals were similar among sampling areas; measured concentrations of beryllium, lead, silver, and uranium in samples from the Tugaat River Estuary appeared to be greater than the range of measured concentrations in Milne Port. Concentrations of COPCs were generally not different between sampling areas, with the exception of magnesium. Mean magnesium concentrations were significantly greater in samples from Milne Port compared to Tugaat River Estuary: the magnitude of effect, 82%, was below the CES.

Among sampling years at Milne Port, concentrations of most metals were similar within each species, although some metals exhibited greater interannual variability (e.g., copper, nickel, tin). For Arctic Char, significant increasing trends in iron and magnesium concentrations were observed. Median concentrations of both metals exhibited appreciable interannual variability but were either stable or decreased in 2023 from previous years. For Fourhorn sculpin, no significant increasing trends were observed; significant decreasing trends were observed for aluminum and iron. These trends are considered not indicative of a Project-related effect and were not considered further. For *H. arctica*, significant increasing trends were observed for iron and selenium concentrations. Median concentrations of both metals exhibited relative stability from 2019 to 2023, with minor differences between years.

Mercury and selenium concentrations in all Arctic Char and Fourhorn Sculpin samples were below Health Canada's Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada 2015) and the BC Ministry of Environment selenium concentration guidelines of 4 mg/kg dw (BC MOE 2014), respectively. In *H. arctica*, mercury concentrations were compared with the Health Canada consumption guideline for context, as this is not a common food shellfish species. Mercury concentrations in *H. arctica* were below the Health Canada consumption guideline.

A total of eight Arctic Char samples, eight Fourhorn Sculpin samples, and four *H. arctica* composite samples from Milne Port were analyzed for polycyclic aromatic hydrocarbons (PAHs) in 2023. An additional nine samples from Fourhorn Sculpin and *Hiatella arctica* collected from the reference areas were submitted for PAH analysis in 2023. Concentrations of all PAHs in all species were below reported detection limits (<0.050 mg/kg ww).

Assessments of fish health and tissue chemistry in 2023 for Arctic Char, Fourhorn Sculpin, and *H. arctica* indicated low magnitude differences in endpoints over time and among sampling areas, suggesting inherent interannual variability in endpoints. Sample timing continued to be appropriate for the assessment of reproductive endpoints for Fourhorn Sculpin and *H. arctica*. All results are within FEIS predictions, which indicated the potential for low magnitude effects on marine fish health and tissue chemistry. There was no evidence for Project-related effects beyond the magnitude of FEIS predictions on fish health or tissue chemistry in 2023.

NON-INDIGENOUS SPECIES AND AQUATIC INVASIVE SPECIES (NIS/AIS) MONITORING (CHAPTER 8.0)

This chapter presents the results of comprehensive sampling conducted in the marine environment of Milne Inlet to monitor for the presence of non-indigenous species (NIS) and aquatic invasive species (AIS), fulfilling PC Conditions No. 87, 89, and 91. The sampling program included both targeted (e.g., benthic grabs, settlement plates, and zooplankton tows) and general (e.g., screening all species identified through MEEMP components, such as fish, benthic fauna and macroflora surveys) sampling efforts. All observed and sampled taxa were compared to a taxonomic inventory for Milne Inlet, which has been developed over time (starting with pre-Project baseline) and is updated annually. Species composition in the region is relatively unknown and it is expected that each year this sampling program will detect taxa that were not previously recorded. Literature reviews were performed on any taxa that were not part of the inventory to investigate their biogeographic range on record; in addition, these taxa were cross-referenced against both global and domestic databases of known invasive taxa. Taxa were also cross-referenced with the Program-specific Watch List (taxa flagged for ongoing monitoring and re-assessment) comprised of taxa assessed to be either:

No risk: A species is considered to be “No Risk” if it is:

- reported to be present in the Canadian Arctic (or, its distribution in waters adjacent to the Canadian Arctic provides high certainty that its range includes the Canadian Arctic), prior to Project operations or in areas outside the Project’s area of influence
- not listed on AIS databases, or if listed it is native to Canadian Arctic or (in the case of higher taxon identification, with one or more representative species listed on an AIS database) the representative species is/are unlikely to establish in the Arctic (e.g., tropical/subtropical)

Low risk: A species is considered to be “Low Risk” if it is:

- not reported to be present in the Canadian Arctic or there is low certainty as to its presence, or identity is uncertain, or taxon is undergoing natural range expansion
- not listed on AIS databases, or (in the case of higher taxon identification, with one or more representative species listed on an AIS database) the representative species is/are unlikely to establish in the Arctic (e.g., tropical/subtropical)

Moderate risk: A species is considered to be “Moderate Risk” if it is:

- not reported to be present in the Canadian Arctic
- capable of using shipping vectors
- listed as an AIS in other areas, but has shown no invasive behaviours in Milne Inlet

High risk: A species is considered to be “High Risk” if it is:

- not reported to be present in the Canadian Arctic
- capable of using shipping vectors
- listed as an AIS in other areas
- well-documented as having potentially serious invasive behaviours elsewhere, and/or has shown invasive behaviours in Milne Inlet

Taxa placed on the Watch List include low- to high-risk taxa that require more supportive data, e.g., to confirm their identity or determine population trends. Should high-risk taxa be identified that are considered potentially introduced via Project shipping activities, they would be added to the Trigger List (a list of species that “trigger” development of a Rapid Response Plan outlining responsive actions which will be species specific and proportional to the risk).

The 2023 surveys resulted in 31 new additions to the taxonomic inventory for Milne Inlet (i.e., taxa that had not been observed in previous surveys). All new taxa had records of occurrence in the Canadian Arctic, or described ranges that were likely to include the Project area. Results remain pending for macroflora identifications as well as genetic analysis of macroflora and animal taxa.

Additionally, NIS/AIS monitoring in 2023 collected five taxa that were placed on the Watch List in previous years due to uncertainties in their natural range or because they were listed in an existing AIS database (the polychaetes *Marenzelleria* sp.*, Hesperonoe* sp., *Sosane wireni*, and *Paramphitrite birulai*, as well as the amphipod *Crassicorophium* sp.). Specimens of *Hesperonoe* sp. were sent to taxonomic experts for independent verification along with specimens collected in 2022. All other Watch List taxa were previously sent for independent verification with specialists and the newly collected specimens were not submitted for additional review. Distribution and abundance of each Watch List taxon was compared to previous years to identify meaningful trends in abundance or distribution since the taxon was first observed in Milne Port that may signal the onset of invasive behaviours.

Updates were provided for two algal specimens collected in 2022 that were identified as cf. *Punctaria latifolia* and cf. *Stictyosiphon soriferus* and were flagged for further review, as well as an unidentified Bryophyta that was sent to an expert for further identification.

No new taxa were added to the Watch List in 2023, while one taxon (*Sosane wireni*) was removed due to records indicating a probable range that extends to the Eastern Canadian Arctic. Following this change, the Watch List consisted of eight taxa. There are no species on the Trigger List.

The Baffinland NIS/AIS monitoring program represents the most comprehensive monitoring program for NIS/AIS conducted by a marine port in Canada. Approximately 1,062 taxa have been identified in Milne Inlet through monitoring to date, which included 410 unique macroflora, zooplankton, benthic invertebrates, and fish species. The identification and risk assessment of individual taxa out of the hundreds identified in Milne Inlet indicated this surveillance program was effective and functioning as intended. The vast majority of these taxa have been designated as "No Risk" and are not considered to be of concern.

ᐅᓂᒃᑲᖅ

ᐊᐅᓪᓕᐊᓂᖏᓐᓄᑦᑐᑦᓯᒪᔪᓂ ᓇᐃᓐᓇᖏᓐᓄᑦᑐᑦᓯᖅ

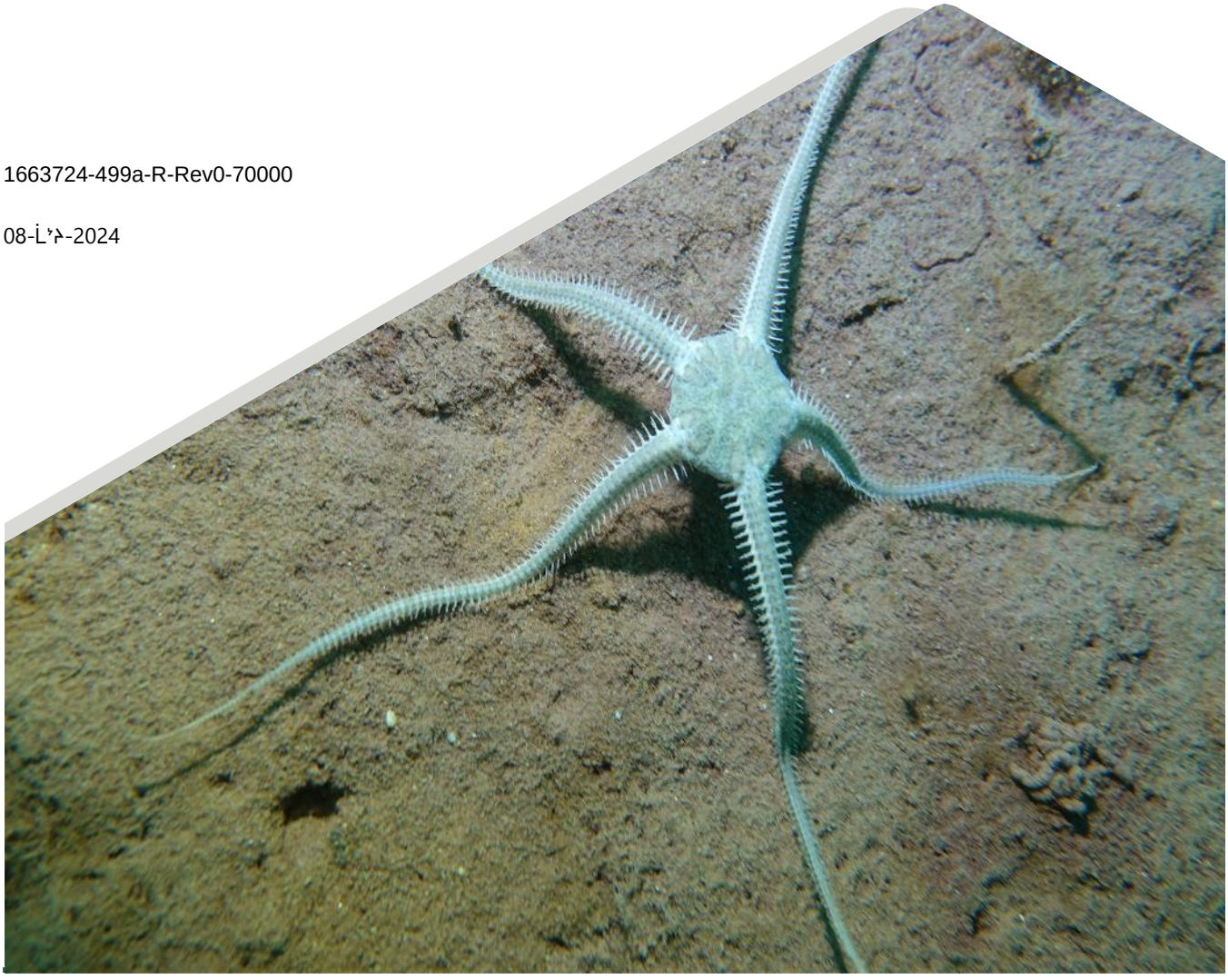
2023-ᒥ ᖃᓄᐃᔪᓂ ᑐᓴᒃᑕᕐᓂᒥ ᑕᓚᐅᖅᓯ ᐊᓯᑎᖏᓐᓄᓕᒃ ᐊᒃᑐᐃᓂᓂᒃ ᖃᐅᔨᓴᖅᓯᓪᓚᕆᓂᖅᓇᖅᓂᕐᒧᑦ ᐱᓪᓚᐊᖅ (MEEMP) ᐊᓴᒪᓗ ᑕᒪᓂᕐᒥᐅᑕᐅᓄᑦᑐᑦ ᐅᒪᔨᕐᓇᓕᒃ ᐅᒪᔨᓂᒃ ᐊᕐᔨᑎᓄᑦᓯᔪᖅᑐᑦᑐᑦᑐᑦᑐᑦ / ᑎᑭᓯᒃᑐᑦ ᐅᒪᔨᕐᓇᓕᓂᒃ (NIS/AIS) ᖃᐅᔨᓴᖅᓯᓪᓚᕆᓂᖅᓇᖅᓂᖅ

ᑐᓂᔨᐅᔨᖅ ᐅᑯᓇᖏᑦ:

ᕿᓭᓐᓕᓐ ᓴᐃᒃᓴᓂᒃ ᐅᔨᕐᓂᓚᐅᖅᑎᑦ ᑯᐊᐳᓱᓴᖏᑦ
360 ᐅᒃᐃᐅᓪ ᐊᖅᑯᑕ, ᑎᑎᕐᓂᒃ 300
ᐅᒃᐃᐅᓪ, ᐊᓐᑎᐅᓱᐅ, L6H 6K8
ᑲᓇᑕ

ᑐᓂᓯᔪᓂ:

WSP ᑲᓇᑕ ᐃᖏᑯᐊᐳᓱᑎᑦ



1663724-499a-R-Rev0-70000

08-ᒪᑦᔨ-2024

ᐊᐅᓪᓗᓂᑦᓯᒪᔨᑦ ᓇᐃᓐᓇᖅᓯᒪᔨᑦ

ᐸᕐᓇᓪᓂᖅ ᓴᐃᖅᓴᓂᖅ ᐅᓴᖏᖅᓂᖅᓂᕆᑦᑐᖅᑎᑦ ᑯᐊᐳᓱᓴᖅ (ᐸᕐᓇᓪᓂᖅ) ᓇᖕᒥᓂᖅᑐᑦ ᐊᐅᓪᓗᓂᑦᓴᓪᓗᓐᓄᑦ ᐃᑎᖅᓴᓪᓕᐊᒥᖅ ᓴᐃᖅᓴᓂᖅ ᐅᓴᖏᖅᓂᕆᔨᖓᖓ (ᐱᓪᓚᐊᖅ) ᐃᓂᖅᖅᓯᓂ ᖁᑭᖅᑕᓂ ᓄᓇᖅᑎᑦᑕᓂ ᐊᐅᓪᓗᓂᑦᓴᓪᓗᓐᓄᑦ ᐅᓴᖏᖅᓂᕆᔨᐳᓇᐅᐅᑎᒥ (PC) ᓱᓴᐅᑦ 005. ᓴᐃᖅᓴᖅ ᐅᓯᔪᐅᖅᑕᖅᑐᑦ ᓂᐅᑦᖁᓯᖓᓐᓂᑦ ᓯᑯᖅᖅᑎᓪᓗᒍ ᓴᓐᓂᑦᑎᑎᓪᓗᒍ ᐅᒥᐊᖅᓯᐊᓂᒧᑦ ᐅᒥᐊᓯᐊᑎᒧᑦ ᐅᓯᓚᖅᑕᐅᓪᓚᖅᑐᑦ ᓴᐃᖅᓴᖅ ᖁᖓᒧᐊᓂ ᖁᖓᒧᐊᑕ ᐱᓇᓐᓇᑦᓴᖅ ᐃᓯᐊᓂ ᑕᓯᐅᓯᓚᖅᑐᑦ.
ᐅᒥᐊᖅᓯᐊᖅᑐᖅᑕᑯᓯᐊᓕᐅᖅᑐᑦ 2015-ᒥ ᐊᖏᓚᓂ ᓂᓚᐅᓴᕆᐅᓪᓗᓂ ᑲᔪᓯᐊᖅᓂᖅᓴᖅ ᐅᓴᖏᖅᓂᕆᖅᓂᓪᓗᓂᑦᑐᖅᓯᓂ (20+ ᐊᖏᕐᒪᐃᐸᑦ).

ᐃᓕᓴᕆᐅᓪᓗᓂ ᒪᓕᖅᓕᓚᓂᖅᓗᑦ ᐱᓂᐊᖏᓂᕐᒪᑦ ᐱᓇᓪᓕᐊᑎᑎᕐᓯᒪᔨᑦ ᐊᑐᓕᖅᑎᑎᕐᓯᒪᔪᓪᓗ ᐊᒥᓯᒪᓇᖅᓂᖅᓯᓄᑦ-ᓯᕆᐊᑭᑎᓂᑦ ᑕᓚᐅᐸ ᐊᐅᖏᖅᓴᓇᓂᑦ ᐅᑐᑐᐃᓂᓂᓂᑦ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᑦᑐᓂᖓᓂᑦ ᐱᓕᓚᐃᓂᖅᓂᑦ (MEEMP). ᑕᑯᓗ ᑕᓚᐅᐸ ᐊᐅᖏᖅᓴᓇᓂᑦ ᐅᑐᑐᐃᓂᓂᓂᑦ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᑦᑐᓂᖓᓂᑦ ᐱᓇᓪᓕᐊᑦ (MEEMP) ᐊᖏᑭᓯᒪᔨᖅ ᖃᐅᔨᓴᖅᑕᑎᓯᓪᓗᓂᑦ ᐱᑕᖃᑐᐃᓐᓇᐊᓕᓪᓂᓂᑦ ᐱᓇᓪᓕᐊᒧᑦᓪᐊᑐᐃᓂᓂᑦ ᐊᑐᐃᓂᓂᓂᑦ ᑕᓚᐅᐸ ᐊᐅᖏᖅᓴᓇᓂᑦ ᐅᑐᐃᓂᓂᓂᑦ ᑕᐃᑲᓂ ᑭᖑᓪᓕᖅᓯᓂᑦ ᐊᐅᖏᖅᓴᓇᓂᑦ ᐅᑐᐃᓂᓂᓂᑦ ᐅᑐᖃᑦᑐᖅ (FEIS) ᐊᖏᓚᓂ ᑭᖑᓪᓕᖅᓯᓂᑦ ᐊᐅᖏᖅᓴᓇᓂᑦ ᐅᑐᐃᓂᓂᓂᑦ ᐅᑐᖃᑦᑐᖅ (FEIS) ᐅᐃᒍᖅᓴᓂ (ᐸᕐᓇᓪᓂᖅ 2012, 2013). ᑕᑯᓗ ᑕᓚᐅᐸ ᐊᐅᖏᖅᓴᓇᓂᑦ ᐊᐅᓪᓗᓂᑦᓴᓪᓗᓐᓄᑦ ᐱᓕᓚᐃᓂᖅᓂᑦ (MEEMP) ᐱᖃᓯᐅᖃᐃᓐᓇᖅ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᑦᑐᓂᖓᓂᑦ ᑕᓚᐅᐸ ᐃᓕᖅᓴᓂᓂᑦ ᐃᓕᓴᕆᐅᓪᓗᓂᑦ ᐅᑐᐃᓂᓂᓂᑦ ᐅᑐᖃᑦᑐᖅ ᐱᖃᓯᐅᖃᐃᓐᓇᖅ ᖃᐅᔨᓴᖅᐸᓪᓕᐊᑦᑐᓂᖓᓂᑦ ᐃᓕᓴᕆᐅᓪᓗᓂᑦ ᐊᐅᓪᓗᓂᑦᓴᓪᓗᓐᓄᑦ ᐱᓕᓚᐃᓂᖅᓂᑦ ᐊᐅᓪᓗᓂᑦᓴᓪᓗᓐᓄᑦ ᐱᓕᓚᐃᓂᖅᓂᑦ ᐃᓕᓴᕆᐅᓪᓗ

ᖃᐅᔨᔪᐅᔪᖃᓕᐅᖏᓂᑐᖅ ᐊᑕᖅᑭᖅᑐᓂ ᑯᓐᑐᓂ ᖃᐅᔨᓴᓱᓕᓕᐅᕐᓂᖅ ᑭᒡᓗᓕᓕᐅᖅᑐᓂ ᐊᐅᑐᐊᒪᓂ ᐃᒪᐅᓕ ᐊᐅᔪᓂᑐᓂᓗᓂ ᖃᐅᔨᒪᔭᕐᓂᐅᑎᓂ (ᓄᓇᓗ ᑲᓇᑕᒥ ᑲᑎᒪᔨᓂ ᒥᓵᕆᑕᐅᕆᓂ ᐊᐸᑎᓕᓚᓂᕐᓂᒪᓂ ᐃᒪᐅᐸ ᖃᐅᔨᓂᑐᖅᓴᓂ ᖃᐅᔨᓴᓱᐸᕆᓂ; CCME WQGs).

ᐊᑕᖅᑭᒃᓯᑎᑦ, ᐅᐸᑐᔪᖅᑕᐅᓕᒪᔪᓂ ᐱᑕᖃᓂᖅᑭᓐᓂᒃᓂ ᓴᓇᕐᓂᑦ, ᓂᖅᓂᑎᐊᐸᓂ, ᐅᖅᓄᓪᓕᐊᓚᕐᓴᓂ ᖃᐅᔨᔪᐅᔪᖃᓕᐅᖅᑭᓐᓂᒃᓂᖅ ᐅᐢᕐᓇᓵᐅᓂ ᐱᑕᖃᓕᐅᖅᑭᓐᓂᒃᓂ ᐱᑕᖃᖏᐅᑐᓂᓵᓂᐅᓂ, ᓄᓇᓗ ᐊᐅᑐᐃᓂᔪᓂᐅᓂ ᐅᒪᔪᖃᖏᓴᐃᔪᐅᓂ ᖃᖅᙰᓕᐅᓂᖅ ᑕᐃᒪᐃᓐᓇᖅᑭᓐᓂᒃᓂᖅᑕᑐᓂ. ᓴᓇᕐᓴᖃᓚᒋᔭᓂᓂᖅᙱᓐ ᑕᓇᐅᐸ ᐊᐸᖅᙱᓐ ᐱᓵᒪᑕᐅᓚᑐᖅ ᐱᓕᓇᐅᑐᓂ ᐱᓕᓇᓂᓂ ᐱᔪᑎᑦᐅᐊᓚᑕᖅᑐᓂ ᓄᓇᖃᓂᖅ ᐱᔪᑎᑦᐅᐊᓚᑕᖅᑐᓂ. ᐱᓵᔪᑕᐅᓚᑐᖅ ᑲᓇᑕᒥ ᑲᑎᒪᔨᓂ ᒥᓵᕆᑕᐅᕆᓂ ᐊᐸᖅᙱᓐ ᐱᓕᓇᓂᓂ (CCME) ᑕᓇᐅᒥ ᖃᓄᐅᑕᐅᓕᒪᔪᓂ ᖃᐅᔨᔪᐅᔪᖃᓕᐅᖅᑭᓐᓂᒃᓂᖅ (WQG) ᓴᓇᖅᓴᓂ ᐱᐸᓪᓕᐊᑎᑕᐅᓕᒪᓕᕐᓂᑐᖅ. 2023-ᒥ ᑎᑎᖅᑲᓯᐅᓂ ᖃᐅᔨᓄᑦᓴᓂᓕᕐᓚᓂᒃ ᓴᓇᖅᓴᓂ ᑎᑎᖅᑲᓯᐅᓂᑐᓄᓂ ᑲᑎᒪᔨᓂ ᑎᑎᖅᑲᓯᐅᓂᑐᓄᓂ ᑲᑎᒪᔨᓂ ᑕᓇᐅᒥ ᖃᐅᔨᔪᐅᔪᖃᓕᐅᖅᑭᓐᓂᒃᓂᖅᑕᑐᓂ ᐱᓕᓇᐅᑐᓂ ᐊᐸᖅᙱᓐ ᐱᔪᑎᑦᐅᐊᓚᑕᖅᑐᓂ ᐱᓕᓇᐅᑐᓂ ᐱᓕᓇᓂᓂ ᑎᑎᖅᑲᓯᐅᓂᑐᓄᓂ ᑲᑎᒪᔨᓂ ᑎᑎᖅᑲᓯᐅᓂᑐᓄᓂ ᑲᑎᒪᔨᓂ ᑕᓇᐅᒥ ᖃᐅᔨᔪᐅᔪᖃᓕᐅᖅᑭᓐᓂᒃᓂᖅᑕ

1, SNW-1, SCV-1 ᐊᖏᓪ SCV-2). ᐊᑕᐅᓯᖅ ᐃᓕᓴᐅᓯᒪᔪᖅ ᐃᓯᔾᔨᖅ ᖃᓄᐃᑦᑐᕐᖓᓂᓄᑦ ᖃᐅᔨᓴᖏᑦᖠ ᐱᖃᓯᐅᕐᓴᐅᓯᒪᔪᖅ ᐱᓕᕆᐊᒥ (ᓯᑦᓪ ᖃᐅᔨᓴᖏᓕᕆᔨᖅᖠ SE18-2) ᒪᓕᑎᐊᖑᓚᐅᓰᑎᓕᒃᑐᓂ ᐅᖓᓯᖏᓐᓇᑎᓕᒃ ᖃᐅᔨᓴᖏᓕᕆᐅᑦᔨᑦᓴᑦ ᐱᓕᕆᐊᖓᓯᒪᔪᓄᑦ.

2023-ᒥ, ᖃᒥᖅᑭᓂᑦ ᑕᖓᓕᒃᓕᓂᑦ ᐊᖏᓪ ᐃᓕᐅᑭᑎᓕᒃᓂᑦ ᐃᓯᔾᓂᑦ ᐱᓕᕆᐊᖓᓚᐅᖅᑐᑦ ᖃᐅᔨᓴᖏᓕᕆᐅᑦᔨᑦᓴᑦ ᑲᑎᑕᐅᔪᓂ ᑕᕐᔪᓇᖅᓱᑦ ᑲᑎᓚᑦ 45 ᖃᐅᔨᓴᖏᐃᐅᔪᓂ ᒥᑭᑐᑕᕆᓪᓚᓄᑦ, ᓴᐳᖏᓂᖅᑐᓄᑦ, ᓂᖅᐃᓂᓴᓄᑦ ᑭᓯᓕᐅᔪᓄᑦ. ᐊᑕᐳᖅᑐᓚᑦ, ᐱᑕᖃᓴᓂᖅᑕᑦ ᓴᐳᖏᓂᖅᑕᑦ ᓇᒃᑲᓂᓕᕆᓂᖅᑐᓂᓗᒃᑐᓂᑦ ᑕᐃᒍᖅᑕᐅᓚᐅᖅᑐᓂᑦ ᑐᓴᐃᓐᓂᖅᑐᓂᑦ ᑐᓂᓯᔪᖅᑕᐅᓚᐅᖅᑐᓂᑦ ᐊᑐᖅᑕᐅᔪᓂ ᑐᓴᐃᓐᓂᖅᑐᓂᑦ ᐃᓯᔾᓂᑦ ᖃᐅᔨᓴᖏᓕᕆᐅᑦᔨᑦᓴᑦ ᑲᑎᑕᐅᔪᓂ ᐃᓯᔾᓂᑦ ᖃᐅᔨᓴᖏᓕᕆᐅᑦᔨᑦᓴᑦᑎᑦ. ᓇᓴᐅᓯᓚᕐᔪᓂᓄᑦ ᐃᓂᖓᓐᓂ ᐃᓕᓴᐅᓯᒪᔪᓄᑦ ᖃᒥᖅᑭᓂᑦ ᐊᑐᖅᑕᐅᔪᓂ ᖃᐅᔨᓴᖏᓕᕆᐅᑦᔨᑦᓴᑦ ᑲᑎᑕᐅᔪᓂ ᐃᓯᔾᓂᑦ ᓴᐳᖏᓂᖅᑐᓄᑦ ᐃᓕᓴᐅᓯᒪᔪᓄᑦ ᐊᑐᖅ

ᐃᓂᒃᓴᓂᓄᓂ ᐱᑭᓐᑐᑦ (ᐃᓭᓚᑯᓐᑐᑦ 4.0)

ᓇᓗᒪᖏᑦᓯᐊᒍ ᐅᓴᕐᓂᓕᕆᑭᓴᓇᑎᒥ ᒪᓂᓚᑕᐅᓴᕆᐊᓭᓪᓗᑦ ᓇᓴᐅᑎᓭᓪᓗᑦ 99(ᐃ) ᐊᓚᒪᓂ 99 (ᑎ), 2023-ᒥ ᐃᓂᒃᓴᒥᐅᑕᑦ ᐅᒪᔪᕆᓭᓪᓗᑦ ᐃᓂᓯᓂᒃ ᐱᖓᓱᐅᓕᕆᓂᖅᓴᓂᑦ ᐃᓂᒃᓴᒥᐅᑕᑦ ᐅᒪᒍᕆᓭᓪᓗᑦ ᖃᐅᔨᓴᖃᖅᓴᓂᐊᕐᓂᑦ (ᐃᓄᖃᖅᑕᒥᔪᑦ ᐃᓂᒃᓴᓂᓄ ᖃᐅᔨᓴᖃᖅᓴᓂᐊᕐᓂᑦ) ᑕᐅᓐᓇᓴᓂ (ᑲᓇᖅᓇᓂᓄ ᐊᓚᒪᓂ ᐱᓇᓇᖅᓇᓂᓄ) ᐊᓚᒪᓂ ᒪᑎᑦᓴᓂᓄ ᐅᑐᖅᓯᓂᓄ ᐊᓚᒪᓂ ᐱᓇᓇᖅᓇᓂᓄ) ᒪᓂᓚᑕᐅᓴᕆᐊᓭᓪᓗᑦ ᐊᐅᑎᕐᓂᓄᑦᓯᐊᓭᓪᓗᑦ ᐊᐅᑎᕐᓂᓄᑦᓯᐊᓭᓪᓗᑦ ᐊᓚᒪᓂ

ᖃᐅᔨᓴᖅᓯᒪᔪᓐᓇᖅᑐᑦ ᖃᐅᔨᓴᐅᔪᓂ 2023-ᒧᑦ ᓂᓪ ᐃᓗᐊᓂᑐᑦ ᐱᑎᐊᑕᐅᔭᖏᓚᖅᑐᓂᒃ ᑭᖑᓪᓗᓯᒋᑦ ᐊᓂᒪᒧᑦ ᐊᒃᑐᐃᓂᐅᓂᐊᖅᑐᑦ ᐅᓂᒃᑲᓂ ᒥᖏᐅᖏᑕᐅᓕᓴᓂ, ᓇᓪᐅᑦᑕᖅᓭᒪᔪᓂ ᐊᒃᑐᐃᓂᔭᓐᓂᔪᓯᐊᑕᖃᖅᑎᖏᓐᓂᓂᒃ ᐊᒥᐊᒃᑯᓴ ᐊᒃᑐᐃᓐᓂᑦ ᑕᑎᐅᔾᒥᐅᑦ ᐃᖃᓗᐃᑦ ᓇᔨᖏᑦᓂᓐᓄᑦ. 2023-ᒥ ᖃᐅᔨᓴᐅᔪᓂ, ᑲᑎᓪᓗᑦ ᑕᐃᒃᑯᓄᖏ ᐃᓕᓴᓂᔭᒧᑦ ᖃᐅᔨᓴᖅᓯᒪᔪᓐᓇᖅᑐᓂᔭᒧᑦ ᐅᓪᓗᒥᒧᑦ, ᐃᒪᐃᖅᑯᓴᑎᑦᑎᓇᓴᒃᑯᑦ ᑕᐃᒪᐃᑦᑕᖅᑭᒃᓴᓂᖅ ᐊᒥᐊᒃᑯᓴ ᐊᒃᑐᐃᓐᓂᑦ ᑕᐃᒪᐃᑦᑕᑌᐊᖅᑐᓂᖅᑐᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐃᓕᓴᐅᓂᖅᑐᑦ ᑕᐃᒪᐃᑦᑕᑌᐊᖅᑐᓂᖅᑐᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐊᒃᑐᐃᓐᓂᑦ (ᒥᐅᓂᓄᓐᓇᓕᓂ ᐊᖅᑐᓂᓇᓕᓂᓄᓐᓇᓕᓂ ᐊᒃᑐᐃᓐᓂᑦ ᐅᒥᐊᖅᑐᓂᓇᓕᓂᓄᓐᓇᓕᓂ) ᖃᓄᖅᓯᐊᓂ ᑐᓴᐅᑦᑕᐃᖅᑎᑦ, ᓴᓇᓂᓴᓐᓂᖅᓱᒪᓕᕐᓂ ᐊᒃᑐᐃᓐᓂᑦ ᐊᑦᑕᕐᓗᒍᑦ ᐃᓕᓴᐅᓂᖅᑐᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐊᒃᑐᐃᓐᓂᑦ ᐊᒃᑐᐃᓐᓂ

ᖃᐅᔨᓕᕆᔨᒃᓴᖅᑐᑦ (ᐊᓕᑎᖅᓂᖅᓴᓕ 2023-ᒥ 2022-ᒥᐅᓪᓚᐅᑐᒥᓂᑦ) ᐊᓘᓪᓚ ᓯᓴᓂ ᐊᑲᐅᖏᖅᑭᒋᔭᖅᑐᓄᓂ ᓇᓗᐃᓇᐃᖅᓯᒪᔨᕐᑎᓂ (SDI) ᖃᖏᔪᐊᓂ ᑐᓪᓕᖅᑎᖅᒥ (ᐊᓕᑎᖅᓂᖅᓴᐅᓪᓕᐅᑎ 2023-ᒥ 2021-ᒥᓂᐅᓪᓚᐅᖅᑐᖅ ᐊᓘᓪᓚ 2022-ᒥᐅᓪᓚᐅᖅᑐᓄᓂ).

ᐱᔭᕆᖅᑕᐅᓯᒪᔨᓂ ᑭᖓᓂᕆᑎᓂᓂ ᐊᖏᕐᓇᒍᓂ, ᐊᐅᑐᐃᓂᕐᒧᓂ ᐊᖏᓂᓂᑦᓂ ᖃᑎᖏᑦᑕᐅᓯᒪᔨᓂ ᐊᑐᖅᓯᑎᓂ ᓴᖏᓂᓂᕐᒧᓂ ᖃᑎᖏᑕᓂᕐᒧᓂ ᐋᖅᑭᐱᓯᐅᑕᐅᓯᒪᔨᓂ ᖃᐅᔨᐅᖅᓯᒻᓴᓂᑦ ᐱᓕᕆᐊᒧᓂ-ᐋᐅᑐᐊᒃᓂᑦ ᐊᔪᓕᐅᑕᑎᑐᑦ ᑐᖓᓚᐅᓂᓂᑦ ᖃᓄᐃᓕᓴᐅᓂᑦ ᐊᓯᔪᓕᖅᑕᖅᑐᑦ ᑭᓯᓚᕆᐊᓂᓂᑦ ᐊᓯᔪᓕᐅᑕᑎᑦ ᐅᓯᔪᐊᑎᓂᓂᑦ ᐊᖏᑦᓂᓂᑦ ᐊᐅᑐᐃᓂᕐᒧᓂᑦ ᐊᐅᑐᐃᓂᕐᒧᓂᑦ ᐃᓚᖃᑦᑕᐅᓂᑦ ᐊᐅᑐᐃᓂᕐᒧᓂᑦ ᐊᐅᑐᐃᓂᕐᒧᓂᑦ ᐊᐅᑐᐃᓂᕐᒧ

ᐃᖃᓗᓕᐢ (Aspidophoroides olrikii), ᐅᑭᐅᖅᑕᖅᑐᒥ ᑲᓇᕐᓂ (Myoxocephalus scorpioides), ᑲᓇ)ᖅ (Icelus spatulata), ᐊᑕᐅᓯᖅ ᐱᑕᖃᓕᐅᖅᑐᑦ ᐃᓕᓐᓇᕐᓯᒪᓕᕐᓂᑐᖅ ᐅᑎᖅ (Boreogadus saida), ᐃᖃᓗᓴᓕᐅᕆ (Lycodes mucosus), ᐃᖃᓗᐊᑦᓕᓂ (Eumicrotremus spinosus), ᓇᓗᓇᐃᖅᑕᐅᓯᒪᓕᕐᓂᑐᖅ ᐃᓕᓐᓇᕐᓯᒪᓕᕐᓂᑐᖅ ᐅᑎᖅ (*Gadus* sp.). Ċᓕᓇ ᓯᓚᑦᓂᖅᓯᑎᑕᐊᖓᓴᓂᓂ ᑎᑎᕆᖅᑕᐅᓯᒪᔪᖅ ᐃᖃᓗᐊᑦᓴᓕᓴᑦ ᖃᐅᔨᓴᖅᓯᑦᓂᐊᕐᓂᓕᕐᓂᑐᓂᓕᓴᖅ ᐱᓕᕐᓂᑐᖅ ᐃᖃᓗᖃᖅᑐᒥ ᖃᐅᔨᓴᖅᓯᑦᓂᐊᕐᓂᓕᕐᓂᑐᓂᓕᓴᖅ ᐊᓕᓚᐊᒥ, ᑭᓯᐊᓂᓂ Ċᓕᓇ ᑕᑯᐅᑕᓂᓯᔪᖅ ᑭᖑᓪᓚᖅᑐᓂ ᐱᓕᕐᓂᑐᖅᓴᓂᓂ ᐊᓕᓚᐊᒥ ᑕᑯᐅᑕᓂᓯᔪᖅ ᑕᑯᐅᑕᓂᓯᔪᖅᑐᓂ ᑐᖓᔪᖅᑐᓂ ᑕᑯᐅᑕᓂᓯ

ᐊᑦᑭᑭᑕᐅᓯᒪᓂᖅᓯᑦ ᐃᑲᖅᖁᑦ ᑲᑎᓐᓂᑦ ᐊᒥᖅᓯᓐᓂᑦ ᐊᖁᔭᒍᓐᓂᑦ. ᐊᑐᑎᓂᖅᓯᑦ ᑲᓕᑲᒃᓐᑎᑦ ᐊᐅᓪᓚᐅᑎᓂᒃ ᑕᑯᖓᔪᖅᓗᒍ ᐊᐅᓪᓚᖅᓂᖅᓗᑦ ᖃᒥᖅᑕᕐᕕᓯᒪᖅᓴᖅ 2023-ᒥ ᓇᓗᓇᐃᖅᑕᐅᓇᓯᐊᖅᓐᓂᒃ ᐃᓪᖅᓯᑦ ᑕᒪᒃᑯᓇᓂ ᓄᖅᑲᖅᑎᑦᑕᐅᓕᖅᓂᓗᓂᖅᓯᑦ. ᐊᖁᖏᓐᓇᓂ 2020-2023 ᐊᒻᒪᓗ ᒪᖁᑭᒃ ᐃᖃᓗᖓᓕᒫᐅᔪᓂᓂ (FAs), ᐊᖏᓂᒃᑕᐅᔪᑦ ᐊᖏᓇᓯᓐᓂᖅᖁᑎᑦ (CPUE) ᐊᐅᓪᓚᐅᑎᒥᒃ ᑲᑎᑎᒃᑕᑭᒃᓐᓂᒃ ᐊᔪᐸᖅᑕᑦᑕᓯᑦᑐᑦᑕᑦ 0-3.63 ᐃᖃᓗᒃ*ᐃᑲᖅᖁᒍᑎ-1*ᐃᖃᖅᑕᐅᑎ-1 (ᐱᖓᓱᓯᐊᖅᑎᑐ 0 ᐃᖃᓗᒃ*ᐃᑲᖅᖁᒍᑎ-1*ᐃᖃᖅᑕᐅᑎ-1) ᐃᒪᐃᑎᓪᓗᒍ ᐊᖏᓂᒃᑕᐅᔪᑦ ᐊᖏᓇᓯᓐᓂᖅᖁᑎᑦ (CPUE) ᐊᐅᓪᓚᖅᓂᒃ ᐊᔪᐸᖅᑕᑦᑕᓯᑦᑐᑦᑕᑦ 0.96-8.92 ᐃᖃᓗᒃ*ᐃᑲᖅᖁᒍᒍ1*ᐃᖃᖅᑕᐅᑎ-1. ᐱᔨᐅᓴᓕᑦᑐᑦ ᐱᑕᖃᖅᑎᑦᑐᑦ ᐊᖏᓂᓯᓂᒍᑦ ᓄᓪᓕᓐᓄᑦ ᐊᔪᐅᓯᒪᔪᑦ ᐊᔪᖅᑕᐅᖅᑐᓂᓯᓚᓂ ᓄᓪᓕᐅᔪᓐᓇᖅᑐᒍᑎᒍᑦ ᖃᒥᖅᑕᐅᑎᓂᒃᑯᓂᖅᓴᖅ ᑲᑎᑎᒃᑕᐅᓕᖅᑐᑦ ᐊᐅᓪᓚᐅᑎᓂᒃ ᐊᖏᓂᒃᑕᐅᑎᓂᒃ ᐊᐅᓪᓚᖅᓂᖅᓗᑦ ᐊᖏᓂᒃᑕᐅᑎᓂᒃ ᐊᐅᓪᓚᐅᑎᓂᒃ ᐊᖏᓂᒃᑕᐅᑎᓂᒃ ᐊᖏᓂᒃᑕᐅᑎᓂᒃ ᐊᖏᓂᒃᑕ

ᖃᓄᐃᙱᓐᑎᐊᕐᓂᖅᓴᓄᑦ ᐊᒻᒪᓗ ᓂᕆᖅᓂᑦ ᑭᓯᖃᕐᓂᖅᓴᓄᑦ ᖃᐅᔨᓴᖅᐸᑦᓭᐊᕆᓴᓇᕐᓂᒍᑦ ᐱᓕᕆᐊᓂᑦ ᑭᓯᐊᓂᓗ ᑲᑎᑕᐅᔨᒪᔭᑦ ᐱᖓᓱᐊᕐᓴᖅᑕᕐᓂᖅᓯᒪᓕᒃ ᐃᖃᓗᐃᑦ ᐃᖃᓗᓯᐊᕐᓂᕐᒥᑦ ᖃᐅᔨᓴᙱᓐᑎᐊᕐᓂᖅᓴᓄᑦ ᖃᐅᔨᓴᖅᑎᑦᑕᕐᓯᒪᓕᒃ ᑎᖓᒪᓂᒃ ᓇᓗᓀᓐᓂ ᑲᓇᑕᑦ, ᑕᓪᓕᐊᑎᑦ (Salvelinus alpinus), ᐊᒻᒧᑦᓯᒪᔪᑦ (H. arctica.). ᐃᖃᓗᐃᑦ ᖃᓄᐃᙱᓐᑎᐊᕐᓂᖅᓴᓄᑦ ᖃᐅᔨᓴᖅᓂᑦ ᐱᖃᓕᕆᔨᔪᑦ ᐃᓕᓴᖃᕐᓂᖅᓴᓄᑦ ᐊᓐᓇᐅᒪᔪᓇᕐᓂᑦ, ᐱᑕᖃᓪᓚᕆᐊᕐᓂᑦ, ᖃᓄᐃᓕᓚᕆᓂᑦ, ᐊᒻᒪᓗ ᐃᑦᓂᐅᖃᑦᑕᓂᕐᓂᒍᑦ ᐃᓕᓴᙱᑕᕐᔪᑦ, ᐃᓕᓴᖅᖃᓕᕆᔨᐅᓕᖅᑐᑦ ᐅᒪᔪᑦ ᐃᔨᑎᖏᓕᕐᓇᖅᑐᑦ ᐊᒻᒪ ᐊᑦᓇᐅᓂᕐᓂ ᐊᖏᔪᑕᐅᓂᖅᓴᓄᑦ, ᐊᖏᑐᑎᓂᓗ ᐅᑎᕐᑕᐅᓂᖅᓴᓄᑦ. ᓴᓇᐅᔨᓴᒃᑯᑦᓯᓂᖅᖃᖅᓯᒪᓂᖅ ᖃᑎᖅᑎᓂᖅᓂ ᐃᖃᓗᐃᑦ ᖃᓄᐃᙱᓐᑎᐊᕐᓂᖅᓴᓄᑦ ᐃᓕᓴᙱᑕᕐᔪᑦ ᐱᖅᓱᖃᑕᐅᔪᖅᑐᑦ ᐊᐃᓂᖃᑦᑕᕐᓂᖅᓴᓄᑦ ᐃᓕᓴᙱᑕᕐᔪᑦ ᐅᒪᔪᑦ ᐃᑦᓂᐅᖃᑦᑕᓂᕐᓂᑦ ᐃᓕᓴᙱᑕᕐᔪᑦ ᐱᖅᓱᖃᑕᐅᔪᖅᑐᑦ ᐊᐃᓂᖃᑦᑕᕐᓂᖅᓴᓄᑦ ᐃᓕᓴᙱᑕᕐᔪᑦ ᐅᒪᔪᑦ ᐃᑦᓂᐅᖃᑦᑕᓂᕐᓂᑦ ᐃᓕᓴᙱᑕᕐᔪᑦ ᐱᖅᓱᖃᑕᐅᔪᖅᑐ

ᐊᐃᔨᖏᑦᑕᙱᓂᑐᑦ ᐱᔨᔪᑕᐅᓪᓗᐊᑕᖏᓐᓄᐃᑦ ᐅᐃᓕᓴᐅᓇᓱᐊᑎᓪᓗᓂᑦ ᐊᐃᔨᙱᓚᐅᐅᑦᔪᑐᑦ ᑎᙵᒪᓂᐅ ᓇᒡᒪᔨᓂᐅ ᐃᖏᓪᓕᐃᑦ ᖃᓄᐃᙱᑎᐊᕐᓂᖅᓂᑦ ᐃᓱᓕᔨᑕᐅᔪᓂᑦ ᑕᐃᓐᓇᖅᑐᓂ.

2023-ᒥ, ᑲᑎᓂᑦ 40 ᐊᒡᒍᒪᔨᑦ ᑲᑎᑕᐅᓱᒪᔨᑦ ᖃᙳᔪᐊᓂ ᑐᓴᐅᑦᕿᙱᑦ, ᐊᒡᒪᓗ ᑲᑎᓂᑦ 17 ᐊᒡᒍᒪᔨᑦ ᑲᑎᑕᐅᓱᒪᓪᓗᑎᑦ ᑐᐃᓪ ᑯᓴᓂᖅᓂᐅ ᖃᐅᔨᑦᕿᐃᐅᔨᓇᖅᑐᑐᒥ ᐃᓐᓇᐅᔨᑦᕿᐃᐅᔨᓇᖅᑐᑦ ᐃᓱᓕᔨᑕᐅᔪᓂᑦ. ᐊᑕᙱᑦᓗᓂᑦ ᐃᓴᓚᖅᑕᖅᑐᑦ ᑲᑎᑕᐅᓱᑦ ᑲᑎᑕᐅᓱᒪᓕᒪᓂᑦ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ (ᑕᑭᓂᖅᑐᓂ-ᑕᑭᒪᔨᓇᖅᑐᑦ ᓇᓚᖅᓂᖅᑐᓂᑦ), ᐱᑕᖅᑐᒃᓗᐊᖅᑐᑦ (ᐊᑕᙱᑦᖃᓄᐃ ᐅᑎᒪᔨᖅ ᒪᓕᐅᑦᑐᓂᖅᓄᑦ ᐅᑎᓪᓗᒥ ᐅᑎᒪᔨᖅ ᐅᑎᓪᓗᒥ ᐊᑐᖅᑐᓂᖅᓄᑦ), ᐅᐸᓇᓚᓚᓂᑦ ᑭᑐᖅᑐᐅᑕᓇᓱᖅᑐᑦ (ᓇᓴᐅᓂᓱᔪᐃᑦ ᑭᑐᖅᑐᐅᑕᓇᓱᖅᑐᓂᑦ ᓇᓪᓇᐃᕕᑎᑦ) ᐅᔨᓇᓴᐅᓂᓱᒪᔨᑦ ᖃᓄᐃᓇᓱᖅᓴᐅᓱᖅᑐᓂᑦ ᑭᑎᖅᑎᓴᐅᓇᓱᖅᑐᑦ (ᓇᓴᐅᓂᓱᔪᐃᑦ ᑭᑐᖅᑐᐅᑕᓇᓱᖅᑐᑦ) ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᔨᑦ ᖃᓄᐃᓇᓱᖅᑐᓂᑦ ᑭᙳᔪᐊᑦ ᑐᓴᐅᑦᕿᙱᑦ ᐊᒡᒪᓗ ᑐᓴᐅᑦᕿᐃᑦ ᖃᓄᐃᓇᓱᖅᑐᓂᑦ ᐃᓱᓕᔨᑕᐅᔪᓂᑦ ᐊᑐᖅᑐᐅᑕᓇᓱᖅᑐᓂᑦ ᑭᙳᔪᐊᑦ, ᐊᐃᔨᙱᓚᐅᐅᑦᔪᑐᑦ ᐅᐃᔨᓇᖅᑐᐅᑕᓇᓱᖅᑐᓂᑦ ᐊᒡᒪᓗ ᐊᒡᒍᒪᔨᑦ ᐅᑎᓪᓗᒥ ᐅᑎᓪᓗᒥ ᐅᑎᒪᔨᖅ ᐅᑎᓪᓗᒥ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒍᒪᔨᑦ ᐅᑎᓪᓗᒥ ᐅᑎᒪᔨᖅ ᐅᑎᓪᓗᒥ ᐊᒡᒍᒪᔨᑦ ᐅᑎᒪᔨᖅ ᐅᑎᓪᓗᒥ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒪᓗ ᐅᑎᓪᓗᒥ ᐊᒡᒍᒪᔨᑦ ᐅᑎᓪᓗᒥ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒪᓗ ᐃᓚᐃᓱᐊᓕᖅᑐᑦ ᐊᒡᒪᓗ ᐊᒡᒍᒪᔨᑦ ᐅᑎᓪᓗᒥ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒪᓗ ᐃᓚᐃᓱᐊᓕᖅᑐᑦ ᐊᒡᒍᒪᔨᑦ ᐅᑎᓪᓗᒥ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒪᓗ ᐃᓚᐃᓱᐊᓕᖅᑐᑦ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒪᓗ ᐃᓚᐃᓱᐊᓕᖅᑐᑦ ᐊᒡᒍᒪᔨᑦ ᐅᑎᓪᓗᒥ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂᑦ, ᐊᒡᒪᓗ ᐃᓐᓇᐅᒪᓕᓴᐅᓇᓱᒪᓂ

ᐅᓄᑭᓐᓂᖅᓴᓪᓗᓂᖅᓯᐊᕐᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᐱᒪᔨᐅᓕᐅᖅᑐᖅᑐᓂ ᐊᒍᒥᓇᓗᓂ ᐊᓯᒪᓕ. ᑕᒪᓐᓇᐊ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐃᓕᓴᕐᖃᓕᐅᖅᑐᓂᖅᑐᑦᑐᓂ ᓇᓗᓇᐃᖅᓯᔨᑎᐅᖅᑐᓴᖅᑐᓂ ᐱᓕᕆᐊᒃᑲᓂ-ᐊᖅᑐᐊᔨᓂ ᐊᖅᑐᐃᓐᓂ ᐃᓕᓴᕐᖃᓕᐅᖅᑐᓂᖅᓂᐅᔪᓂᑦ. ᐊᓛᒍᒪᔨᓄᑦ, ᐅᓄᖅᓯᐊᖅᓂᔨᐊᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᐱᒪᔨᐅᓕᐅᖅᑐᖅᑐᓂ ᐱᐃᓴᖅᓂᓂ ᐊᖅᑐᐊᔨᓂ ᐊᓯᒪᓕ ᐱᓕᕆᐊᒃᑲᓂ ᐱᐅᖃᖅᑐᓂᖅᓂᐅᔪᓂ. ᖁᑎᕋᖅᓯᒪᔨᖅ ᐱᓕᖃᖅᓄᓕᓂ ᑕᒪᐃᓐᓄᓄᑦ ᐱᐃᓴᖅᓄᓄᑦ ᐊᓐᖁᑭᖅᑐᓂᖅᓂᐅᔪᓂ 2019-ᒥᑦ 2023-ᒧᑦ, ᒥᖁᑦᑐᓂᒃ ᐊᓯᔨᐊᓂᔭᖅᓯᒪᔨᑦ ᐊᑯᓂᓈᓕᑦᑐᓂ ᐊᒡᓕᔪᑦ.

ᐊᖁᕋᕆᔭᖅ ᐊᓯᒪᓗ ᐱᓕᓂᐊᓪ ᐱᐅᖃᖅᓄᑦᓯᓚᐅᑐᑦ ᑕᒪᐃᐃᓐᓄᑐᖅ ᑕᓚᐅᖅᒥᐅᑕᓂ ᐃᖃᓗᓐᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐃᓕᐅᕈᑎᓂᓂ ᓴᖅᑭᑦᓂᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᓄᖅᓯᐊᖅᓂᔨᐊᓂᓕᕆᔨᖅᑐᑦ ᑐᓴᐅᒃᑯᑦᓂᓗ ᑲᑎᒪᔨᖅᑐᑦ ᐊᑐᓂᖃᖅᑕᐃᓕᓚᑦᓂᓂᑎᓕᖅᑐᑦ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐃᓕᐅᕈᑎᓂᓂ ᐃᓕᐅᕈᑎᓂᓂᑎᓕᖅᑐᑦ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᓄᖅᓯᐊᖅᓂᔨᐊᓂᓕᕆᔨᖅᑐᖅᑐᓂ ᐅᓄᖅᓯᐊᖅᓂᔨᐊᓂᓕᕆᔨᖅᑐᖅᑐᓂ 0.5 ᒥᓗᔪᖏᓐ/ᑭᓗᔪᖏᓐᒧᑦ ww (ᐊᑲᓂᐊᖅᑐᖅᑕᐃᓚᒪᓂᓂᑎᓕᖅᑐᑦ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ 2015) ᐊᓯᒪᓗ >ᓚᑎᑊ ᖃᓚᓪᐱᐊᐊ ᒥᓂᔅᑕᐅᖅᐸᐃᖏᓐ ᐊᐳᑎᓚᓴᓂᓂᒧᑦ ᓴᓚᓂᐊᓂ ᐱᐅᑕᖅᑐᓂᖅᓂᐅᔪᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ 4 ᒥᓗᔪᖏᓐ/ᑭᓗᔪᖏᓐᒧᑦ dw (>ᓚᑎᑊ ᖃᓚᓪᐱᐊᐊ ᒥᓂᔅᑕᐅᖅᐸᐃᖏᓐ ᐊᐳᑎᓚᓴᓂᓂᒧᑦ 2014), ᐅᖃᖅᑐᓂᖅᑎᓪᓗᑕ. ᐊᓯᒧᒪᔨᓄᑦ, ᐊᖅᑐᕋᖅᓂ ᐱᐅᖃᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᖃᖅᑐᓂᖅᓂᐅᔪᓂᖅ ᐅᖃᖅᑐᓂᖅᑎᓪᓗᑕ, ᒐᓐᓇ ᐊᑐᖅᑕᐅᓚᐸᖅᓂᑦᑐᓂ ᓂᖅᓄᓂ ᐅᐃᓗᖃᖅᑐᑐᒧᓂ ᐅᐱᒪᔨᓄᑦ ᐊᓯᔾᔨᖅᑎᓂᐊᕐᓂᖅᑐᓂ. ᐊᖅᑭᕋᖃᖅᑐᓂ ᐊᒥᓗᒧᓂ ᑐᓴᐅᒃᑯᑦᓂᓗ ᐃᓕᐅᕈᑎᓂᓂᑎᓕᖅᑐᑦ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᖃᓄᐃᓕᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᖃᖅᑐᓂᖅᑎᓪᓗᑕ, ᐊᖅᑐᕋᖅᓂ ᐱᐅᖃᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᐅᖃᖅᑐᓂᖅᑎᓪᓗᑕ.

ᑲᑎᒪᔨᓄᑦ ᐊᓯᒪᓗ ᐱᐅᖃᖅᑐᓪᓗᓂᖅᓂᐅᔪᓂ ᑕᒪᐃᐃᓐᓄᑐᖅ ᑕᓚᐅᖅᒥᐅᑕᓂ ᐃᖃᓗᓐᓂ ᐊᖅᑐᐊᔨᓂ ᐊᓯᒪᓗ ᑎᑎᒪᓂ ᓇᓪᓕᖏᓐᓄᑦᓯᓚᐅᑐᑦ ᐊᖅᑐᐊᔨᓂ ᐊᓯᒪᓗ ᐊᖅᑐᐊᔨᓂ ᐊᖅᑐᐃᓐᓂ ᐱᐅᖃᖅᑐᓂᖅᓂᐅᔪᓂ ᐃᓕᐅᕈᑎᓂᓂᑎᓕᖅᑐᑦ ᐱᐅᖃᖅᑐᓂᖅᓂᐅᔪᓂ ᐱᐅᖃᖅᑐᓪᓗ

ᐅᓗᓕᖅᑎᑦ ᓄᓇᖃᓂ ᖃᐅᔨᒪᔭᐅᓗᐊᖅᑎᑦᑐᑦ ᐊᒻᒪᓗ ᓂᕆᐅᑎᔭᐅᓪᓗᓂ ᐊᑐᓂ ᐊᖏᕐᕌᒥ ᑕᒪᑐᒧᖓ ᖃᐅᔨᓴᖅᓴᓕᒃᑐᖏᓐᓂᒧᑦ ᐱᓕᕆᐊᒧᑦ ᖃᐅᔨᓂᐊᖅᑐᑦ ᐅᒪᔪᑦ ᐊᕐᓇᖅᑐᑦ ᑎᑎᕋᖅᑕᐅᓕᕆᖅᓯᒪᔾᔪᑎᑦᑐᑦ ᐱᓕᕆᐊᒧᑦ ᖃᐅᔨᓂᐊᖅᑐᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᑎᑎᕋᖅᑕᐅᓕᕆᖅᓯᒪᔾᔪᑎᑦᑐᑦ ᑐᖓᔾᔪᑎᒃ, ᑕᒪᓐᓇᐅᒋᔭᐅ; ᖃᓄᐃᓂᓂᐊᒍᑦ, ᑕᒪᓐᓇᐅᒋᔭᐅ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᖃᐅᔨᓴᖅᓴᓕᒃᑐᖏᓐᓂᒧᑦ ᑕᒪᐃᓐᓇᑦ ᓄᓇᕗᑦᑐᑦ ᓄᓇᖃᓂᓪᓗ ᑎᑎᕋᖅᑕᐅᓕᕆᖅᓯᒪᔾᔪᑎᑦᑐᑦ ᖃᐅᔨᒪᔭᐅᓗᐊᖅᑐᑦ ᑕᒪᐃᓐᓇᑦ ᐊᐅᓚᖅᑐᑦ ᐊᐅᓚᖅᑐᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᐊᐅᓚᖅᑐᑦ. ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᖃᐅᔨᓴᖅᓴᓕᒃᑐᖏᓐᓂᒧᑦ ᐱᓕᕆᐊᒧᑦᑕ-ᑕᐃᓄᓐᓂᒪᓕᕐᓂᑦᑕᖅ ᓇᐅᑎᑎᖅᓯᓂᐅᔭᓄᑦ ᑎᑎᕋᖅᑕᐅᓕᕆᔨᓄᑦ (ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᓇᓗᓇᐃᖅᑕᐅᔨᑦ ᖃᐅᔨᓴᖅᓯᒪᔾᔪᑎᑦᑐᓇᖅᑕᐅᓂᖅᓴᑦ ᐊᒻᒪᓗ ᖃᑎᖃᕐᓂᖅᓴᓕᒃᑐᖏᓐᓂᒧᑦ) ᐃᓗᓕᖃᖅᑐᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᖃᑎᖃᕐᓂᖅᓴᓕᒃᑐᖏᓐᓂᒧᑦ ᐃᓕᓴᓂᐊᕆᔭᓐᓄᑦᓯᓚᐅᔭᓕᑦ:

ᐅᓗᓀᐊᓇᖅᑐᑦ: ᐅᒪᔪᑦ ᐊᐳᑎᖅᑎᐊᕐᔪᐅᑦ ᐃᓱᒪᒋᖃᓱᐅᔾᔨᐅᔪᑦ “ᐅᓗᓀᐊᓇᖅᑐᑦ” ᐃᒪᐃᓵᓱᑎᓵ:

- ᐅᖃᐅᓱᐅᓱᒪᔪᑦ ᐱᑕᖃᕐᓂᑐᓂᓵᒃ ᑲᓇᑕᐅᕐᐸ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᓂᓄ (ᐅᕙᓪᓕᔭᓂᓕᑦ, ᓇᓂᖃᑦᑕᕐᓂᖅᑐᑦ ᐃᐊᓂ ᖃᓄᐅᒋᔨᖅᑐᓂᓵᒃ ᑲᓇᑕᐅᕐᐸ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᓂᓄ ᐊᑐᐃᓇᑕᐅᐃᔪᖅ ᓇᓗᓇᖅᑐᓪᓚᕆᔪᖅ ᓇᓂᖃᑦᑕᕐᓂᖅᑐᑦᓂᓄ ᐱᖃᓱᐅᔾᔨᑦ ᑲᓇᑕᐅᕐᐸ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᓂᓄ), ᐱᑎᐊᖅᑕᐅᓴᖅᑲᖅᓯᓇᑦᑕ ᐱᓕᕆᐊᒥ ᐊᐅᓪᓚᓕᑦ ᐅᕙᓪᓕᔭᓂᓕᑦ ᐃᓂᓂ ᓯᓚᕆᓂ ᐱᓕᕆᐊᒧᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᓂᓄ)

- ᑎᑎᕋᖅᑕᐅᓯᒪᓕᕐᓂᑦᑐᑦ ᑕᐃᑲᓂ ᑎᑭᐸᓪᓕᖅᑐᑦ ᐅᒪᔪᕐᓇᓪᓕ (AIS) ᑎᑎᕋᖅᑲᓂᒪᖅᓴᖅᑐᓂᓄ, ᑎᑎᕋᖅᑕᐅᓯᒪᓕᕐᓂᑦᑐᓂᓄ ᑲᑎᒪᔨᖅᑐᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᓇᓗᓇᐃᔭᖅᑕᐅᓯᒪᔾᔪᑎᑦᑐᓂᓄ, ᐊᑕᐅᓯᖏᓐᓄᑦ ᐊᑎᓯᓪᓚᓂᓵᒃᑐᓂᓄ ᑭᓚᖅᑐᑦᑐᓂᓄ ᐃᓚᖓᑦ ᐊᐅᓚᖅᑐᑦ ᓇᓗᓇᐃᔭᖅᑕᐅᓯᒪᔾᔪᑎᑦᑐᓂᓄ ᑎᑭᐸᓪᓕᖅᑐᑦ ᐅᒪᔪᕐᓇᓪᓕ (AIS) ᑎᑎᕋᖅᑲᓂᒪᖅᓴᖅᑐᓂᓄ) ᑭᓚᖅᑐᐃᓚᖅᓴᖅ ᐅᒪᔪᑦ ᐊᐳᑎᖅᑎᐊᕐᔪᓂᖅᑐᓂᓄ ᐃᓚᐅᖅᑐᑦ/ᐃᓚᐃᑦᑐᑦ ᓴᖅᑭᓲᓇᖅᑐᑦᑐᓴᐅᔭᓕᑦ ᐅᑭᐅᖃᑕᖅᑐᑐᒍ (ᓱᓕᔪ ᐅᖅᑯᔪᕆᐅᑕᑦ/ᐅᖅᑯᓂᖅᓴᔪᕆᐅᑕᑦ).

ᐅᓗᓀᐊᓇᓗᐊᖅᑐᑦᑐᖅ: ᐅᒪᔪᑦ ᐊᐳᑎᖅᑎᐊᕐᔪᐅᑦ ᐃᓱᒪᒋᖃᓱᐅᔾᔨᐅᔪᑦ ‘ᐅᓗᓀᐊᓇᓗᐊᖅᑐᑦᑐᖅ” ᐃᓚᐃᓵᓱᑎᓵ:

- ᐅᖃᐅᓱᐅᓱᒪᓕᕐᓂᓪᓗᓂᓵᒃ ᑲᓇᑕᐅᕐᐸ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᓂᓄ ᐅᕙᓪᓕᔭᓂᓕᑦ ᓇᓗᓴᐅᑕᐅᔪᓵᓂᓄ ᐱᓕᕆᐊᒧᑦᑐᓂᓄ, ᐅᕙᓪᓕᔭᓂᓕᑦ ᑭᓱᓂᒪᓄ ᓇᓗᓇᐅᑕᓂ, ᐅᕙᓪᓕᔭᓂᓕᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᐊᐅᓚᖅᑐᑦᑐᑦᑐᓂᓄ ᐱᓕᕆᐊᒧᑦ ᐱᓇᓕᓂᐅᓕᖅᑐᑦᑐᓂᓄ ᐃᓚᐃᓵᓱᑎᓵ/ᐃᓚᐃᑦᑐᑦ ᓴᖅᑭᓲᓇᖅᑐᑦᑐᓴᐅᔭᓕᑦ ᐅᑭᐅᖃᑕᖅᑐᑐᒍ (ᓱᓕᔪ ᐅᖅᑯᔪᕆᐅᑕᑦ/ᐅᖅᑯᓂᖅᓴᔪᕆᐅᑕᑦ).

ᑎᑎᕋᖅᑕᐅᓯᒪᓕᕐᓂᑦᑐᑦ ᐅᒪᔪᕐᓇᓪᓕ (AIS) ᑎᑎᕋᖅᑲᓂᒪᖅᓴᖅᑐᓂᓄ, ᐅᕙᓪᓕᔭᓂᓕᑦ (ᐅᖃᐅᓱᖃᖅᑎᓪᓗᓂ ᖃᐅᔨᓴᖅᓯᒪᔾᔪᑎᑦᑐᓇᖅᑕᐅᓂᖅᓴᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᐊᐅᓚᖅᑐᑦᑐᑦᑐᓂᓄ, ᐊᑕᐅᓱᓂ ᐅᓴᒋᑕᓪᓗᓂᓵᒃᑐᓂᓄ ᑭᓚᖅᑕᐃᓚᐅᖅᑐᑦ ᐅᒪᔪᑦ ᐊᐅᓚᖅᑐᑦ ᐊᐅᓚᖅᑐᑦᑐᑦᑐᓂᓄ ᑎᑎᕋᖅᑕᐅᓯᒪᓕᕐᓂᑦᑐᑦ ᐱᓕᕆᐊᒧᑦ ᐱᓇᓕᓂᐅᓕᖅᑐᑦᑐᓂᓄ ᐃᓚᐃᓵᓱᑎᓵ/ᐃᓚᐃᑦᑐᑦ ᓴᖅᑭᓲᓇᖅᑐᑦᑐᓴᐅᔭᓕᑦ ᐅᑭᐅᖃᑕᖅᑐᑐᒍ (ᓱᓕᔪ ᐅᖅᑯᔪᕆᐅᑕᑦ/ᐅᖅᑯᓂᖅᓴᔪᕆᐅᑕᑦ).

ᖃᑎᖃᕐᓂᑦᑐᖅ ᐅᓗᓀᐊᓇᓐᓂᖅᓴᖅᑐᖅ: ᐅᒪᔪᑦ ᐊᐳᑎᖅᑎᐊᕐᔪᐅᑦ ᐃᓱᒪᒋᖃᓱᐅᔾᔨᐅᔪᑦ “ᖃᑎᖃᕐᓂᑦᑐᑦᑐᖅ ᐅᓗᓀᐊᓇᓐᓂᖅᓴᖅᑐᖅ” ᐃᓚᐃᓵᓱᑎᓵ:

- ᐅᖃᐅᓱᐅᓱᒪᓕᕐᓂᖅᑯᓱᑎᓵ ᑲᓇᑕᐅᕐᐸ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᓂᓄ

- ᐊᑐᐸᓇᖅᑐᑦ ᐅᒥᐊᕐᔪᐊᒥ ᑮᖅᓯᓂᓕᐊᑎᓪᓗᓂᑦ ᐊᑦᑕᑕᐸᓇᖅᑐᑦ

- ᑎᑎᕋᖅᑕᐅᓯᒪᔪᑦ ᑎᑭᐸᓪᓕᖅᑐᑦ ᐅᒪᔪᕐᓇᓪᓕ (AIS) ᐊᓯᖏᓐᓂ ᐃᓂᓂ, ᑭᓯᐊᓂᓕ ᓴᖅᑭᑲᖅᑎᑦᑎᓕᖅᑐᑦᑐᖅᓯᒪᔪᖅ ᑎᑭᐸᓪᓕᖅᑐᑐᑦ ᐃᓕᓴᕐᓂᖅᓴᑦ ᓇᓂᐊᓂᖅᑐᑦ ᖃᖅᓯᒍᐊᓂ

ᐅᓗᓀᐊᓇᓕᓚᖅᑐᑦ: ᐅᒪᔪᑦ ᐊᐳᑎᖅᑎᐊᕐᔪᐅᑦ ᐃᓱᒪᒋᖃᓱᐅᔾᔨᐅᔪᑦ “ᐅᓗᓀᐊᓇᓕᓚᖅᑐᑦ” ᐃᓚᐃᓵᓱᑎᓵ:

- ᐅᖃᐅᓱᐅᓱᒪᓕᕐᓂᑦᑐᑦ ᐱᑕᖃᕐᓂᑐᓂᓵᒃ ᑲᓇᑕᐅᕐᐸ ᐅᑭᐅᖃᑕᖅᑐᑐᒍᐊᓂ

- ᐊᑐᐸᓇᖅᑐᑦ ᐅᒥᐊᕐᔪᐊᒥ ᑮᖅᓯᓂᓕᐊᑎᓪᓗᓂᑦ ᐊᑦᑕᑕᐸᓇᖅᑐᑦ

- ᑎᑎᕋᖅᑕᐅᓯᒪᔪᑦ ᑎᑭᐸᓪᓕᖅᑐᑦ ᐅᒪᔪᕐᓇᓪᓕ (AIS) ᐊᓯᖏᓐᓂ ᐃᓂᓂ

- ᑎᑎᕋᖅᑕᐅᓯᒪᓕᑦᑎᐊᖅᑐᑦ ᐱᓕᕐᐊᖅᔪᑐᐃᓇᓚᖅᑕᖅᑯᓱᓂᓵᒃ ᑎᑭᐸᓪᓕᖅᑐᑦ ᐃᓕᓴᕐᓂᖅᓴᑦ ᓇᓂᑐᐃᓇᓕᖅ ᐊᓯᖏᓐᓂᒃ, ᐊᒻᒪᓗ/ᐅᕙᓪᓕᔭᓂᓕᑦ ᓴᖅᑭᑲᖅᑎᑦᑎᓕᖅᑐᑦᑎᓕᖅᑕᖅᑯᓱᑎᓵᖅ ᑎᑭᐸᓪᓕᖅᑐᑦ ᐃᓕᓴᕐᓂᖅᓴᑦ ᓇᓂᑐᐃᓇᓕᖅ ᖃᖅᓯᒍᐊᓂ

ᐅᒪᔪᑦ ᐊᐃᓵᑐᖅᓯᒪᔪᑦ ᐃᓕᓴᐅᓯᒪᔪᑦ ᓇᐅᑦᑎᖅᓯᑕᐅᓴᒐᐊᖅᖃᓂᒃᑭᑦ ᑎᑎᕃᖅᑕᐅᓯᒪᔪᓄᑦ ᐱᖅᓯᐅᑎᓕᓗᑦ ᐱᓗᐊᕐᓂᑐᑦ ᐅᓗᓕᐊᓇᓗᐊᖅᑐᓄᑦ ᐱᒋᐊᖅᑐᑎᑦ ᐃᑲᔪᖅᓯᑎᑦ ᑎᑎᖅᖃᓂᒃᑭᑦ ᐅᓪᓗᒥᒃ ᓴᓇᖅᑐᓂᓕᕆᓂᖅ ᐅᓗᓇᐃᖅᑕᐅᑐᓗᑎᑦ ᐅᓂᒃᑯᓂᖅᓄᑦ ᐃᓕᓴᐅᓯᒪᔪᑦ ᐊᐃᓵᑐᖅᑕᐅᔪᑎᒃ ᐃᓯᒪᓂᖅᓴᐅᔪᓕᐊᔪᑦ ᓴᖅᑭᑐᐃᓐᓇᐊᖅᑎᖅᓯᖓᓐᓂᒃ ᐱᓕᕆᐊᒥ ᐅᒥᐊᔪᑦᓴᖅᑎᖅᑕᑦᓯᓂᒪᑦ ᐱᓕᕆᓂᖅᓂᒪᑦ, ᐃᓕᓴᐅᖅᑕᖅᑐᑦ ᐱᒋᐊᖅᑎᑎᒃᔪᑦᑕᐅᔪᓄᑦ ᑎᑎᖅᑕᐅᓯᒪᔪᓄᑦ (ᑎᑎᖅᑕᐅᓯᒪᔪᑦ ᐅᒪᔪᑦ ᐊᐃᔨᓴᖅᓯᐊᔪᖅᑐᑦ "ᐱᒋᐊᕈᑎᑦ" ᐱᓂᓕᓕᐊᑎᑕᐅᓂᖅᓯᑦ ᑲᒪᒋᐅᖅᑲᐅᓂᖅᓄᑦ ᓇᓗᓇᐃᔨᐃᔪᑦ ᑲᒪᒋᓗ ᐃᓕᖅᓱᖅᑐᑦ ᐅᓗᓕᐊᓇᖅᑐᑦ).

2023-Γ ᖃᐅᔨᓴᓂᑦ ᓴᖅᑭᕐᓯᒪᔪᑦ 31 ᓄᑦᑕ ᐃᓕᓴᐅᔪᑦ ᐅᒪᔪᑦ ᐊᐃᓵᑐᖅᓯᒪᓂᖅᖃᓄᓕᒫᓄᑦ ᓇᓴᖅᑕᐅᓯᒪᔪᑦ ᖃᐅᔨᒪᐊᓂᖅ (ᓯᓚᓗ ᐅᒪᔪᑦ ᐊᐃᓵᑐᖅᓯᒪᔪᑦ ᐅᔨᔪᓴᐅᓯᒪᓕᖅᑕᑦᑐᑦ ᑭᓯᓂᖅᓱᑎᒋᑦᓂᓂᖅ ᖃᐅᔨᔪᓴᓂᐅᔪᑦ). ᐊᑕᖅᑎᖅᓴᓄᑦ ᓄᑦᑕ ᐅᒪᔪᑦ ᐊᔨᔪᑦᑕᐊᔪᖅᑐᑦ ᑎᑎᖅᑕᐅᓂᖅᑎᑦ ᑲᒪᒋᐊᖅᑐᑦ ᐅᓪᓗᒥᒃ ᓇᓗᓇᖅᓂᖅᑐᓄᑦ ᓇᓂᔪᓕᑦᑕᖃᖅᑕᑦᑐᑦ ᐅᕐᓂᖅᓱᓕᕆᓂᖅ ᓯᓚᖃᓕᒫᓄᑦ ᐊᑐᓂᓕᕆᓂᖅ ᐊᑐᓂᓕᕆᓂᖅ ᐅᕐᓂᖅᓱᓕᕆᓂᖅ ᐱᓕᕆᓂᖅᓂᒪᑦ ᐃᓕᓴᐅᓯᒪᔪᑦ ᐊᐃᓵᑐᖅᑕᐅᓂᖅᓯᑦ

Study Limitations

WSP has prepared this document in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this document. No warranty, express or implied, is made.

This document, including all text, data, tables, plans, figures, drawings and other documents contained herein, has been prepared by WSP for the sole benefit of Baffinland Iron Mines Corporation (Baffinland). The Executive Summary was translated into Inuktitut and provided by Baffinland to WSP. In the event of discrepancies in information or interpretation, the English version shall prevail. This report represents WSP's professional judgement based on the knowledge and information available at the time of completion. WSP is not responsible for any unauthorized use or modification of this document. All third parties relying on this document do so at their own risk.

The factual data, interpretations, suggestions, recommendations, and opinions expressed in this document pertain to the specific project, station conditions, design objective, development and purpose described to WSP by Baffinland, and are not applicable to any other project or station location. In order to properly understand the factual data, interpretations, suggestions, recommendations and opinions expressed in this document, reference must be made to the entire document.

This document, including all text, data, tables, plans, figures, drawings and other documents contained herein, as well as all electronic media prepared by WSP are considered its professional work product and shall remain the copyright property of WSP. Baffinland may make copies of the document in such quantities as are reasonably necessary for those parties conducting business specifically related to the subject of this document or in support of or in response to regulatory inquiries and proceedings. Electronic media is susceptible to unauthorized modification, deterioration, and incompatibility and therefore no party can rely solely on the electronic media versions of this document.

Table of Contents

1.0 INTRODUCTION 1

1.1 Project Context 1

1.2 Background 3

1.3 Objectives 3

1.4 VECs and Indicators 9

1.4.1 VECs and Criteria for Magnitude Determination 9

1.4.2 Indicators and Thresholds Currently Used for the MEEMP 10

1.5 Study Design 16

1.5.1 Study Area 16

1.5.2 Inuit Participation 16

1.5.3 MEEMP 16

1.5.3.1 Modifications to the Program 19

1.5.4 NIS/AIS Monitoring 22

1.5.4.1 Modifications to the Program 22

1.6 Conclusions and Recommendations 24

1.7 References 29

TABLES

Table 1-1: Summary of Predictions from FEIS and subsequent addenda for Milne Port, Associated Mitigation Measures, and Current Status 4

Table 1-2: PC Conditions Relevant to MEEMP Surveys 7

Table 1-3: Sampling Parameters and Indicators for the 2023 MEEMP and NIS/AIS Monitoring Program 10

Table 1-4: Marine Environment Trigger Action Response Plan (TARP) Indicators, Condition Status, and Thresholds 11

Table 1-5: Summary of Sampling Efforts Performed in Milne Port for MEEMP Surveys, 2023 17

Table 1-6: Summary of Modifications to the MEEMP Study Design from 2014 to 2023 19

Table 1-7: Summary of Sampling Efforts Performed in Milne Port for NIS/AIS Monitoring Program Surveys, 2023 22

Table 1-8: Summary of Modifications to the NIS/AIS Monitoring Program Study Design from 2015 to 2023 23

FIGURES

Figure 1-1: Project Location 2

Figure 1-2: Study Area for the Marine Environmental Effects Monitoring Program, 2023 18

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definition
AIS	Aquatic Invasive Species
ANOVA	Analysis of Variance
BACI	Before/After Control/Impact
Baffinland	Baffinland Iron Mines Corporation
BC	British Columbia
BC MOE	BC Ministry of Environment and Climate Change Strategy
BOD	Biological Oxygen Demand
CCME	Canadian Council of Ministers of the Environment
CES	Critical Effect Size
CGVD	Canadian Geodetic Vertical Datum
CPUE	Catch per unit effort
DFO	Fisheries and Oceans Canada
DL	Detection Limit
DPF	Direct Project Footprint
EEM	Environmental Effects Monitoring
FEIS	Final Environmental Impact Statement
GPS	Global Positioning System
INAC	Indigenous and Northern Affairs Canada
Indet.	Indeterminate
IPF	Indirect Project Footprint
ISQG	Interim Sediment Quality Guideline
LSA	Local Study Area
LSI	Liver Somatic Index
m	Metres
MDMER	Metal and Diamond Mining Effluent Regulations
MEEMP	Marine Environmental Effects Monitoring Program
MEWG	Marine Environment Working Group
mg/kg dw	Milligrams per Kilogram Dry Weight
mg/kg ww	Milligrams per Kilogram Wet Weight
mm	Millimetre
MMP	Mariine Monitoring Plan

Acronym or Abbreviation	Definition
MSI	Mantle Somatic Index
mtpa	million tonnes per annum
N/A	Not Applicable
NIRB	Nunavut Impact Review Board
NIS	Non-Indigenous Species
NIS/AIS	Non-Indigenous Species / Aquatic Invasive Species
No.	Number
Nos.	Numbers
PAHs	Polycyclic Aromatic Hydrocarbons
PC	Project Certificate
PDA	Project Development Area
PEL	Probable Effect Level
PSU	Practical Salinity Units
ROV	Remotely Operated Vehicle
RSA	Regional Study Area
SCUBA	Self Contained Underwater Breathing Apparatus
SDI	Simpson’s Diversity Index
SEM	Sikumiut Environmental Management Ltd.
sp.	Species
t	tonne
TARP	Trigger Action Response Plan
TSS	Total Suspended Solids
VEC	Valued Ecosystem Components
WQG	Water Quality Guideline

1.0 INTRODUCTION

Baffinland Iron Mines Corporation (Baffinland) completed its ninth consecutive year of the marine environmental effects monitoring program (MEEMP) and non-indigenous/aquatic invasive species (NIS/AIS) monitoring program for the Mary River Project (the Project). This report presents the results for the 2023 field programs conducted in Milne Inlet during the open-water season. Both the MEEMP and NIS/AIS programs were originally developed in 2015 following completion of marine baseline studies in Milne Port during 2013 and 2014 and are intended to provide a primary means to identify and quantify potential Project-related changes in the marine environment. Where such changes occur, the programs assist in identifying appropriate modifications to, or mitigation of, Project operational activities to avoid and/or minimize potential adverse effects on the marine environment. Results from the MEEMP and NIS/AIS monitoring programs also provide information to the Nunavut Impact Review Board (NIRB) to support its annual review of the Mary River Project.

1.1 Project Context

The Project is an operating open pit iron ore mine owned by Baffinland and located in the Qikiqtani Region of North Baffin Island, Nunavut (Figure 1-1). The operating mine site is connected to Milne Port, located at the head of Milne Inlet, via the 100 km long Milne Inlet Tote Road. An approved (Project Certificate 005, issued by the Nunavut Impacts Review Board in 2012) but as-yet undeveloped component of the Project includes a South Railway connecting the Mine Site to an undeveloped port at Steensby Inlet (Steensby Port).

In 2014, Baffinland received approval (Project Certificate 005, Amendment 1) to operate the Early Revenue Phase (ERP) of the Project. The ERP authorized Baffinland to transport 4.2 Mtpa (million tonnes per annum) of ore by truck to Milne Port for shipping through the Northern Shipping Route (encompassing Milne Inlet, Eclipse Sound, and adjacent water bodies) using chartered ore carrier vessels. Baffinland shipped ~918,000 tonnes of iron ore from Milne Port during the first year of ERP operations in 2015, 2.6 Mtpa in 2016, and 4.1 Mtpa in 2017. Following approval of production increases allowing Baffinland to ship 6.0 Mtpa in 2018-2022 (Amendments 2, 3 and 4), annual totals of 5.1 Mtpa (2018), 5.9 Mtpa (2019), 5.5 Mtpa (2020), 5.6 Mtpa (2021) and 4.7 Mtpa (2022) of iron ore were shipped from Milne Port. In 2023, Amendment 5 (Sustainable Operations Proposal) was approved, and will be in effect until 31 December 2024. This amendment allows a maximum of 6.0 Mtpa of iron ore to be transported on the Tote Road in any calendar year, but an additional 0.9 Mtpa of ‘stranded ore’ may be shipped in the 2023 and 2024 shipping seasons. ‘Stranded ore’ is defined as iron ore that was delivered to Milne Port in the previous year but was not shipped due to weather or other shipping constraints. Amendment 5 also set the maximum number of ore carriers as 84 ore carriers per year in the 2023 and 2024 shipping season. In 2023, 6.02 Mtpa of iron ore were shipped from Milne Port in 75 ore carriers.

PATH: I:\2016\1663724\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig1_1_ProjectLocationLSA_Rev0.mxd PRINTED ON: 2024-03-26 AT: 9:29:11 AM

KEY MAP

GREENLAND
RESOLUTE
Lancaster Sound
Baffin Bay
NORTHERN SHIPPING ROUTE
POND INLET
MILNE PORT
MINE SITE
NORTHERN TRANSPORTATION CORRIDOR
NUNAVUT INUIT SETTLEMENT AREA
BAFFIN ISLAND
IGLOOLIK
NUNAVUT
Foxe Basin
PANGNIRTUNG
KINNGAIT
IQALUIT
RANKIN INLET
Hudson Bay
QUEBEC

Ragged Island
Milne Inlet
Stephens Island
Bruce Head
Koluktoo Bay
Poirier Island

SEE DETAIL MAP
Phillips Creek

DETAIL MAP - MILNE PORT/LOCAL STUDY AREA
Milne Inlet
0 500 1,000
1:50,000 METRES

490000 500000 510000 520000 530000 540000 550000
8050000 8040000 8030000 8020000 8010000 8000000 7990000 7980000

LEGEND

- MINE SITE
- PROJECT LOCATION
- SHIPPING ROUTE
- TOTE ROAD
- WATERCOURSE
- INFRASTRUCTURE
- ORE DOCK
- INAC FORESHORE LEASE
- LOCAL STUDY AREA
- NUNAVUT SETTLEMENT AREA
- PDA / QIA COMMERCIAL LEASE
- WATERBODY

0 5 10
1:250,000 KILOMETRES

REFERENCE(S)

LOCAL STUDY AREA BOUNDARY DIGITIZED FROM THE MARY RIVER PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT (FEBRUARY 2012). FREIGHT DOCK DATA PROVIDED BY CLIENT, MAY 21, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE PROVIDED BY CLIENT, MAY 28, 2018 AND PROVIDED BY HATCH, JANUARY 25, 2017, RETRIEVED FROM KNIGHT PIESOLD LTD. FULCRUM DATA MANAGEMENT SITE MAY 19, 2017. HYDROGRAPHY AND TOPOGRAPHY DATA BY EAGLE MAPPING (2005), RETRIEVED FROM KNIGHT PIESOLD LTD. FULCRUM DATA MANAGEMENT SITE, MAY 2017. HYDROGRAPHY, POPULATED PLACE, AND PROVINCIAL BOUNDARY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
PROJECT LOCATION

CONSULTANT
wsp

YYYY-MM-DD	2024-03-26
DESIGNED	AL
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	1-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm

1.2 Background

As a part of regulatory commitments, Baffinland has developed and implemented a multi-disciplinary Marine Environmental Effects Monitoring Program (MEEMP). The MEEMP is designed to evaluate potential Project-related effects on the marine environment as predicted in the Final Environmental Impact Statement (FEIS) and FEIS addenda (Baffinland 2012, 2013); predictions, associated mitigation measures, and current status are presented in Table 1-1 below.

The MEEMP includes monitoring of marine water and sediment quality, invertebrates, vegetation, and fish and fish habitat. The MEEMP sampling design is generally based on the Metal Mining Environmental Effects Monitoring technical guidelines (Environment Canada 2012) and includes statistical approaches for detecting potential Project-induced impacts on the marine environment. NIS/AIS monitoring is an integral component of the MEEMP and is designed to address the potential risks of species introductions to the marine environment from ships' ballast water and hull biofouling.

Sikumiut Environmental Management Ltd. (SEM) was originally retained by Baffinland to design and implement the MEEMP. The MEEMP program was first implemented in 2015, at which time monitoring efforts focused primarily on further characterization of baseline conditions in Milne Port prior to commencement of Project operations in 2015 (SEM 2015). Environmental effects monitoring was completed by SEM in 2015 and 2016. Golder Associates Ltd. (now known as WSP Canada Inc.) completed environmental effects monitoring from 2017 through 2023, which included modifications to the 2015-2016 MEEMP and NIS/AIS sampling design to better address the objectives of the programs. Modifications to the program since 2015 are summarized in Table 1-6.

1.3 Objectives

This report presents the results of the MEEMP and NIS/AIS monitoring programs conducted in Milne Inlet during the 2023 open-water season.

In accordance with existing Terms and Conditions of Project Certificate (PC) No. 005, Baffinland is responsible for the establishment and implementation of the MEEMP, which comprises monitoring studies that are conducted over a defined time period with the following objectives:

- Assess the accuracy of effects predictions in the FEIS (Baffinland 2012) and subsequent addenda.
- Assess the effectiveness of Project mitigation measures.
- Verify compliance of the Project with regulatory requirements, permits, standards, and policies.
- Identify unforeseen adverse effects and provide early warnings of undesirable changes in the environment.
- Improve understanding of local environmental processes and potential Project-related cause-and-effect relationships.
- Provide feedback to the applicable regulators (e.g., NIRB) and advisory bodies (e.g., Marine Environmental Working Group [MEWG]) with respect to the following:
    - Potential adjustments to existing monitoring protocols or monitoring framework to allow for the most scientifically defensible synthesis, analysis, and interpretation of data.
    - Considerations for the modification of operational practices where and when necessary.

Table 1-1: Summary of Predictions from FEIS and subsequent addenda for Milne Port, Associated Mitigation Measures, and Current Status

Predictions				Relevant MEEMP Section	Current Status
VEC[1]	Activity	Impact/Significance	Associated Mitigation Measures		
Water and Sediment Quality	Barge and ship traffic to/from Milne Inlet	Negligible effects to total suspended solids (TSS), nutrient, or metal concentrations in the water or sediment due to resuspension of substrates from propeller currents; expected that the new equilibrium state will be reached early within the operation phase of the Project.	▪ Section 4.9 Sediment Erosion Control of the Environmental Protection Plan outlines measures such as use of silt curtains and drainage ditches, as well as treatment and testing of effluent/run-off prior to discharge, to mitigate potential effects to water and sediment quality (Baffinland 2021b). ▪ Emergency Response and Spill Contingency Plans outline measures to mitigate potential fuel spills (Baffinland 2020; Baffinland 2021c). ▪ Shipping and Marine Wildlife Management and Ballast Water Management plans outline measures to mitigate potential effects associated with vessel traffic such as a mandatory mid-ocean ballast water exchange and compliance with Anti-Fouling Systems Convention (Baffinland 2021d; Baffinland 2019).	Chapter 2.0 Chapter 3.0 Chapter 5.0	No indications of impacted marine water or sediment quality. Measured metals concentrations are low, typically below applicable guidelines, and generally consistent with previous years. No observation of ore dust deposition in substrate. Grain size composition analysis indicates high spatial and temporal variability in fines content, driven by natural factors, as well as potential influences of vessel propeller wash, which is expected to stabilize over time. To date, 2020 was the only instance where reduced fines content was accompanied by a substantial reduction in benthic density, richness and diversity; Conditions at the affected station rebounded in 2021, 2022 and 2023 indicating effects are temporary and localized.
		No anticipated increases in hydrocarbon concentrations in water or sediments through normal vessel operations.			
	Discharge of ballast water	Open-water season: no anticipated effects to water or sediment quality.			
		Ice-cover season: increases in temperature and nitrate concentrations in the water; increases in nitrogen concentrations in the sediment; no anticipated changes in the concentrations of metals or other nutrients in water or sediment.			
	Dispersion and deposition of dust from the ore stockpile	Increases in concentrations of TSS and metals (primarily iron) in the water.			
		Increases in concentrations of metals (primarily iron) in the sediment.			
	Discharge of wastewater and site run-off	Increases in biological oxygen demand (BOD) and concentrations of TSS, nutrients, metals, and hydrocarbons in the water.			
		Increases in concentrations of nutrients, metals, and hydrocarbons in the sediment.			

Predictions				Relevant MEEMP Section	Current Status
VEC[1]	Activity	Impact/Significance	Associated Mitigation Measures		
Marine Fish Habitat	Habitat Alteration (Sediment introduction and resuspension)	Wastewater discharge and site runoff may introduce TSS into the water column, increasing the amount of fine-grained sediments in the immediate vicinity of the discharge point.	▪ Sediment and Erosion Control Plan (Section 4.9 of the Environmental Protection Plan) outlines measures such as use of silt curtains and drainage ditches, as well as treatment and testing of effluent/run-off prior to discharge, to mitigate potential effects to water and sediment quality (Baffinland 2021b). ▪ Emergency Response and Spill Contingency Plans outline measures to mitigate potential fuel spills (Baffinland 2020; Baffinland 2021c) ▪ Shipping and Marine Wildlife Management and Ballast Water Management plans outline measures to mitigate potential effects associated with vessel traffic such as a mandatory mid-ocean ballast water exchange and compliance with Anti-Fouling Systems Convention (Baffinland 2021d; Baffinland 2019). ▪ Minimize vessel operations to the extent possible. ▪ Mitigation by design and through compliance of Fisheries and Oceans Canada's (DFO) no net loss habitat policy.	Chapter 2.0 Chapter 3.0 Chapter 4.0 Chapter 5.0 Chapter 8.0	No indications of impacted marine sediment quality. Measured metals concentrations were low, typically below applicable guidelines, and/or generally consistent with previous years. No observance of ore dust deposition in substrate Generally, no evidence of altered benthic infauna, epifauna, or macroflora community composition or productivity. No consistent temporal and spatial trends that would be indicative of Project impacts. In 2020, one station, SW-2, showed signs of propeller wash effects (i.e., lower density and diversity metrics, accompanied by reduced fines content), conditions in 2021, 2022 and 2023 rebounded substantially, indicating that effects were temporary and localized.
		Potential increases in concentrations of TSS in the water column and accumulation of fines in the sediments could alter the nearshore habitat, although tidal fluxes are expected to disperse the effluents and minimize effects on habitat.			
	Habitat Alteration (Substrate alteration)	Sediment resuspension due to occasional (<1 per year) vessels and propeller-generated currents expected to lessen as fine-grained sediments on seabed are removed and seabed sediment composition stabilizes.			
		Removal of fine-grained sediments may alter benthic community composition.			
	Habitat Alteration (Noise disturbance)	Intermittent noise disturbance due to occasional vessel operations and loading activities.			
	Habitat Alteration (Fugitive ore dust deposition)	Fugitive ore dust deposition to marine environment.			
		Possible change to water and sediment chemistry and seabed grain size composition.			
		Possible change to benthic productivity.			

Predictions				Relevant MEEMP Section	Current Status
VEC[1]	Activity	Impact/Significance	Associated Mitigation Measures		
Arctic Char (*Salvelinus alpinus*) Health	Sediment Resuspension	Increases in concentrations of TSS, nutrients, and metals in the water column as a result of sediment disturbance from propeller currents are expected infrequently during operation. Short-term exposure of Arctic Char to these conditions has minimum potential to affect fish health.	■ Sediment and Erosion Control Plan (Section 4.9 of the Environmental Protection Plan) outlines measures such as use of silt curtains and drainage ditches, as well as treatment and testing of effluent/run-off prior to discharge, to mitigate potential effects to water and sediment quality (Baffinland 2021b). ■ Emergency Response and Spill Contingency Plans outline measures to mitigate potential fuel spills (Baffinland 2020; Baffinland 2021c). ■ Shipping and Marine Wildlife Management Plan outline measures to mitigate potential effects associated with vessel traffic such as a mandatory mid-ocean ballast water exchange and compliance with Anti-Fouling Systems Convention (Baffinland 2021d; Baffinland 2019).	Chapter 6.0 Chapter 7.0	No indications of reductions in abundances of Arctic Char and other fish species associated with Project activities. No notable trends observed in tissue concentrations of constituents of potential concern (e.g., aluminum, iron, magnesium, mercury, and selenium) over time, which were within FEIS predictions of low magnitude effects.
		The redistribution of sediments near the docks is not expected to directly affect fish health or condition.			
		Slight reductions in nutrient concentrations and short-term, localized increases water temperature in Milne Inlet are expected to have negligible effects on fish health and condition.			
		Metal concentrations in water and fish tissues are not expected to change.			
		Potential increases in metal and hydrocarbon concentrations in fish tissues and reductions in fish health and condition are possible as a result of release of site drainage (with elevated BOD and concentrations of TSS, nutrients, metals, and hydrocarbons) to the marine environment.			
		Combined effluents will be tested to ensure that they are not acutely toxic.			

[1] VEC = Valued Ecosystem Component

The MEEMP was developed in consideration of the anticipated and potential Project-related impacts to the marine environment as identified in the 2012 FEIS and subsequent addenda (Baffinland 2012; 2013) as well as monitoring requirements outlined in several PC Terms and Conditions; relevant PC conditions are listed in Table 1-2 along with the chapters in which the conditions are addressed through the MEEMP-NIS/AIS program.

Table 1-2: PC Conditions Relevant to MEEMP Surveys[1]

PC Condition	Description	Relevant MEEMP Chapter(s)
76	The Proponent shall develop a comprehensive Environmental Effects Monitoring Program to address concerns and identify potential impacts of the Project on the marine environment. The Marine Environmental Effects Monitoring Program shall include: (a) A summary of the monitoring conducted by the Proponent to identify potential project effects in the marine environment; (b) The comparison of impact predictions provided by the Proponent in the Final Environmental Impact Assessment (FEIS), FEIS Addendum and/or any other assessments provided to the Board; (c) The identification of mitigation measures the Proponent has implemented to protect the marine environment; (d) Any adaptive management plans developed/implemented to prevent, manage or mitigate effects in the marine environment; (e) A discussion of how relevant Inuit Qaujimajatuqangit, scientific and/or technical knowledge and industry best practices have been incorporated into the Program and have informed the components of the Program; and (f) The identification of changes to the Program that may be required to ensure that potential adverse effects to the marine environment are prevented, that adaptive management occurs, and that mitigation measures are effective.	Chapter 2.0 Chapter 3.0 Chapter 4.0 Chapter 5.0 Chapter 6.0 Chapter 7.0 Chapter 8.0
1 and 83	The Proponent shall use GPS monitoring or a similar means of monitoring at both Steensby Port and Milne Port, with tidal gauges to monitor the relative sea levels and storm surges at these sites.	N/A
83(a)	The Proponent shall conduct hydrodynamic modelling in the Milne Inlet Port area to determine the potential impacts arising from disturbance to sediments including re-suspension and subsequent transport and deposition of sediment. The modelling results shall be used to update the marine water and sediment quality monitoring and mitigation program to include activities associated with the construction and mitigation of the Milne Inlet Port. In the 2023 Annual Report, the Proponent is required to provide the Board with updates to the marine water and sediment quality monitoring and mitigation program necessary to reflect the increased use of larger ore vessels (Baby Cape and Capesize) at Milne Port. The monitoring program shall include an ongoing assessment of the potential introduction of metals that bio-accumulate in the marine food chain.	Chapter 2.0 Chapter 3.0 Chapter 5.0 Chapter 7.0
84	The Proponent shall update its sediment redistribution modeling once ship design has been completed and sampling should be undertaken to validate the model and to inform sampling sites and the monitoring plan.	Chapter 3.0 Chapter 5.0

[1] Conditions 76, 83(a), 85 and 99 as shown here were modified for the Sustaining Operations Proposal in 2023 by NIRB in Amendment 5 to the Project Certificate.

PC Condition	Description	Relevant MEEMP Chapter(s)
85	The Proponent shall develop a monitoring plan to verify its impact predictions associated with sediment redistribution resulting from propeller wash in shallow water locations along the shipping route. If monitoring detects negative impacts from sediment redistribution, additional mitigation measures will need to be developed and implemented. In the 2023 Annual Report, the Proponent is required to identify updates to the monitoring plan to reflect the increased use of large ore vessels (Baby Cape and Capesize) at Milne Port.	Chapter 3.0
86	Prior to commercial shipping or iron ore, use more detailed bathymetry collected from Steensby and Milne Inlets to model anticipated ballast water discharges from ore carriers. This information should be used to update ballast water discharge impact predictions and sampling should be conducted to validate the model.	N/A
87	The Proponent shall develop a detailed monitoring program at a number of sites over the long term to evaluate changes to marine habitat and organisms and to monitor for non-native introductions resulting from Project-related shipping. This program needs to be able to detect changes that may have biological consequences and should be initiated several years prior to any ballast water discharge into Steensby Inlet and Milne Inlet to collect sufficient baseline data and should continue over the life of the Project.	Chapter 2.0 Chapter 3.0 Chapter 4.0 Chapter 5.0 Chapter 6.0 Chapter 7.0 Chapter 8.0
89	The Proponent shall develop and implement an effective ballast water management program that may include the treatment and monitoring of ballast water discharges in a manner consistent with applicable regulations and/or exceed those regulations if they are determined to be ineffective for providing the desired and predicted results. The ballast water management program shall include, without limitation, a provision that requires ship owners to test their ballast water to confirm that it meets the salinity requirements of the applicable regulations prior to discharge at the Milne Port, and a requirement noting that the Proponent, in choosing shipping contractors will, whenever feasible, give preference to contractors that use ballast water treatment in addition to ballast water exchange.	Chapter 2.0 Chapter 8.0
91	The Proponent shall develop a detailed monitoring plan for Steensby Inlet and Milne Inlet for fouling that complies with all applicable regulatory requirements and guidelines as issued by Transport Canada, and includes sampling areas on ships where antifouling treatment is not applied such as the areas where non-native species are most likely to occur.	Chapter 8.0
99(a)	Establish shipping season, inter-annual baseline in Steensby Inlet and Milne Inlet that enables effective monitoring of physical and chemical effects of ballast water releases, sewage outfall, and bottom scour by ship props, particularly downslope and downstream from the docks. This shall include the selection and identification of physical, chemical, and biological community/indicator components. The biological indicators shall include both pelagic and benthic species but with emphasis on relatively sedentary benthic species (e.g., sculpins).	Chapter 2.0 Chapter 3.0 Chapter 4.0 Chapter 5.0 Chapter 6.0 Chapter 7.0 Chapter 8.0
99(b)(ii)	The collection of additional baseline data in Milne Inlet on narwhal (*Monodon monoceros*), bowhead whale (*Balaena mysticetus*) and anadromous Arctic Char abundance, distribution ecology and habitat use.	Chapter 6.0

PC Condition	Description	Relevant MEEMP Chapter(s)
99(c)	Enhance baseline data on marine wildlife (fish, invertebrates, birds, mammals, etc.) and to provide more details on species abundance and distribution found in the Project area.	Chapter 4.0 Chapter 5.0 Chapter 6.0 Chapter 8.0
113	The Proponent shall conduct monitoring of marine fish and fish habitat, which includes but is not limited to, monitoring for Arctic Char stock size and health condition in Steensby Inlet and Milne Inlet, as recommended by the MEWG.	Chapter 6.0 Chapter 7.0
114	In the event of the development of a commercial fishery in the Steensby Inlet area or Milne Inlet-Eclipse Sound areas, the Proponent, in conjunction with the Marine Environment Working Group, shall update its monitoring program for marine fish and fish habitat to ensure that the ability to identify Arctic Char stock(s) potentially affected by Project activities and monitor for changes in stock size and structure of affected stocks and fish health (condition, taste) is maintained to address any additional monitoring issues identified by the MEWG relating to the commercial fishery.	Chapter 6.0 Chapter 7.0
126	The Proponent shall design monitoring programs to ensure that local users of the marine area in communities along the shipping route have opportunity to be engaged throughout the life of the Project in assisting with monitoring and evaluating potential Project-induced impacts and changes in marine mammal distributions.	Chapter 4.0 Chapter 6.0

1.4 VECs and Indicators

1.4.1 VECs and Criteria for Magnitude Determination

The original MEEMP design in 2015 and 2016 was based on indicators and thresholds as presented in the FEIS, centred around three Valued Ecosystem Components (VECs): Marine Water and Sediment Quality, Marine Fish Habitat and Arctic Char Health.

Indicators used to determine the magnitude thresholds were based on guidelines, where available (Table 1-1). A reduction in productive capacity (measured as a proportion of lost or altered habitat to the total area of the Local Study Area[2], or LSA) was used as an indicator for the Marine Fish Habitat VEC (Baffinland 2012 and 2013). Thresholds were established based on degree of exceedance relative to guidelines. For certain parameters where no guidelines or quality criteria exist, the MEEMP used a significance criterion of two standard deviations of the baseline year as a threshold (Baffinland 2016).

The assessment predicted that Project activities may result in localized changes above threshold values for VECs, confined within the LSA. It was predicted that changes would not exceed thresholds for the Marine Fish Habitat VEC. All predicted residual environmental effects were rated as “Not Significant” since they were localized within the LSA (Table 1-1, Baffinland 2012 and 2013).

[2] The LSA includes all marine waters where there exists a reasonable potential for direct measurable effects from Project activities on the marine environment.

1.4.2 Indicators and Thresholds Currently Used for the MEEMP

Since 2016, the MEEMP and NIS/AIS program study design has evolved through consultation with regulatory agencies and Inuit organizations, as well as in response to recommendations made in previous survey years. Modifications to study designs are discussed in Sections 1.5.3.1 and 1.5.4.1. Changes to the program have also included updates or additions to the indicators and thresholds used to determine potential Project-related impacts to the environment in Milne Port. Sampling parameters and indicators are summarized in Table 1-3.

Several components of the MEEMP (e.g., marine water quality, marine sediment quality, benthic infauna, fish health) have indicators, thresholds and risk categories that are part of Baffinland's Trigger Action Response Plan (TARP), an adaptive management process (Baffinland 2021a; Baffinland 2024). New for 2023, the categories of risk assessment used in the NIS/AIS program have been adjusted to align with the TARP.

Indicators analysed for the MEEMP-NIS/AIS program are summarized in (Table 1-3), including those applicable to TARP, which are presented in more detail with their thresholds and risk categories in Table 1-4.

Table 1-3: Sampling Parameters and Indicators for the 2023 MEEMP and NIS/AIS Monitoring Program

MEEMP-NIS/AIS Program Component	Indicators	Context
Marine Water Quality	Metals[1] Total Suspended Solids[1] Nutrients[1] Hydrocarbons[1]	Temporal
Marine Sediment Quality	Percent Fines[1] Nutrients[1] Metals[1] Hydrocarbons[1]	Spatial Temporal
Benthic Invertebrates	Total Density[1] Taxa Richness[1] Simpson's Diversity Index[1] Simpson's Evenness Index[1]	Spatial Temporal
Substrate, Macroflora, and Epifauna	Percent Cover/Density Taxa Richness Simpson's Diversity Index	Spatial Temporal
Fish Population	Taxa Richness Relative Abundance Arctic Char Catch Per Unit Effort (CPUE) Total Fish Catch Per Unit Effort (CPUE)	Spatial Temporal
Fish Health	Survival Growth Condition[1] Reproduction	Spatial Temporal
Fish Tissue Chemistry	Metals[1] Polycyclic Aromatic Hydrocarbons (PAHs)	Spatial Temporal
NIS/AIS	Presence of NIS or AIS[1]	No Context

[1] Indicator is used in the TARP

The TARP uses effect indicators that are measured against a series of tiered thresholds (i.e., low, moderate and high-risk thresholds) (Table 1-4) that are designed to guide short-term and long-term adaptive management strategies as outlined in Baffinland (2024). Baffinland has updated the TARP as part of the revised draft Marine Monitoring Plan (MMP) (Baffinland 2023). The pre-defined actions identified in the TARP describe the responses that Baffinland would implement should the corresponding threshold levels be exceeded and assuming there is some degree of certainty that the measured change is Project-related. These responses range from increased monitoring and data analysis (e.g., trend analysis); identification of possible sources; to risk assessment and/or mitigation and are described in Baffinland (2024). As adaptive management is beyond the scope of the MEEMP-NIS/AIS monitoring program, only the draft indicators and thresholds are presented here (Table 1-4).

Table 1-4: Marine Environment Trigger Action Response Plan (TARP) Indicators, Condition Status, and Thresholds

(a) Water Quality

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Water Quality	▪ Metals ▪ TSS ▪ Hydrocarbons ▪ Nutrients	30-day mean concentration of a parameter is greater than 75% of an applicable CCME long-term guideline[1]. AND Effluent monitoring and spatial and temporal water quality data suggest a pattern indicative of effects from the Port's effluent discharge	Confirmed[2] exceedance of an effects benchmark or an applicable CCME long-term guideline[2] by a mean concentration. AND Effluent monitoring and spatial and temporal water quality data suggest that the confirmed increase in this parameter is related to the Port's effluent discharge.	To be determined based on outcome of moderate response investigations.

[1] Canadian Council of Minsters of the Environment (CCME) water quality guidelines for the protection of marine aquatic life. With the exception of silver, total suspended solids (TSS), and turbidity, these are long-term water quality guidelines intended to be applied to the average concentration at a receiving environment station collected over a 5-in-30 sampling program (i.e., average of 5 discrete samples collected over a 30-day period). In lieu of a long-term guideline for silver, the short-term guideline will be applied to discrete measured concentrations. The long-term guidelines for TSS and turbidity will be used.

[2] Confirmed indicates that the Risk Status/ Threshold trigger has been observed in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study.\

(b) Sediment Quality

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Sediment Quality	▪ Particle Size ▪ Nutrients ▪ Metals ▪ Hydrocarbons	Measured concentrations of a parameter at one or more stations are > the CCME[1] ISQG or another relevant lower bound guideline, and are higher than background concentrations. AND Spatial and temporal sediment trend analysis suggest a pattern indicative of Port-related effects beyond FEIS predictions.	Measured concentrations of a parameter at one or more stations are > the CCME PEL or another relevant upper bound guideline[1]. AND Spatial and temporal sediment trend analysis suggest a pattern indicative of Port-related effects beyond FEIS predictions. AND Sediment toxicity testing as a special study indicates a Port-related effect.	To be determined based on outcome of moderate response investigations.

[1] Canadian Council of Minsters of the Environment (CCME 1999) sediment quality guidelines for the protection of marine aquatic life.
ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Level.

(c) Benthic infauna

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Benthic Infauna	▪ Density ▪ Taxa Richness ▪ Simpson's Diversity Index ▪ Simpson's Evenness Index	Spatial and temporal trend analysis for density or taxa richness suggest a pattern indicative of Port-related effects beyond FEIS predictions. AND Low Risk Status/Threshold is triggered for sediment.	Spatial and temporal trend analysis for density and taxa richness suggest a pattern indicative of Port-related effects beyond FEIS predictions. AND Moderate Risk Status/Threshold is triggered for sediment.	To be determined based on outcome of moderate response investigations.

(d) Fish health

Component	Performance Indicators[3]	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Fish Health	Fourhorn Sculpin ▪ Age ▪ Size-at-age (i.e., total weight at age) ▪ Condition as relative weight (i.e., total weight at total length) ▪ Relative liver weight (i.e., liver weight at total weight) ▪ Relative gonad weight (i.e., gonad weight at total weight) *Hiatella arctica* ▪ Length-frequency analysis ▪ Whole animal wet weight ▪ Condition as relative weight (i.e., whole animal wet weight at total length) ▪ Relative shell weight (i.e., dry shell weight at total length) ▪ Relative gonad weight (i.e., gonad weight at whole animal wet weight)	A statistically significant difference ($P < 0.1$) in effect indicators[8] relative to the reference area and change is in direction that indicates an impairment to fish health and is of magnitude greater than or equal to a defined critical effect size (CES)[4] for that effect indicator.	Confirmed[5] Low Risk Status/ Threshold and mean/median[6] for the same effect indicator is beyond the baseline (FEIS) normal range[7] (if available) or regional normal range[8] AND Is supported by consistent effects in one or more other study components (i.e., water quality, sediment quality and benthic invertebrates) which links the results to the Project.	To be determined based on outcome of moderate response investigations.

[3] The following endpoints were included or excluded relative to the proposed TARP framework in order to better align the Fish Health and Tissue Chemistry monitoring program with the MDMER EEM program: Fourhorn Sculpin – age (included), length-frequency analysis (excluded).

[4] Definition of a magnitude of change that is indicative of impairment to fish health is based on the critical effect sizes defined by Environment Canada's Metal Mining Effluent Regulations Guidance Document (Environment Canada 2012) and refers to an increase or a decrease in fish health endpoints. Additional critical effect sizes may be defined in the future (i.e., beyond those defined by ECCC).

[5] Confirmed indicates that the Risk Status/ Threshold trigger has been observed in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study. For fish, the two or more endpoints that triggered the Moderate Risk Status/ Threshold may be in one species (i.e., two endpoints in one species) or two species (i.e., one endpoint in one species, as second endpoint in another species).

[6] The use of the mean or median will depend on the normality of the dataset used to calculate the normal range for each endpoint or tissue chemistry parameter (i.e., if raw or transformed data do not meet the assumptions of normality, the median will be used to provide an estimate of central tendency instead of the mean).

[7] Baseline (FEIS) normal range is based on the FEIS dataset, including operational monitoring data from Milne Inlet and Steensby Inlet, and includes fish length, weight and condition (K).

[8] Regional normal range will be calculated using all available reference area data (i.e., will include annual and ongoing reference area data as it becomes available).

Component	Performance Indicators[3]	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Fish Tissue Chemistry	Primary constituents of Project iron ore: ▪ Aluminum ▪ Magnesium ▪ Iron Metals with the potential to bioaccumulation and biomagnify in the food web: ▪ Mercury ▪ Selenium	A statistically significant difference ($P < 0.1$) in one or more metals concentrations in a sentinel species relative to the reference area, and change is in the direction[9] that indicates impairment to fish health and is of magnitude[10] greater than or equal to the defined CES.	A confirmed[11] Low Risk Status/ Threshold for one or more metals that is also outside the regional normal range[12], and is supported by consistent effects in one or more other study components (i.e., water quality, sediment quality and benthic invertebrates) which links the results to the Project. OR The mean mercury or selenium concentrations (or ≥50% of the individual samples) in Arctic Char tissue chemistry samples are beyond the respective CFIA[13] or BCMOE[14] guidelines.	To be determined based on outcome of moderate response investigations.

CES = critical effect size; FEIS = Final Environmental Impact Statement; CFIA = Canadian Food Inspection Agency; BC MOE = British Columbia Ministry of Environment.

[9] For tissue chemistry, only an increase in concentration will be considered indicative of a toxicological response.

[10] For fish tissue chemistry parameters, the critical effect size is a difference of 100%.

[11] Confirmed indicates that the Action Status/Threshold trigger has been observed in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study.

[12] Regional normal range is anticipated to include Arctic Char tissue chemistry data from the FEIS (i.e., Milne Inlet and Steensby Inlet) as well as ongoing reference area tissue chemistry data (for *Hiatella arctica* and Fourhorn Sculpin).

[13] Value is 0.5 mg/kg ww total mercury per CFIA (2014) Canadian Food Inspection Agency Fish Products Standards and Methods Manual: Appendix 3 Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products. Ottawa, ON.

[14] Protection of aquatic life chronic criteria for fish tissue selenium concentrations are 15.1 mg/kg dw for ovary, 8.5 mg/kg dw for whole body, or 11.3 mg/kg dw for skinless, boneless muscle fillet per USEPA (2016) Technical Support for Fish Tissue Monitoring for Implementation of EPA's 2016 Selenium Criterion Draft, EPA 820-F-16-007, United States Environmental Protection Agency, Office of Water.

(e) NIS/AIS

Component	Performance Indicator	Condition Status/Threshold		
		Low Risk	**Moderate Risk**	**High Risk**
NIS/AIS Monitoring Program (integrated in MEEMP)	Occurrence of an NIS/AIS in the Milne Inlet environment	Taxon is not reported as present in Canadian Arctic or there is low certainty as to its presence. OR There is low confidence in the identification (includes species pending verification), where related species are listed in AIS databases and there is potential for survival in the Project area. OR Taxon is undergoing range expansion into Milne Inlet that is attributed to factors or vectors unrelated to Project shipping (e.g., climate change).	Taxon is not reported as present in Canadian Arctic. AND Taxon is capable of using shipping vector(s). AND Taxon is listed as an AIS in other locations. AND Taxon is not yet confirmed to show those behaviours in Milne Inlet.	Taxon is not reported as present in Canadian Arctic. AND Taxon is capable of using shipping vector(s). AND Taxon is listed as an AIS in other locations. AND <u>At least one of the following</u> Taxon or closely related species has well-documented and potentially serious invasive behaviours (e.g., habitat disruption or displacement of native species) in other areas. OR Taxon shows evidence of invasive behaviour in Milne Inlet including but not limited to the species dominating the relative abundance, or reductions in species diversity and richness at sites where the species occurs; competition or predation on native taxa; habitat destruction; and/or dispersal/establishment from site of initial detection.

1.5 Study Design

1.5.1 Study Area

Consistent with previous years, the 2023 MEEMP and NIS/AIS field surveys were conducted primarily within the LSA for the Marine Environment as defined in the FEIS and Addendum 1 (Baffinland 2012; 2013). The LSA includes all of Milne Port (Assomption Harbour) and extends north up to 4 km from the existing terminal (spanning the full width of Milne Inlet at the northern boundary; Figure 1-2). The southeast boundary of the LSA ends at the mouth of Phillips Creek.

In 2019, following feedback provided from MEWG members and the community during 2016 community workshops, additional NIS/AIS and physical oceanographic monitoring was conducted north of the LSA boundary extending to Ragged Island and Eclipse Sound (Figure 1-1). No sampling was conducted at Ragged Island in 2023 due to logistical constraints.

1.5.2 Inuit Participation

Inuit personnel have been integral to the overall success and safe execution of Baffinland's monitoring programs to date. The success of the MEEMP-NIS/AIS program is greatly reliant on local expertise/knowledge and the continued participation of Inuit stakeholders with respect to study design, program implementation, and field logistics. For the 2023 MEEMP program, Inuit participation included field technicians supporting sampling and processing for the various components.

1.5.3 MEEMP

The MEEMP was initially designed in 2015 to evaluate potential Project-related impacts on the marine environment as predicted in the FEIS and subsequent addenda (Baffinland 2013). The original sampling design for the MEEMP (Baffinland 2016; SEM 2015) was based on a radial gradient transect design extending out from the ore dock (Figure 1-2), which represented a potential point source for contaminants (e.g., ore dust, hydrocarbon release, wastewater, and site runoff) and physical perturbations (e.g., sediment re-suspension and transportation). The radial pattern was designed to detect potential Project-related effects based on a gradient of key components with numerical indicators (e.g., metal concentrations in sediment) along a series of transects with increasing distance from the point source.

The initial MEEMP design (excluding NIS/AIS monitoring) comprised the following study components:

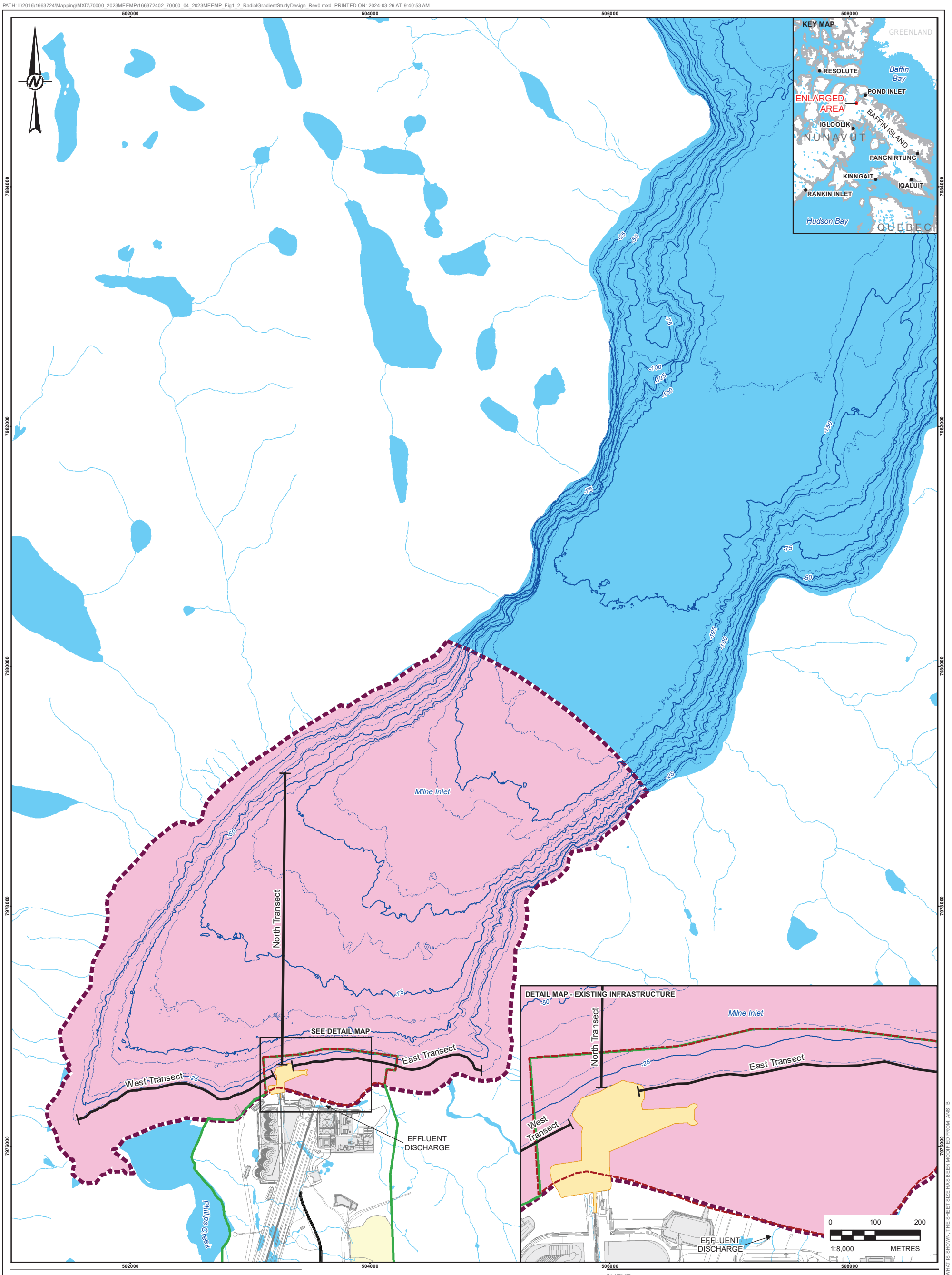
- Marine sediment quality
- Benthic epifauna and epiflora dive surveys
- Fish

While the radial gradient design has remained since its original design, the program has been updated to include more components and changes have been made to sampling methodologies and frequencies. Modifications to the MEEMP are summarized below in Section 1.5.3.1. Sampling efforts for the MEEMP in 2023 are summarized in Table 1-5.

Table 1-5: Summary of Sampling Efforts Performed in Milne Port for MEEMP Surveys, 2023

MEEMP Component	Relevant PC Conditions	Collection Methods	Sampling Effort	Sampling Frequency	Years of Data
Marine Water Quality	76, 83 (a), 87, 89 and 99 (a)	Vessel-based using 2.0 L Kemmerer sampling bottles	8 stations	Annually; five sampling events/year	8
Marine Sediment Quality	76, 83(a), 84, 85, 87 and 99(a)	Vessel-based using a Van Veen grab sampler	45 stations	Targeted sampling, full sediment program every three years	10
Benthic Infauna	76, 87, 99(a), 99(c) and 126	Vessel-based using a Van Veen grab sampler	44 stations	Targeted sampling, full benthic infauna program every three years	5
Substrate, Macroflora, & Epifauna	76, 83a, 84, 87, 99 (a) and (c)	Quadrat surveys by SCUBA divers	18 quadrats	Annually	3
Marine Fish Community	99(b)(ii), (c), 113, and 114	Angling	12.1 hours	30 stations	7
		Fukui trap	711.5 hours	14 stations	11
		Gill net	50.9 hours	20 stations	12
		Hoop net	720.6 hours	14 stations	5
		Trawling	1.7 hour	4 stations	4
Fish Health & Tissue Chemistry	76, 83 (a), 87, 99 (a), 99 (b) (ii), 99 (c), 113, and 114.	See above for collection methods. Chemistry analyses completed by specialized laboratories.	22 Arctic Char (Incidental catch)	Annually	13
			65 Fourhorn Sculpin		5
			57 *Hiatella arctica*		6

PATH: I:\2016\1663724\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig1_2_RadialGradientStudyDesign_Rev0.mxd PRINTED ON: 2024-03-26 AT: 9:40:53 AM



LEGEND

- BATHYMETRIC CONTOUR (15 m INTERVAL)
- BATHYMETRIC CONTOUR (25 m INTERVAL)
- TOTE ROAD
- TRANSECT
- WATERCOURSE
- AGGREGATE SOURCE (BORROW PIT OR QUARRY)
- INFRASTRUCTURE
- ORE DOCK
- LOCAL STUDY AREA
- PDA / QIA COMMERCIAL LEASE
- WATERBODY

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MAY 21, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE PROVIDED BY CLIENT, MAY 28, 2018 AND PROVIDED BY HATCH, JANUARY 25, 2017, RETRIEVED FROM KNIGHT PIESOLD LTD. FULCRUM DATA MANAGEMENT SITE MAY 19, 2017. HYDROGRAPHY AND TOPOGRAPHY DATA BY EAGLE MAPPING (2005), RETRIEVED FROM KNIGHT PIESOLD LTD. FULCRUM DATA MANAGEMENT SITE, MAY 2017. HYDROGRAPHY, POPULATED PLACE, AND PROVINCIAL BOUNDARY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
STUDY AREA FOR THE MARINE ENVIRONMENTAL EFFECTS MONITORING PROGRAM (MEEMP), 2023

CONSULTANT

YYYY-MM-DD	2024-03-26
DESIGNED	AL
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	1-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

1.5.3.1 Modifications to the Program

Since program inception, survey design has continually evolved based on refinements identified through consultation with regulatory agencies and Inuit stakeholders, and recommendations made in previous survey years. Table 1-6 summarizes key changes to the program since its inception in 2015.

Table 1-6: Summary of Modifications to the MEEMP Study Design from 2014 to 2023

Year	Component	Description of Modifications
2015	Marine Water Quality	Addition of water quality component to monitor for potential changes associated with site drainage and treated effluent discharges to the marine environment (including iron ore stockpile run-off). Four water quality stations were established near the site discharge point for compliance monitoring; one station next to the site discharge point, and three stations located slightly offshore to the northeast, north and northwest of the source.
2017	Physical Oceanography	Addition of sea level monitoring (using a tidal gauge) and vertical physical profiles of physical oceanographic parameters at Milne Port.
2017/18	Marine Fish Community	In 2017, fish sampling was limited to a two-week period in August, which was not necessarily representative of the entire open-water shipping season (late July to mid-October). In 2018, fish sampling was conducted throughout the duration of the MEEMP program (over four weeks, from the end of July to the end of August) for better representation of the shipping season. Fishing methods included gill netting and Fukui traps, with angling added in 2017, and beach seines added in 2018.
2018	Physical Oceanography	Sea level monitoring was expanded to include physical oceanographic monitoring throughout Milne Inlet including two sites at Milne Port and one at Bruce Head, and additional vertical physical profiles at select times and locations throughout Milne Inlet.
2018	Marine Sediment Quality	The number of sediment samples analyzed for hydrocarbon concentrations was reduced from three samples to one sample at each station, as hydrocarbon concentrations had been below detection limits (DL) in all samples to date. Additionally, two new sediment sampling stations were included along the East Transect to account for anticipated construction associated with the proposed Phase 2 ore dock and freight dock. (The freight dock was subsequently constructed but Phase 2 ore dock is no longer relevant.)
2018	Benthic Infauna	Addition of benthic infaunal sampling program, with input from MEWG. Previous years did not include infaunal sampling but, rather, evaluated changes to the benthic community using epifauna[15] and epiflora[16] as indicators using towed underwater video transect surveys – an approach that did not yield consistent nor reliable data primarily due to issues associated with video resolution.
2018	Epifauna and Epiflora	Study design was changed from one long video transect to a Before - After - Control - Impact (BACI) approach with five belt transects (1 m x 5 m plots) permanently installed on the seabed in each of the exposure and reference areas; monitoring was conducted using a remotely operated vehicle (ROV) underwater video system.

[15] benthic invertebrates living on the substrate

[16] marine vegetation attached to the substrate (e.g. kelp)

Year	Component	Description of Modifications
2018	Fish Health & Tissue Chemistry	Addition of local shellfish species, wrinkled rock-borer (*Hiatella arctica)*, as an additional effects indicator in the event finfish species (Arctic Char or sculpins) were sampled in insufficient numbers to adequately support statistical analyses. Measurement endpoints included body weight to length ratio and tissue (body burden) analysis. Prior to 2018, fish tissue sampling was limited to incidental Arctic Char mortalities, which fluctuated from year to year and did not always yield enough samples for a meaningful statistical analysis.
2019	Physical Oceanography	Vertical physical profiles of water quality parameters including temperature, salinity, conductivity, turbidity, pH, chlorophyll-a, and dissolved oxygen were taken north of Ragged Island in Eclipse Sound in August and September 2019.
2019	Benthic Infauna/ Marine Sediment Quality	Following the results of a power analysis, sampling intensity for benthic infauna and marine sediment was increased from four transects with five stations, to five transects with 15 stations each to improve statistical power and the ability to detect Project-related effects. Unlike in previous years, separate NIS/AIS stations were not sampled due to the expansion of the benthic sampling program.
2019	Benthic Infauna	In previous years, three replicate grab samples were taken at each benthic infauna sampling station. In 2019, the three grab samples were composited into a single sample for each station.
2019	Fish Health & Tissue Chemistry	Inclusion of sculpin (*Myoxocephalus* sp.) as a sentinel species and effects indicator due to the number of incidental mortalities being sufficient to support analyses.
2019	Fish Health & Tissue Chemistry	Instead of collecting length and weight measurements of *Hiatella arctica* samples in the field, *Hiatella arctica* specimens were submitted for age analysis in addition to the tissue (body burden) analysis.
2019	Marine Fish Community	Hoop nets were introduced to the fish sampling program to determine the capture efficiency of the method in Milne Port and to assess its potential as a replacement for Fukui trapping. Fukui traps will continue to be used in addition to hoop nets to meet commitments of continuing to sample at old locations for a minimum of three years (2022 was year 3) to facilitate comparison of old and new methods/results.
2020	Marine Water Quality	Addition of a second water quality monitoring station at the discharge location of MP-06, consistent with the study design for the existing water quality monitoring station at the discharge location for MP-05.
2020	Marine Water Quality	The collection of water samples was scheduled to coincide with at least one active discharge event at each discharge. One collection event also coincided with a de-ballasting event along the Ore Dock.
2020	Marine Sediment Quality/Benthic Infauna	Following time constraints in 2019, the sampling effort was increased from eight to ten sampling stations per transect to 15 sampling stations per transect.
2020	Marine Sediment Quality/Benthic Infauna	Benthic infauna and sediment sampling methodology and equipment was standardized across all stations to ensure consistency and comparability of results.
2020	Marine Sediment Quality/Benthic Infauna	The Coastal Transect was removed from the sampling plan after being determined as not contributing to the radial gradient design of the sediment and benthic sampling components.
2020	Substrate, Macroflora, and Benthic Epifauna	Due to the previously deployed belt transects being moved, twisted, and obscured following a short deployment period, the belt transects were replaced with ten steel quadrats that should be more robust under the local conditions.

Year	Component	Description of Modifications
2020	Substrate, Macroflora, and Benthic Epifauna	Following limitations in species identification in Remotely Operated Vehicle (ROV) footage on the belt transects, a dive team trained in the identification of marine biota were used in addition to ROV for survey of the quadrats.
2020	Marine Fish Community	Based on input and recommendations by Inuit field personnel, fishing locations were selected, and modifications were made to the methodologies for Fukui traps and hoop nets. Modifications included setting the traps in deeper locations to target demersal species and improve capture efficiency.
2020	Fish Health and Tissue Chemistry	Fourhorn Sculpin (*Myoxocephalus quadricornis*) were added as a targeted species for fish health and tissue chemistry/body burden analysis to monitor for impacts to resident fish species in Milne Port.
2020	Fish Health and Tissue Chemistry	Additional indicators were added to the fish health program to align with a Metal and Diamond Mining Effluent Regulations (MDMER) Environmental Effects Monitoring (EEM) program design. This included the addition of targeted lethal fish sampling to meet a minimum sample size.
2021/22	Marine Sediment Quality/Benthic Infauna	Monitoring frequency for the joint radial sediment and benthic sampling program has been adjusted to every three years, consistent with routine biological sampling for other mining effects monitoring programs and reflective of federal guidance (e.g., the federal Environmental Effects Monitoring Program [EEM]). Targeted sampling at SW-2 and in 2022, additional sampling at adjacent stations SW-1, SW-3 and SW-4.
2021	Substrate, Macroflora, and Benthic Epifauna	Ten additional quadrats were fabricated and deployed: five in each the reference and impact areas. ROV methods were replaced by exclusive use of divers to improve taxonomic resolution of the data. 2021 was the first year that opportunistic samples of macroflora and epifauna were collected for taxonomic/genetic identification.
2021	Marine Fish Community	Longlines were trialed as a fishing method to the 2021 program. In addition, two Fishing Areas were delineated based on habitat features and their location relative to Milne Port to help standardize sampling efforts and address variability in the catch data across Milne Port.
2022	Marine Water Quality	The outfall location of MP-05 was moved to a more westward position along the beach between the Ore Dock and the Freight Dock. The coordinates for Source-1 sample location were adjusted to reflect the new position.
2022	Substrate, Macroflora, and Benthic Epifauna	Six additional quadrats were fabricated and deployed: three in each the reference and impact areas.
2022	Marine Fish Community	Following an unsuccessful trial of longlines in 2021, the method was discontinued.
2022	Marine Fish Community	Catch per unit effort (CPUE) calculations were revised for two fishing methods (hoop nets and Fukui traps) to better account for field variability. Data from 2020 and 2021 were re-calculated with the modified CPUE calculations and compared against 2022 results.
2022	Marine Fish Community	A reconnaissance for a potential reference area was performed in two locations north of Milne Port. Water quality, sediment quality and fish community sampling were completed as part of the reconnaissance survey.
2023	Marine Sediment Quality	Addition of two stations (SCV-1, SCV-2) for monitoring impacts of Baby Cape and Capesize ore vessels.
2023	Benthic Infauna	Addition of three stations (SE18-1, SCV-1, SCV-2) for monitoring impacts of Baby Cape and Capesize ore vessels. SE18-1 was formerly sampled for sediment only.
2023	Physical Oceanography	Tidal gauge monitoring was not conducted, pending review of methodology.

1.5.4 NIS/AIS Monitoring

The NIS/AIS monitoring program was designed to detect for the potential introduction of non-native species from ballast water discharges and/or hull biofouling and is focused in areas with the highest likelihood of marine invasion. Due to ballast water releases occurring in Milne Port, NIS/AIS sampling largely focuses on southern Milne Inlet. The NIS/AIS Monitoring Program is conducted at a surveillance level, where detection of a single Project-related invasive species is the threshold for triggering of adaptive management measures (e.g., species rapid response plans) and/or potential corrective actions (e.g., measures to contain or eradicate the NIS/AIS), if deemed feasible. The NIS/AIS monitoring program consisted of data collected across multiple trophic levels (marine vegetation, benthic invertebrates, and fish) to establish a comprehensive inventory of existing marine biota in the Project area that is intended to serve as a point of reference for any new species identified over time, and to evaluate potential changes in community structure that may be linked to NIS/AIS introductions. Sampling efforts that contribute to the NIS/AIS monitoring program are summarized in Table 1-7. NIS/AIS monitoring is recommended to be conducted annually.

Table 1-7: Summary of Sampling Efforts Performed in Milne Port for NIS/AIS Monitoring Program Surveys, 2023

Relevant PC Conditions	Collection Methods	Sampling Effort in 2023	Sampling Frequency	Years of Data
76, 87, 89, 91, 99 (a), and 99 (c)	Permanent Quadrats	18 Quadrats	Annual	6[1]
	Active Fish Sampling	82 Stations	Repetitive, Annually	12
	Fish Stomach Contents	51 Fish	Repetitive, Opportunistic, Annually	11
	Benthic Infauna	44 Stations	Annual	12
	Settlement Substrates	42 Plates 38 Baskets	Annual	5[2]
	Zooplankton	12 Stations	Repetitive, Annually	11[3]
	Incidental Specimen Collection	N/A	Opportunistic, Annually	5

[1]Includes sampling of belt transects which were used from 2017-2018 exclusively for NIS/AIS surveys until they were replaced by permanent quadrats and added to MEEMP surveys.

[2]Settlement substrates were first deployed in 2014, however they were only successfully retrieved for analysis in 2018 and 2019. A new design was successfully implemented in 2020, with collections beginning in 2021.

[3]Zooplankton sampling did not occur in 2021.

1.5.4.1 Modifications to the Program

The initial NIS/AIS surveys were conducted in 2014 to enhance marine flora and fauna inventories collected during baseline sampling in 2008 and 2013. In subsequent years, NIS/AIS monitoring focused on identification of organisms not previously detected during the baseline program (as primary indicators of invasion). Equivalent NIS/AIS monitoring was continued in Milne Port area, although the program was expanded and modified based on refinements identified through consultation with regulatory agencies and Inuit stakeholders and recommendations made in previous survey years. Table 1-8 summarizes key changes to the program.

Table 1-8: Summary of Modifications to the NIS/AIS Monitoring Program Study Design from 2015 to 2023

Year	Program Component	Description of Modification
2015	Settlement Baskets	Baskets were redeployed instead of being collected for annual analysis due to insufficient colonization on the substrate.
2016	Settlement Baskets	New settlement baskets were deployed in Milne Port to replace sets previously lost.
2017	Benthic Infauna and Zooplankton	Four new sampling locations were added at Ragged Island to sample specifically for the NIS/AIS monitoring program in response to public concern over ships potentially discharging ballast water while occupying anchorage sites in this area.
2017	Zooplankton	Four new sampling locations were established in Milne Port for vertical zooplankton hauls, and two new locations for oblique zooplankton tows.
2017	Zooplankton	Modifications to the methodology for oblique zooplankton tows were made to target faster moving species and increase the total number of species identified.
2018	ROV Surveys	ROV-based surveys were made along the hulls of several ore carriers to assess for potential biofouling on vessels originating from outside of Canadian waters.
2019	Benthic Infauna	In 2019, no benthic infauna sampling occurred at the original NIS/AIS specific stations, due to the significant expansion of the benthic sampling program. A greater number of stations were sampled for identification of benthic infauna. NIS/AIS status was determined for all infauna identified in benthic sampling.
2019	Macroflora and Epifauna	A new NIS/AIS towed video survey transect was added east of the new Freight Dock at Milne Port to account for potential changes in shipping rates in Milne Port.
2019	Zooplankton	Two oblique zooplankton tow sampling locations were added to the Ragged Island component.
2020	Overall Program	The program name was changed from AIS Monitoring to NIS/AIS monitoring to emphasize efforts to monitor for all potential species introductions to Milne Port, regardless of invasive status.
2020	ROV Surveys	Survey methodology was reviewed with the operator to ensure the methodology was aligned with the stratified survey design used in Sylvester and MacIsaac (2010).
2020	Ship Hull Monitoring	Performed ROV-based ship hull monitoring on two ships at anchorage to avoid limitations with hull visibility and accessibility when ships are moored at the Ore Dock, increasing the total area and survey time for each ship.
2020	Settlement Baskets	Deployment of nine new sets of settlement baskets and plates along the Freight Dock, as well as ten sets of settlement plates in other locations around Milne Port to increase monitoring of recruitment of encrusting biota.
2020	DNA Sampling	To improve taxonomic resolution, a DNA sampling component was added. Targeted sampling occurred at locations where potential NIS/AIS taxa had been observed previously, samples were preserved for DNA analysis at the Canadian Centre for DNA Barcoding at the University of Guelph. Incidentally-collected specimens were also selectively preserved for barcoding and taxonomic confirmation.
2021	Zooplankton	Zooplankton tows were removed from the sampling program due to the high variability in the data and limited sampling not capturing the seasonal presence of many taxa.
2021	Settlement Baskets	Deployment of new sets of settlement plates and baskets co-located with new quadrats around Milne Port to increase monitoring of recruitment of encrusting biota.
2021	Ship Hull Monitoring	Monitoring of ship hulls was not conducted in 2021 as Baffinland works with DFO to design a methodology that will improve the taxonomic resolution of the data collected to better inform assessment of NIS/AIS risk

Year	Program Component	Description of Modification
2022	Benthic Infauna	Samples were collected at 12 additional benthic infauna stations (for a total of 16) to continue monitoring for NIS/AIS during reduced sampling years for MEEMP surveys.
2022	DNA Sampling	Following targeted sampling in 2020 and 2021 to obtain specimens for genetic analysis, no additional locations were identified for potential flagged taxa. As a result, no targeted sampling for genetic analysis occurred in 2022. Rather, the subfractions remaining following analysis of samples collected for genetic analysis in 2021 will be sorted for targeted organisms.
2022	Zooplankton	Zooplankton sampling at 12 stations was completed, following removal from the program in 2021.
2022	Reporting	Standardized distribution and uncertainty categories have been created and defined to better express confidence in range assessments for new taxa observations.
2022	Reporting	Reports will be submitted to NIRB in final form, with responses to MEWG comments addressed in subsequent annual report,
2023	Macroalgae	A new collaboration was started with the University of New Brunswick to improve taxonomic resolution of macroalgae identification through DNA analysis.
2023	Zooplankton	Zooplankton sampling program was expanded for better seasonal coverage. Twelve stations were sampled on three dates. Compared to a single sample event in previous years.

1.6 Conclusions and Recommendations

The MEEMP-NIS/AIS program has been designed to meet the objectives of the various conditions associated with Project Certificate 005, as well as to evaluate whether Project activities have potentially impacted the marine environment over time. Predictions from the FEIS and subsequent addenda (Baffinland 2012; 2013) indicated the potential for low magnitude changes in some ecological parameters, such as water quality and Arctic Char tissue chemistry, but characterized these as “not significant”. Overall, monitoring data align with these predictions, as observed changes are typically minor and either within established guidelines or consistent with baseline levels. Thus, monitoring to date suggests that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not adversely affected the marine ecosystem.

The main conclusions and recommendations based on the results of the 2023 MEEMP-NIS/AIS studies are as follows:

- **Marine Water Quality**
  - Relevant to PC No. 76, 83(a), 87, 89, 99(a).
  - Measured concentrations of metals were generally consistent with previous years and remained below CCME water quality guidelines for the protection of aquatic life while hydrocarbons and PAHs were not detected at all.
  - Laboratory analyses have not revealed a clear increase in the concentrations of iron in water samples collected between 2017 and 2022; iron was within the 2015-2022 range of detected concentrations.
  - Monitoring results remained within original FEIS predictions, which forecasted no significant residual effects on water quality but indicated the potential for minor localized increases in TSS, nutrient, metal, and hydrocarbon concentrations.

- The ‘Low Risk’ threshold for TARP was not triggered in 2023 because the 30-day mean for each water quality indicator was less the 75% of the applicable CCME water quality guideline for the protection of aquatic life, and iron did not show a spatial pattern or a temporal trend indicative of effects from the Port’s effluent discharge.
- **It is recommended that the water quality sampling program continue in 2024 to ensure compliance with Project requirements and that parameters of potential concern remain well below thresholds of harm for marine biota.**

- **Marine Sediment Quality**
  - Relevant to PC No. 76, 83(a), 84, 85, 87, and 99(a).
  - Sediment quality was consistent with previous MEEMP years:
    - Concentrations of metals and hydrocarbons continued to be below applicable CCME sediment quality guidelines, and the data do not suggest Project-related impacts.
    - Sediment grain size measurements indicated the stations were dominated by sand with varying, but low, proportions of fines content over time. It is expected that sediment results will show high spatial and temporal variability in fines content – driven by natural factors, such as ice movement and coastal sediment processes, as well potential influences of vessel propeller wash.
  - Monitoring results remained within original FEIS predictions, which forecasted the potential for minor and localized sediment disturbance associated with propeller wash, which is expected to stabilize over time.
  - The ‘Low Risk’ threshold was not triggered in 2023 because the sediment quality indicators present at concentrations in 2023 lower than the ISQG. Where isolated ISQG exceedances did occur, sediment concentrations were within expected background concentrations as informed by pre-project baseline studies.
  - **It is recommended to continue sampling of these stations in 2024 to further increase understanding of sediment grain size variability and to monitor for potential effects of Project activities on grain size distribution.**
- **Benthic Infauna**
  - Relevant to PC No. 76, 87, 99(a), 99(c), and 126.
  - Overall, the results indicated that benthic communities in Milne Port remained healthy and diverse.
  - To date, station SW-2 in 2020 was the only instance where reduced fines content was accompanied by a substantial reduction in benthic density, richness and diversity. Data collected from 2021 through 2023 generally indicate that the benthic community at that station have since recovered, and that the effects were temporary and localized.
  - Monitoring results remained within original FEIS predictions, which forecasted the potential for minor and localized sediment disturbance associated with propeller wash and associated short-term effects on benthic infaunal invertebrate community indicators.

- The ‘Low Risk’ threshold was not triggered in 2023 because the spatial and temporal trend analysis for density and taxa richness did not suggest a pattern indicative of Port-related effects beyond FEIS predictions, and the low risk status/threshold was not triggered for sediment quality.
- **It is recommended to continue sampling of these stations in 2024 and will further increase understanding of benthic infauna community variability and monitor for potential effects of Project activities.**

- **Substrate, Macroflora, and Benthic Epifauna**
  - Relevant to PC No. 76, 83(a), 84, 87, 99(a), and 99(c).
  - Overall, macrofloral and benthic epifaunal community assemblages were comparable between exposure and reference areas but varied interannually for some assemblage indicators which were likely driven by environmental factors. Monitoring efforts to date revealed no evidence of overarching spatial or temporal trends that might be associated with Project-induced effects from construction or operation activities and Milne Port.
  - **It is recommended that monitoring of macrofloral and benthic epifaunal assemblages should continue using the same sampling and statistical design. Additionally, it is recommended to increase collections of unknown taxa, where possible, for identification. Such taxa should be collected outside the permanent quadrats, where possible, to minimize impacts on community composition within the quadrats.**
- **Marine Fish Community**
  - Relevant to PC No. 99(b)(ii), (c), 113, and 114.
  - Monitoring efforts to date revealed no evidence of overarching spatial or temporal trends that might be associated with adverse Project-induced effects from construction or operation of Milne Port.
  - Overall, fishing methods were deemed effective in characterizing the marine fish community in terms of species presence and relative abundance.
  - The delineation of fishing areas (Direct Project Footprint and Indirect Project Footprint) and standardization of fishing methods provides a rigorous study design for generating catch statistics that can be compared for assessing trends in the abundance and distribution of fish at Milne Port into the future.
  - Monitoring results aligned with predictions of the FEIS and subsequent addenda, which forecasted that the Project would have no significant effects on marine fish habitat, nor would it significantly affect Arctic Char populations.
  - **As power analyses continue to indicate the power of statistical comparison was relatively low, it is recommended that angling-trolling and Fukui traps be removed as fishing methods so that sampling can focus on increasing the number of efforts for angling-jigging, gill nets, and hoop nets for improved statistical power. Trawling would be retained in the program as a contributor to understanding fish diversity in Milne Port, but this sampling technique is not expected to meet a statistical effect size target.**

- **Fish Health and Tissue Chemistry**
  - Relevant to PC No. 76, 83 (a), 87, 99 (a), 113, and 114.
  - Monitoring results remained well within predictions of the FEIS and subsequent addenda (Baffinland 2012; 2013), which indicated the potential for non-significant, low magnitude effects on Arctic Char health and body condition that are expected to be reversible. Observed changes have generally been small and either within established guidelines, or consistent with baseline conditions, and are thus considered to reflect natural variability rather than effects potentially resulting from the Project.
  - In 2023, one fish health endpoint in Fourhorn Sculpin exceeded the 'Low Risk' threshold. Female Fourhorn Sculpin relative gonad weight was significantly different between Milne Port and Koluktoo Bay, and the associated effect size (-31%) exceeded the CES (±25%) in a direction indicative of an impairment to fish health. No additional endpoints for Fourhorn Sculpin and none of the fish health endpoints for *H. arctica* exceeded TARP thresholds.
  - No fish tissue chemistry endpoints exceeded TARP thresholds in 2023.
  - **Continued monitoring is recommended to maintain continuity in established time series data for Arctic Char and the collection of additional fish health and tissue chemistry for Fourhorn Sculpin and *Hiatella arctica,* to provide an ongoing dataset for use in monitoring efforts for both species into the future.**
- **NIS/AIS Monitoring Program**
  - Relevant to PC No. 76, 87, 89, 91, 99 (a), and 99 (c).
  - To date, 1,062 taxa have been documented in Milne Inlet to date, the vast majority of which are not NIS/AIS.
  - Taxa identified in 2023 surveys included 31 taxa not previously collected during Project monitoring in Milne Port. All new taxa had records of occurrence in the Canadian Arctic, or described ranges that were likely to include the Project area. Results remain pending for macroflora identifications as well as genetic analysis of macroflora and animal taxa.
  - Additionally, NIS/AIS monitoring in 2023 collected five taxa that were placed on the Watch List in previous years due to uncertainties in their natural range or because they were listed in an existing AIS database. Specimens of *Hesperonoe* sp. were sent to taxonomic experts for taxonomic verification.
  - No new taxa were added to the Watch List in 2023, while one taxon (*Sosane wireni*) was removed due to records indicating a probable range that extends to the Eastern Canadian Arctic. Following this change, the Watch List consists of eight taxa.
  - There are currently no taxa on the Trigger List.
  - No NIS/AIS endpoint exceeded TARP "Low Risk" thresholds in 2023.
  - **It is recommended to continue the following:**
    - **sampling across multiple trophic levels continue in 2024 and continuing to expand the Milne Inlet Taxonomic Inventory**
    - **using external accredited laboratories and/or global specialists to confirm identifications of specimens requiring a more in-depth taxonomic analysis.**
    - **collecting targeted samples for DNA analysis at locations where high-risk taxa have previously been observed.**

Further details on each component of the MEEMP-NIS/AIS program are provided in topic specific chapters: Marine Water Quality (Chapter 2.0); Marine Sediment Quality (Chapter 3.0); Benthic Infauna (Chapter 4.0); Substrate, Macroflora, and Benthic Epifauna (Chapter 5.0); Marine Fish Community Program (Chapter 6.0); Fish Health and Tissue Chemistry (Chapter 7.0); and NIS/AIS Monitoring Program (Chapter 8.0).

Comments on the 2023 MEEMP and NIS/AIS Monitoring Program Report are anticipated to be received from the Marine Environmental Working Group (MEWG) in June of 2024. Baffinland's responses to MEWG comments and recommendations on the final report will be circulated to the MEWG as a standalone document and included as Appendix A in the subsequent year's NIRB Annual Report (2025).

1.7 References

Baffinland (Baffinland Iron Mines Corporation. 2012. Mary River Project. Environmental Impact Statement (EIS). Volume 8: Marine Environment. 318 pp, + appendices.

Baffinland. 2013. Mary River Project – Addendum to the Final Environmental Impact Statement.

Baffinland. 2016. Marine Environmental Effects Monitoring Plan. 78 pp.

Baffinland. 2019. Ballast Water Management Plan. Document # BAF-PH1-830-P16-0050. Rev1. 31 March 2019.

Baffinland. 2020. Emergency Response Plan. Document # BAF-PH1-840-P16-0002. Rev5. 8 December 2020.

Baffinland. 2021a. Marine Mammal Trigger Action Response Plan (TARP) and Action Toolkits. *In* Baffinland Responses to Post-Hearing Questions related to Phase 2. 22 March 2021.

Baffinland. 2021b. Environmental Protection Plan. Document # BAF-PH1-P16-0008. Rev2. 30 April 2021.

Baffinland. 2021c. Spill Contingency Plan. Document #. BAF-PH1-830-P16-0036. Rev6. 28 February 2021.

Baffinland. 2021d. Shipping and Marine Wildlife Management Plan. Document # BAF-PH1-830-P16-0024. Rev8. 12 July 2021.

Baffinland. 2023. Marine Monitoring Plan (MMP) - Draft. Document #: BAF-PH1-830-P16-0046. NIRB File No. 08MN053. Public Registry Identification No. 344992.

British Columbia Ministry of Environment (BC MOE). 2014. Companion Document to: Ambient Water Quality Guidelines for Selenium Update. Water Protection and Sustainability Branch Environmental Sustainability and Strategic Policy Division British Columbia Ministry of Environment. 28pp.

Environment Canada. 2012. Metal Mining Technical Guidance for Environmental Effects Monitoring. EN14-61/2012E-PDF.

Golder. 2021. Mary River Project 2020 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-281-R-Rev1; 18 August 2021. 1581 p.

James TS, Robin C, Henton JA, Craymer M. 2021. Relative sea-level projections for Canada based on the IPCC Fifth Assessment Report and the NAD83v70VG national crustal velocity model. Geological Survey of Canada Open File 8764

Health Canada. 2015. Health Canada's Maximum Levels for Chemical Contaminants in Foods. Available at: https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/maximum-levels-chemical-contaminants-foods.html. Retrieved 12 February 2021.

Ludwigsen CA, Andersen O B. 2020. Contributions to Arctic Sea Level from 2003-2015. Advances in Space Research 68(2). https://www.researchgate.net/publication/338438415_Contributions_to_Arctic_Sea_Level_from_2003-2015/link/5eb1402d45851592d6b98157/download

Molnar JL, Gamboa RL, Revenga C, Spalding MD. 2008. Assessing the global threat of invasive species to marine biodiversity. Frontiers in Ecology and the Environment. [Accessed February 2021] http://www.conservationgateway.org/ConservationPractices/Marine/Pages/marineinvasives.aspx

Raj RP, Andersen OB, Johannessen JA, Gutknecht BD, Chatterjee S, Rose SK, Bonaduce A, Horwath M, Ranndal H, Richter K, Palanisamy H, Ludwigsen CA, Bertino L, Ø. Nilsen JE, Knudsen P, Hogg A, Cazenave A, Benveniste J. 2020. Arctic Sea Level Budget Assessment during the GRACE/Argo Time Period. Remote Sensing 12(17):2837. https://doi.org/10.3390/rs12172837

Robin CMI, Craymer M, Ferland R, James TS, Lapelle E, Piraszewski M, Zhao Y. 2020. NAD83v70VG: A new national crustal velocity model for Canada; Geomatics Canada, Open File 0062, 1. zip file. https://doi.org/10.4095/327592.

SEM (Sikumiut Environmental Management Ltd.). 2015. Marine Biological and Environmental Baseline Surveys Milne Inlet 2014. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario.

Sylvester F, MacIsaac HJ. 2010. Is Vessel Hull Fouling an Invasion Threat to the Great Lakes? Diversity and Distributions 16: 132-143.



wsp.com

Chapter 2.0 Marine Water Quality

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario
Canada
L6H 6K8

Submitted by:

WSP Canada Inc.



1663724-499b-R-Rev0-70000

15 March 2024

Table of Contents

2.0 WATER QUALITY....1

2.1 Introduction....1

2.1.1 Objectives....1

2.2 Study Design....1

2.2.1 Sampling Parameters....1

2.2.2 Indicators and Thresholds....4

2.3 Materials and Methods....5

2.3.1 Field Methodology....5

2.3.2 Data Analysis....5

2.3.2.1 Analysis of Temporal Trends of Iron Concentrations....6

2.3.3 Quality Management....6

2.3.3.1 Field QA/QC....7

2.3.3.2 Laboratory and Data Analysis QA/QC....7

2.4 Results....9

2.4.1 QA/QC Results....9

2.4.2 Marine Water Quality Results....9

2.4.2.1 Conventional Parameters....9

2.4.2.2 Nutrients....10

2.4.2.3 Metals....10

2.4.2.4 Analysis of Temporal Trends of Iron Concentrations....13

2.4.2.5 Hydrocarbons....14

2.4.3 TARP Assessment....14

2.5 Discussion....16

2.6 Conclusions and Recommendations....16

2.7 Closure....17

2.8 References....18

TABLES

Table 2-1: 2023 Marine Water Quality Sampling Locations at MP-05 and MP-06 4

Table 2-2: Marine Environment TARP Framework for Water Quality (Baffinland 2023) 8

Table 2-3: Marine Water Quality – Receiving Environment Summary Statistics for the MP-05 and MP-06 Milne Port Site Discharges over the Five Sampling Events in 2023 15

FIGURES

Figure 2-1: Water Quality Sampling Stations for the MP-05 and MP-06 Milne Port Site Discharges, MEEMP 2023 3

Figure 2-2: Receiving Environment Total Iron Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2023). 11

Figure 2-3: Receiving Environment Total Iron Concentrations in Milne Inlet for the MP-05 Milne Port Site Discharges, (2017-2023). 11

Figure 2-4: Receiving Environment Total Copper Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2023). 12

Figure 2-5: Receiving Environment Dissolved Copper Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2023). 12

Figure 2-6: Observed Annual Means (Points) and Estimated (Lines and Ribbons) Iron Concentrations in Milne Inlet for the MP-05 Milne Port Site, 2017-2023. Ribbons are 95% Confidence Intervals. 13

Figure 2-7: Observed (Points) and Estimated (Lines and Error Bars) Iron Concentrations in Milne Inlet for the MP-06 Milne Port Site, 2020-2023. Error bars are 95% Confidence Intervals. Years with Different Letters Indicate Significant Difference within the Site. 14

APPENDICES

Appendix 2A
Water Quality Field Datasheets

Appendix 2B
Water Quality Analytical Reports

Appendix 2C
Water Quality Screening Table

Appendix 2D
QA/QC Results

Appendix 2E
MEEMP Annual Comparison Table

Appendix 2F
Water Quality Power Analysis

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
ALS	ALS Canada Ltd.
BC	British Columbia
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CALA	Canadian Association for Laboratory Accreditation Inc.
CCME	Canadian Council of Ministers of the Environment
DL	Detection limit
DQOs	Data Quality Objectives
ERP	Early Revenue Phase
FEIS	Final Environmental Impact Statement
HEPH	Heavy Extractable Petroleum Hydrocarbons
LEPH	Light Extractable Petroleum Hydrocarbons
MEEMP	Marine Environmental Effects Monitoring Program
MDL	Method Detection Limit
NTU	Nephelometric Turbidity Unit
PAHs	Polycyclic aromatic hydrocarbons
PC	Project Certificate
PSU	Practical Salinity Unit
QA/QC	Quality Assurance / Quality Control
QC	Quality Control
RPD	Relative Percent Difference
TARP	Trigger Action Response Plan
TSS	Total Suspended Solids
UTM	Universal Transverse Mercator
WQGs	Water Quality Guidelines

2.0 WATER QUALITY

2.1 Introduction

This chapter presents the results of the marine water quality monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted at Milne Port and in Milne Inlet during the 2023 open-water season. The water quality component was developed in consideration of the potential Project-related impacts to the marine environment as predicted in the Final Environmental Impact Statement (FEIS) and FEIS addenda (Baffinland 2012, 2013), as well as monitoring requirements outlined in the Project Certificate (PC) Conditions described in Chapter 1.0, Table 1-2 (i.e., PC Conditions No. 76, 83(a), 87, 89 and 99(a)), and as required by the Type A Water License.

2.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 for the overall program. The objective specific to the marine water quality component is:

- Assess potential changes in marine water quality parameters in the receiving environment related to site drainage and effluent discharges at MP-05 and MP-06.

2.2 Study Design

2.2.1 Sampling Parameters

The marine water quality program is designed to monitor potential changes in receiving environment water quality associated with site drainage and effluent from two discharge points (MP-05 and MP-06), including run-off from the iron ore stockpiles. The MP-05 discharge is permitted from the Milne Port Ore Stockpile Sedimentation Pond (East) and the MP-06 discharge is permitted from the Milne Port Ore Stockpile Sedimentation Pond (West). The quality of both effluent discharges is monitored monthly during each intermittent discharge period by the Mine as per the requirements of the Type “A”, Water Licence No. 2AM-MRY1325, and reported elsewhere. The marine receiving environment for the MP-05 primary discharge has been monitored annually since 2015, with monitoring at a second discharge point (MP-06) added in 2020. This sampling program has been applied to identify and characterize adverse effects on marine water quality in Milne Port from the two site discharges, to evaluate the current effectiveness of existing mitigation measures, and to inform the need for further mitigation and/or alterations to Project activities, as necessary.

In 2023, water quality samples were collected at four sampling stations near the primary site discharge (MP-05) that have been monitored annually from 2015 to 2022[1]. One station is situated downstream from the marine discharge point for effluent and collected site drainage (i.e., Source-1), while the remaining three stations are located approximately 250 m offshore from the outfall location to the northwest (WNE-1), north (North-1), and northeast (ENE-1), respectively (Figure 2-1, Table 2-1). The same sampling plan was applied to MP-06 in 2020 and so four water quality stations were monitored in 2023 downstream from the discharge (Source-2) and approximately 250 m offshore in different directions (WNE-2, North-2, ENE-2) (Figure 2-1, Table 2-1). As indicated in Table 2-1, due to the repositioning of the MP-05 discharge point, sampling points N-1 and ENE-1

[1] SEM 2016; SEM 2017; Golder 2018, Golder 2019, Golder 2020, Golder 2021, Golder 2022; WSP 2023

were adjusted to be approximately 250 m from the MP-05 discharge point. The new coordinates for the locations are in (Table 2-1), and the locations are mapped in Figure 2-1. The WNW-1 location has remained the same as previous sampling years due to the position of the jetty. These modifications did not affect the relevance of the data to address study objectives, or the reliability of the water quality data collected. The new coordinates for the locations are in Table 2-1 and the locations are mapped in Figure 2-1. Similar to previous years, efforts were made to collect water quality samples during active effluent discharge periods, given that site effluent discharges were intermittent during the 2023 open-water season.



LEGEND

DISCRETE WATER QUALITY SAMPLES

- MP-05 (MILNE PORT ORE STOCKPILE SEDIMENTATION POND [EAST])
- MP-06 (MILNE PORT ORE STOCKPILE SEDIMENTATION POND [WEST])

0 125 250

1:7,500 METRES

REFERENCE(S)

HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
WATER QUALITY SAMPLING STATIONS FOR THE MP-05 AND MP-06 MILNE PORT SITE DISCHARGES, MEEMP 2023

CONSULTANT

wsp

YYYY-MM-DD	2024-03-21
DESIGNED	PT
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000.04	0	2-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

25mm

0

PATH: I:\2016\166372402\Mapping\MXD\70000_2023\MEEMP\166372402_70000_04_2023MEEMP_Fig2_1_WaterQuality_Rev0.mxd PRINTED ON: Fri, 4/12/2024 1:51 PM

Table 2-1: 2023 Marine Water Quality Sampling Locations at MP-05 and MP-06

Site Discharge Location	Station Name	UTM Coordinates (17W)	
		Easting (m)	Northing (m)
MP-05 (Milne Port Ore Stockpile Sedimentation Pond [East])	Source-1 [a]	503510	7976481
	West Northwest (WNW) - 1	503540	7976599
	North (N) – 1	503615	7976655
	East Northeast (ENE) – 1 [b]	503727	7976510
MP-06 (Milne Port Ore Stockpile Sedimentation Pond [West])	Source-2	503044	7976445
	WNW-2	502828	7976474
	N-2	502943	7976619
	ENE-2	503114	7976665

Notes: UTM = Universal Transverse Mercator; m = meter.

The discharge point for MP-05 in 2023 was moved to be approximately 20 m north of the pond at UTM coordinates 17W 0503483 7976447 (P. Tomliens personal communication to C. Pettem, 14 June 2023).

[a] – On 11 August 2023 the MP-05 discharge was moved approximately 100 m west of where it was originally. The Source-1 sampling event was conducted at UTM coordinates 17W 503430 7976481. This, along with the 2023 MP-05 discharge relocation, are not expected to influence historical comparisons.

[b] – On 15 August 2023 MP05-ENE was moved approximately 70 m west to 17W 0503653 7976508 due to a fuel line obstructing the sampling station and wind/weather.

2.2.2 Indicators and Thresholds

Indicators and thresholds selected for the MEEMP program are described in Section 1.4.2. For marine water quality, a number of parameters are measured, including physical parameters, nutrients, metals, and hydrocarbons. A subset of these parameters (i.e., metals, total suspended solids [TSS], nutrients, and hydrocarbons) are identified as performance indicators to assess potential effects of effluent discharge on the receiving environment. To provide early warning of environmental effects from the Project, applicable water quality guidelines (WQGs) are used as a threshold where these exist (i.e., Canadian Council of Ministers of the Environment [CCME] WQGs for the protection of aquatic life in marine environments [CCME 2023]). For indicators with no associated WQG, such as iron, concentrations were compared to the data range from previous years (2015-2022). If a guideline exceedance was seen, or where no guideline exists, there was an increasing trend over time, then the effluent data from the discharge were reviewed to determine if the observed increase in these parameters was related to effluent discharges from MP-05 and MP-06.

Along with several other components of the MEEMP, the marine water quality monitoring program has indicators, thresholds and risk categories that are part of Baffinland's Trigger Action Response Plan (TARP), an adaptive management process. The TARP uses effect indicators that are measured against a series of tiered thresholds (i.e., low, moderate and high-risk thresholds) that are designed to guide short-term and long-term adaptive management strategies as outlined in Baffinland (2024). Baffinland has updated the TARP as part of the revised draft Marine Monitoring Plan (Baffinland 2023). The pre-defined actions identified in the TARP describe the responses that Baffinland would implement should the corresponding threshold levels be exceeded and assuming there is some degree of certainty that the measured change is Project-related. As adaptive management is beyond the scope of the present report, only the indicators, risk categories and thresholds are presented here (section 2.3.4).

2.3 Materials and Methods

2.3.1 Field Methodology

Water quality samples were collected during five sampling events scheduled between 4 and 23 August 2023 to monitor for potential changes in water quality associated with site drainage and effluent discharges to the marine environment (including iron ore stockpile run-off). Samples were typically collected every few days over this period; however, some flexibility was built into the sampling program to facilitate the collection of effluent and receiving water quality samples from the same discharge period to allow for direct comparisons.

Water samples were collected from just below the surface (1 to 2 m) or mid-water column depth from the deeper sample MP-06 locations (MP-06-WNW, MP-06-North, and MP-06-ENE) from a zodiac vessel using a 2.0 L vertically oriented Kemmerer bottle sampler. The sampler was washed with laboratory-grade detergent and then rinsed with site-water prior to sample collection at each station. Samples were preserved in the field according to laboratory instructions and kept refrigerated until they were shipped (within 48 h of sample collection) on ice in coolers to ALS Canada Ltd. (ALS), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited analytical laboratory. To further limit the time between sample collection and preservation, dissolved metals and mercury samples were field-filtered and preserved, rather than being filtered by the analytical laboratory upon sample receipt. Samples were analyzed for routine parameters, TSS, nutrients, major ions, total and dissolved metals (including mercury), benzene, toluene, ethylbenzene, xylenes, hydrocarbons, and PAHs. At each sampling station, in situ water quality measurements were conducted using a YSI multiparameter meter. Instrumentation was deployed once per station at the same depth as the discrete water quality sample to collect measurements of conductivity, temperature, depth, dissolved oxygen, turbidity, and pH. A full list of field water quality parameters is provided in Appendix 2A in the field data sheets, while a full chemistry parameter list is provided in the analytical reports in Appendix 2B. A total of three field duplicates and three field blank quality control (QC) samples were collected during the field program for Quality Assurance / Quality Control (QA/QC) purposes as discussed in Section 2.3.3.

The frequency of sampling for hydrocarbons (Petroleum hydrocarbons [BTEX/F1]; Hydrocarbons [LEPH/HEPH], F2-F4, Polycyclic Aromatic Hydrocarbons [PAHs]) in 2023 was consistent with the 2021 and 2022 sampling programs. Organic constituents have not been detected in water samples collected since 2015. As such, for each of the five sampling events, hydrocarbons were sampled at two of the four receiving environment stations established for each of the two discharges, for a total of twenty samples.

2.3.2 Data Analysis

Descriptive summary statistics (i.e., mean, minimum, maximum) were calculated for each sampling station over the five sampling events. For statistical calculations, the value of the reported detection limit (DL)[2] was conservatively used for measurements reported to be below the DL. The 2023 summary statistics were screened against the CCME WQGs for the protection of aquatic life in marine environments (CCME 2021). For parameters of interest without an applicable CCME WQG (e.g., iron), concentrations were qualitatively compared to the range of water concentrations reported in previous years (i.e., annually from 2015 to 2022). A point to note, analytical improvements in the ability to detect iron were made in 2017, which reduced the detection limit to <10 µg/L from

[2] The lowest concentration at which individual measurement results for a specific analyte are statistically different from a blank (that may be zero) with a specified confidence level for a given method and representative matrix.

the DL of 500 µg/L reported in the 2015 and 2016 MEEMP programs. Differences in the sensitivity of DL precludes comparison of the 2023 iron data to pre-2017 iron data.

The application of CCME WQGs to total concentrations measured in the environment can be conservative, especially when those metals are part of the mineral matrix that makes up the particle. This is because total metal concentrations reflect both the proportion of metals associated with particles as well as dissolved in the water column. Dissolved concentrations[3] tend to provide a more realistic indication of the bioavailable concentration for direct uptake from the water, particularly in turbid receiving environments (Chapman and Wang 2000); however, water quality guidelines for the protection of aquatic life are generally based on total (not dissolved) concentrations. WQGs are derived from laboratory-based toxicity tests where exposure concentrations are based on metals in solution from metal salts and the laboratory test water has a low level of suspended matter (i.e., clear water). Typically, these toxicity tests involve exposure of test fish, invertebrate, or plant species to more bioavailable dissolved metal concentrations, whereas the exposure guideline is based on total concentrations, thus contributing to conservatism in the derivation of water quality guidelines.

Baffinland was responsible for summarizing the 2023 effluent data from MP-05 and MP-06 as per the Type A Water Licence requirements and results are reported by Baffinland separately.

2.3.2.1 Analysis of Temporal Trends of Iron Concentrations

The analysis of iron concentrations was performed separately for MP-05 and MP-06 data. For MP-05, where seven years of data were available, the temporal trend was analyzed using year as a continuous variable. The variable was modeled as a natural cubic spline with three degrees of freedom, to account for the non-linearity in temporal trends in fines. For MP-06, where only four years of data were available, the temporal trend was analyzed using year as a categorical variable. For both analyses, the models included three fixed effects – the main effects of year and site, and the interaction between year and site. In addition, a random effect of date (as a categorical variable) was used to account for variability between sampling days.

Both analyses were conducted using beta regressions using the package glmmTMB (Brooks et al. 2017) in the statistical package R v. 4.3.2 (R 2023). Following both regressions, if the interaction between year and site, or the main effect of site were significant, multiple comparisons between years within each site were performed using the package emmeans (Lenth 2020).

2.3.3 Quality Management

Consistent application of quality assurance/quality control (QA/QC) measures facilitates the collection of high-quality data which, in turn, increases confidence in the robustness of results. Quality management procedures were applied to the field collection, data analysis, and reporting tasks for the water quality program to verify that the data presented are valid and of acceptable quality to address MEEMP objectives.

[3] The measure of “dissolved” metals is an operational definition based on whether the metal passes through a small (0.45 micrometre [µm]) filter (BC MWLAP 2013)

2.3.3.1 Field QA/QC

Field staff were trained to be proficient in standardized sampling procedures, data recording using standard forms, and equipment operations applicable to the monitoring program. Field work was conducted according to specified instructions and established technical procedures for standard sample collection, preservation, handling, storage, and shipping procedures.

General QA/QC tasks applicable to the water quality program included, but were not limited to, the following:

- Preparing geo-referenced field maps for use during the program to accurately document sampling locations and project-specific data collection forms to standardize the field data collection process.
- Regular communications between the Project Manager and field staff.
- Collection of Quality Control (QC) samples in the field (field duplicates and blanks).
- Accredited laboratories were selected for sample analysis and the performance quality of these laboratories was verified through WSP's internal vendor approval and assessment procedures.
- Field data sheets were reviewed by the field supervisor at the end of each day for completeness and accuracy.
- Chain-of-custody documentation was used to track sample shipments to the individual subcontractor laboratories.
- Samples were packaged and shipped to the laboratory in accordance with required holding times and storage conditions.

Field blanks were collected to identify potential sources of contamination during field sampling. Field blank sample containers were filled with de-ionized water in the laboratory and then processed in the field in the same manner as water samples from each station (i.e., uncapped, treated with preservative, re-capped). Five field duplicates and three field blanks were collected over the five sampling events.

2.3.3.2 Laboratory and Data Analysis QA/QC

Laboratory QA/QC reports were reviewed upon receipt to confirm adherence to sample hold times and laboratory data quality objectives (DQOs), and that the appropriate QA/QC information had been reported. Laboratory QA/QC included verification of recommended sample holding times and the analysis of laboratory control samples, laboratory duplicates, and spiked samples to assess the reliability and reproducibility of the data.

The analysis of field QC samples involved a review of field blank results. Notable results were those detected in the field blanks that were greater than five times the respective DL, in accordance with the BC Field Sampling Manual (BC MWLAP 2013). To assess variability between field duplicates, the Relative Percent Difference (RPD) was calculated as follows:

$$RPD = \left(\frac{sample - duplicate}{(sample + duplicate)/2}\right) \times 100$$

In accordance with the BC Field Sampling Manual (BC MWLAP 2013), an RPD value of >20% was used to identify differences between original and duplicate samples. Values less than five times the Method Detection Limit (MDL) were not included in the RPD calculations because analytical variability near the MDL is higher and does not provide a good measure of variability associated with the collection of field samples.

2.3.4 TARP Assessment

As part of applying the Trigger Action Response Plan (TARP), water quality performance indicators were screened against condition status/thresholds in 2023, in order to assess risk levels for each performance indicator (Table 2-2).

Table 2-2: Marine Environment TARP Framework for Water Quality (Baffinland 2023)

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Water Quality	• Metals • TSS • Hydrocarbons • Nutrients	30-day mean concentration of a parameter is greater than 75% of an applicable CCME long-term guideline[1]. AND Effluent monitoring and spatial and temporal water quality data suggest a pattern indicative of effects from the Port's effluent discharge	Confirmed[2] exceedance of an effects benchmark or an applicable CCME long-term guideline[2] by a mean concentration. AND Effluent monitoring and spatial and temporal water quality data suggest that the confirmed increase in this parameter is related to the Port's effluent discharge.	To be determined based on outcome of moderate response investigations.

[1] Canadian Council of Minsters of the Environment (CCME) water quality guidelines for the protection of marine aquatic life. With the exception of silver, total suspended solids (TSS), and turbidity, these are long-term water quality guidelines intended to be applied to the average concentration at a receiving environment station collected over a 5-in-30 sampling program (i.e., average of 5 discrete samples collected over a 30-day period). In lieu of a long-term guideline for silver, the short-term guideline will be applied to discrete measured concentrations. The long-term guidelines for TSS and turbidity will be used.

[2] Confirmed indicates that the Risk Status/ Threshold trigger has been observed in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study.

2.4 Results

2.4.1 QA/QC Results

The 2023 marine water quality data were considered valid based on the results of the QA/QC assessment provided in Appendix 2D for the following reasons:

- Most chemical analyses on surface water samples were completed within the sample hold time requirements, with the exception of some hold time exceedances for parameters such as DOC, nitrite, nitrate, turbidity, and pH (Appendix 2D). Although exceedances of sample hold time requirements have been documented, the hold times for the parameters in question are relatively short. Given the remote location of the site, such exceedances were unavoidable, and so efforts were taken to minimize the extent of any hold time exceedances. The hold time exceedances did not affect interpretation of the 2023 water quality data. Baffinland continues to minimize hold time exceedances where feasible given the northern location of the sampling program.
- Water sample temperature was slightly above laboratory thresholds (< 10ºC) in three of the five sampling events (VA23B8519, VA23B9367, and VA23C0016), with measured sample temperatures between 12 and 17ºC. These water temperatures did not affect interpretation of the data and were for a limited time period.
- Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment because there was a low frequency and magnitude of notable detected concentrations in blank QC samples and low variability between duplicates QC samples (Appendix 2D).

Overall, the QA/QC results indicate that the water chemistry data collected during the 2023 MEEMP are of acceptable quality to address the objectives stated in Section 2.1.1.

2.4.2 Marine Water Quality Results

Field water quality measurements are documented in Appendix 2A, and laboratory reports are provided in Appendix 2B. The field measurements and laboratory raw data for each station sampled in 2023 are summarized in Appendix 2C. Summary statistics (mean, maximum, and minimum) for the 2023 water quality program calculated from these data are presented in Table 2-3. Summary statistics for parameters of interest for the seven monitoring years between 2015 and 2023 are provided in Appendix 2E – Table 1.

2.4.2.1 Conventional Parameters

The pH values in 2023 water samples collected downstream of both discharge points ranged from 7.8 to 8.0 (Table 2-3) and were within the CCME WQG range for marine waters (7.0 to 8.7) and within the pH range (7.0 – 8.2) reported in previous years (Appendix 2E – Table 1). Total suspended solids were low in most samples (<2 mg/L in 36 of 40 collected samples), with a maximum concentration of 3.1 mg/L in a sample collected from the MP-06 North location on 15 August 2023. Turbidity levels were similarly low (<0.1 NTU to 1.6 NTU) and both TSS and turbidity values were below CCME WQGs and within previously observed annual ranges (Appendix 2E – Table 1). Salinity ranged from 1,000 mg/L to 32,000 mg/L in 2023, reflective of an estuarine environment (i.e., one that fluctuates between brackish and fully saline) and dissolved oxygen levels at all stations were indicative of well-oxygenated conditions (>90% saturation; >9.9 mg/L) (Table 2-3).

2.4.2.2 Nutrients

Nutrients were mostly undetectable over the five sampling events and where detected, concentrations were low and below applicable CCME WQGs[4]. Nitrate concentrations downstream of both discharges in 2023 were largely below the detection limit, with a combined mean concentration of 0.02 mg-N/L and a maximum concentration of 0.19 mg-N/L. Nitrate concentrations in 2023 were consistent with those reported in 2022 for the MP-05 and MP-06 discharge stations, with similar mean concentrations (Table 2-3; Appendix 2E – Table 1). Nitrite concentrations were below detection in 2023, and the combined mean concentration of total ammonia was 0.006 mg-N/L (Table 2-3; Appendix 2C).

2.4.2.3 Metals

Measured metal concentrations downstream of both discharges were lower than applicable CCME WQGs over the five sampling events.

Total concentrations for a number of metals[5] were low and often not detectable in each of the 2023 samples (Appendix 2C). For other metals (i.e., chromium and iron), detectable concentrations were driven by the particulate form as corresponding dissolved concentrations were below detection limits.

Iron is the metal of primary interest for the MEEMP. A CCME marine WQG for iron is not available and, as such, the 2023 iron data were compared to the 2015 and 2022 range measured downstream from the MP-05 and MP-06[6] discharges (Table 2-3, Appendix 2E – Table 1). Iron concentrations detected downstream of both discharges in 2023 were within detected concentrations measured from 2017 to 2022, which ranged from <10 to 286 mg/L (Appendix 2E – Table 1). The maximum total iron concentration in 2023 (40 µg/L) is below the maximum total iron concentration of 96 µg/L measured in 2022 (Table 2-3, Figure 2-2, Figure 2-3). Total iron concentrations were below detection limits in 17 of the 40 samples collected in 2023.

The temporal trend in iron concentrations for the MP-05 and MP-06 sampling locations from 2017 onwards is shown in Figure 2-2 and Figure 2-3. Total iron concentrations in marine water samples collected in 2023 remained within the range measured in previous years in the receiving environments of the MP-05 and MP-06 site discharges, and was lower than measured in 2022. Dissolved iron concentrations were below detection limits in each of the samples collected in 2023 (Table 2-3), meaning the majority of detectable iron concentrations were driven by the particulate form and less bioavailable for uptake by aquatic biota.

[4] No CCME marine WQGs are available for ammonia and nitrite.

[5] Total antimony, beryllium, bismuth, cesium, gallium, mercury, nickel, phosphorus, rhenium, selenium, silicon, silver, tellurium, thallium, thorium-232, tin, titanium, tungsten, yttrium, and zinc.

[6] Receiving water quality data for the MP-06 discharge are only available from 2020 onwards.

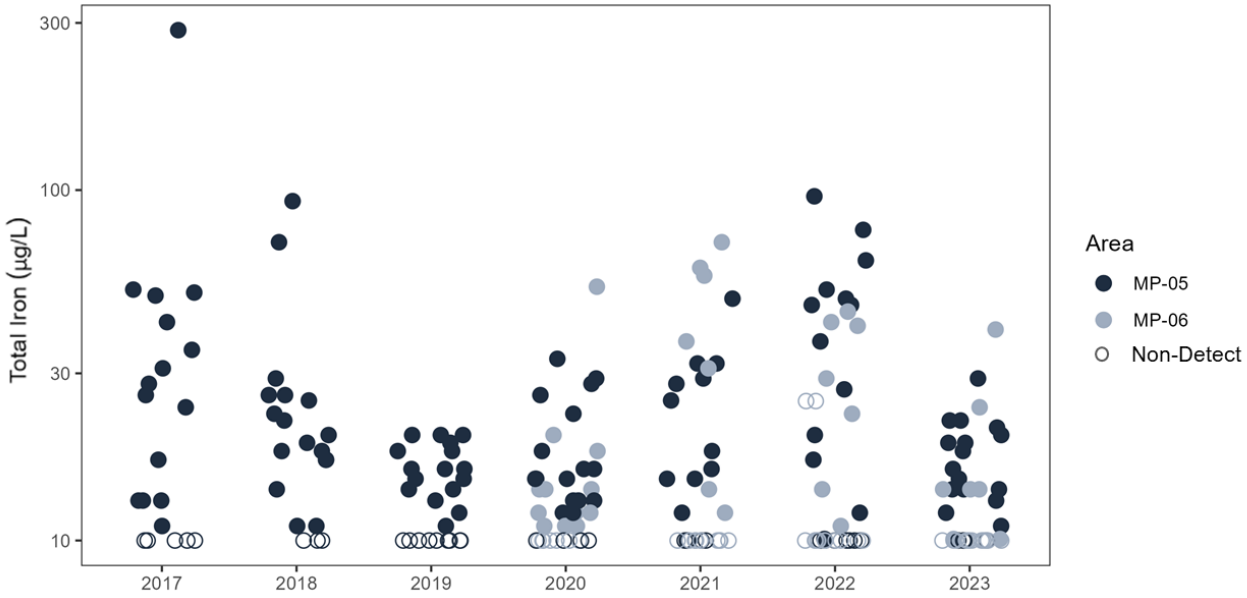


Figure 2-2: Receiving Environment Total Iron Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2023).

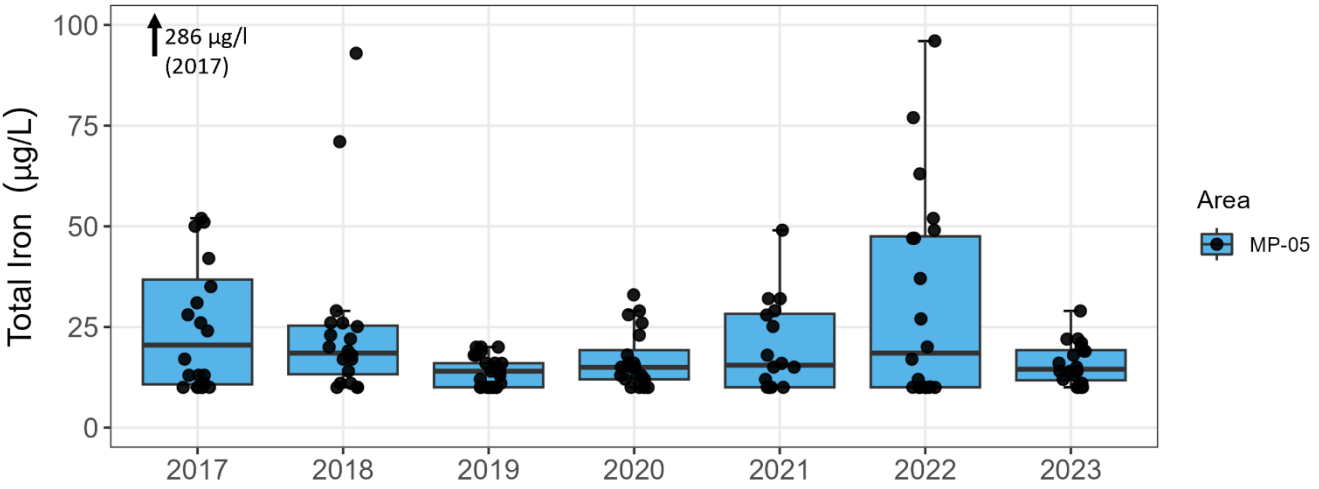


Figure 2-3: Receiving Environment Total Iron Concentrations in Milne Inlet for the MP-05 Milne Port Site Discharges, (2017-2023).

In addition to iron, several other metals of interest also do not have CCME marine WQGs. In these cases, comparisons of 2023 concentrations were made to the ranges reported in the 2015 to 2022 MEEMP water quality dataset (Appendix 2E – Table 1). These comparisons indicate that all measurements downstream from the primary site discharges MP-05 and MP-06 in 2023 were within range reported from previous years, and decreasing for the most part. In 2022, the mean total copper concentration of 3.5 µg/L for MP-05 and MP-06 (combined) was higher than mean concentrations calculated for previous years. However, in the 2023 sampling program, mean total copper concentrations were 1.2 µg/L, roughly 3-times lower than that measured in 2022 (Figure 2-4 and Figure 2-5), with less variability in the 2023 measurements.

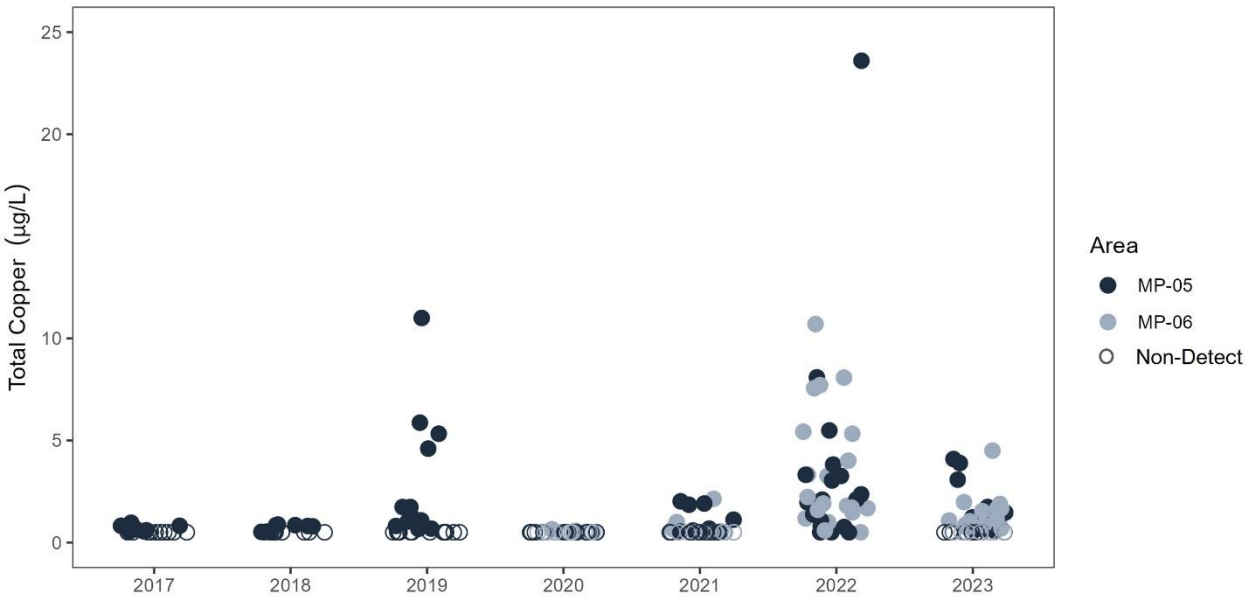


Figure 2-4: Receiving Environment Total Copper Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2023).

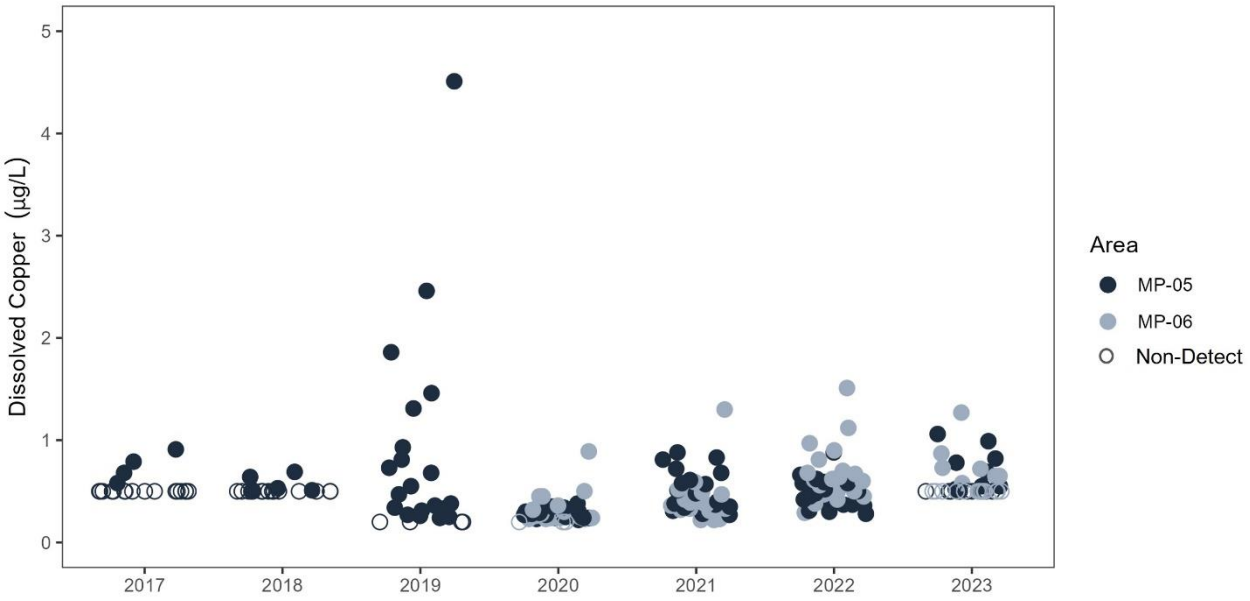


Figure 2-5: Receiving Environment Dissolved Copper Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2023).

2.4.2.4 Analysis of Temporal Trends of Iron Concentrations

In the analysis of MP-05 data, the interaction between year (as a continuous variable) and station was not significant, as was the main effect of year (P>0.9 for both). That is, there was no significant temporal trend in total iron concentration, with the largest absolute changes in iron concentrations ranging from -7%/year for ENE, WNW, and Source in 2018 to +2%/year for N in 2020 (Figure 2-6). The main effect of station was significant (P=0.039), with effect sizes ranging from -20% (difference between ENE and Source sites) and +21% (difference between Source and WNW sites); however, none of the pairwise comparisons were significant (P>0.4 for all).

There was sufficient power to detect a single-year decrease or increase in iron concentrations at effect sizes of -60% and +120%, respectively (Appendix 2F). Observed maximum effect sizes for every two consecutive years in the data were small and ranged from +5% (comparison between 2020 and 2019 for N) and +15% (comparison between 2021 and 2020 for Source). Due to the low statistical power to detect relevant effect sizes, the temporal effects should be assessed using effect sizes rather than a strict adherence to statistical significance.

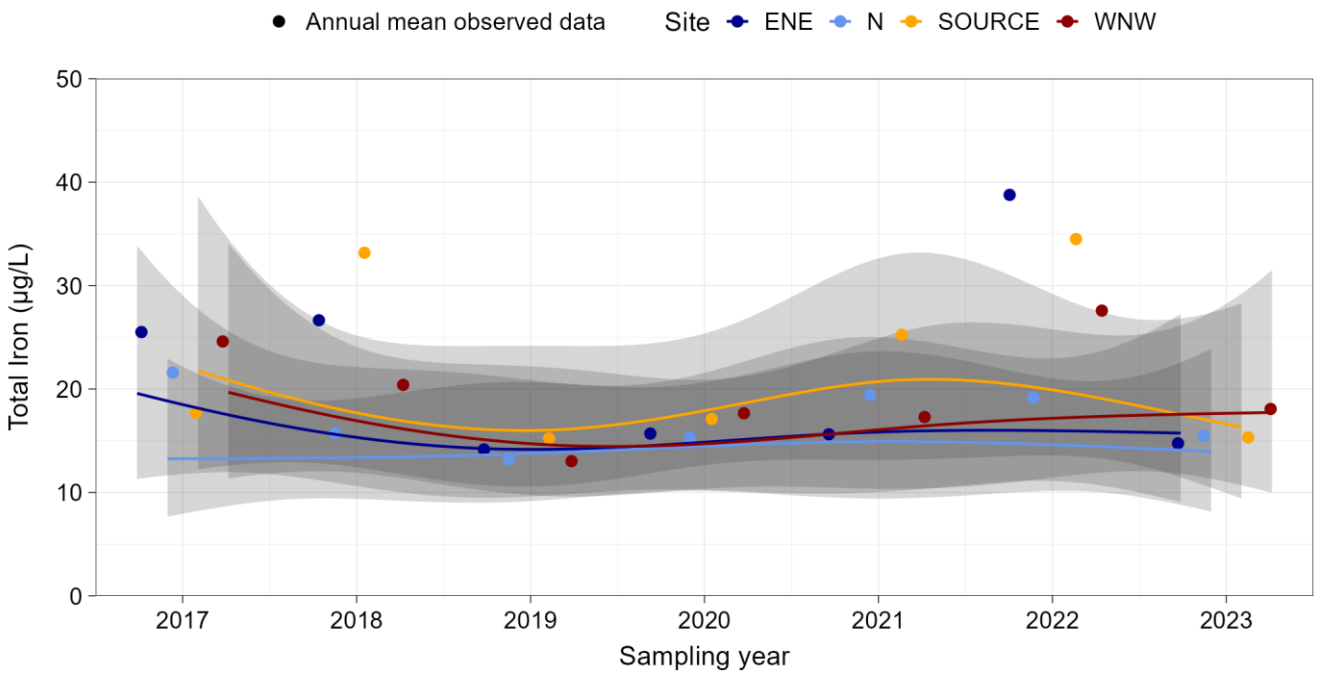


Figure 2-6: Observed Annual Means (Points) and Estimated (Lines and Ribbons) Iron Concentrations in Milne Inlet for the MP-05 Milne Port Site, 2017-2023. Ribbons are 95% Confidence Intervals.

In the analysis of MP-06 data, the interaction between year (as a categorical variable) and station was significant (P<0.001), indicating a difference in temporal trends of iron concentrations between sites (Figure 2-7). Overall, 2023 estimates were lower than previous sampling years in 10 out of the 12 comparisons, with effect sizes ranging from -83% (comparison between 2023 and 2022 for ENE) and -3% (comparison between 2023 and 2021 for Source). In the two cases where 2023 were not lower than previous sampling years, the effect sizes were small, with values of +12% (comparison between 2023 and 2020 for Source) and +14% (comparison between 202023 and 2022 for N).

Of the multiple comparisons between years within each site, 2023 values for ENE were 77% lower than 2020 (*P*=0.023), 81% lower than 2021 (*P*=0.015), and 83% lower than 2022(*P*=0.004). None of other the pairwise comparisons were significant (*P*>0.1 for all), despite large effect sizes, ranging from a 68% decrease in iron between 2020 and 2022 for N to a 47% increase in iron between 2020 and 2022 for Source. That is, at MP-06, iron concentrations at ENE were significantly lower in 2023 compared to all previous years, while no significant temporal differences were found for the remaining three sites despite large effect sizes. There was sufficient power to detect a single-year decrease or increase in iron concentrations at effect sizes of -60% and +150%, respectively (Appendix 2F). Due to the low statistical power to detect relevant effect sizes, the temporal effects should be assessed using effect sizes rather than a strict adherence to statistical significance.

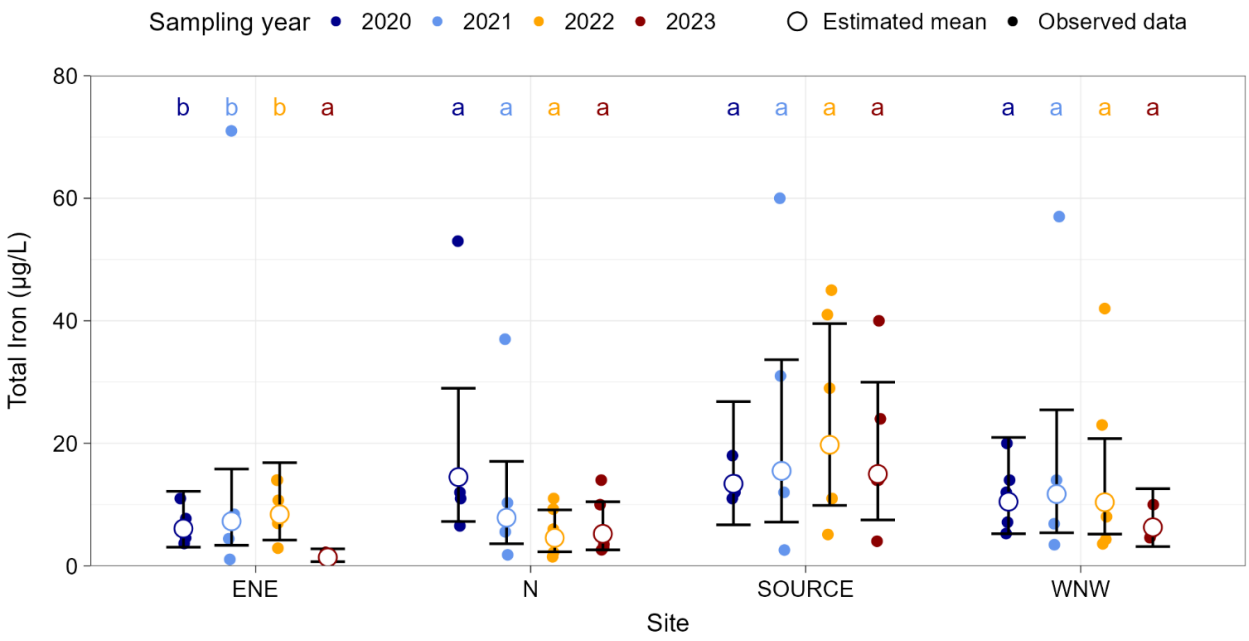


Figure 2-7: Observed (Points) and Estimated (Lines and Error Bars) Iron Concentrations in Milne Inlet for the MP-06 Milne Port Site, 2020-2023. Error bars are 95% Confidence Intervals. Years with Different Letters Indicate Significant Difference within the Site.

2.4.2.5 Hydrocarbons

Hydrocarbons and PAHs were not detected in any water quality sample collected during the 2023 MEEMP. Hydrocarbons have consistently been below DLs since sampling was initiated in 2015 (SEM 2016; SEM 2017; Golder 2018; Golder 2019; Golder 2020; Golder 2021; Golder 2022; WSP 2023).

2.4.3 TARP Assessment

Results of the water quality assessment above were screened against the TARP criteria (Table 2-2). The ‘Low Risk’ threshold was not triggered in 2023 because the 30-day mean for each water quality indicator was less than 75% of the applicable CCME water quality guideline for the protection of aquatic life, and iron did not show a spatial pattern or a temporal trend indicative of effects from the Port’s effluent discharge.

Table 2-3: Marine Water Quality – Receiving Environment Summary Statistics for the MP-05 and MP-06 Milne Port Site Discharges over the Five Sampling Events in 2023

Parameter	CCME Marine WQG for Protection of Aquatic Life[a]		MP-05			MP-05			MP-05			MP-05			MP-06			MP-06			MP-06			MP-06		
			ENE 1 (n=5)			North 1 (n=5)			Source 1 (n=5)			WNW 1 (n=5)			ENE 1 (n=5)			North 1 (n=5)			Source 1 (n=5)			WNW 1 (n=5)		
	Short Term	Long Term	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Physical																										
pH	—	7.0-8.7	7.9	7.9	8.0	7.9	7.9	8.0	7.9	7.8	8.0	7.9	7.9	8.0	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.9	8.0	8.0	7.9	8.0
Salinity (PSU)[b]	—	—	14	4	23	12	2	21	9	1	19	10	1	17	31	31	32	31	31	32	13	2	29	31	30	31
TSS (mg/L)	<25 mg/L above background	<5 mg/L above background	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.1	< 2.0	2.3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.2	< 2.0	3.1	2.1	< 2.0	2.3	2.2	< 2.0	2.8
Turbidity (NTU)	<8 NTU above background	<2 NTU above background	0.4	0.2	0.7	0.4	0.2	0.6	0.6	0.3	1.1	0.5	0.3	1.0	0.2	< 0.1	0.3	0.3	< 0.1	1.1	0.6	0.2	1.6	0.2	< 0.1	0.5
Nutrients (µg/L)																										
Nitrate (as N)	339,000	45,000	< 10	< 10	< 10	< 10	< 10	< 10	18.8	< 10	40	12.8	< 10	20	< 10	< 10	< 10	< 10	< 10	< 10	45.6	< 10	188	11	< 10	15
Total Metals (µg/L)																										
Aluminum	—	—	11	< 5	15	11	< 5	14	20	< 5	52	15	6	25	7	< 5	12	6	< 5	8	11	< 5	17	7	< 5	10
Arsenic	—	12.5	0.80	< 0.40	1.19	0.72	< 0.40	1.24	0.63	< 0.40	1.09	0.59	< 0.40	0.91	1.62	1.58	1.65	1.64	1.54	1.81	0.78	< 0.40	1.56	1.60	1.52	1.68
Cadmium	—	0.12	0.021	< 0.020	0.023	0.021	< 0.020	0.023	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.022	< 0.020	0.025	0.023	< 0.020	0.028	< 0.020	< 0.020	< 0.020	0.022	< 0.020	0.025
Chromium	—	1.5 (Cr(VI))	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Copper	—	—	2.0	< 0.5	4.1	1.5	< 0.5	3.9	0.6	< 0.5	1.1	0.7	< 0.5	1.2	0.7	< 0.5	1.1	1.2	< 0.5	2.0	1.7	< 0.5	4.5	1.1	< 0.5	1.7
Iron	—	—	15	< 10	20	14	< 10	21	15	< 10	22	19	< 10	29	< 10	< 10	< 10	11	< 10	14	20	< 10	40	< 10	< 10	< 10
Mercury	—	0.016	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver	7.5	—	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
PAHs (µg/L)																										
Naphthalene	—	1.4	-	-	-	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	< 0.050	-	-	-	< 0.050	< 0.050	< 0.050	-	-	-

Notes: (a) = Guidelines taken from CCME Marine WQG for the protection of Aquatic Life (http://ceqg-rcqe.ccme.ca/download/en/221); (b) Salinity reported as PSU by ALS and converted to mg/L for the purpose of this table. Bold Font = max exceeding a short term guideline or mean exceeding a long term guideline; CCME = Canadian Council of Ministers of the Environment; WQG = water quality guidelines; Min = minimum; Max = maximum; — = no guideline available; PSU = practical salinity unit; TSS = total suspended solid; mg/L = milligrams per liter; < = less than; N = Nitrogen; Cr(VI) = hexavalent chromium; PAH = polycyclic aromatic hydrocarbon; µg/L = micrograms per liter; mL = milliliter.

2.5 Discussion

In 2023, concentrations of conventional water quality parameters, major ions, nutrients, and metals were often not detected in the water samples and did not exceed applicable CCME WQGs downstream from either discharge (Table 2-3) and therefore are not anticipated to result in adverse effects on water quality and, by extension, aquatic biota in the receiving environment. Where guidelines were not available, maximum concentrations downstream of both discharges were within detected concentration ranges measured from the 2015 to 2022 MEEMP water quality dataset and decreasing for many analytes when compared to previous years. For both discharges, hydrocarbons and PAHs were not detected in downstream water samples, consistent with results from previous sampling years. Therefore, monitoring results from 2023 remain within original FEIS predictions (see Table 1-1), which forecasted no significant residual effects on water quality but indicated the potential for minor localized increases in TSS, nutrient, metal, and hydrocarbon concentrations.

Water quality monitoring in 2023 shows that iron concentrations in marine water samples collected in 2023 remained within the range measured in previous years and were lower than measured in 2022. Results of the trend analysis indicated that 2023 MP-06 total iron concentrations were statistically lower than previous sampling years, with effect sizes ranging from -83% (comparison between 2023 and 2022 for ENE) and -3% (comparison between 2023 and 2021 for Source). The 2023 MP-05 concentrations were lower in 2023 than measured in 2022, however statistical significance was not seen in the trend analysis.

It should be noted that for iron to be biologically available to phytoplankton and other marine biota, it generally needs to be in a dissolved form so that it can effectively cross biological membranes. Because iron ore particulates stored at the site are in mineral form, they would be expected to predominantly settle in marine sediments where they would be biologically inert. Dissolved iron concentrations were below detection limits in each of the samples collected in 2023, meaning the majority of detectable iron concentrations were driven by the particulate form and less bioavailable for uptake by aquatic biota. Environmental conditions in the receiving environment, such as pH, dissolved oxygen concentrations, and redox potential, can influence the proportion of biologically available iron that can be released from particulates into surrounding waters. According to Millero (1998) and Lis et al. (2015), in circumneutral pH and well oxygenated environments, similar to those observed in Milne Inlet, iron tends to be poorly soluble. As a result, many open ocean waters and some freshwater systems are characterized by low dissolved iron concentrations (Johnson et al 1997; McKay et al 2004). Accordingly, iron deposition from the Project, at both present levels and in its current form, is not expected to adversely effect aquatic life.

2.6 Conclusions and Recommendations

Site drainage and effluent discharge to the marine environment does not appear to have resulted in adverse effects on marine water quality, as measured concentrations in downstream waters were generally low and/or undetectable, below applicable guidelines, and largely consistent with previous years' measurements. With respect to iron, which is of primary concern for the Project, concentrations remain within the range measured in previous years in the receiving environments of the MP-05 and MP-06 site discharges and have decreased in comparison to the 2022 program. A clear visual trend of increased iron concentrations detected in water samples collected between 2015 and 2023 has not been observed from the laboratory analysis. Results of the trend analysis indicated that 2023 MP-06 total iron concentrations were statistically lower than previous sampling years, with effect sizes ranging from -83% (comparison between 2023 and 2022 for ENE) and -3% (comparison between

2023 and 2021 for Source). The 2023 MP-05 concentrations were lower in 2023 than measured in 2022, however statistical significance was not seen in the trend analysis. For water quality in general, monitoring results remain within original FEIS predictions, which forecasted no significant residual effects on water quality but indicated the potential for minor localized increases in TSS, nutrient, metal, and hydrocarbon concentrations.

These results confirm that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not adversely affected marine water quality. Moving forward, annual marine water quality monitoring is recommended to continue to evaluate whether site operations are affecting downstream water chemistry and to provide continuity in the established time series for the MEEMP. This recommendation is in line with commitments in the Project Certificate and the terms of the Type A Water Licence. Monitoring also serves to confirm that mitigation measures in place are working and to inform if additional mitigation or other adaptive management measures are required.

2.7 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.



Connor Pettem, MSc, RPBio
Environmental Scientist



Elaine Irving, PhD, RPBio
Senior Environmental Scientist

CP/EI/asd

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499b-r-rev0-70000/1663724-499b-r-rev0-70000-2023 meemp_2.0 marine water quality 15mar_24.docx

2.8 References

Baffinland (Baffinland Iron Mines Corporation). 2012. Mary River Project. Final Environmental Impact Statement. Volume 8: Marine Environment. 318 p. + appendices. February 2012.

Baffinland, 2013. Mary River Project – Addendum to the Final Environmental Impact Statement.

Baffinland. 2023. Marine Monitoring Plan (MMP) - Draft. Document #: BAF-PH1-830-P16-0046. NIRB File No. 08MN053. Public Registry Identification No. 344992.

BC MWLAP (British Columbia Ministry of Water, Land and Air Protection). 2013. British Columbia field sampling manual – for continuous monitoring and the collection of air, air–emission, water, wastewater, soil, sediment, and biological samples. Queens Printer, Victoria, British Columbia

Brooks M.E., K. Kristensen, K.J. van Benthem, A. Magnusson, C.W. Berg, A. Nielsen, H.J. Skaug, M. Maechler, and B.M. Bolker. 2017. glmmTMB balances speed and flexibility among packages for zero-inflated generalized linear mixed modeling. The R Journal. 9(2): 378-400

CCME (Canadian Council of Ministers of the Environment). 2023. Canadian Environmental Quality Guidelines. [accessed December 2023] https://www.ccme.ca/en/resources/pollution_prevention.html

Chapman, PM, Wang F. 2000. Issues in ecological risk assessment of inorganic metals and metalloids. Human and Ecological Risk Assessment: An International Journal 6: 965-988.

Golder. 2018. Mary River Project 2017 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-048R-Rev1; 9 April 2018. 504 p. https://www.baffinland.com/_resources/document_portal/1663724-048-r-rev0-meemp-2017-report-20feb18-2018-16-05-01-2018-09-07-11.pdf

Golder. 2019. Mary River Project 2018 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-092-R-Rev1-14000; 31 May 2019. 825 p. https://www.baffinland.com/_resources/document_portal/2018-milne-inlet-marine-environmental-effects-monitoring-program-and-aquatic-invasive-species-monitoring-final-report_2019-23-10-55.pdf

Golder. 2020. Mary River Project 2019 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-197-R-RevE-24000; 27 August 2020. 825 p. https://www.baffinland.com/_resources/document_portal/2018-milne-inlet-marine-environmental-effects-monitoring-program-and-aquatic-invasive-species-monitoring-final-report_2019-23-10-55.pdf

Golder. 2021. Mary River Project 2020 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-181a-R-Revb-34000; 23 April 2021. 825 p.

Golder. 2022. Mary River Project 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-349-R-Rev0-43000; 29 March 2022. 1047 p.

Johnson KS, Gordon RM, Coale KH. 1997. What controls dissolved iron concentrations in the world ocean? Marine Chemistry, 57: 137–161.

Lenth, R. 2020. emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.4.5.009003. https://github.com/rvlenth/emmeans

Lis H, Saked Y, Kranzler C, Keren N, Morel FMM. (2015). Iron bioavailability to phytoplankton: an empirical approach. ISME J. 9(4): 1003-1013.

McKay RML, Bullerjahn GS, Porta D, Brown ET, Sherrell RM, Smutka TM. 2004. Consideration of the bioavailability of iron in the North American Great Lakes: development of novel approaches toward understanding iron biogeochemistry. Aquatic Ecosystem Health 7: 475–490.

Millero FJ. 1998. Solubility of Fe (III) in seawater. Earth Planetary Science Letters, 154: 323–329.

Tomliens T. 2023. Environmental Field Lead, WSP Canada. MP-05 discharge location movement communication. Email to C. Pettem (WSP Canada). 14 August 2023.

R Core Team. 2023. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. URL www.R-project.org

SEM (Sikumiut Environmental Management Ltd.). 2016. 2015 Marine Environmental Effects Monitoring Program (MEEMP) Milne Inlet Marine Ecosystem. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario

SEM. 2017. 2016 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species Monitoring Milne Inlet Marine Ecosystem. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario

Spangenberg JV and Cherr GN. 1996. Developmental effects of barium exposure in a marine bivalve (*Mytilus californianus*). Environmental Toxicology and Chemistry, 15:1769-1774

Verbruggen EMJ, Smit CE, van Vlaardingen PLA. 2020. Environmental quality standards for barium in surface water. Proposal for an update according to the methodology of the Water Framework Directive. RIVM letter report 2020-0024

WSP 2023. Mary River Project 2022 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. WSP Doc. No. 1663724-430a-R-Rev0-64000; 28 April 2023. 1167 p

APPENDIX 2A

Water Quality Field Datasheets

Water Quality Field Log			Project title: 166372402 -				Baffinland MEEMP			
Date: 4 Aug 2023			Sampled By: NOB, MCR, JG				Discharging During Sampling: NONE! Too much rain ☐ MP05 ☐ MP06			
Weather: 8°C, raining			Wind Spd/Dir:				Tide: 0.1 m			
Sample Name	Depth (m)	# of Jars	Time	pH	DO (mg/L)	Conductivity (µg/L) SPC µS/cm	Temp (°C)	ORP	Turbidity (NTU)	Comments
MP05-Source-1-23	1	10	12:40	8.17	11.28	3879	11.3	209.2	0.55	DO% : 104.3
MP05-WNW-1-23	1	6	12:50	8.09	11.26	3689	11.3	200.7	0.38	103.1 DUP-A-23 from
MP05-North-1-23	1	10	12:58	7.98	11.0	103.03	11.5	215.7	0.40	104.8
MP05-ENE-1-23	1	6	13:06	8.04	11.12	7570	11.4	211.5	0.44	104.7 MP06-WNW-2-23
MP06-Source-2-23	1	10	12:15	8.10	11.32	41877	11.3	202.2	0.45	DO% 105.1
MP06-WNW-2-23	13	6	10:58	7.97	12.26	63548	0.7	263.4	0.07	DO% : X
MP06-North-2-23	20	6	11:26	8.05	12.83	64344	0.5	256.1	0.00	DO% : 118.1
MP06-ENE-2-23	17	10	11:45	8.08	12.11	63722	0.8	229.5	0.00	DO% 111.3
MLP-A-23	—	6	9:45	—	—	—	—	—	—	
DUP-A-23		6								

Date:		Sampled By:		Discharging During Sampling: ☐ MP05 ☐ MP06						
Weather:		Wind Spd/Dir:		Tide:						
Sample Name	Depth (m)	# of Jars	Time	pH	DO (mg/L)	Conductivity (µg/L)	Temp (°C)	ORP	Turbidity (NTU)	Comments
MP05-Source-1	1									
MP05-WNW-1	1									
MP05-North-1	1									
MP05-ENE-1	1									
MP06-Source-2	1									
MP06-WNW-2	13									
MP06-North-2	20									
MP06-ENE-2	17									

Water Quality Field Log — **Project title:** 166372402 - 70000 — Baffinland MEEMP

Date: 7 Aug 2023 — Sampled By: NOB AL NCR — Discharging During Sampling: NONE ☐ MP05 ☐ MP06

Weather: Sunny, 8°C — Wind Spd/Dir: — Tide:

Sample Name	Depth (m)	# of Jars	Time	pH	DO (mg/L)	SPC (uS/cm) Conductivity (µg/L)	Temp (°C)	ORP	Turbidity (NTU)	DO%	Comments
MP05-Source-1	1	10	14:15	8.12	11.96	18033	9.2	205.1	0.28	106.3	Event #3
MP05-WNW-1	1	6	14:08	8.18	11.60	17496	9.9	217.5	0.38	103.9	
MP05-North-1	1	10	13:57	8.10	11.12	27577	9.2	229.7	0.28	98.5	
MP05-ENE-1	1	6	13:46	8.23	12.14	28682	9.1	255.9	0.35	107.7	
MP06-Source-2	1	10	11:05	8.21	11.79	10058	8.8	233.8	0.33	105.3	DUP-B-23 @ MP05-Source-1
MP06-WNW-2	13	6	10:52	8.13	12.30	63218	1.0	259.6	0.08	113.3	
MP06-North-2	20	6	10:40	8.12	11.79	64161	0.7	251.9	0.00	109.0	
MP06-ENE-2	17	10	10:25	8.12	12.61	64005	0.7	265.1	0.00	116.9	
DUP-B		10									

Date: 11 AUG 2023 — Sampled By: NOB MCR SD — Discharging During Sampling: ☑ MP05 ☑ MP06 13:00

Weather: 8°C sunny — Wind Spd/Dir: 15 kt NE, gusting 20K+ — Tide: Falling

Sample Name	Depth (m)	# of Jars	Time	pH	DO (mg/L)	SPC (uS/cm) Conductivity (µg/L)	Temp (°C)	ORP	Turbidity (NTU)	DO%	Comments
MP06 ~~MP05-Source-2~~	1	10	13:49	6.85	11.96	NA	10.8	242.4	0	105.9	DUP-C-23 @ MP05-WNW
MP05-WNW-1	1	6	16:05	7.83	11.95	NA	10.4	306.6	0	~~105.9~~ 105.1	
MP05-North-1	1	10	16:20	6.13	11.71	NA	9.4	308.1	0	103.4	
MP05-ENE-1	1	6	16:32	6.10	11.70	NA	10.7	308.8	0	104.3	
~~MP06-Source-1~~ MP05-Source-1	1	10	15:46	6.87	0.86	NA	10.9	298.8	0	104.5	
MP06-WNW-2	13	6	14:39	7.79	15.83	NA	1.0	343.9	0	109.3	
MP06-North-2	20	6	14:25	7.86	11.86	NA	0.4	354.9	2.87	108.3	
MP06-ENE-2	17	10	15:00	7.98	11.49	NA	0.5	353.3	0	114.4	
DUP-C	—	6									
MLP-B	—	6									

MP06 source approx 100m W of WP new WP 011 → 17W 503430 7976481

MP05 Discharge was at 17W 503417 7976452

Water Quality Field Log — **Project title:** 166372402 - Baffinland MEEMP

Date: 15 Aug — Sampled By: PT, JG, KW, RK — Discharging During Sampling: ☒ MP05 ☒ MP06

Weather: Rain, Winds (15-17kn) — Wind Spd/Dir: 15-17kn South — Event #4 — Tide: Falling (ebb)

Sample Name	Depth (m)	# of Jars	Time	pH	DO (mg/L)	Conductivity (µg/L)	Temp (°C)	ORP	Turbidity (NTU)	DO %	Comments
MP05-Source-1	1	10	15:45	8.23	11.24	52345	3.9	344.3	0	107.3	MP05 actively discharging for past 24hr. MP06 discharging during sampling.
MP05-WNW-1	1	6	15:00	8.11	11.26	37430	7.0°C	344.9	0	108.1	
MP05-North-1	1	10	15:14	8.22	11.09	50933	3.8°C	349.4	0	105.1	
MP05-ENE-1	1	6	15:35	8.23	11.18	53036	3.5	353.6	0	105.8	
MP06-Source-2	1	10	16:19	8.23	12.76	55225	2.8	382.1	6.34	120.0	
MP06-WNW-2	13	6	17:48	8.24	11.88	60959	0.9°C	295.8	-2.94	109.2	DUP-D-23 @ MP06-Source-2
MP06-North-2	20	6	17:03	8.23	12.14	61600	0.6°C	292.9	-3.01	111.0	
MP06-ENE-2	17	10	17:26	8.22	12.88	61664	0.5°C	295.5	-2.92	117.6	
DUP-D-23	—	10	—								
MLP-C-23	—	6	—								

MP05-ENE-1 moved to MP013 (17W 0503653 7976508), 70m West, due to fuel line & wind/weather.

Date: 23 Aug — Sampled By: SD, — Discharging During Sampling: ☐ MP05 ☒ MP06

Weather: Sunny, calm — Wind Spd/Dir: N/A — Event #5 — Tide: Ebb (Falling)

Sample Name	Depth (m)	# of Jars	Time	pH	DO (mg/L)	Conductivity (µg/L)	Temp (°C)	ORP	Turbidity (NTU)	DO %	Comments
MP05-Source-1	1	10	8:14	6.79	11.02	34450	6.5	374.8	0	103.0	discharge started 7:58 MP05 MP06
MP05-WNW-1	1	6	8:28	6.30	10.58	27905	7.0	360	8	97.4	discharge @ 8:34
MP05-North-1	1	10	9:07	5.70	10.21	34009	6.8	359.9	8	96.1	
MP05-ENE-1	1	6	8:54	5.88	10.64	39025	6.2	361.3	0.06	95.2	
MP06-Source-2	1	10	9:24	5.47	9.91	32172	6.9	358.0	0	92.8	
MP06-WNW-2	13	6	10:15	8.05	12.07	55969	1.3	377.8	0	109.5	
MP06-North-2	20	6	9:45	7.56	11.77	57106	0.7	372.8	0	105.5	
MP06-ENE-2	17	10	10:00	8.01	11.98	56902	0.7	384.5	0		DUP-E-23 @ MP05-WNW-1
DUP-E-23	—	6	—								

Source 05 WNW & DUP ENE

S 06 & ENE

05 WNW N ENE Source 05

Source 06

APPENDIX 2B

Water Quality Analytical Reports

CERTIFICATE OF ANALYSIS

Work Order	: **YL2300991**	Page	: 1 of 16
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 08-Aug-2023 10:10
PO	: 166372402/70000/03	Date Analysis Commenced	: 10-Aug-2023
C-O-C number	: ----	Issue Date	: 24-Aug-2023 14:54
Sampler	: AL, MCR, NOB		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Chamoi Beckford	Lab Assistant	Metals, Burnaby, British Columbia
Christopher Li	Lab Assistant	Metals, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Prinson Dsilva	LIMS Support / Training Officer	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

For sample #3 "MP05-ENE-1-23", total Hg was marked as filtered, and Dissolved Hg was not. Hg will be run from the metals bottles. Results may be qualifiifed.

Qualifiers

Qualifier	*Description*
RRV	*Reported result verified by repeat analysis.*
SFP	*Sample was filtered and preserved at the laboratory.*

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		62.1	62.0	62.2	61.1	61.9
Conductivity	----	E100S/VA	2.0	µS/cm		2840	3010	6620	2010	4650
pH	----	E108/VA	0.10	pH units		7.84	7.86	7.88	7.87	7.87
Salinity	----	EC100S/VA	1.0	psu		1.4	1.5	3.5	1.0	2.4
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		1520	1600	3570	1050	2620
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	----	E121/VA	0.10	NTU		0.38	0.31	0.32	0.38	0.32
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		291	320	651	235	427
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		295	323	613	213	398
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	0.0056	0.0063	0.0062	<0.0050
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		<5.0	<5.0	6.2	<5.0	<5.0
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		770	840	1920	579	1340
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0074	0.0061	0.0055	0.0056	0.0075
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0056 SFP	0.0044	0.0038	0.0037	0.0052 SFP
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		96.8	97.9	241	65.6	175
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.72	0.71	0.63	0.66	1.14
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.09	1.04	1.23	0.93	1.22
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	0.0059	<0.0050
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		<0.00040	<0.00040	<0.00040	<0.00040	<0.00040

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Total Metals										
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0032	0.0032	0.0035	0.0030	0.0032
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		<0.30	<0.30	0.37	<0.30	<0.30
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		31.7	32.6	52.4	25.3	37.5
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		<0.020	<0.020	<0.020	<0.020	<0.020
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		52.4	58.7	117	36.5	73.9
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00063	0.00066	0.00070	0.00063	0.00064
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00054	0.00060	0.00110	0.00044	0.00075
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		15.8	16.8	34.8	10.4	21.8
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		<0.0050	0.0052	0.0106	<0.0050	0.0068
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		461	514	1090	310	720
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		0.330	0.351	0.757	0.235	0.470

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Total Metals										
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		37.0	39.6	86.5	24.7	54.9
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.000566	0.000618	0.000769	0.000547	0.000677
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	0.0055	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0029	0.0030	0.0032	0.0028	0.0030
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		<0.30	<0.30	0.41	<0.30	<0.30
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		30.8	32.6	52.8	26.4	38.6
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		0.00052	<0.00050	<0.00050	<0.00050	<0.00050
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		<0.020	<0.020	<0.020	<0.020	<0.020

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		52.0	57.9	126	41.0	80.3
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00059	0.00060	0.00068	0.00059	0.00060
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00048	0.00057	0.00110	0.00040	0.00066
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		15.2	16.6	35.9	11.1	22.9
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	0.0098	<0.0050	0.0062
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		405	431	910	269	580
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		0.289	0.311	0.658	0.201	0.409
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		36.7	40.1	91.2	26.6	56.2
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.000538	0.000546	0.000730	0.000516	0.000619
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	----	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Styrene	100-42-5	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Toluene	108-88-3	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		<0.40	<0.40	----	----	<0.40
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		<0.30	<0.30	----	----	<0.30
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
F2 (C10-C16)	----	E601/VA	100	µg/L		<100	<100	----	----	<100
F3 (C16-C34)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
F4 (C34-C50)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
F1-BTEX	----	EC580/VA	100	µg/L		<100	<100	----	----	<100
HEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
LEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
VPHw	----	EC580A/VA	100	µg/L		<100	<100	----	----	<100
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		89.2	88.1	----	----	89.6
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		86.3	84.9	----	----	86.9
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		101	105	----	----	102
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		92.1	94.1	----	----	92.6

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		104	104	----	----	103
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1+2-	----	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	<0.015
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	----	----	<0.020
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
PAHs, high molecular weight (BC AWQ)	n/a	E641A/VA	0.030	µg/L		<0.030	<0.030	----	----	<0.030
PAHs, low molecular weight (BC AWQ)	n/a	E641A/VA	0.060	µg/L		<0.060	<0.060	----	----	<0.060
PAHs, total (EPA 16)	n/a	E641A/VA	0.065	µg/L		<0.065	<0.065	----	----	<0.065
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		71.5	71.3	----	----	69.8

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	04-Aug-2023 12:40	04-Aug-2023 12:58	04-Aug-2023 13:06	04-Aug-2023 12:50	04-Aug-2023 12:15
						YL2300991-001	YL2300991-002	YL2300991-003	YL2300991-004	YL2300991-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates										
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		92.4	94.3	----	----	90.8
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		110	105	----	----	101

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-A-23	MLP-A-23
					Client sampling date / time	04-Aug-2023 11:26	04-Aug-2023 11:45	04-Aug-2023 10:58	04-Aug-2023 00:00	04-Aug-2023 09:45
						YL2300991-006	YL2300991-007	YL2300991-008	YL2300991-009	YL2300991-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		111	112	111	111	9.4
Conductivity	----	E100S/VA	2.0	µS/cm		49700	49400	49000	48600	56.9
pH	----	E108/VA	0.10	pH units		8.01	8.01	8.01	8.01	6.97
Salinity	----	EC100S/VA	1.0	psu		31.9	31.7	31.4	31.1	<1.0
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		33600	33400	33300	33600	27
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	----	E121/VA	0.10	NTU		0.22	0.10	0.14	0.30	<0.10
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		6290	6080	5860	5690	16.1
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		5570	5610	4960	4800	11.9
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	0.0061	0.0089	<0.0050	<0.0050
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		48.6	51.6	48.3	49.4	<5.0
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		14500	15400	14400	14800	<50
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		0.79	0.80	0.79	0.81	<0.20
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.073	0.080	0.082	0.090	<0.050
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	0.055 RRV
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0222	0.0222	0.0227	0.0237	<0.0020
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0225 SFP	0.0215 SFP	0.0216 SFP	0.0213 SFP	<0.0020 SFP
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		2380	2410	2350	2390	<3.0
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.93	0.93	0.81	0.74	<0.50
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.14	1.13	1.18	1.19	<0.50
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	0.0095	<0.0050	<0.0050
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00181	0.00162	0.00152	0.00175	<0.00040
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0085	0.0084	0.0084	0.0085	<0.0010

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-A-23	MLP-A-23
					Client sampling date / time	04-Aug-2023 11:26	04-Aug-2023 11:45	04-Aug-2023 10:58	04-Aug-2023 00:00	04-Aug-2023 09:45
						YL2300991-006	YL2300991-007	YL2300991-008	YL2300991-009	YL2300991-010
						Result	Result	Result	Result	Result
Total Metals										
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		3.42	3.47	3.39	3.34	<0.30
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		417	415	398	395	<1.0
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		0.000064	0.000050	0.000053	0.000052	<0.000050
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		<0.00050	0.00070	<0.00050	<0.00050	<0.00050
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.151	0.151	0.140	0.138	<0.020
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		1100	1110	963	925	2.9
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00044	0.00043	0.00049	0.00050	<0.00020
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.0113	0.0114	0.0106	0.0108	0.00011
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		341	340	328	328	1.1
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.109	0.105	0.102	0.103	<0.0050
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		10300	10200	10100	10100	6.9
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		8.08	7.83	7.48	7.57	<0.010
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		874	865	847	823	<5.0

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-A-23	MLP-A-23
					Client sampling date / time	04-Aug-2023 11:26	04-Aug-2023 11:45	04-Aug-2023 10:58	04-Aug-2023 00:00	04-Aug-2023 09:45
						YL2300991-006	YL2300991-007	YL2300991-008	YL2300991-009	YL2300991-010
						Result	Result	Result	Result	Result
Total Metals										
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00306	0.00294	0.00277	0.00283	<0.000050
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		0.00137	0.00141	0.00133	0.00132	<0.00050
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	0.0170	<0.0030	0.0065
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	0.0097	<0.0050	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		0.00160	0.00174	0.00157	0.00162	<0.00040
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0080	0.0079	0.0078	0.0077	<0.0010
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		4.10	4.20	3.75	3.85	<0.30
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		409	408	400	399	<1.0
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		<0.00050	0.00087	<0.00050	<0.00050	<0.00050
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.160	0.149	0.144	0.134	<0.020
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		1280	1230	1180	1140	3.9 RRV

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-A-23	MLP-A-23
					Client sampling date / time	04-Aug-2023 11:26	04-Aug-2023 11:45	04-Aug-2023 10:58	04-Aug-2023 00:00	04-Aug-2023 09:45
						YL2300991-006	YL2300991-007	YL2300991-008	YL2300991-009	YL2300991-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00039	0.00038	0.00045	0.00043	<0.00010
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00922	0.00899	0.00947	0.00915	<0.00010
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		325	316	320	314	<1.0
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0899	0.0873	0.0913	0.0883	<0.0050
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		9410	9100	9160	9410	3.4
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		6.38	6.16	6.54	6.28	<0.010
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		799	758	751	730	<5.0
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00277	0.00278	0.00279	0.00280	<0.000050
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		0.00122	0.00114	0.00125	0.00115	<0.00050
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	0.0143	<0.0010	0.0052 RRV
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-A-23	MLP-A-23
					Client sampling date / time	04-Aug-2023 11:26	04-Aug-2023 11:45	04-Aug-2023 10:58	04-Aug-2023 00:00	04-Aug-2023 09:45
						YL2300991-006	YL2300991-007	YL2300991-008	YL2300991-009	YL2300991-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Styrene	100-42-5	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Toluene	108-88-3	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		----	<0.40	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		----	<0.30	----	----	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		----	<250	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		----	<250	----	----	----
F2 (C10-C16)	----	E601/VA	100	µg/L		----	<100	----	----	----
F3 (C16-C34)	----	E601/VA	250	µg/L		----	<250	----	----	----
F4 (C34-C50)	----	E601/VA	250	µg/L		----	<250	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	----	----
F1-BTEX	----	EC580/VA	100	µg/L		----	<100	----	----	----
HEPHw	----	EC600A/VA	250	µg/L		----	<250	----	----	----
LEPHw	----	EC600A/VA	250	µg/L		----	<250	----	----	----
VPHw	----	EC580A/VA	100	µg/L		----	<100	----	----	----
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		----	85.3	----	----	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		----	82.4	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		----	104	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		----	92.3	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		----	102	----	----	----
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-A-23	MLP-A-23
					Client sampling date / time	04-Aug-2023 11:26	04-Aug-2023 11:45	04-Aug-2023 10:58	04-Aug-2023 00:00	04-Aug-2023 09:45
						YL2300991-006	YL2300991-007	YL2300991-008	YL2300991-009	YL2300991-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		----	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		----	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		----	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Methylnaphthalene, 1+2-	----	E641A/VA	0.015	µg/L		----	<0.015	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		----	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		----	<0.020	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		----	<0.050	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/VA	0.030	µg/L		----	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/VA	0.060	µg/L		----	<0.060	----	----	----
PAHs, total (EPA 16)	n/a	E641A/VA	0.065	µg/L		----	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		----	71.1	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		----	90.6	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		----	103	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2300991**	Page	: 1 of 40
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 08-Aug-2023 10:10
PO	: 166372402/70000/03	Issue Date	: 24-Aug-2023 14:53
C-O-C number	: ----		
Sampler	: AL, MCR, NOB		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP05-ENE-1-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP05-N-1-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MLP-A-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	16-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP05-Source-1-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	16-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP06-ENE-2-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	16-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP06-N-2-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	16-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP06-Source-2-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	16-Aug-2023	28 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E298	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	16-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E298	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-A-23	E298	04-Aug-2023	10-Aug-2023	28 days	7 days	✓	16-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MLP-A-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
Amber glass dissolved (lab preserved)										
DUP-A-23	E235S.Br	04-Aug-2023	11-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MLP-A-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
Amber glass dissolved (lab preserved)										
DUP-A-23	E235S.Cl	04-Aug-2023	11-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MLP-A-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
DUP-A-23	E235S.F-L	04-Aug-2023	11-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MLP-A-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
Amber glass dissolved (lab preserved)										
DUP-A-23	E235S.NO3-T	04-Aug-2023	11-Aug-2023	3 days	8 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MLP-A-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
DUP-A-23	E235S.NO2-L	04-Aug-2023	11-Aug-2023	3 days	8 days	× EHTR	15-Aug-2023	3 days	11 days	× EHTR-FM
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MLP-A-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
Amber glass dissolved (lab preserved)										
DUP-A-23	E235S.SO4-L	04-Aug-2023	11-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MLP-A-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-Source-1-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-ENE-2-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-N-2-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-Source-2-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-WNW-2-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-ENE-1-23	E375-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	12-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-N-1-23	E375-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	12-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-WNW-1-23	E375-T	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	12-Aug-2023	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) DUP-A-23	E375-T	04-Aug-2023	10-Aug-2023	3 days	7 days	× EHTR	14-Aug-2023	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MLP-A-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP05-ENE-1-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP05-N-1-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP05-Source-1-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP05-WNW-1-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP06-ENE-2-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP06-N-2-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid) MP06-Source-2-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E318S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-A-23	E318S	04-Aug-2023	10-Aug-2023	28 days	7 days	✓	14-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MLP-A-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-N-1-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-N-2-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E372S	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
DUP-A-23	E372S	04-Aug-2023	10-Aug-2023	28 days	7 days	✓	14-Aug-2023	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MLP-A-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-N-1-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-Source-1-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-WNW-1-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-ENE-2-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-N-2-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-Source-2-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-WNW-2-23	E509S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP-A-23	E509S	04-Aug-2023	12-Aug-2023	28 days	9 days	✓	12-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E509S	04-Aug-2023	12-Aug-2023	4 hrs	193 hrs	× EHTR-FM	12-Aug-2023	4 hrs	193 hrs	× EHTR-FM
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-N-1-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNW-1-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-N-2-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-2-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MLP-A-23	E465S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	17-Aug-2023	180 days	14 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
DUP-A-23	E465S	04-Aug-2023	14-Aug-2023	180 days	11 days	✓	17-Aug-2023	180 days	14 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-A-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MLP-A-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-N-1-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNW-1-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-N-2-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-2-23	E469S.NaSi	04-Aug-2023	11-Aug-2023	180 days	7 days	✓	13-Aug-2023	180 days	9 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-N-1-23	E601A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP06-Source-2-23	E601A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP05-N-1-23	E601	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP05-Source-1-23	E601	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP06-ENE-2-23	E601	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP06-Source-2-23	E601	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	21-Aug-2023	40 days	3 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP05-N-1-23	E581.VH+F1	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP05-Source-1-23	E581.VH+F1	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP06-ENE-2-23	E581.VH+F1	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP06-Source-2-23	E581.VH+F1	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MLP-A-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-Source-1-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-ENE-2-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-N-2-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-Source-2-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-WNW-2-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	6 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) DUP-A-23	E358-L	04-Aug-2023	10-Aug-2023	3 days	7 days	× EHTR	10-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-ENE-1-23	E358-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	11-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-N-1-23	E358-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	11-Aug-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E358-L	04-Aug-2023	11-Aug-2023	3 days	7 days	× EHTR	11-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-N-1-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-N-2-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	6 days	✓	10-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP-A-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	7 days	✓	10-Aug-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MLP-A-23	E355-L	04-Aug-2023	10-Aug-2023	28 days	7 days	✓	10-Aug-2023	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MLP-A-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-ENE-1-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-N-1-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-Source-1-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-WNW-1-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-ENE-2-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-N-2-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-Source-2-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-WNW-2-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
DUP-A-23	E290	04-Aug-2023	11-Aug-2023	14 days	7 days	✓	11-Aug-2023	14 days	8 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MLP-A-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-ENE-1-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-N-1-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-Source-1-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-WNW-1-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP06-ENE-2-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Seawater										
HDPE MP06-N-2-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-Source-2-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-WNW-2-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-A-23	E100S	04-Aug-2023	11-Aug-2023	28 days	7 days	✓	11-Aug-2023	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE MP05-ENE-1-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	166 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	167 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-N-1-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	166 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	168 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-WNW-1-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	166 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	168 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-Source-1-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	167 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	168 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-Source-2-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	167 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	168 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE										
MP06-ENE-2-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	167 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	169 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP06-N-2-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	168 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	169 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP06-WNW-2-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	168 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	170 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MLP-A-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	169 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	171 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
DUP-A-23	E108	04-Aug-2023	11-Aug-2023	0.25 hrs	179 hrs	× EHTR-FM	11-Aug-2023	0.25 hrs	181 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
DUP-A-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MLP-A-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-ENE-1-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-N-1-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-Source-1-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-WNW-1-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-ENE-2-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-N-2-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-Source-2-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-WNW-2-23	E162S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
DUP-A-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MLP-A-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP05-ENE-1-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-N-1-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-Source-1-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-WNW-1-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-ENE-2-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-N-2-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-Source-2-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-WNW-2-23	E160S	04-Aug-2023	----	----	----		11-Aug-2023	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-A-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MLP-A-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-ENE-1-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-N-1-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-Source-1-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-WNW-1-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-ENE-2-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-N-2-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-Source-2-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-WNW-2-23	E121	04-Aug-2023	----	----	----		11-Aug-2023	3 days	7 days	× EHTR
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP05-N-1-23	E641A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	18-Aug-2023	40 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E641A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E641A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E641A	04-Aug-2023	18-Aug-2023	14 days	14 days	✓	18-Aug-2023	40 days	1 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
DUP-A-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MLP-A-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-N-1-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-Source-1-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-WNW-1-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-ENE-2-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-N-2-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-Source-2-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-WNW-2-23	E508S	04-Aug-2023	12-Aug-2023	28 days	8 days	✓	12-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
HDPE total (nitric acid)										
MP05-ENE-1-23	E508S	04-Aug-2023	12-Aug-2023	4 hrs	189 hrs	× EHTR-FM	12-Aug-2023	4 hrs	189 hrs	× EHTR-FM
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MLP-A-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-ENE-1-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-N-1-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-Source-1-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-WNW-1-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-ENE-2-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-N-2-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-Source-2-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-WNW-2-23	E466S	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	14-Aug-2023	180 days	10 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) DUP-A-23	E466S	04-Aug-2023	14-Aug-2023	180 days	11 days	✓	14-Aug-2023	180 days	11 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MLP-A-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-ENE-1-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-N-1-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-Source-1-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-WNW-1-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-ENE-2-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-N-2-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-Source-2-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-WNW-2-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	14 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
DUP-A-23	E468S.NaSi	04-Aug-2023	14-Aug-2023	180 days	11 days	✓	18-Aug-2023	180 days	14 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-N-1-23	E611A	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E611A	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E611A	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E611A	04-Aug-2023	15-Aug-2023	14 days	11 days	✓	15-Aug-2023	14 days	11 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✗ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1080847	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	1079838	3	39	7.6	5.0	✓
Bromide in Seawater by IC	E235S.Br	1080952	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1083457	1	20	5.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1080953	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1080848	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1082653	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1084689	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1079913	0	0	0.0	5.0	✗
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1079836	2	13	15.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1079912	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1080954	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1080955	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1080956	1	10	10.0	5.0	✓
pH by Meter	E108	1080845	1	20	5.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1080957	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1080592	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1079835	2	19	10.5	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1079839	2	10	20.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1082409	1	18	5.5	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1084215	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1079837	2	10	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1079840	2	10	20.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1083889	1	10	10.0	5.0	✓
Turbidity by Nephelometry	E121	1080117	2	40	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1083458	1	16	6.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1080847	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	1079838	3	39	7.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1091335	1	4	25.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1080952	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1083457	1	20	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1091336	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1080953	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1080848	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1082653	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: ✗ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1084689	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1079913	0	0	0.0	5.0	✗
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1079836	2	13	15.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1079912	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1080954	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1080955	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1080956	1	10	10.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1091334	1	16	6.2	5.0	✓
pH by Meter	E108	1080845	1	20	5.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1080957	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1080592	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1079835	2	19	10.5	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1079839	2	10	20.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1082409	1	18	5.5	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1084215	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1079837	2	10	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1079840	2	10	20.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1083889	1	10	10.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1080591	1	10	10.0	5.0	✓
Turbidity by Nephelometry	E121	1080117	2	40	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1083458	1	16	6.2	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1080847	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	1079838	3	39	7.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1091335	1	4	25.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1080952	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1083457	1	20	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1091336	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1080953	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1080848	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1082653	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1084689	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1079913	0	0	0.0	5.0	✗
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1079836	2	13	15.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1079912	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1080954	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1080955	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1080956	1	10	10.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1091334	1	16	6.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1080957	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1080592	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1079835	2	19	10.5	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1079839	2	10	20.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1082409	1	18	5.5	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1084215	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1079837	2	10	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1079840	2	10	20.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1083889	1	10	10.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1080591	1	10	10.0	5.0	✓
Turbidity by Nephelometry	E121	1080117	2	40	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1083458	1	16	6.2	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1079838	3	39	7.6	5.0	✓
Bromide in Seawater by IC	E235S.Br	1080952	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1083457	1	20	5.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1080953	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1082653	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1084689	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1079913	0	0	0.0	5.0	×
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1079836	2	13	15.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1079912	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1080954	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1080955	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1080956	1	10	10.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1080957	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1079835	2	19	10.5	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1079839	2	10	20.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1082409	1	18	5.5	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1084215	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1079837	2	10	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1079840	2	10	20.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1083889	1	10	10.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1083458	1	16	6.2	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **YL2300991**	Page	: 1 of 24
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 08-Aug-2023 10:10
PO	: 166372402/70000/03	Date Analysis Commenced	: 10-Aug-2023
C-O-C number	: ----	Issue Date	: 24-Aug-2023 15:03
Sampler	: AL, MCR, NOB		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Chamoi Beckford	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Christopher Li	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Prinson Dsilva	LIMS Support / Training Officer	Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1080117)											
VA23B8391-008	Anonymous	Turbidity	----	E121	0.10	NTU	2.72	2.78	2.54%	15%	----
Physical Tests (QC Lot: 1080118)											
YL2300991-006	MP06-N-2-23	Turbidity	----	E121	0.10	NTU	0.22	0.24	0.02	Diff <2x LOR	----
Physical Tests (QC Lot: 1080592)											
YL2300991-001	MP05-Source-1-23	Solids, total dissolved [TDS]	----	E162S	20	mg/L	1520	1490	2.06%	20%	----
Physical Tests (QC Lot: 1080845)											
VA23B8396-001	Anonymous	pH	----	E108	0.10	pH units	7.96	7.97	0.126%	4%	----
Physical Tests (QC Lot: 1080847)											
VA23B8396-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	53.9	53.9	0.00%	20%	----
Physical Tests (QC Lot: 1080848)											
YL2300991-001	MP05-Source-1-23	Conductivity	----	E100S	2.0	µS/cm	2840	2820	0.707%	20%	----
Anions and Nutrients (QC Lot: 1079835)											
YL2300991-006	MP06-N-2-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0225	0.0222	1.61%	20%	----
Anions and Nutrients (QC Lot: 1079838)											
YL2300991-001	MP05-Source-1-23	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1079839)											
YL2300991-001	MP05-Source-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1079840)											
YL2300991-001	MP05-Source-1-23	Phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0074	0.0072	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1079970)											
VA23B8253-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1079975)											
YL2300991-002	MP05-N-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1079976)											
YL2300991-002	MP05-N-1-23	Phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0061	0.0062	0.00006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1080012)											
VA23B8253-016	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.218	0.224	2.56%	20%	----
Anions and Nutrients (QC Lot: 1080952)											
YL2300991-001	MP05-Source-1-23	Bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1080953)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1080953) - continued											
YL2300991-001	MP05-Source-1-23	Chloride	16887-00-6	E235S.Cl	50	mg/L	770	766	0.443%	20%	----
Anions and Nutrients (QC Lot: 1080954)											
YL2300991-001	MP05-Source-1-23	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1080955)											
YL2300991-001	MP05-Source-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1080956)											
YL2300991-001	MP05-Source-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1080957)											
YL2300991-001	MP05-Source-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	96.8	94.2	2.69%	20%	----
Anions and Nutrients (QC Lot: 1081512)											
VA23B7920-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0710	0.0705	0.707%	20%	----
Organic / Inorganic Carbon (QC Lot: 1079836)											
YL2300991-008	MP06-WNW-2-23	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.81	1.20	0.40	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1079837)											
YL2300991-001	MP05-Source-1-23	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.09	0.96	0.13	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1079973)											
YL2300991-002	MP05-N-1-23	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.04	1.00	0.03	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1081507)											
VA23B8306-010	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.26	2.11	0.15	Diff <2x LOR	----
Total Metals (QC Lot: 1082409)											
VA23B8372-021	Anonymous	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1083889)											
YL2300991-001	MP05-Source-1-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	461	463	0.488%	20%	----
Total Metals (QC Lot: 1084215)											
YL2300991-001	MP05-Source-1-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	0.0032	0.0030	0.0002	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	31.7	29.4	7.30%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1084215) - continued											
YL2300991-001	MP05-Source-1-23	Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	52.4	51.0	2.71%	20%	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	0.00063	0.00060	0.00003	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	0.00054	0.00058	0.00004	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	15.8	14.5	8.50%	20%	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E466S	0.010	mg/L	0.330	0.319	3.33%	20%	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	37.0	38.3	1.3	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	0.000566	0.000526	7.20%	20%	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1079912)											
YL2300991-001	MP05-Source-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	405	390	3.56%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1082653)											
YL2300991-001	MP05-Source-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1084689)											
YL2300991-001	MP05-Source-1-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	0.0029	0.0029	0.000007	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	30.8	32.1	4.35%	20%	----
		Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	0.00052	0.00055	0.00003	Diff <2x LOR	----
		Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	52.0	52.5	0.918%	20%	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	0.00059	0.00059	0.000006	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	0.00048	0.00048	0.000004	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	15.2	15.7	2.96%	20%	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	0.289	0.289	0.0666%	20%	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	36.7	36.0	0.8	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1084689) - continued											
YL2300991-001	MP05-Source-1-23	Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	0.000538	0.000595	10.0%	20%	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1083457)											
FJ2301985-001	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1083458)											
VA23B8210-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1080117)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1080118)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1080591)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1080592)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Physical Tests (QCLot: 1080847)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1080848)						
Conductivity	----	E100S	2	µS/cm	<2.0	----
Anions and Nutrients (QCLot: 1079835)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1079838)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1079839)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1079840)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1079970)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1079975)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1079976)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1080012)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1080952)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1080953)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1080954)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1080954) - continued						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1080955)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1080956)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1080957)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1081512)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1079836)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1079837)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1079973)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1081507)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1082409)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1083889)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1084215)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1084215) - continued						
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1079912)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 1082653)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1084689)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1084689) - continued						
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1084689) - continued						
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1083457)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1083458)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1091335)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1091336)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091334)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091334) - continued						
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1080117)									
Turbidity	----	E121	0.1	NTU	200 NTU	99.5	85.0	115	----
Physical Tests (QCLot: 1080118)									
Turbidity	----	E121	0.1	NTU	200 NTU	100.0	85.0	115	----
Physical Tests (QCLot: 1080591)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	95.0	85.0	115	----
Physical Tests (QCLot: 1080592)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	92.6	85.0	115	----
Physical Tests (QCLot: 1080845)									
pH	----	E108	----	pH units	7 pH units	99.7	98.0	102	----
Physical Tests (QCLot: 1080847)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 1080848)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	101	80.0	120	----
Anions and Nutrients (QCLot: 1079835)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	91.5	80.0	120	----
Anions and Nutrients (QCLot: 1079838)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.3	85.0	115	----
Anions and Nutrients (QCLot: 1079839)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1079840)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	88.7	80.0	120	----
Anions and Nutrients (QCLot: 1079970)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	111	85.0	115	----
Anions and Nutrients (QCLot: 1079975)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1079976)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	89.9	80.0	120	----
Anions and Nutrients (QCLot: 1080012)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1080952)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	97.9	85.0	115	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1080953)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1080954)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1080955)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1080956)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1080957)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1081512)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	91.5	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1079836)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1079837)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1079973)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	99.9	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1081507)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.5	80.0	120	----
Total Metals (QCLot: 1082409)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	95.7	80.0	120	----
Total Metals (QCLot: 1083889)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	113	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	108	80.0	120	----
Total Metals (QCLot: 1084215)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	109	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	111	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	99.6	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	100.0	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	85.6	80.0	120	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	94.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1084215) - continued									
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	97.8	80.0	120	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	99.2	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	97.8	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	96.9	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	108	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	99.3	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	106	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	114	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	94.9	80.0	120	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	114	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	104	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	93.0	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	98.0	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	99.4	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	103	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	99.1	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	113	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	97.7	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	113	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	108	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	98.2	80.0	120	----
Dissolved Metals (QCLot: 1084689)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1084689) - continued									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	96.5	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	103	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	99.6	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	93.3	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	99.3	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	84.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	98.6	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	96.1	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	97.5	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	97.4	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	93.7	80.0	120	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	99.4	80.0	120	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	94.9	80.0	120	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	96.2	80.0	120	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	100.0	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	100.0	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	96.2	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	98.9	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	96.9	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	97.3	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	98.1	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	99.0	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	96.4	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	100	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	100.0	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	97.7	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1084689) - continued									
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	94.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Volatile Organic Compounds (QCLot: 1083457)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	96.6	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	91.5	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	90.9	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	97.2	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	94.5	70.0	130	----
Hydrocarbons (QCLot: 1083458)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	88.3	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	88.3	70.0	130	----
Hydrocarbons (QCLot: 1091335)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	103	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	101	70.0	130	----
Hydrocarbons (QCLot: 1091336)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	128	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	108	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	125	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091334)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	100.0	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	98.8	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	93.6	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	93.1	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	99.9	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	98.4	60.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091334) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	102	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	97.5	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	100	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	102	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	102	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	98.7	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	111	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1079835)										
YL2300991-007	MP06-ENE-2-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0445 mg/L	0.05 mg/L	89.0	70.0	130	----
Anions and Nutrients (QCLot: 1079838)										
YL2300991-005	MP06-Source-2-23	Ammonia, total (as N)	7664-41-7	E298	0.100 mg/L	0.1 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1079839)										
YL2300991-005	MP06-Source-2-23	Kjeldahl nitrogen, total [TKN]	----	E318S	1.86 mg/L	2.5 mg/L	74.5	70.0	130	----
Anions and Nutrients (QCLot: 1079840)										
YL2300991-005	MP06-Source-2-23	Phosphorus, total	7723-14-0	E372S	0.0434 mg/L	0.05 mg/L	86.7	70.0	130	----
Anions and Nutrients (QCLot: 1079970)										
VA23B8253-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.114 mg/L	0.1 mg/L	114	75.0	125	----
Anions and Nutrients (QCLot: 1079975)										
YL2300991-003	MP05-ENE-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	1.99 mg/L	2.5 mg/L	79.7	70.0	130	----
Anions and Nutrients (QCLot: 1079976)										
YL2300991-003	MP05-ENE-1-23	Phosphorus, total	7723-14-0	E372S	0.0442 mg/L	0.05 mg/L	88.4	70.0	130	----
Anions and Nutrients (QCLot: 1080012)										
VA23B8253-017	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.113 mg/L	0.1 mg/L	113	75.0	125	----
Anions and Nutrients (QCLot: 1080952)										
YL2300991-002	MP05-N-1-23	Bromide	24959-67-9	E235S.Br	47.4 mg/L	50 mg/L	94.7	75.0	125	----
Anions and Nutrients (QCLot: 1080953)										
YL2300991-002	MP05-N-1-23	Chloride	16887-00-6	E235S.Cl	9510 mg/L	10000 mg/L	95.1	75.0	125	----
Anions and Nutrients (QCLot: 1080954)										
YL2300991-002	MP05-N-1-23	Fluoride	16984-48-8	E235S.F-L	9.68 mg/L	10 mg/L	96.8	75.0	125	----
Anions and Nutrients (QCLot: 1080955)										
YL2300991-002	MP05-N-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	7.60 mg/L	7.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1080956)										
YL2300991-002	MP05-N-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	4.83 mg/L	5 mg/L	96.6	75.0	125	----
Anions and Nutrients (QCLot: 1080957)										
YL2300991-002	MP05-N-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	970 mg/L	1000 mg/L	97.0	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1081512)										
VA23B8465-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-T	0.0465 mg/L	0.05 mg/L	93.0	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1079836)										
YL2300991-009	DUP-A-23	Carbon, dissolved organic [DOC]	----	E358-L	5.48 mg/L	5 mg/L	110	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1079837)										
YL2300991-005	MP06-Source-2-23	Carbon, total organic [TOC]	----	E355-L	5.18 mg/L	5 mg/L	104	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1079973)										
YL2300991-003	MP05-ENE-1-23	Carbon, total organic [TOC]	----	E355-L	5.15 mg/L	5 mg/L	103	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1081507)										
VA23B8380-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.13 mg/L	5 mg/L	102	70.0	130	----
Total Metals (QCLot: 1082409)										
VA23B8372-022	Anonymous	Mercury, total	7439-97-6	E508S	0.0000945 mg/L	0.0001 mg/L	94.5	70.0	130	----
Total Metals (QCLot: 1083889)										
YL2300991-002	MP05-N-1-23	Silicon, total	7440-21-3	E468S.NaSi	516 mg/L	500 mg/L	103	70.0	130	----
		Sodium, total	7440-23-5	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1084215)										
YL2300991-002	MP05-N-1-23	Aluminum, total	7429-90-5	E466S	4.39 mg/L	4 mg/L	110	70.0	130	----
		Antimony, total	7440-36-0	E466S	0.444 mg/L	0.4 mg/L	111	70.0	130	----
		Arsenic, total	7440-38-2	E466S	0.429 mg/L	0.4 mg/L	107	70.0	130	----
		Barium, total	7440-39-3	E466S	0.428 mg/L	0.4 mg/L	107	70.0	130	----
		Beryllium, total	7440-41-7	E466S	0.834 mg/L	0.8 mg/L	104	70.0	130	----
		Bismuth, total	7440-69-9	E466S	0.208 mg/L	0.2 mg/L	104	70.0	130	----
		Boron, total	7440-42-8	E466S	1.85 mg/L	2 mg/L	92.4	70.0	130	----
		Cadmium, total	7440-43-9	E466S	0.0830 mg/L	0.08 mg/L	104	70.0	130	----
		Calcium, total	7440-70-2	E466S	76.8 mg/L	80 mg/L	95.9	70.0	130	----
		Cesium, total	7440-46-2	E466S	0.211 mg/L	0.2 mg/L	106	70.0	130	----
		Chromium, total	7440-47-3	E466S	0.902 mg/L	0.8 mg/L	113	70.0	130	----
		Cobalt, total	7440-48-4	E466S	0.443 mg/L	0.4 mg/L	111	70.0	130	----
		Copper, total	7440-50-8	E466S	0.399 mg/L	0.4 mg/L	99.8	70.0	130	----
		Gallium, total	7440-55-3	E466S	0.0526 mg/L	0.05 mg/L	105	70.0	130	----
		Iron, total	7439-89-6	E466S	44.1 mg/L	40 mg/L	110	70.0	130	----
		Lead, total	7439-92-1	E466S	0.427 mg/L	0.4 mg/L	107	70.0	130	----
		Lithium, total	7439-93-2	E466S	1.98 mg/L	2 mg/L	99.2	70.0	130	----
		Magnesium, total	7439-95-4	E466S	ND mg/L	20 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1084215) - continued										
YL2300991-002	MP05-N-1-23	Manganese, total	7439-96-5	E466S	0.442 mg/L	0.4 mg/L	110	70.0	130	----
		Molybdenum, total	7439-98-7	E466S	0.443 mg/L	0.4 mg/L	111	70.0	130	----
		Nickel, total	7440-02-0	E466S	0.870 mg/L	0.8 mg/L	109	70.0	130	----
		Phosphorus, total	7723-14-0	E466S	213 mg/L	200 mg/L	106	70.0	130	----
		Potassium, total	7440-09-7	E466S	72.2 mg/L	80 mg/L	90.2	70.0	130	----
		Rhenium, total	7440-15-5	E466S	0.0555 mg/L	0.05 mg/L	111	70.0	130	----
		Rubidium, total	7440-17-7	E466S	0.434 mg/L	0.4 mg/L	108	70.0	130	----
		Selenium, total	7782-49-2	E466S	0.894 mg/L	0.8 mg/L	112	70.0	130	----
		Silver, total	7440-22-4	E466S	0.0776 mg/L	0.08 mg/L	97.1	70.0	130	----
		Strontium, total	7440-24-6	E466S	0.463 mg/L	0.4 mg/L	116	70.0	130	----
		Sulfur, total	7704-34-9	E466S	407 mg/L	400 mg/L	102	70.0	130	----
		Tellurium, total	13494-80-9	E466S	0.888 mg/L	0.8 mg/L	111	70.0	130	----
		Thallium, total	7440-28-0	E466S	0.0815 mg/L	0.08 mg/L	102	70.0	130	----
		Thorium, total	7440-29-1	E466S	0.386 mg/L	0.4 mg/L	96.6	70.0	130	----
		Tin, total	7440-31-5	E466S	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Titanium, total	7440-32-6	E466S	0.813 mg/L	0.8 mg/L	102	70.0	130	----
		Tungsten, total	7440-33-7	E466S	0.394 mg/L	0.4 mg/L	98.6	70.0	130	----
		Uranium, total	7440-61-1	E466S	0.0849 mg/L	0.08 mg/L	106	70.0	130	----
		Vanadium, total	7440-62-2	E466S	2.28 mg/L	2 mg/L	114	70.0	130	----
		Yttrium, total	7440-65-5	E466S	0.0537 mg/L	0.05 mg/L	107	70.0	130	----
		Zinc, total	7440-66-6	E466S	9.68 mg/L	8 mg/L	121	70.0	130	----
		Zirconium, total	7440-67-7	E466S	0.944 mg/L	0.8 mg/L	118	70.0	130	----
Dissolved Metals (QCLot: 1079912)										
YL2300991-002	MP05-N-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	493 mg/L	500 mg/L	98.6	70.0	130	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 1082653)										
YL2300991-002	MP05-N-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000957 mg/L	0.0001 mg/L	95.7	70.0	130	----
Dissolved Metals (QCLot: 1084689)										
YL2300991-002	MP05-N-1-23	Aluminum, dissolved	7429-90-5	E465S	3.65 mg/L	4 mg/L	91.2	70.0	130	----
		Antimony, dissolved	7440-36-0	E465S	0.379 mg/L	0.4 mg/L	94.7	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465S	0.378 mg/L	0.4 mg/L	94.6	70.0	130	----
		Barium, dissolved	7440-39-3	E465S	0.379 mg/L	0.4 mg/L	94.7	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465S	0.763 mg/L	0.8 mg/L	95.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465S	0.186 mg/L	0.2 mg/L	92.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1084689) - continued										
YL2300991-002	MP05-N-1-23	Boron, dissolved	7440-42-8	E465S	1.78 mg/L	2 mg/L	89.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465S	0.0768 mg/L	0.08 mg/L	96.0	70.0	130	----
		Calcium, dissolved	7440-70-2	E465S	75.9 mg/L	80 mg/L	94.8	70.0	130	----
		Cesium, dissolved	7440-46-2	E465S	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		Chromium, dissolved	7440-47-3	E465S	0.785 mg/L	0.8 mg/L	98.1	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465S	0.388 mg/L	0.4 mg/L	96.9	70.0	130	----
		Copper, dissolved	7440-50-8	E465S	0.367 mg/L	0.4 mg/L	91.8	70.0	130	----
		Gallium, dissolved	7440-55-3	E465S	0.0522 mg/L	0.05 mg/L	104	70.0	130	----
		Iron, dissolved	7439-89-6	E465S	37.8 mg/L	40 mg/L	94.4	70.0	130	----
		Lead, dissolved	7439-92-1	E465S	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		Lithium, dissolved	7439-93-2	E465S	1.88 mg/L	2 mg/L	94.2	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465S	0.385 mg/L	0.4 mg/L	96.2	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465S	0.382 mg/L	0.4 mg/L	95.6	70.0	130	----
		Nickel, dissolved	7440-02-0	E465S	0.748 mg/L	0.8 mg/L	93.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465S	188 mg/L	200 mg/L	94.2	70.0	130	----
		Potassium, dissolved	7440-09-7	E465S	68.8 mg/L	80 mg/L	86.0	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465S	0.0518 mg/L	0.05 mg/L	104	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465S	0.380 mg/L	0.4 mg/L	95.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E465S	0.782 mg/L	0.8 mg/L	97.7	70.0	130	----
		Silver, dissolved	7440-22-4	E465S	0.0773 mg/L	0.08 mg/L	96.6	70.0	130	----
		Strontium, dissolved	7440-24-6	E465S	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465S	379 mg/L	400 mg/L	94.8	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465S	0.761 mg/L	0.8 mg/L	95.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E465S	0.0739 mg/L	0.08 mg/L	92.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E465S	0.390 mg/L	0.4 mg/L	97.5	70.0	130	----
		Tin, dissolved	7440-31-5	E465S	0.383 mg/L	0.4 mg/L	95.7	70.0	130	----
		Titanium, dissolved	7440-32-6	E465S	0.757 mg/L	0.8 mg/L	94.6	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465S	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E465S	0.0774 mg/L	0.08 mg/L	96.7	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465S	1.96 mg/L	2 mg/L	98.0	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465S	0.0507 mg/L	0.05 mg/L	101	70.0	130	----
		Zinc, dissolved	7440-66-6	E465S	7.60 mg/L	8 mg/L	95.0	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465S	0.890 mg/L	0.8 mg/L	111	70.0	130	----
Volatile Organic Compounds (QCLot: 1083457)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1083457) - continued										
FJ2301985-002	Anonymous	Benzene	71-43-2	E611A	105 µg/L	100 µg/L	105	60.0	140	----
		Ethylbenzene	100-41-4	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	107 µg/L	100 µg/L	107	60.0	140	----
		Styrene	100-42-5	E611A	97.5 µg/L	100 µg/L	97.5	60.0	140	----
		Toluene	108-88-3	E611A	101 µg/L	100 µg/L	101	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	104 µg/L	100 µg/L	104	60.0	140	----
Hydrocarbons (QCLot: 1083458)										
VA23B8210-002	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5380 µg/L	6310 µg/L	85.3	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	5380 µg/L	6310 µg/L	85.3	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 21 -

Page 2 of 2

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Connor Pettem
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: elaine.irving@wsp.com

Email 2: connor.pettem@wsp.com

Email 3: trish.tomliens@wsp.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Environmental Division
Yellowknife
Work Order Reference
YL2300991

Telephone : +1 867 873 5593

Project Information

ALS Account # / Quote #:

Job #: GOLD100-028

PO / AFE: 166372402/70000/03

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer **Sampler:** NOB, MLR, AL

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General (alkalinity, turbidity, cond.)	Anions, TOC, DOC, Hard., Salinity	pH, TSS, TDS, Ammonia, TKN	F/P Dissolved Metals	P Total Metals	F/P Dissolved Hg	P Total Hg	P Nutrients (including total phosphorus)								SUSPECTED HAZARD (see notes)
	MP05-Source-1-23	04-Aug-23	12:40	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R				
	MP05-Near-1-23	04-Aug-23	12:58	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R				
	MP05-ENE-1-23	04-Aug-23	13:06	Seawater	6	R	R	R	R	R	R	R	R								
	MP05-WNW-1-23	04-Aug-23	12:50	Seawater	6	R	R	R	R	R	R	R	R								
	MP06-Source-2-23	04-Aug-23	12:15	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R				
	MP06-Near-2-23	04-Aug-23	11:26	Seawater	6	R	R	R	R	R	R	R	R								
	MP06-ENE-2-23	04-Aug-23	11:45	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R				
	MP06-WNW-2-23	04-Aug-23	10:50	Seawater	6	R	R	R	R	R	R	R	R								
	DUP-A-23	04-Aug-23		Seawater	6	R	R	R	R	R	R	R	R								
	MLP-A-23	04-Aug-23	9:45	Seawater	6	R	R	R	R	R	R	R	R								

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Refer to quote (GOLD100-028) for all analyses.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.1							

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Patricia Tomliens	04 Aug 23	17:40

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	8-Aug	9:10

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B8519**	Page	: 1 of 14
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: GOLD100-028	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 12-Aug-2023
C-O-C number	: ----	Issue Date	: 22-Aug-2023 16:52
Sampler	: NCB/AC/MCR		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
HTP	*Sample preparation or preservation hold time was exceeded.*

Analytical Results

Sub-Matrix: Seawater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNM-1-23	MP06-Source-2-23
					Client sampling date / time	07-Aug-2023 14:15	07-Aug-2023 13:57	07-Aug-2023 13:46	07-Aug-2023 14:08	07-Aug-2023 11:05
						VA23B8519-001	VA23B8519-002	VA23B8519-003	VA23B8519-004	VA23B8519-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		69.9	72.5	81.5	70.9	71.2
Conductivity	----	E100S/VA	2.0	µS/cm		11100	17000	23700	14600	16000
pH	----	E108/VA	0.10	pH units		7.86	7.88	7.96	7.87	7.86
Salinity	----	EC100S/VA	1.0	psu		6.6	10.5	15.1	8.9	9.8
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		8680	14000	19700	10800	12400
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	----	E121/VA	0.10	NTU		0.45	0.56	0.58	0.58	0.40
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		1220	1920	2520	1630	1450
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		1220	1880	2750	1670	1620
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0054	<0.0050	<0.0050	<0.0050	<0.0050
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		12.0	19.1	28.8	17.0	17.6
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		3680	5880	8660	5210	5430
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		0.22	0.32	0.43	0.28	0.30
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.096	<0.050	0.072	<0.050	0.069
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0074	0.0071	0.0111	0.0071	0.0068
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0076 HTP	0.0069 HTP	0.0094 HTP	0.0070 HTP	0.0067 HTP
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		482	787	1160	673	736
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.84	0.71	0.81	0.73	0.74
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.15	1.22	1.25	1.13	0.99
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		0.0523	0.0115	0.0152	0.0250	0.0105
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00047	0.00062	0.00086	0.00056	0.00054

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNM-1-23	MP06-Source-2-23
					Client sampling date / time	07-Aug-2023 14:15	07-Aug-2023 13:57	07-Aug-2023 13:46	07-Aug-2023 14:08	07-Aug-2023 11:05
						VA23B8519-001	VA23B8519-002	VA23B8519-003	VA23B8519-004	VA23B8519-005
						Result	Result	Result	Result	Result
Total Metals										
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0048	0.0061	0.0073	0.0065	0.0054
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		0.78	1.40	1.92	1.17	1.16
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		<0.000020	<0.000020	0.000023	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		93.6	146	200	127	124
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		0.00105	0.00389	0.00409	<0.00050	0.00050
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		0.012	0.016	0.020	0.022	0.014
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.033	0.046	0.074	0.042	0.042
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		240	369	546	329	317
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00092	0.00098	0.00193	0.00094	0.00091
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00203	0.00323	0.00460	0.00268	0.00269
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		73.0	104	150	91.2	88.9
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.0204	0.0320	0.0456	0.0270	0.0270
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		2010	3300	4660	2720	2770
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		1.38	2.22	3.17	1.88	1.87

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNM-1-23	MP06-Source-2-23
					Client sampling date / time	07-Aug-2023 14:15	07-Aug-2023 13:57	07-Aug-2023 13:46	07-Aug-2023 14:08	07-Aug-2023 11:05
						VA23B8519-001	VA23B8519-002	VA23B8519-003	VA23B8519-004	VA23B8519-005
						Result	Result	Result	Result	Result
Total Metals										
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		168	249	371	224	225
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00132	0.00142	0.00171	0.00110	0.00107
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	0.00054	<0.00050	<0.00050
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		0.00044	0.00059	0.00068	0.00051	0.00047
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0040	0.0048	0.0053	0.0044	0.0041
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		0.75	1.43	1.71	1.10	1.02
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		93.5	144	180	121	109
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.032	0.048	0.067	0.041	0.038

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNM-1-23	MP06-Source-2-23
					Client sampling date / time	07-Aug-2023 14:15	07-Aug-2023 13:57	07-Aug-2023 13:46	07-Aug-2023 14:08	07-Aug-2023 11:05
						VA23B8519-001	VA23B8519-002	VA23B8519-003	VA23B8519-004	VA23B8519-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		239	378	502	322	286
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00063	0.00060	0.00133	0.00059	0.00055
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00208	0.00306	0.00425	0.00279	0.00244
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		73.2	106	137	88.1	86.2
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0207	0.0314	0.0417	0.0267	0.0238
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		1860	3120	3990	2580	2330
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		1.43	2.17	2.92	1.86	1.66
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		168	253	354	222	202
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00133	0.00128	0.00154	0.00109	0.000974
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	0.00050	<0.00050	<0.00050
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNM-1-23	MP06-Source-2-23
					Client sampling date / time	07-Aug-2023 14:15	07-Aug-2023 13:57	07-Aug-2023 13:46	07-Aug-2023 14:08	07-Aug-2023 11:05
						VA23B8519-001	VA23B8519-002	VA23B8519-003	VA23B8519-004	VA23B8519-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Styrene	100-42-5	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Toluene	108-88-3	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		<0.40	<0.40	----	----	<0.40
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		<0.30	<0.30	----	----	<0.30
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
F2 (C10-C16)	----	E601/VA	100	µg/L		<100	<100	----	----	<100
F3 (C16-C34)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
F4 (C34-C50)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
F1-BTEX	----	EC580/VA	100	µg/L		<100	<100	----	----	<100
HEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
LEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
VPHw	----	EC580A/VA	100	µg/L		<100	<100	----	----	<100
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		85.0	88.0	----	----	78.2
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		80.2	82.2	----	----	74.1
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		103	105	----	----	98.5
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		89.9	89.1	----	----	89.4

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-N-1-23	MP05-ENE-1-23	MP05-WNM-1-23	MP06-Source-2-23
					Client sampling date / time	07-Aug-2023 14:15	07-Aug-2023 13:57	07-Aug-2023 13:46	07-Aug-2023 14:08	07-Aug-2023 11:05
						VA23B8519-001	VA23B8519-002	VA23B8519-003	VA23B8519-004	VA23B8519-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		103	104	----	----	104
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	----	----	<0.020
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		71.5	71.9	----	----	64.9
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		85.5	87.3	----	----	83.1
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		101	101	----	----	99.2

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-B-23	----
					Client sampling date / time	07-Aug-2023 10:40	07-Aug-2023 10:25	07-Aug-2023 10:52	07-Aug-2023 00:00	----
						VA23B8519-006	VA23B8519-007	VA23B8519-008	VA23B8519-009	--------
						Result	Result	Result	Result	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		111	112	110	69.6	----
Conductivity	----	E100S/VA	2.0	µS/cm		45300	45600	45400	11400	----
pH	----	E108/VA	0.10	pH units		7.94	7.92	7.94	7.87	----
Salinity	----	EC100S/VA	1.0	psu		30.9	31.1	31.0	6.8	----
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		38000	38300	37600	8380	----
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	----
Turbidity	----	E121/VA	0.10	NTU		0.17	0.19	0.26	0.39	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		5730	5750	5610	1180	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		5850	5770	5500	1140	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0062	0.0085	<0.0050	<0.0050	----
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		57.6	58.1	56.9	10.9	----
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		17300	17400	17100	3320	----
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		0.70	0.72	0.69	0.21	----
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.091	0.099	0.090	0.055	----
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0214	0.0214	0.0206	0.0065	----
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0215 HTP	0.0232 HTP	0.0215 HTP	0.0064 HTP	----
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		2290	2320	2250	492	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.89	0.86	0.89	0.74	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.33	1.19	1.38	1.14	----
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		<0.0050	0.0118	<0.0050	0.0069	----
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00154	0.00158	0.00160	0.00040	----
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0080	0.0081	0.0080	0.0050	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-B-23	----
					Client sampling date / time	07-Aug-2023 10:40	07-Aug-2023 10:25	07-Aug-2023 10:52	07-Aug-2023 00:00	----
						VA23B8519-006	VA23B8519-007	VA23B8519-008	VA23B8519-009	--------
						Result	Result	Result	Result	----
Total Metals										
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		4.01	4.17	4.10	0.94	----
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		0.000024	0.000022	<0.000020	<0.000020	----
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		414	415	404	95.5	----
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		0.00075	<0.00050	0.00167	<0.00050	----
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		0.00023	<0.00010	<0.00010	<0.00010	----
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.145	0.136	0.128	0.027	----
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		1170	1150	1090	220	----
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00074	0.00053	0.00053	0.00080	----
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00923	0.00938	0.00884	0.00193	----
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		323	319	311	69.0	----
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.0938	0.0933	0.0906	0.0194	----
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		9880	9920	9930	2060	----
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		6.52	6.54	6.30	1.32	----
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		740	730	704	147	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-B-23	----
					Client sampling date / time	07-Aug-2023 10:40	07-Aug-2023 10:25	07-Aug-2023 10:52	07-Aug-2023 00:00	----
						VA23B8519-006	VA23B8519-007	VA23B8519-008	VA23B8519-009	--------
						Result	Result	Result	Result	----
Total Metals										
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00282	0.00280	0.00282	0.00124	----
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		0.00115	0.00123	0.00113	<0.00050	----
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	0.0042	<0.0030	----
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		0.00162	0.00170	0.00165	0.00046	----
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0077	0.0078	0.0079	0.0042	----
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		3.98	4.22	4.12	0.94	----
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		0.000020	<0.000020	<0.000020	<0.000020	----
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		399	406	401	96.8	----
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.142	0.138	0.130	0.027	----
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		1150	1150	1120	228	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-B-23	----
					Client sampling date / time	07-Aug-2023 10:40	07-Aug-2023 10:25	07-Aug-2023 10:52	07-Aug-2023 00:00	----
						VA23B8519-006	VA23B8519-007	VA23B8519-008	VA23B8519-009	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00037	0.00034	0.00038	0.00067	----
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00966	0.00931	0.00935	0.00198	----
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		315	315	317	70.8	----
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0944	0.0939	0.0926	0.0199	----
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		9250	9370	9170	1990	----
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		6.63	6.58	6.41	1.35	----
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		768	755	730	146	----
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00270	0.00281	0.00277	0.00125	----
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		0.00119	0.00119	0.00119	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-B-23	----
					Client sampling date / time	07-Aug-2023 10:40	07-Aug-2023 10:25	07-Aug-2023 10:52	07-Aug-2023 00:00	----
						VA23B8519-006	VA23B8519-007	VA23B8519-008	VA23B8519-009	--------
						Result	Result	Result	Result	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Styrene	100-42-5	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Toluene	108-88-3	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		----	<0.40	----	<0.40	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		----	<0.30	----	<0.30	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		----	<250	----	<250	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		----	<250	----	<250	----
F2 (C10-C16)	----	E601/VA	100	µg/L		----	<100	----	<100	----
F3 (C16-C34)	----	E601/VA	250	µg/L		----	<250	----	<250	----
F4 (C34-C50)	----	E601/VA	250	µg/L		----	<250	----	<250	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	<100	----
F1-BTEX	----	EC580/VA	100	µg/L		----	<100	----	<100	----
HEPHw	----	EC600A/VA	250	µg/L		----	<250	----	<250	----
LEPHw	----	EC600A/VA	250	µg/L		----	<250	----	<250	----
VPHw	----	EC580A/VA	100	µg/L		----	<100	----	<100	----
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	<100	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		----	86.5	----	89.8	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		----	82.3	----	84.1	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		----	102	----	93.8	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		----	90.7	----	87.4	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		----	102	----	105	----
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-N-2-23	MP06-ENE-2-23	MP06-WNW-2-23	DUP-B-23	----
					Client sampling date / time	07-Aug-2023 10:40	07-Aug-2023 10:25	07-Aug-2023 10:52	07-Aug-2023 00:00	----
						VA23B8519-006	VA23B8519-007	VA23B8519-008	VA23B8519-009	--------
						Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		----	<0.0050	----	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		----	<0.015	----	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		----	<0.0050	----	<0.0050	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		----	<0.050	----	<0.050	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		----	<0.020	----	<0.020	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		----	<0.050	----	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		----	67.7	----	68.8	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		----	86.1	----	90.7	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		----	106	----	104	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B8519**	Page	: 1 of 39
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: GOLD100-028	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Issue Date	: 22-Aug-2023 16:52
C-O-C number	: ----		
Sampler	: NCB/AC/MCR		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Total Metals	QC-1086630-002	----	Copper, total	7440-50-8	E466S	129 % MES	80.0-120%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-B-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-N-1-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNM-1-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-N-2-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E298	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	14-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
DUP-B-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-ENE-1-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-N-1-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-Source-1-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-WNM-1-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-ENE-2-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-N-2-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-Source-2-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-WNW-2-23	E235S.Br	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
DUP-B-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-ENE-1-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-N-1-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-Source-1-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-WNM-1-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-ENE-2-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-N-2-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-Source-2-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-WNW-2-23	E235S.Cl	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
DUP-B-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-N-1-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-WNM-1-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-N-2-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-2-23	E235S.F-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
DUP-B-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-ENE-1-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-N-1-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-Source-1-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-WNM-1-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-ENE-2-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-N-2-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-Source-2-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-WNW-2-23	E235S.NO3-T	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
DUP-B-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-N-1-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-WNM-1-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-N-2-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-2-23	E235S.NO2-L	07-Aug-2023	12-Aug-2023	3 days	5 days	× EHTR	15-Aug-2023	3 days	9 days	× EHTR-FM
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
DUP-B-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-N-1-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-WNM-1-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-N-2-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-2-23	E235S.SO4-L	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
DUP-B-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-N-1-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-WNM-1-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-N-2-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	✗ EHTR	17-Aug-2023	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	× EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-WNW-2-23	E375-T	07-Aug-2023	15-Aug-2023	3 days	8 days	× EHTR	17-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-N-1-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNM-1-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-N-2-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E318S	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-B-23	E318S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	19-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
DUP-B-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-N-1-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-WNM-1-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-N-2-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E372S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP-B-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-ENE-1-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-N-1-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-Source-1-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-WNM-1-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-ENE-2-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-N-2-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-Source-2-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-WNW-2-23	E509S	07-Aug-2023	16-Aug-2023	28 days	9 days	✓	16-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
DUP-B-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-N-1-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNM-1-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-N-2-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-2-23	E465S	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-B-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-N-1-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNM-1-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-N-2-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-2-23	E469S.NaSi	07-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-B-23	E601A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-N-1-23	E601A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E601A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-B-23	E601	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-N-1-23	E601	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601	07-Aug-2023	22-Aug-2023	14 days	15 days	✖ EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601	07-Aug-2023	22-Aug-2023	14 days	15 days	✖ EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E601	07-Aug-2023	22-Aug-2023	14 days	15 days	✖ EHT	22-Aug-2023	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
DUP-B-23	E581.VH+F1	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP05-N-1-23	E581.VH+F1	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E581.VH+F1	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E581.VH+F1	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E581.VH+F1	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
DUP-B-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	✖ EHTR	13-Aug-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-ENE-1-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-N-1-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-Source-1-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP05-WNM-1-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-ENE-2-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-N-2-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-Source-2-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP06-WNW-2-23	E358-L	07-Aug-2023	13-Aug-2023	3 days	6 days	× EHTR	13-Aug-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP05-ENE-1-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-N-1-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-WNM-1-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-N-2-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-WNW-2-23	E355-L	07-Aug-2023	13-Aug-2023	28 days	6 days	✓	13-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP-B-23	E355-L	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
DUP-B-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-ENE-1-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-N-1-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-Source-1-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-WNM-1-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-ENE-2-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-N-2-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-Source-2-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-WNW-2-23	E290	07-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
DUP-B-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-ENE-1-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-N-1-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-Source-1-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-WNM-1-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP06-ENE-2-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP06-N-2-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP06-Source-2-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP06-WNW-2-23	E100S	07-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE										
DUP-B-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	120 hrs	× EHTR-FM	13-Aug-2023	0.25 hrs	138 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE MP05-N-1-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	121 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	139 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-Source-1-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	121 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	139 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-WNM-1-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	121 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	139 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-ENE-1-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	122 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	139 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-Source-2-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	124 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	142 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-ENE-2-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	125 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	142 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-N-2-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	125 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	142 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-WNW-2-23	E108	07-Aug-2023	12-Aug-2023	0.25 hrs	125 hrs	✗ EHTR-FM	13-Aug-2023	0.25 hrs	142 hrs	✗ EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-B-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-ENE-1-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-N-1-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-Source-1-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-WNM-1-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-ENE-2-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-N-2-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-Source-2-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-WNW-2-23	E162S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
DUP-B-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-ENE-1-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-N-1-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-Source-1-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-WNM-1-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-ENE-2-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-N-2-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-Source-2-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-WNW-2-23	E160S	07-Aug-2023	----	----	----		14-Aug-2023	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-B-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-ENE-1-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-N-1-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-Source-1-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-WNM-1-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-ENE-2-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-N-2-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-Source-2-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP06-WNW-2-23	E121	07-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTR
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) DUP-B-23	E641A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-N-1-23	E641A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E641A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E641A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E641A	07-Aug-2023	22-Aug-2023	14 days	15 days	× EHT	22-Aug-2023	40 days	0 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
DUP-B-23	E508S	07-Aug-2023	17-Aug-2023	28 days	10 days	✓	17-Aug-2023	28 days	10 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-ENE-1-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-N-1-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-Source-1-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-WNM-1-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-ENE-2-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-N-2-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-Source-2-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-WNW-2-23	E508S	07-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
DUP-B-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-ENE-1-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-N-1-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-Source-1-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP05-WNM-1-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-ENE-2-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-N-2-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-Source-2-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-WNW-2-23	E466S	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) DUP-B-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-ENE-1-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-N-1-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-Source-1-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP05-WNM-1-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-ENE-2-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-N-2-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-Source-2-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-WNW-2-23	E468S.NaSi	07-Aug-2023	16-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	12 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
DUP-B-23	E611A	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-N-1-23	E611A	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E611A	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E611A	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E611A	07-Aug-2023	21-Aug-2023	14 days	14 days	✓	21-Aug-2023	14 days	14 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1082763	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1083077	1	11	9.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1095101	1	7	14.2	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	1082762	1	12	8.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1086633	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1083075	1	15	6.6	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1086631	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
pH by Meter	E108	1082764	1	9	11.1	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1084197	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1086754	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1083078	2	9	22.2	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	2	12	16.6	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1086630	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1083076	2	14	14.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1086627	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	1086604	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1095100	1	14	7.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1082763	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1083077	1	11	9.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1096413	1	9	11.1	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1095101	1	7	14.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1096414	1	7	14.2	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	1082762	1	12	8.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1086633	1	9	11.1	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1083075	1	15	6.6	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1086631	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1096412	1	10	10.0	5.0	✓
pH by Meter	E108	1082764	1	9	11.1	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1084197	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1086754	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1083078	2	9	22.2	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	2	12	16.6	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1086630	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1083076	2	14	14.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1086627	1	9	11.1	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1084195	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	1086604	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1095100	1	14	7.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1082763	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1083077	1	11	9.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1096413	1	9	11.1	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1095101	1	7	14.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1096414	1	7	14.2	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	1082762	1	12	8.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1086633	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1083075	1	15	6.6	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1086631	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1096412	1	10	10.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1084197	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1086754	1	9	11.1	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1083078	2	9	22.2	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	2	12	16.6	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1086630	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1083076	2	14	14.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1086627	1	9	11.1	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1084195	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	1086604	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1095100	1	14	7.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1083077	1	11	9.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1095101	1	7	14.2	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1086633	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1083075	1	15	6.6	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1086631	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1086754	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1083078	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	1	12	8.3	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1086630	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1083076	2	14	14.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1086627	1	9	11.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1095100	1	14	7.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **VA23B8519**	Page	: 1 of 23
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: GOLD100-028	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 12-Aug-2023
C-O-C number	: ----	Issue Date	: 22-Aug-2023 16:52
Sampler	: NCB/AC/MCR___		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1082762)											
VA23B8519-003	MP05-ENE-1-23	Conductivity	----	E100S	2.0	µS/cm	23700	23800	0.421%	20%	----
Physical Tests (QC Lot: 1082763)											
VA23B8519-003	MP05-ENE-1-23	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	81.5	82.6	1.34%	20%	----
Physical Tests (QC Lot: 1082764)											
VA23B8519-003	MP05-ENE-1-23	pH	----	E108	0.10	pH units	7.96	7.96	0.00%	4%	----
Physical Tests (QC Lot: 1084197)											
VA23B8519-001	MP05-Source-1-23	Solids, total dissolved [TDS]	----	E162S	80	mg/L	8680	8170	6.05%	20%	----
Physical Tests (QC Lot: 1086604)											
VA23B8519-001	MP05-Source-1-23	Turbidity	----	E121	0.10	NTU	0.45	0.41	0.04	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082765)											
VA23B8519-001	MP05-Source-1-23	Bromide	24959-67-9	E235S.Br	5.0	mg/L	12.0	12.1	0.06	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082766)											
VA23B8519-001	MP05-Source-1-23	Chloride	16887-00-6	E235S.Cl	50	mg/L	3680	3730	1.38%	20%	----
Anions and Nutrients (QC Lot: 1082767)											
VA23B8519-001	MP05-Source-1-23	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.22	0.22	0.009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082768)											
VA23B8519-001	MP05-Source-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082769)											
VA23B8519-001	MP05-Source-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082770)											
VA23B8519-001	MP05-Source-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	482	485	0.546%	20%	----
Anions and Nutrients (QC Lot: 1083077)											
FJ2302002-004	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1083078)											
VA23B8519-001	MP05-Source-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.096	0.051	0.046	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1086753)											
VA23B8519-001	MP05-Source-1-23	Phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0074	0.0077	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1086754)											
VA23B8519-001	MP05-Source-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0076	0.0075	0.00008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1086756)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1086756) - continued											
VA23B8519-009	DUP-B-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.055	<0.050	0.005	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1083075)											
FJ2302002-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.47	3.68	0.21	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1083076)											
FJ2302002-004	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1086755)											
VA23B8519-009	DUP-B-23	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.14	1.48	0.34	Diff <2x LOR	----
Total Metals (QC Lot: 1086241)											
VA23B8519-001	MP05-Source-1-23	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1086627)											
VA23B8519-001	MP05-Source-1-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	2010	2060	2.61%	20%	----
Total Metals (QC Lot: 1086630)											
VA23B8519-001	MP05-Source-1-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	0.0523	0.0530	1.26%	20%	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	0.00047	0.00048	0.000007	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	0.0048	0.0050	0.0002	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	0.78	0.83	0.04	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	93.6	96.3	2.81%	20%	----
		Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	0.00105	0.00109	0.00004	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	0.012	0.012	0.00006	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	0.033	0.033	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	240	250	4.25%	20%	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	0.00092	0.00096	0.00004	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	0.00203	0.00203	0.182%	20%	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1086630) - continued											
VA23B8519-001	MP05-Source-1-23	Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	73.0	73.7	1.01%	20%	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	0.0204	0.0210	0.0005	Diff <2x LOR	----
		Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E466S	0.010	mg/L	1.38	1.44	3.76%	20%	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	168	171	1.59%	20%	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	0.00132	0.00135	1.79%	20%	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1089613)											
VA23B8519-009	DUP-B-23	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1086631)											
VA23B8519-001	MP05-Source-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	1860	1980	5.87%	20%	----
Dissolved Metals (QC Lot: 1086633)											
VA23B8519-001	MP05-Source-1-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	0.00044	0.00044	0.000002	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	0.0040	0.0040	0.00003	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	0.75	0.79	0.04	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	93.5	93.3	0.143%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1086633) - continued											
VA23B8519-001	MP05-Source-1-23	Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	0.032	0.033	0.0010	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	239	238	0.384%	20%	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	0.00063	0.00063	0.0000007	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	0.00208	0.00212	1.92%	20%	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	73.2	72.0	1.57%	20%	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	0.0207	0.0205	0.0002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	1.43	1.42	0.523%	20%	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	168	170	0.836%	20%	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	0.00133	0.00134	0.897%	20%	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1087827)											
VA23B8519-001	MP05-Source-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1095101)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1095101) - continued											
VA23B8519-001	MP05-Source-1-23	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1095100)											
VA23B8519-001	MP05-Source-1-23	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1082762)						
Conductivity	----	E100S	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1082763)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1084195)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1084197)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Physical Tests (QCLot: 1086604)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 1082765)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1082766)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1082767)						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1082768)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1082769)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1082770)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1083077)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1083078)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1086753)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
Anions and Nutrients (QCLot: 1086754)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1086756)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1083075)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1083075) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1083076)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1086755)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1086241)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1086627)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1086630)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1086630) - continued						
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Total Metals (QCLot: 1089613)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1086631)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 1086633)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1086633) - continued						
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1087827)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1095101)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1095101) - continued						
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1095100)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1096413)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1096414)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1096412)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1082762)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	97.8	80.0	120	----
Physical Tests (QCLot: 1082763)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1082764)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 1084195)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	91.8	85.0	115	----
Physical Tests (QCLot: 1084197)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1086604)									
Turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Anions and Nutrients (QCLot: 1082765)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	99.7	85.0	115	----
Anions and Nutrients (QCLot: 1082766)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1082767)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 1082768)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1082769)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	98.8	90.0	110	----
Anions and Nutrients (QCLot: 1082770)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1083077)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	89.1	85.0	115	----
Anions and Nutrients (QCLot: 1083078)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	88.8	75.0	125	----
Anions and Nutrients (QCLot: 1086753)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	92.5	80.0	120	----
Anions and Nutrients (QCLot: 1086754)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	93.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1086756)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	87.4	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1083075)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	108	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1083076)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	98.5	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1086755)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Total Metals (QCLot: 1086241)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	106	80.0	120	----
Total Metals (QCLot: 1086627)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	104	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	106	80.0	120	----
Total Metals (QCLot: 1086630)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	96.8	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	104	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	97.1	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	85.6	80.0	120	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	99.7	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	101	80.0	120	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	98.7	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	97.7	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	97.9	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	# 129	80.0	120	MES
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	98.6	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	97.0	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	99.4	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	97.1	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	95.8	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1086630) - continued									
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	101	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	98.9	80.0	120	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	103	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	99.1	80.0	120	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	98.4	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	98.4	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	99.4	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	99.0	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	103	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	104	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	99.6	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
Total Metals (QCLot: 1089613)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	96.0	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	101	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	102	80.0	120	----
Dissolved Metals (QCLot: 1086633)									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	96.8	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	107	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	96.1	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	100	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	89.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	98.9	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	97.3	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	97.5	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	98.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1086633) - continued									
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	97.2	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	97.5	80.0	120	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	98.7	80.0	120	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	101	80.0	120	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	94.9	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	100	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	99.5	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	97.3	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	98.3	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	103	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	97.5	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	96.5	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	99.7	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	94.9	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	101	80.0	120	----
Volatile Organic Compounds (QCLot: 1095101)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	109	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	112	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	100	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1095101) - continued									
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	112	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	106	70.0	130	----
Hydrocarbons (QCLot: 1095100)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	100	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	97.8	70.0	130	----
Hydrocarbons (QCLot: 1096413)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	111	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	109	70.0	130	----
Hydrocarbons (QCLot: 1096414)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	124	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	108	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	113	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1096412)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	112	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	117	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	112	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	110	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	116	60.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1082765)										
VA23B8519-002	MP05-N-1-23	Bromide	24959-67-9	E235S.Br	50.6 mg/L	50 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1082766)										
VA23B8519-002	MP05-N-1-23	Chloride	16887-00-6	E235S.Cl	9910 mg/L	10000 mg/L	99.1	75.0	125	----
Anions and Nutrients (QCLot: 1082767)										
VA23B8519-002	MP05-N-1-23	Fluoride	16984-48-8	E235S.F-L	9.66 mg/L	10 mg/L	96.6	75.0	125	----
Anions and Nutrients (QCLot: 1082768)										
VA23B8519-002	MP05-N-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	7.64 mg/L	7.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1082769)										
VA23B8519-002	MP05-N-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	4.90 mg/L	5 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1082770)										
VA23B8519-002	MP05-N-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	956 mg/L	1000 mg/L	95.6	75.0	125	----
Anions and Nutrients (QCLot: 1083077)										
FJ2302002-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0916 mg/L	0.1 mg/L	91.6	75.0	125	----
Anions and Nutrients (QCLot: 1083078)										
VA23B8519-002	MP05-N-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	1.85 mg/L	2.5 mg/L	73.9	70.0	130	----
Anions and Nutrients (QCLot: 1086753)										
VA23B8519-002	MP05-N-1-23	Phosphorus, total	7723-14-0	E372S	0.0867 mg/L	0.1 mg/L	86.7	70.0	130	----
Anions and Nutrients (QCLot: 1086754)										
VA23B8519-002	MP05-N-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0441 mg/L	0.05 mg/L	88.1	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1083075)										
FJ2302002-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	10.7 mg/L	10 mg/L	107	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1083076)										
FJ2302002-005	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.33 mg/L	5 mg/L	106	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1086755)										
VA23B8529-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.11 mg/L	5 mg/L	102	70.0	130	----
Total Metals (QCLot: 1086241)										
VA23B8519-002	MP05-N-1-23	Mercury, total	7439-97-6	E508S	0.0000881 mg/L	0.0001 mg/L	88.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1086627)										
VA23B8519-002	MP05-N-1-23	Silicon, total	7440-21-3	E468S.NaSi	504 mg/L	500 mg/L	101	70.0	130	----
		Sodium, total	7440-23-5	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1086630)										
VA23B8519-002	MP05-N-1-23	Aluminum, total	7429-90-5	E466S	3.47 mg/L	4 mg/L	86.8	70.0	130	----
		Antimony, total	7440-36-0	E466S	0.385 mg/L	0.4 mg/L	96.3	70.0	130	----
		Arsenic, total	7440-38-2	E466S	0.391 mg/L	0.4 mg/L	97.8	70.0	130	----
		Barium, total	7440-39-3	E466S	0.396 mg/L	0.4 mg/L	99.0	70.0	130	----
		Beryllium, total	7440-41-7	E466S	0.816 mg/L	0.8 mg/L	102	70.0	130	----
		Bismuth, total	7440-69-9	E466S	0.180 mg/L	0.2 mg/L	89.9	70.0	130	----
		Boron, total	7440-42-8	E466S	1.85 mg/L	2 mg/L	92.4	70.0	130	----
		Cadmium, total	7440-43-9	E466S	0.0757 mg/L	0.08 mg/L	94.6	70.0	130	----
		Calcium, total	7440-70-2	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E466S	0.195 mg/L	0.2 mg/L	97.5	70.0	130	----
		Chromium, total	7440-47-3	E466S	0.787 mg/L	0.8 mg/L	98.4	70.0	130	----
		Cobalt, total	7440-48-4	E466S	0.370 mg/L	0.4 mg/L	92.4	70.0	130	----
		Copper, total	7440-50-8	E466S	0.353 mg/L	0.4 mg/L	88.2	70.0	130	----
		Gallium, total	7440-55-3	E466S	0.0489 mg/L	0.05 mg/L	97.8	70.0	130	----
		Iron, total	7439-89-6	E466S	36.9 mg/L	40 mg/L	92.4	70.0	130	----
		Lead, total	7439-92-1	E466S	0.371 mg/L	0.4 mg/L	92.7	70.0	130	----
		Lithium, total	7439-93-2	E466S	1.74 mg/L	2 mg/L	86.9	70.0	130	----
		Magnesium, total	7439-95-4	E466S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466S	0.378 mg/L	0.4 mg/L	94.6	70.0	130	----
		Molybdenum, total	7439-98-7	E466S	0.382 mg/L	0.4 mg/L	95.4	70.0	130	----
		Nickel, total	7440-02-0	E466S	0.717 mg/L	0.8 mg/L	89.6	70.0	130	----
		Phosphorus, total	7723-14-0	E466S	182 mg/L	200 mg/L	91.2	70.0	130	----
		Potassium, total	7440-09-7	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Rhenium, total	7440-15-5	E466S	0.0477 mg/L	0.05 mg/L	95.4	70.0	130	----
		Rubidium, total	7440-17-7	E466S	0.388 mg/L	0.4 mg/L	97.0	70.0	130	----
		Selenium, total	7782-49-2	E466S	0.771 mg/L	0.8 mg/L	96.4	70.0	130	----
		Silver, total	7440-22-4	E466S	0.0754 mg/L	0.08 mg/L	94.2	70.0	130	----
		Strontium, total	7440-24-6	E466S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E466S	364 mg/L	400 mg/L	91.0	70.0	130	----
		Tellurium, total	13494-80-9	E466S	0.731 mg/L	0.8 mg/L	91.4	70.0	130	----
		Thallium, total	7440-28-0	E466S	0.0749 mg/L	0.08 mg/L	93.6	70.0	130	----
		Thorium, total	7440-29-1	E466S	0.368 mg/L	0.4 mg/L	92.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1086630) - continued										
VA23B8519-002	MP05-N-1-23	Tin, total	7440-31-5	E466S	0.387 mg/L	0.4 mg/L	96.7	70.0	130	----
		Titanium, total	7440-32-6	E466S	0.782 mg/L	0.8 mg/L	97.8	70.0	130	----
		Tungsten, total	7440-33-7	E466S	0.397 mg/L	0.4 mg/L	99.3	70.0	130	----
		Uranium, total	7440-61-1	E466S	0.0758 mg/L	0.08 mg/L	94.8	70.0	130	----
		Vanadium, total	7440-62-2	E466S	1.97 mg/L	2 mg/L	98.5	70.0	130	----
		Yttrium, total	7440-65-5	E466S	0.0474 mg/L	0.05 mg/L	94.7	70.0	130	----
		Zinc, total	7440-66-6	E466S	7.24 mg/L	8 mg/L	90.5	70.0	130	----
		Zirconium, total	7440-67-7	E466S	0.753 mg/L	0.8 mg/L	94.1	70.0	130	----
Dissolved Metals (QCLot: 1086631)										
VA23B8519-002	MP05-N-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	477 mg/L	500 mg/L	95.3	70.0	130	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 1086633)										
VA23B8519-002	MP05-N-1-23	Aluminum, dissolved	7429-90-5	E465S	3.50 mg/L	4 mg/L	87.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E465S	0.386 mg/L	0.4 mg/L	96.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465S	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Barium, dissolved	7440-39-3	E465S	0.391 mg/L	0.4 mg/L	97.8	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465S	0.829 mg/L	0.8 mg/L	104	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465S	0.180 mg/L	0.2 mg/L	89.8	70.0	130	----
		Boron, dissolved	7440-42-8	E465S	1.80 mg/L	2 mg/L	89.8	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465S	0.0748 mg/L	0.08 mg/L	93.5	70.0	130	----
		Calcium, dissolved	7440-70-2	E465S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E465S	0.191 mg/L	0.2 mg/L	95.6	70.0	130	----
		Chromium, dissolved	7440-47-3	E465S	0.780 mg/L	0.8 mg/L	97.5	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465S	0.366 mg/L	0.4 mg/L	91.4	70.0	130	----
		Copper, dissolved	7440-50-8	E465S	0.355 mg/L	0.4 mg/L	88.8	70.0	130	----
		Gallium, dissolved	7440-55-3	E465S	0.0510 mg/L	0.05 mg/L	102	70.0	130	----
		Iron, dissolved	7439-89-6	E465S	36.9 mg/L	40 mg/L	92.3	70.0	130	----
		Lead, dissolved	7439-92-1	E465S	0.367 mg/L	0.4 mg/L	91.7	70.0	130	----
		Lithium, dissolved	7439-93-2	E465S	1.80 mg/L	2 mg/L	89.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465S	0.377 mg/L	0.4 mg/L	94.2	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465S	0.380 mg/L	0.4 mg/L	95.0	70.0	130	----
		Nickel, dissolved	7440-02-0	E465S	0.713 mg/L	0.8 mg/L	89.2	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465S	192 mg/L	200 mg/L	95.9	70.0	130	----
		Potassium, dissolved	7440-09-7	E465S	ND mg/L	80 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1086633) - continued										
VA23B8519-002	MP05-N-1-23	Rhenium, dissolved	7440-15-5	E465S	0.0512 mg/L	0.05 mg/L	102	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465S	0.380 mg/L	0.4 mg/L	95.1	70.0	130	----
		Selenium, dissolved	7782-49-2	E465S	0.771 mg/L	0.8 mg/L	96.4	70.0	130	----
		Silver, dissolved	7440-22-4	E465S	0.0750 mg/L	0.08 mg/L	93.7	70.0	130	----
		Strontium, dissolved	7440-24-6	E465S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465S	372 mg/L	400 mg/L	93.0	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465S	0.739 mg/L	0.8 mg/L	92.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E465S	0.0724 mg/L	0.08 mg/L	90.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E465S	0.374 mg/L	0.4 mg/L	93.6	70.0	130	----
		Tin, dissolved	7440-31-5	E465S	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E465S	0.784 mg/L	0.8 mg/L	97.9	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465S	0.390 mg/L	0.4 mg/L	97.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E465S	0.0785 mg/L	0.08 mg/L	98.1	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465S	1.94 mg/L	2 mg/L	96.8	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465S	0.0508 mg/L	0.05 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E465S	6.71 mg/L	8 mg/L	83.9	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465S	0.779 mg/L	0.8 mg/L	97.4	70.0	130	----
Dissolved Metals (QCLot: 1087827)										
VA23B8519-002	MP05-N-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000861 mg/L	0.0001 mg/L	86.1	70.0	130	----
Volatile Organic Compounds (QCLot: 1095101)										
VA23B8519-005	MP06-Source-2-23	Benzene	71-43-2	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Ethylbenzene	100-41-4	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	108 µg/L	100 µg/L	108	60.0	140	----
		Styrene	100-42-5	E611A	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Toluene	108-88-3	E611A	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	209 µg/L	200 µg/L	105	60.0	140	----
		Xylene, o-	95-47-6	E611A	99.6 µg/L	100 µg/L	99.6	60.0	140	----
Hydrocarbons (QCLot: 1095100)										
VA23B8519-002	MP05-N-1-23	F1 (C6-C10)	----	E581.VH+F1	5890 µg/L	6310 µg/L	93.3	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	5760 µg/L	6310 µg/L	91.3	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 21 -

Page 1 of 1

Environmental Division Vancouver

Work Order Reference VA23B8519

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Connor Pettem
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	elaine.irving@wsp.com
Email 2	connor.pettem@wsp.com
Email 3	trish.tomliens@wsp.com

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Additional fees may apply to rush requests on weekends, s
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	GOLD100-028	Major/Minor Code:	Routing Code:
PO / AFE:	166372402/70000/03	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact: Amber Springer	Sampler: NOB/AL/MCR

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General (alkalinity, turbidity, cond.)	Anions, TOC, DOC, Hard., Salinity	pH, TSS, TDS, Ammonia, TKN	Dissolved Metals F/P	Total Metals P	Dissolved Hg F/P	Total Hg P	Nutrients (including total phosphorus) P	Petroleum hydrocarbons (MTBE) P	Petroleum hydrocarbons (BTEX,F1) P	Hydrocarbons (LEPH/HEPH) P	PAH, F2-F4			SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MP05-Source-1-23	07-Aug-23	14:15	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP05-N[redacted]-1-23	07-Aug-23	13:57	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP05-ENE-1-23	07-Aug-23	13:46	Seawater	6	R	R	R	R	R	R	R	R									
	MP05-WNW-1-23	07-Aug-23	14:08	Seawater	6	R	R	R	R	R	R	R	R									
	MP06-Source-2-23	07-Aug-23	11:05	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP06-N[redacted]-2-23	07-Aug-23	10:40	Seawater	6	R	R	R	R	R	R	R	R									
	MP06-ENE-2-23	07-Aug-23	10:25	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP06-WNW-2-23	07-Aug-23	10:52	Seawater	6	R	R	R	R	R	R	R	R									
	DUP-3-23	07-Aug-23	NA	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	[redacted]			Seawater	~~10~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~									

Drinking Water (DW) Samples[1] (client use):	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	Refer to quote (GOLD100-028) for all analyses.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11	16	12	12

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
[redacted]	09 AUG 2023	0914				RK	8/11/2023	11:00am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B8529**	Page	: 1 of 9
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 12-Aug-2023
C-O-C number	: ----	Issue Date	: 25-Aug-2023 11:21
Sampler	: TT/MR/DV		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MLP-D-23	KLK-23	DUP-F-23	----	----
					Client sampling date / time	08-Aug-2023 00:00	08-Aug-2023 11:20	08-Aug-2023 00:00	----	----
						VA23B8529-001	VA23B8529-002	VA23B8529-003	--------	--------
						Result	Result	Result	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	75.2	75.5	----	----
Conductivity	----	E100S/VA	2.0	µS/cm		<2.0	22200	22100	----	----
pH	----	E108/VA	0.10	pH units		5.39	7.96	7.96	----	----
Salinity	----	EC100S/VA	1.0	psu		<1.0	14.1	14.0	----	----
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		<10	16500	17100	----	----
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	----	----
Turbidity	----	E121/VA	0.10	NTU		<0.10	0.41	0.62	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		<1.00	2560	2610	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		<1.00	2360	2540	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		<5.0	25.6	25.0	----	----
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		<50	7710	7570	----	----
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		<0.20	0.40	0.40	----	----
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		<0.050	0.081	0.076	----	----
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		<0.0040	0.0073	0.0074	----	----
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		<0.0020	0.0059	0.0083	----	----
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		<3.0	1040	1040	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.62	1.13	1.36	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		<0.50	1.29	1.24	----	----
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		<0.0050	0.0161	0.0157	----	----
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		<0.00040	0.00074	0.00080	----	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MLP-D-23	KLK-23	DUP-F-23	----	----
					Client sampling date / time	08-Aug-2023 00:00	08-Aug-2023 11:20	08-Aug-2023 00:00	----	----
						VA23B8529-001	VA23B8529-002	VA23B8529-003	--------	--------
						Result	Result	Result	----	----
Total Metals										
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		<0.0010	0.0067	0.0066	----	----
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		<0.30	1.78	1.77	----	----
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	----	----
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		<1.0	184	185	----	----
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		<0.00050	0.00388	0.00354	----	----
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		<0.010	0.021	0.022	----	----
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		<0.020	0.059	0.070	----	----
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		<1.0	462	506	----	----
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		<0.00020	0.00106	0.00109	----	----
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		<0.00010	0.00413	0.00427	----	----
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		<1.0	137	144	----	----
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		<0.0050	0.0413	0.0421	----	----
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	----	----
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		<2.5	4200	4140	----	----
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		<0.010	2.84	2.95	----	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MLP-D-23	KLK-23	DUP-F-23	----	----
					Client sampling date / time	08-Aug-2023 00:00	08-Aug-2023 11:20	08-Aug-2023 00:00	----	----
						VA23B8529-001	VA23B8529-002	VA23B8529-003	--------	--------
						Result	Result	Result	----	----
Total Metals										
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		<5.0	342	374	----	----
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		<0.000050	0.00145	0.00147	----	----
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		<0.00050	0.00053	0.00056	----	----
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	----	----
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		<0.00040	0.00086	0.00074	----	----
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		<0.0010	0.0058	0.0060	----	----
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		<0.30	1.86	1.81	----	----
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	----	----
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		<1.0	189	187	----	----
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		<0.00050	0.00052	<0.00050	----	----
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		<0.020	0.072	0.074	----	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MLP-D-23	KLK-23	DUP-F-23	----	----
					Client sampling date / time	08-Aug-2023 00:00	08-Aug-2023 11:20	08-Aug-2023 00:00	----	----
						VA23B8529-001	VA23B8529-002	VA23B8529-003	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		<1.0	506	520	----	----
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		<0.00010	0.00073	0.00069	----	----
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		<0.00010	0.00430	0.00428	----	----
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		<1.0	140	144	----	----
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		<0.0050	0.0418	0.0430	----	----
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	----	----
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		<2.5	4260	4290	----	----
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		<0.010	2.93	3.02	----	----
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		<5.0	373	379	----	----
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		<0.000050	0.00143	0.00136	----	----
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		<0.00050	0.00055	0.00056	----	----
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	----	----
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	----	----

Analytical Results

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	MLP-D-23	KLK-23	DUP-F-23	----	----
					Client sampling date / time	08-Aug-2023 00:00	08-Aug-2023 11:20	08-Aug-2023 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA23B8529-001	VA23B8529-002	VA23B8529-003	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Styrene	100-42-5	E611A/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Toluene	108-88-3	E611A/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		<0.40	<0.40	<0.40	----	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		<0.30	<0.30	<0.30	----	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	<250	<250	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	<250	<250	----	----
F2 (C10-C16)	----	E601/VA	100	µg/L		<100	<100	<100	----	----
F3 (C16-C34)	----	E601/VA	250	µg/L		<250	<250	<250	----	----
F4 (C34-C50)	----	E601/VA	250	µg/L		<250	<250	<250	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	<100	----	----
F1-BTEX	----	EC580/VA	100	µg/L		<100	<100	<100	----	----
HEPHw	----	EC600A/VA	250	µg/L		<250	<250	<250	----	----
LEPHw	----	EC600A/VA	250	µg/L		<250	<250	<250	----	----
VPHw	----	EC580A/VA	100	µg/L		<100	<100	<100	----	----
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	<100	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		79.1	80.9	72.8	----	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		79.5	76.6	72.7	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		102	99.2	101	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		95.8	93.5	96.6	----	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MLP-D-23	KLK-23	DUP-F-23	----	----
					Client sampling date / time	08-Aug-2023 00:00	08-Aug-2023 11:20	08-Aug-2023 00:00	----	----
						VA23B8529-001	VA23B8529-002	VA23B8529-003	--------	--------
						Result	Result	Result	----	----
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		102	101	102	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	<0.015	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	<0.020	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		90.1	72.2	78.1	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		95.3	83.4	84.5	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		116	100	104	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B8529**	Page	: 1 of 20
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Issue Date	: 25-Aug-2023 11:21
C-O-C number	: ----		
Sampler	: TT/MR/DV		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-F-23	E298	08-Aug-2023	17-Aug-2023	28 days	10 days	✓	20-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MLP-D-23	E298	08-Aug-2023	17-Aug-2023	28 days	10 days	✓	20-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
KLK-23	E298	08-Aug-2023	17-Aug-2023	28 days	9 days	✓	20-Aug-2023	28 days	12 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
KLK-23	E235S.Br	08-Aug-2023	12-Aug-2023	28 days	4 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
DUP-F-23	E235S.Br	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MLP-D-23	E235S.Br	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
KLK-23	E235S.Cl	08-Aug-2023	12-Aug-2023	28 days	4 days	✓	15-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
DUP-F-23	E235S.Cl	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MLP-D-23	E235S.Cl	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
KLK-23	E235S.F-L	08-Aug-2023	12-Aug-2023	28 days	4 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
DUP-F-23	E235S.F-L	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MLP-D-23	E235S.F-L	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
KLK-23	E235S.NO3-T	08-Aug-2023	12-Aug-2023	3 days	4 days	× EHTL	15-Aug-2023	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
DUP-F-23	E235S.NO3-T	08-Aug-2023	12-Aug-2023	3 days	5 days	× EHTL	15-Aug-2023	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MLP-D-23	E235S.NO3-T	08-Aug-2023	12-Aug-2023	3 days	5 days	× EHTL	15-Aug-2023	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
KLK-23	E235S.NO2-L	08-Aug-2023	12-Aug-2023	3 days	4 days	× EHTL	15-Aug-2023	3 days	8 days	× EHTL

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
DUP-F-23	E235S.NO2-L	08-Aug-2023	12-Aug-2023	3 days	5 days	✗ EHTL	15-Aug-2023	3 days	8 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MLP-D-23	E235S.NO2-L	08-Aug-2023	12-Aug-2023	3 days	5 days	✗ EHTL	15-Aug-2023	3 days	8 days	✗ EHTL
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
KLK-23	E235S.SO4-L	08-Aug-2023	12-Aug-2023	28 days	4 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
DUP-F-23	E235S.SO4-L	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MLP-D-23	E235S.SO4-L	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	15-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (sulfuric acid)										
DUP-F-23	E375-T	08-Aug-2023	17-Aug-2023	28 days	10 days	✓	22-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (sulfuric acid)										
MLP-D-23	E375-T	08-Aug-2023	17-Aug-2023	28 days	10 days	✓	22-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (sulfuric acid)										
KLK-23	E375-T	08-Aug-2023	17-Aug-2023	28 days	9 days	✓	22-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-F-23	E318S	08-Aug-2023	17-Aug-2023	28 days	10 days	✓	21-Aug-2023	28 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MLP-D-23	E318S	08-Aug-2023	17-Aug-2023	28 days	10 days	✓	21-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
KLK-23	E318S	08-Aug-2023	17-Aug-2023	28 days	9 days	✓	21-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
KLK-23	E372S	08-Aug-2023	15-Aug-2023	28 days	7 days	✓	17-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
DUP-F-23	E372S	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MLP-D-23	E372S	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	17-Aug-2023	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP-F-23	E509S	08-Aug-2023	16-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
KLK-23	E509S	08-Aug-2023	16-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MLP-D-23	E509S	08-Aug-2023	16-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
DUP-F-23	E465S	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MLP-D-23	E465S	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
KLK-23	E465S	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
KLK-23	E469S.NaSi	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-F-23	E469S.NaSi	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MLP-D-23	E469S.NaSi	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	11 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-F-23	E601A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
KLK-23	E601A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MLP-D-23	E601A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-F-23	E601	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
KLK-23	E601	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MLP-D-23	E601	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
KLK-23	E581.VH+F1	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
DUP-F-23	E581.VH+F1	08-Aug-2023	18-Aug-2023	14 days	11 days	✓	18-Aug-2023	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MLP-D-23	E581.VH+F1	08-Aug-2023	18-Aug-2023	14 days	11 days	✓	18-Aug-2023	14 days	11 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
KLK-23	E358-L	08-Aug-2023	15-Aug-2023	28 days	7 days	✓	16-Aug-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
DUP-F-23	E358-L	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
MLP-D-23	E358-L	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
KLK-23	E355-L	08-Aug-2023	15-Aug-2023	28 days	7 days	✓	16-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP-F-23	E355-L	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MLP-D-23	E355-L	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	16-Aug-2023	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
KLK-23	E290	08-Aug-2023	12-Aug-2023	14 days	4 days	✓	13-Aug-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
DUP-F-23	E290	08-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MLP-D-23	E290	08-Aug-2023	12-Aug-2023	14 days	5 days	✓	13-Aug-2023	14 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
KLK-23	E100S	08-Aug-2023	12-Aug-2023	28 days	4 days	✓	13-Aug-2023	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
DUP-F-23	E100S	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MLP-D-23	E100S	08-Aug-2023	12-Aug-2023	28 days	5 days	✓	13-Aug-2023	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE										
KLK-23	E108	08-Aug-2023	17-Aug-2023	0.25 hrs	217 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	218 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE DUP-F-23	E108	08-Aug-2023	17-Aug-2023	0.25 hrs	229 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	230 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MLP-D-23	E108	08-Aug-2023	17-Aug-2023	0.25 hrs	229 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	230 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-F-23	E162S	08-Aug-2023	----	----	----		17-Aug-2023	7 days	10 days	× EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MLP-D-23	E162S	08-Aug-2023	----	----	----		17-Aug-2023	7 days	10 days	× EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE KLK-23	E162S	08-Aug-2023	----	----	----		17-Aug-2023	7 days	9 days	× EHT
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE DUP-F-23	E160S	08-Aug-2023	----	----	----		17-Aug-2023	7 days	10 days	× EHT
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MLP-D-23	E160S	08-Aug-2023	----	----	----		17-Aug-2023	7 days	10 days	× EHT
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE KLK-23	E160S	08-Aug-2023	----	----	----		17-Aug-2023	7 days	9 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE KLK-23	E121	08-Aug-2023	----	----	----		15-Aug-2023	3 days	7 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE										
DUP-F-23	E121	08-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MLP-D-23	E121	08-Aug-2023	----	----	----		15-Aug-2023	3 days	8 days	× EHTL
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-F-23	E641A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
KLK-23	E641A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MLP-D-23	E641A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	0 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
KLK-23	E508S	08-Aug-2023	15-Aug-2023	28 days	7 days	✓	15-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
DUP-F-23	E508S	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MLP-D-23	E508S	08-Aug-2023	15-Aug-2023	28 days	8 days	✓	15-Aug-2023	28 days	8 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
DUP-F-23	E466S	08-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MLP-D-23	E466S	08-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) KLK-23	E466S	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) DUP-F-23	E468S.NaSi	08-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MLP-D-23	E468S.NaSi	08-Aug-2023	17-Aug-2023	180 days	10 days	✓	18-Aug-2023	180 days	11 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) KLK-23	E468S.NaSi	08-Aug-2023	17-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) KLK-23	E611A	08-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-F-23	E611A	08-Aug-2023	18-Aug-2023	14 days	11 days	✓	18-Aug-2023	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MLP-D-23	E611A	08-Aug-2023	18-Aug-2023	14 days	11 days	✓	18-Aug-2023	14 days	11 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1082763	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1091060	1	17	5.8	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1092774	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	1082762	1	12	8.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1089700	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1086757	1	3	33.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1089699	1	3	33.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
pH by Meter	E108	1090115	1	16	6.2	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1090670	1	3	33.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1091062	1	3	33.3	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1091061	1	17	5.8	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	1	11	9.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1089702	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1086755	1	4	25.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1089701	1	6	16.6	5.0	✓
Turbidity by Nephelometry	E121	1086604	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1092773	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1082763	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1091060	1	17	5.8	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1090730	1	17	5.8	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1092774	1	4	25.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1090732	1	5	20.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	1082762	1	12	8.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1089700	1	3	33.3	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1086757	1	3	33.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1089699	1	3	33.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1090731	1	8	12.5	5.0	✓
pH by Meter	E108	1090115	1	16	6.2	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1090670	1	3	33.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1091062	1	3	33.3	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1091061	1	17	5.8	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	1	11	9.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1089702	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1086755	1	4	25.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1089701	1	6	16.6	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1090665	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1086604	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1092773	1	10	10.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1082763	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1091060	1	17	5.8	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1090730	1	17	5.8	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1092774	1	4	25.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1090732	1	5	20.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	1082762	1	12	8.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1089700	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1086757	1	3	33.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1089699	1	3	33.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1090731	1	8	12.5	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1090670	1	3	33.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1091062	1	3	33.3	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1091061	1	17	5.8	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	1	11	9.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1089702	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1086755	1	4	25.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1089701	1	6	16.6	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1090665	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1086604	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1092773	1	10	10.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1091060	1	17	5.8	5.0	✓
Bromide in Seawater by IC	E235S.Br	1082765	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1092774	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1082766	1	18	5.5	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1087827	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1089700	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1086757	1	3	33.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1089699	1	3	33.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1082767	1	12	8.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1082768	1	12	8.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1082769	1	12	8.3	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1082770	1	12	8.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1091062	1	3	33.3	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1091061	1	17	5.8	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1086241	1	11	9.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1089702	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1086755	1	4	25.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1086753	1	12	8.3	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1089701	1	6	16.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1092773	1	10	10.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **VA23B8529**	Page	: 1 of 22
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 12-Aug-2023
C-O-C number	: ----	Issue Date	: 25-Aug-2023 11:22
Sampler	: TT/MR/DV ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1082762)											
VA23B8519-003	Anonymous	Conductivity	----	E100S	2.0	µS/cm	23700	23800	0.421%	20%	----
Physical Tests (QC Lot: 1082763)											
VA23B8519-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	81.5	82.6	1.34%	20%	----
Physical Tests (QC Lot: 1086604)											
VA23B8519-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.45	0.41	0.04	Diff <2x LOR	----
Physical Tests (QC Lot: 1090115)											
VA23B8906-003	Anonymous	pH	----	E108	0.10	pH units	7.38	7.41	0.406%	4%	----
Physical Tests (QC Lot: 1090670)											
VA23B8529-001	MLP-D-23	Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	<10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082765)											
VA23B8519-001	Anonymous	Bromide	24959-67-9	E235S.Br	5.0	mg/L	12.0	12.1	0.06	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082766)											
VA23B8519-001	Anonymous	Chloride	16887-00-6	E235S.Cl	50	mg/L	3680	3730	1.38%	20%	----
Anions and Nutrients (QC Lot: 1082767)											
VA23B8519-001	Anonymous	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.22	0.22	0.009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082768)											
VA23B8519-001	Anonymous	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082769)											
VA23B8519-001	Anonymous	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1082770)											
VA23B8519-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	482	485	0.546%	20%	----
Anions and Nutrients (QC Lot: 1086753)											
VA23B8519-001	Anonymous	Phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0074	0.0077	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1091060)											
VA23B8529-001	MLP-D-23	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1091061)											
VA23B8529-001	MLP-D-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1091062)											
VA23B8529-001	MLP-D-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1086755)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1086755) - continued											
VA23B8519-009	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.14	1.48	0.34	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1086757)											
VA23B8529-001	MLP-D-23	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.62	0.51	0.12	Diff <2x LOR	----
Total Metals (QC Lot: 1086241)											
VA23B8519-001	Anonymous	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1089701)											
VA23B8529-001	MLP-D-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
Total Metals (QC Lot: 1089702)											
VA23B8529-001	MLP-D-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1089702) - continued											
VA23B8529-001	MLP-D-23	Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E466S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1087827)											
VA23B8519-001	Anonymous	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1089699)											
VA23B8529-001	MLP-D-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1089700)											
VA23B8529-001	MLP-D-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1089700) - continued											
VA23B8529-001	MLP-D-23	Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1092774)											
VA23B8529-001	MLP-D-23	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1092774) - continued											
VA23B8529-001	MLP-D-23	Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1092773)											
VA23B8529-001	MLP-D-23	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1082762)						
Conductivity	----	E100S	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1082763)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1086604)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1090665)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1090670)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1082765)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1082766)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1082767)						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1082768)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1082769)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1082770)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1086753)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
Anions and Nutrients (QCLot: 1091060)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1091061)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1091062)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1086755)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1086757)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1086757) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1086241)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1089701)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1089702)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1089702) - continued						
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1087827)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1089699)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 1089700)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1089700) - continued						
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1092774)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1090730)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1090732)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 1090732) - continued						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Hydrocarbons (QCLot: 1092773)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1090731)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1082762)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	97.8	80.0	120	----
Physical Tests (QCLot: 1082763)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1086604)									
Turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 1090115)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1090665)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	91.5	85.0	115	----
Physical Tests (QCLot: 1090670)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1082765)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	99.7	85.0	115	----
Anions and Nutrients (QCLot: 1082766)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1082767)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 1082768)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1082769)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	98.8	90.0	110	----
Anions and Nutrients (QCLot: 1082770)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1086753)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	92.5	80.0	120	----
Anions and Nutrients (QCLot: 1091060)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	93.7	85.0	115	----
Anions and Nutrients (QCLot: 1091061)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	98.3	75.0	125	----
Anions and Nutrients (QCLot: 1091062)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	90.3	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Organic / Inorganic Carbon (QCLot: 1086755)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1086757)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	94.7	80.0	120	----
Total Metals (QCLot: 1086241)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	106	80.0	120	----
Total Metals (QCLot: 1089701)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	106	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	102	80.0	120	----
Total Metals (QCLot: 1089702)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	96.7	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	105	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	95.2	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	99.5	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	86.3	80.0	120	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	98.5	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	98.5	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	98.2	80.0	120	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	96.9	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	94.8	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	96.7	80.0	120	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	103	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	98.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1089702) - continued									
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	102	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	99.7	80.0	120	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	97.3	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	103	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	99.5	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	99.7	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	103	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	103	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	99.8	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	94.4	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	101	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	106	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 1089700)									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	98.6	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	105	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	98.5	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	100	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	87.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	99.5	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	99.2	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	98.4	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	99.4	80.0	120	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	98.2	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	96.1	80.0	120	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	99.1	80.0	120	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1089700) - continued									
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	101	80.0	120	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	98.3	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	95.4	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	100	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	98.8	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	97.6	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	98.7	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	97.4	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	98.8	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	99.3	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	95.8	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	99.8	80.0	120	----
Volatile Organic Compounds (QCLot: 1092774)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	97.3	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	93.2	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	99.1	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	108	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	92.9	70.0	130	----
Hydrocarbons (QCLot: 1090730)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	119	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 1090730) - continued									
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	117	70.0	130	----
Hydrocarbons (QCLot: 1090732)									
F2 (C10-C16)	----	E601	100	µg/L	4033.32 µg/L	116	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	119	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5909.67 µg/L	99.4	70.0	130	----
Hydrocarbons (QCLot: 1092773)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	81.1	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	83.8	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1090731)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	96.9	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	98.9	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	116	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	109	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	110	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	102	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1082765)										
VA23B8519-002	Anonymous	Bromide	24959-67-9	E235S.Br	50.6 mg/L	50 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1082766)										
VA23B8519-002	Anonymous	Chloride	16887-00-6	E235S.Cl	9910 mg/L	10000 mg/L	99.1	75.0	125	----
Anions and Nutrients (QCLot: 1082767)										
VA23B8519-002	Anonymous	Fluoride	16984-48-8	E235S.F-L	9.66 mg/L	10 mg/L	96.6	75.0	125	----
Anions and Nutrients (QCLot: 1082768)										
VA23B8519-002	Anonymous	Nitrate (as N)	14797-55-8	E235S.NO3-T	7.64 mg/L	7.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1082769)										
VA23B8519-002	Anonymous	Nitrite (as N)	14797-65-0	E235S.NO2-L	4.90 mg/L	5 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1082770)										
VA23B8519-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	956 mg/L	1000 mg/L	95.6	75.0	125	----
Anions and Nutrients (QCLot: 1086753)										
VA23B8519-002	Anonymous	Phosphorus, total	7723-14-0	E372S	0.0867 mg/L	0.1 mg/L	86.7	70.0	130	----
Anions and Nutrients (QCLot: 1091060)										
VA23B8529-002	KLK-23	Ammonia, total (as N)	7664-41-7	E298	0.111 mg/L	0.1 mg/L	111	75.0	125	----
Anions and Nutrients (QCLot: 1091061)										
VA23B8529-002	KLK-23	Kjeldahl nitrogen, total [TKN]	----	E318S	2.60 mg/L	2.5 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 1091062)										
VA23B8529-002	KLK-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0447 mg/L	0.05 mg/L	89.4	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1086755)										
VA23B8529-001	MLP-D-23	Carbon, total organic [TOC]	----	E355-L	5.11 mg/L	5 mg/L	102	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1086757)										
VA23B8529-002	KLK-23	Carbon, dissolved organic [DOC]	----	E358-L	5.10 mg/L	5 mg/L	102	70.0	130	----
Total Metals (QCLot: 1086241)										
VA23B8519-002	Anonymous	Mercury, total	7439-97-6	E508S	0.0000881 mg/L	0.0001 mg/L	88.1	70.0	130	----
Total Metals (QCLot: 1089701)										
VA23B8529-002	KLK-23	Silicon, total	7440-21-3	E468S.NaSi	481 mg/L	500 mg/L	96.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1089701) - continued										
VA23B8529-002	KLK-23	Sodium, total	7440-23-5	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1089702)										
VA23B8529-002	KLK-23	Aluminum, total	7429-90-5	E466S	3.51 mg/L	4 mg/L	87.8	70.0	130	----
		Antimony, total	7440-36-0	E466S	0.389 mg/L	0.4 mg/L	97.2	70.0	130	----
		Arsenic, total	7440-38-2	E466S	0.385 mg/L	0.4 mg/L	96.3	70.0	130	----
		Barium, total	7440-39-3	E466S	0.399 mg/L	0.4 mg/L	99.7	70.0	130	----
		Beryllium, total	7440-41-7	E466S	0.768 mg/L	0.8 mg/L	96.0	70.0	130	----
		Bismuth, total	7440-69-9	E466S	0.181 mg/L	0.2 mg/L	90.6	70.0	130	----
		Boron, total	7440-42-8	E466S	1.71 mg/L	2 mg/L	85.7	70.0	130	----
		Cadmium, total	7440-43-9	E466S	0.0756 mg/L	0.08 mg/L	94.5	70.0	130	----
		Calcium, total	7440-70-2	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E466S	0.197 mg/L	0.2 mg/L	98.3	70.0	130	----
		Chromium, total	7440-47-3	E466S	0.772 mg/L	0.8 mg/L	96.5	70.0	130	----
		Cobalt, total	7440-48-4	E466S	0.365 mg/L	0.4 mg/L	91.3	70.0	130	----
		Copper, total	7440-50-8	E466S	0.358 mg/L	0.4 mg/L	89.5	70.0	130	----
		Gallium, total	7440-55-3	E466S	0.0490 mg/L	0.05 mg/L	98.1	70.0	130	----
		Iron, total	7439-89-6	E466S	36.8 mg/L	40 mg/L	92.0	70.0	130	----
		Lead, total	7439-92-1	E466S	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Lithium, total	7439-93-2	E466S	1.69 mg/L	2 mg/L	84.7	70.0	130	----
		Magnesium, total	7439-95-4	E466S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466S	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		Molybdenum, total	7439-98-7	E466S	0.379 mg/L	0.4 mg/L	94.8	70.0	130	----
		Nickel, total	7440-02-0	E466S	0.703 mg/L	0.8 mg/L	87.8	70.0	130	----
		Phosphorus, total	7723-14-0	E466S	185 mg/L	200 mg/L	92.7	70.0	130	----
		Potassium, total	7440-09-7	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Rhenium, total	7440-15-5	E466S	0.0498 mg/L	0.05 mg/L	99.6	70.0	130	----
		Rubidium, total	7440-17-7	E466S	0.383 mg/L	0.4 mg/L	95.8	70.0	130	----
		Selenium, total	7782-49-2	E466S	0.774 mg/L	0.8 mg/L	96.7	70.0	130	----
		Silver, total	7440-22-4	E466S	0.0770 mg/L	0.08 mg/L	96.2	70.0	130	----
		Strontium, total	7440-24-6	E466S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E466S	371 mg/L	400 mg/L	92.8	70.0	130	----
		Tellurium, total	13494-80-9	E466S	0.720 mg/L	0.8 mg/L	90.0	70.0	130	----
		Thallium, total	7440-28-0	E466S	0.0736 mg/L	0.08 mg/L	92.1	70.0	130	----
		Thorium, total	7440-29-1	E466S	0.386 mg/L	0.4 mg/L	96.5	70.0	130	----
		Tin, total	7440-31-5	E466S	0.394 mg/L	0.4 mg/L	98.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1089702) - continued										
VA23B8529-002	KLK-23	Titanium, total	7440-32-6	E466S	0.777 mg/L	0.8 mg/L	97.2	70.0	130	----
		Tungsten, total	7440-33-7	E466S	0.401 mg/L	0.4 mg/L	100	70.0	130	----
		Uranium, total	7440-61-1	E466S	0.0794 mg/L	0.08 mg/L	99.3	70.0	130	----
		Vanadium, total	7440-62-2	E466S	1.96 mg/L	2 mg/L	97.9	70.0	130	----
		Yttrium, total	7440-65-5	E466S	0.0489 mg/L	0.05 mg/L	97.8	70.0	130	----
		Zinc, total	7440-66-6	E466S	6.99 mg/L	8 mg/L	87.3	70.0	130	----
		Zirconium, total	7440-67-7	E466S	0.785 mg/L	0.8 mg/L	98.1	70.0	130	----
Dissolved Metals (QCLot: 1087827)										
VA23B8519-002	Anonymous	Mercury, dissolved	7439-97-6	E509S	0.0000861 mg/L	0.0001 mg/L	86.1	70.0	130	----
Dissolved Metals (QCLot: 1089699)										
VA23B8529-002	KLK-23	Silicon, dissolved	7440-21-3	E469S.NaSi	480 mg/L	500 mg/L	95.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 1089700)										
VA23B8529-002	KLK-23	Aluminum, dissolved	7429-90-5	E465S	3.74 mg/L	4 mg/L	93.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E465S	0.387 mg/L	0.4 mg/L	96.8	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465S	0.385 mg/L	0.4 mg/L	96.3	70.0	130	----
		Barium, dissolved	7440-39-3	E465S	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465S	0.789 mg/L	0.8 mg/L	98.7	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465S	0.180 mg/L	0.2 mg/L	90.3	70.0	130	----
		Boron, dissolved	7440-42-8	E465S	1.66 mg/L	2 mg/L	82.8	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465S	0.0754 mg/L	0.08 mg/L	94.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E465S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E465S	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E465S	0.791 mg/L	0.8 mg/L	98.9	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465S	0.372 mg/L	0.4 mg/L	93.1	70.0	130	----
		Copper, dissolved	7440-50-8	E465S	0.356 mg/L	0.4 mg/L	88.9	70.0	130	----
		Gallium, dissolved	7440-55-3	E465S	0.0508 mg/L	0.05 mg/L	102	70.0	130	----
		Iron, dissolved	7439-89-6	E465S	37.9 mg/L	40 mg/L	94.9	70.0	130	----
		Lead, dissolved	7439-92-1	E465S	0.372 mg/L	0.4 mg/L	92.9	70.0	130	----
		Lithium, dissolved	7439-93-2	E465S	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465S	0.384 mg/L	0.4 mg/L	95.9	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465S	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
		Nickel, dissolved	7440-02-0	E465S	0.725 mg/L	0.8 mg/L	90.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1089700) - continued										
VA23B8529-002	KLK-23	Phosphorus, dissolved	7723-14-0	E465S	191 mg/L	200 mg/L	95.4	70.0	130	----
		Potassium, dissolved	7440-09-7	E465S	ND mg/L	80 mg/L	ND	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465S	0.0472 mg/L	0.05 mg/L	94.3	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465S	0.386 mg/L	0.4 mg/L	96.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E465S	0.784 mg/L	0.8 mg/L	98.1	70.0	130	----
		Silver, dissolved	7440-22-4	E465S	0.0752 mg/L	0.08 mg/L	93.9	70.0	130	----
		Strontium, dissolved	7440-24-6	E465S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465S	369 mg/L	400 mg/L	92.2	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465S	0.712 mg/L	0.8 mg/L	89.0	70.0	130	----
		Thallium, dissolved	7440-28-0	E465S	0.0737 mg/L	0.08 mg/L	92.2	70.0	130	----
		Thorium, dissolved	7440-29-1	E465S	0.387 mg/L	0.4 mg/L	96.8	70.0	130	----
		Tin, dissolved	7440-31-5	E465S	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Titanium, dissolved	7440-32-6	E465S	0.784 mg/L	0.8 mg/L	98.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465S	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Uranium, dissolved	7440-61-1	E465S	0.0775 mg/L	0.08 mg/L	96.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465S	2.02 mg/L	2 mg/L	101	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465S	0.0501 mg/L	0.05 mg/L	100	70.0	130	----
		Zinc, dissolved	7440-66-6	E465S	7.22 mg/L	8 mg/L	90.3	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465S	0.787 mg/L	0.8 mg/L	98.4	70.0	130	----
Volatile Organic Compounds (QCLot: 1092774)										
VA23B8529-002	KLK-23	Benzene	71-43-2	E611A	101 µg/L	100 µg/L	101	60.0	140	----
		Ethylbenzene	100-41-4	E611A	94.6 µg/L	100 µg/L	94.6	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	108 µg/L	100 µg/L	108	60.0	140	----
		Styrene	100-42-5	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		Toluene	108-88-3	E611A	99.7 µg/L	100 µg/L	99.7	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	94.9 µg/L	100 µg/L	94.9	60.0	140	----
Hydrocarbons (QCLot: 1092773)										
VA23B8529-003	DUP-F-23	F1 (C6-C10)	----	E581.VH+F1	5190 µg/L	6310 µg/L	82.3	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	5370 µg/L	6310 µg/L	85.1	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Vancouver
Work Order Reference
VA23B8529

Telephone : + 1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	Golder Associates Ltd.
Contact:	Elaine Irving/Connor Pettem
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax elaine.irving@wsp.com
Email 2 connor.pettem@wsp.com
Email 3 trish.tomliens@wsp.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	
Job #:	GOLD 100-028
PO / AFE:	166372402/70000/03
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer Sampler: TT/MR/DV

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General (alkalinity, turbidity, conduc	Anions, TOC, DOC, Hardness, Salir	pH, TSS, TDS, Ammonia, TKN)	F/P Dissolved Metals	P Total Metals	F/P Dissolved Mercury	P Total Mercury	P Nutrients (including total phosphorus	P Petroleum hydrocarbons (MTBE)	P Petroleum hydrocarbons (BTEX,F1)	P Hydrocarbons (LEPH/HEPH)	P PAH, F2-F4	F/P Nutrients (including dissolved phosp	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes
	MLP-D-23	08-AUG-23	NA	Seawater	11	X	X	X	X	X	X	X	X	X	X	X	X	X			
	KLK-23	08-AUG-23	11:20	Seawater	11	X	X	X	X	X	X	X	X	X	X	X	X	X			
	DUP-F-23	08-AUG-23	NA	Seawater	11	X	X	X	X	X	X	X	X	X	X	X	X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☑ NO
Are samples for human consumption/ use?
☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Please refer to quote for all analyses.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11	11.6	12.1	12

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Westman	09 AUG 2023	0815

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
KL	8/11/2023	11AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2301042**	Page	: 1 of 16
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 14-Aug-2023 10:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 17-Aug-2023
C-O-C number	: ----	Issue Date	: 23-Aug-2023 14:39
Sampler	: MCR, NOB, SD		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
RRV	*Reported result verified by repeat analysis.*
SFP	*Sample was filtered and preserved at the laboratory.*
SUR-ND	*Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.*

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		71.4	73.8	73.2	72.4	71.2
Conductivity	----	E100S/VA	2.0	µS/cm		11200	19900	17100	15300	15000
pH	----	E108/VA	0.10	pH units		7.96	7.96	7.98	7.97	7.98
Salinity	----	EC100S/VA	1.0	psu		6.3	11.8	10.0	8.8	8.6
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		7020	13000	11200	9720	9670
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	----	E121/VA	0.10	NTU		0.65	0.21	0.28	0.30	0.23
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		1220	2090	1850	1640	1630
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		1150	2130	1860	1620	1600
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	0.0089
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		11.3	22.0	18.5	16.4	16.7
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		3540	6720	5530	4970	4930
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		<0.20	0.40	0.36	0.32	0.31
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.074	0.062	0.067	<0.050	<0.050
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		0.040	<0.010	<0.010	0.010	<0.010
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0099	0.0104	0.0084	0.0075	0.0063
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0103 SFP	0.0061	0.0070 SFP	0.0072 SFP	0.0053 SFP
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		483	921	781	695	675
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.99	0.94	0.90	0.91	0.97
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.16	1.29	1.34	1.12	1.37
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		0.0145	0.0117	0.0134	0.0132	0.0105
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00045	0.00059	0.00061	0.00048	0.00057

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Total Metals										
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0046	0.0057	0.0053	0.0050	0.0050
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		0.85	1.54	1.25	1.14	1.11
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		93.0	159	135	119	118
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		0.00065	0.00050	0.00110	0.00088	0.00087
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		0.014	0.011	0.013	0.015	0.014
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.029	0.053	0.048	0.043	0.042
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		223	421	370	321	317
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00096	0.00086	0.00095	0.00094	0.00092
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00182	0.00336	0.00300	0.00275	0.00263
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		67.3	115	102	88.4	86.5
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.0180	0.0329	0.0305	0.0261	0.0263
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		1760	3460	2940	2550	2550
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		1.25	2.31	2.11	1.82	1.83

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Total Metals										
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		151	282	255	217	219
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00100	0.00137	0.00130	0.00112	0.00134
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	0.0050
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		<0.00040	0.00065	0.00052	0.00053	0.00054
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0044	0.0056	0.0052	0.0050	0.0049
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		0.70	1.49	1.22	1.10	1.08
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		93.2	159	135	123	121
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	0.00055	0.00127
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.030	0.052	0.050	0.044	0.042

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		240	412	368	325	323
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00074	0.00068	0.00070	0.00074	0.00072
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00190	0.00332	0.00298	0.00263	0.00257
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		71.1	118	100	89.2	87.6
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0185	0.0332	0.0299	0.0260	0.0257
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		1880	3770	3120	2680	2730
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		1.28	2.30	2.07	1.79	1.77
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		165	269	259	224	222
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00105	0.00137	0.00129	0.00106	0.00131
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	0.0014
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Styrene	100-42-5	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Toluene	108-88-3	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		<0.40	<0.40	----	----	<0.40
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		<0.30	<0.30	----	----	<0.30
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
F2 (C10-C16)	----	E601/VA	100	µg/L		<100	<100	----	----	<100
F3 (C16-C34)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
F4 (C34-C50)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
F1-BTEX	----	EC580/VA	100	µg/L		<100	<100	----	----	<100
HEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
LEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
VPHw	----	EC580A/VA	100	µg/L		<100	<100	----	----	<100
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		90.7	88.5	----	----	84.0
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		87.9	87.4	----	----	83.6
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		93.1	89.8	----	----	61.9 SUR-ND
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		87.3	88.9	----	----	98.4

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		100	99.1	----	----	102
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1+2-	----	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	<0.015
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	----	----	<0.020
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
PAHs, high molecular weight (BC AWQ)	n/a	E641A/VA	0.030	µg/L		<0.030	<0.030	----	----	<0.030
PAHs, low molecular weight (BC AWQ)	n/a	E641A/VA	0.060	µg/L		<0.060	<0.060	----	----	<0.060
PAHs, total (EPA 16)	n/a	E641A/VA	0.065	µg/L		<0.065	<0.065	----	----	<0.065
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		71.7	79.9	----	----	70.9

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-05-Source-1-23	MP-05-North-1-23	MP-05-ENE-1-23	MP-05-WNW-1-23	MP-06-Source-2-23
					Client sampling date / time	11-Aug-2023 15:46	11-Aug-2023 16:20	11-Aug-2023 16:32	11-Aug-2023 16:05	11-Aug-2023 13:49
						YL2301042-001	YL2301042-002	YL2301042-003	YL2301042-004	YL2301042-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates										
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		87.9	95.1	----	----	88.0
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		103	112	----	----	104

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-06-N-2-23	MP-06-ENE-2-23	MP-06-WNW-2-23	DUP-C-23	MLP-B-23
					Client sampling date / time	11-Aug-2023 14:25	11-Aug-2023 15:00	11-Aug-2023 14:39	11-Aug-2023 00:00	11-Aug-2023 00:00
						YL2301042-006	YL2301042-007	YL2301042-008	YL2301042-009	YL2301042-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		112	112	111	72.4	8.7
Conductivity	----	E100S/VA	2.0	µS/cm		49200	49100	48400	15000	55.3
pH	----	E108/VA	0.10	pH units		8.01	8.02	8.01	7.97	7.00
Salinity	----	EC100S/VA	1.0	psu		31.9	31.8	31.3	8.6	<1.0
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		37800	37600	37000	9810	36
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	----	E121/VA	0.10	NTU		<0.10	<0.10	<0.10	0.33	<0.10
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		5870	5750	5660	1580	14.8
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		5920	5890	5700	1600	13.6
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	0.0096	<0.0050	<0.0050
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		61.8	60.7	58.6	16.7	<5.0
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		18600	18000	17600	4930	<50
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		0.82	0.82	0.86	0.32	<0.20
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.074	0.070	0.083	<0.050	<0.050
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	0.056
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0223	0.0210	0.0214	0.0074	<0.0040 DLM
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0232 SFP	0.0221 SFP	0.0218 SFP	0.0070 SFP	<0.0020 SFP
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		2530	2480	2480	690	<3.0
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		1.05	1.03	1.10	0.94	<0.50
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.49	1.48	1.46	1.32	<0.50
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		<0.0050	0.0061	<0.0050	0.0096	<0.0050
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00158	0.00162	0.00152	0.00050	<0.00040
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0080	0.0079	0.0079	0.0052	<0.0010

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-06-N-2-23	MP-06-ENE-2-23	MP-06-WNW-2-23	DUP-C-23	MLP-B-23
					Client sampling date / time	11-Aug-2023 14:25	11-Aug-2023 15:00	11-Aug-2023 14:39	11-Aug-2023 00:00	11-Aug-2023 00:00
						YL2301042-006	YL2301042-007	YL2301042-008	YL2301042-009	YL2301042-010
						Result	Result	Result	Result	Result
Total Metals										
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		4.05	4.18	4.23	1.28	<0.30
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		0.000024	0.000023	0.000024	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		407	414	402	124	<1.0
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		0.00104	0.00085	0.00115	0.00104	<0.00050
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		<0.010	<0.010	<0.010	0.014	<0.010
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.147	0.137	0.132	0.038	<0.020
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		1190	1180	1140	314	3.3 RRV
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00053	0.00053	0.00069	0.00088	<0.00020
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00960	0.00942	0.00927	0.00252	0.00011 RRV
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		319	318	312	86.2	1.0 RRV
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.0940	0.0921	0.0905	0.0252	<0.0050
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		10000	9850	9790	2690	3.0 RRV
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		6.62	6.45	6.45	1.76	<0.010
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		761	767	727	203	<5.0

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-06-N-2-23	MP-06-ENE-2-23	MP-06-WNW-2-23	DUP-C-23	MLP-B-23
					Client sampling date / time	11-Aug-2023 14:25	11-Aug-2023 15:00	11-Aug-2023 14:39	11-Aug-2023 00:00	11-Aug-2023 00:00
						YL2301042-006	YL2301042-007	YL2301042-008	YL2301042-009	YL2301042-010
						Result	Result	Result	Result	Result
Total Metals										
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00287	0.00289	0.00285	0.00115	<0.000050
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		0.00120	0.00116	0.00120	<0.00050	<0.00050
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	0.0054 RRV
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		0.00155	0.00159	0.00160	0.00054	<0.00040
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0078	0.0076	0.0080	0.0051	<0.0010
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		3.92	4.07	4.05	1.21	<0.30
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		0.000021	0.000022	0.000021	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		406	407	404	125	<1.0
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	0.00074	<0.00050
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.148	0.137	0.137	0.039	<0.020
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		1180	1150	1130	307	3.6 RRV

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-06-N-2-23	MP-06-ENE-2-23	MP-06-WNW-2-23	DUP-C-23	MLP-B-23
					Client sampling date / time	11-Aug-2023 14:25	11-Aug-2023 15:00	11-Aug-2023 14:39	11-Aug-2023 00:00	11-Aug-2023 00:00
						YL2301042-006	YL2301042-007	YL2301042-008	YL2301042-009	YL2301042-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00042	0.00032	0.00052	0.00067	<0.00010
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00912	0.00902	0.00889	0.00244	<0.00010
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		325	318	316	86.8	<1.0
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0922	0.0878	0.0890	0.0250	<0.0050
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		10200	10100	10100	2770	3.5
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		6.47	6.19	6.20	1.70	<0.010
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		769	758	738	199	<5.0
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00295	0.00293	0.00292	0.00109	<0.000050
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		0.00119	0.00114	0.00119	<0.00050	<0.00050
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		0.0034	<0.0010	<0.0010	<0.0010	0.0062 RRV
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-06-N-2-23	MP-06-ENE-2-23	MP-06-WNW-2-23	DUP-C-23	MLP-B-23
					Client sampling date / time	11-Aug-2023 14:25	11-Aug-2023 15:00	11-Aug-2023 14:39	11-Aug-2023 00:00	11-Aug-2023 00:00
						YL2301042-006	YL2301042-007	YL2301042-008	YL2301042-009	YL2301042-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Styrene	100-42-5	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Toluene	108-88-3	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		----	<0.40	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		----	<0.30	----	----	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		----	<0.50	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		----	<250	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		----	<250	----	----	----
F2 (C10-C16)	----	E601/VA	100	µg/L		----	<100	----	----	----
F3 (C16-C34)	----	E601/VA	250	µg/L		----	<250	----	----	----
F4 (C34-C50)	----	E601/VA	250	µg/L		----	<250	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	----	----
F1-BTEX	----	EC580/VA	100	µg/L		----	<100	----	----	----
HEPHw	----	EC600A/VA	250	µg/L		----	<250	----	----	----
LEPHw	----	EC600A/VA	250	µg/L		----	<250	----	----	----
VPHw	----	EC580A/VA	100	µg/L		----	<100	----	----	----
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		----	83.6	----	----	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		----	82.0	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		----	89.4	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		----	90.2	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		----	100	----	----	----
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP-06-N-2-23	MP-06-ENE-2-23	MP-06-WNW-2-23	DUP-C-23	MLP-B-23
					Client sampling date / time	11-Aug-2023 14:25	11-Aug-2023 15:00	11-Aug-2023 14:39	11-Aug-2023 00:00	11-Aug-2023 00:00
						YL2301042-006	YL2301042-007	YL2301042-008	YL2301042-009	YL2301042-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		----	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		----	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		----	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Methylnaphthalene, 1+2-	----	E641A/VA	0.015	µg/L		----	<0.015	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		----	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		----	<0.020	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		----	<0.050	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/VA	0.010	µg/L		----	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/VA	0.030	µg/L		----	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/VA	0.060	µg/L		----	<0.060	----	----	----
PAHs, total (EPA 16)	n/a	E641A/VA	0.065	µg/L		----	<0.065	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		----	79.9	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		----	95.4	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		----	110	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2301042**	Page	: 1 of 41
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 14-Aug-2023 10:00
PO	: 166372402/70000/03	Issue Date	: 23-Aug-2023 14:34
C-O-C number	: ----		
Sampler	: MCR, NOB, SD		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Physical Tests	QC-MRG2-1089071 001	----	Conductivity	----	E100S	4.4 B µS/cm	2 µS/cm	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Regular Sample Surrogates

Sub-Matrix: **Seawater**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Hydrocarbons Surrogates	YL2301042-005	MP-06-Source-2-23	Dichlorotoluene, 3,4-	95-75-0	61.9 %	70.0-130 %	Recovery less than lower data quality objective

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-C-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MLP-B-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-ENE-1-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-North-1-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-Source-1-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-WNW-1-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-ENE-2-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-N-2-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-Source-2-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-WNW-2-23	E298	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
DUP-C-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MLP-B-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-05-ENE-1-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-05-North-1-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-05-Source-1-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-05-WNW-1-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-06-ENE-2-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-06-N-2-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-06-Source-2-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP-06-WNW-2-23	E235S.Br	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
DUP-C-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MLP-B-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-05-ENE-1-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-05-North-1-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-05-Source-1-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-05-WNW-1-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-06-ENE-2-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-06-N-2-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-06-Source-2-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP-06-WNW-2-23	E235S.Cl	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
DUP-C-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MLP-B-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-05-ENE-1-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-05-North-1-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-05-Source-1-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-05-WNW-1-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-06-ENE-2-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-06-N-2-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-06-Source-2-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP-06-WNW-2-23	E235S.F-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
DUP-C-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MLP-B-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-05-ENE-1-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-05-North-1-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-05-Source-1-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-05-WNW-1-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-06-ENE-2-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-06-N-2-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-06-Source-2-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP-06-WNW-2-23	E235S.NO3-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
DUP-C-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MLP-B-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	3 days	6 days	× EHTL

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-ENE-1-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-North-1-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-Source-1-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-WNW-1-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-ENE-2-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-N-2-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-Source-2-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-WNW-2-23	E235S.NO2-L	11-Aug-2023	17-Aug-2023	3 days	6 days	✗ EHTL	17-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE DUP-C-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MLP-B-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-05-ENE-1-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-05-North-1-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-05-Source-1-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-05-WNW-1-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-06-ENE-2-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-06-N-2-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-06-Source-2-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP-06-WNW-2-23	E235S.SO4-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
DUP-C-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MLP-B-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-05-ENE-1-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-05-North-1-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-05-Source-1-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-05-WNW-1-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-06-ENE-2-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-06-N-2-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-06-Source-2-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP-06-WNW-2-23	E375-T	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	18-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-C-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MLP-B-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-ENE-1-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-North-1-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-Source-1-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-05-WNW-1-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-ENE-2-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-N-2-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-Source-2-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP-06-WNW-2-23	E318S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
DUP-C-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MLP-B-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-05-ENE-1-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-05-North-1-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-05-Source-1-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-05-WNW-1-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-06-ENE-2-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-06-N-2-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-06-Source-2-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP-06-WNW-2-23	E372S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP-C-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MLP-B-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-05-ENE-1-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-05-North-1-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-05-Source-1-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-05-WNW-1-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-06-ENE-2-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-06-N-2-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-06-Source-2-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP-06-WNW-2-23	E509S	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
DUP-C-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MLP-B-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-05-ENE-1-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-05-North-1-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-05-Source-1-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-05-WNW-1-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-06-ENE-2-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-06-N-2-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-06-Source-2-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP-06-WNW-2-23	E465S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-C-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MLP-B-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-05-ENE-1-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-05-North-1-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-05-Source-1-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-05-WNW-1-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-ENE-2-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-N-2-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-Source-2-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-WNW-2-23	E469S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP-05-North-1-23	E601A	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP-05-Source-1-23	E601A	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP-06-ENE-2-23	E601A	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	21-Aug-2023	40 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-Source-2-23	E601A	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-North-1-23	E601	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source-1-23	E601	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-ENE-2-23	E601	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-Source-2-23	E601	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	21-Aug-2023	40 days	2 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-North-1-23	E581.VH+F1	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-Source-1-23	E581.VH+F1	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06-ENE-2-23	E581.VH+F1	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06-Source-2-23	E581.VH+F1	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) DUP-C-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MLP-B-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-ENE-1-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-North-1-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-Source-1-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-WNW-1-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-ENE-2-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-N-2-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-Source-2-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP-06-WNW-2-23	E358-L	11-Aug-2023	17-Aug-2023	3 days	6 days	× EHTL	17-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP-C-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MLP-B-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-05-ENE-1-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-05-North-1-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-05-Source-1-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-05-WNW-1-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-06-ENE-2-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-06-N-2-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-06-Source-2-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP-06-WNW-2-23	E355-L	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
DUP-C-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MLP-B-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP-05-ENE-1-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP-05-North-1-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP-05-Source-1-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP-05-WNW-1-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP-06-ENE-2-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-N-2-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-Source-2-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-WNW-2-23	E290	11-Aug-2023	17-Aug-2023	14 days	6 days	✓	17-Aug-2023	14 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-C-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MLP-B-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-ENE-1-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-North-1-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-Source-1-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-WNW-1-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Seawater										
HDPE MP-06-ENE-2-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06-N-2-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06-Source-2-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06-WNW-2-23	E100S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE MP-05-ENE-1-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	132 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	134 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-North-1-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	133 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	134 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-WNW-1-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	133 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	134 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE DUP-C-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	133 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	135 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MLP-B-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	133 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	135 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE										
MP-05-Source-1-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	133 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	135 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP-06-ENE-2-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	134 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	135 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP-06-WNW-2-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	134 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	136 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP-06-N-2-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	135 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	136 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP-06-Source-2-23	E108	11-Aug-2023	17-Aug-2023	0.25 hrs	135 hrs	× EHTR-FM	17-Aug-2023	0.25 hrs	137 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
DUP-C-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MLP-B-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-05-ENE-1-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-05-North-1-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-05-Source-1-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-05-WNW-1-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-06-ENE-2-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-06-N-2-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-06-Source-2-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP-06-WNW-2-23	E162S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
DUP-C-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MLP-B-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-05-ENE-1-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-05-North-1-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-05-Source-1-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-05-WNW-1-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-06-ENE-2-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-06-N-2-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-06-Source-2-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP-06-WNW-2-23	E160S	11-Aug-2023	----	----	----		18-Aug-2023	7 days	6 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
DUP-C-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MLP-B-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-ENE-1-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-North-1-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-Source-1-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-WNW-1-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-ENE-2-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-N-2-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-Source-2-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-WNW-2-23	E121	11-Aug-2023	----	----	----		18-Aug-2023	3 days	6 days	× EHTL
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-North-1-23	E641A	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP-05-Source-1-23	E641A	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP-06-ENE-2-23	E641A	11-Aug-2023	19-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP-06-Source-2-23	E641A	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	0 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
DUP-C-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MLP-B-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-05-ENE-1-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-05-North-1-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-05-Source-1-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-05-WNW-1-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-06-ENE-2-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-06-N-2-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-06-Source-2-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP-06-WNW-2-23	E508S	11-Aug-2023	17-Aug-2023	28 days	6 days	✓	17-Aug-2023	28 days	6 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
DUP-C-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MLP-B-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP-05-ENE-1-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP-05-North-1-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
MP-05-Source-1-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP-05-WNW-1-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP-06-ENE-2-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP-06-N-2-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP-06-Source-2-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP-06-WNW-2-23	E466S	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) DUP-C-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MLP-B-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-ENE-1-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-North-1-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-05-Source-1-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-05-WNW-1-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-ENE-2-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-N-2-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-Source-2-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP-06-WNW-2-23	E468S.NaSi	11-Aug-2023	17-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP-05-North-1-23	E611A	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP-05-Source-1-23	E611A	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP-06-ENE-2-23	E611A	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP-06-Source-2-23	E611A	11-Aug-2023	19-Aug-2023	14 days	8 days	✓	19-Aug-2023	14 days	8 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1089072	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1088978	1	18	5.5	5.0	✓
Bromide in Seawater by IC	E235S.Br	1089065	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1093379	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1089066	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1089071	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1091346	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1088492	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1088975	1	16	6.2	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1088491	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1089067	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1089064	1	13	7.6	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1089063	1	20	5.0	5.0	✓
pH by Meter	E108	1089070	1	12	8.3	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1089068	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1092374	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1088977	1	10	10.0	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1088979	1	15	6.6	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1090146	1	10	10.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1088490	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1088976	1	16	6.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1088981	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1088489	1	10	10.0	5.0	✓
Turbidity by Nephelometry	E121	1091269	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1093378	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1089072	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1088978	1	18	5.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1093169	1	13	7.6	5.0	✓
Bromide in Seawater by IC	E235S.Br	1089065	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1093379	1	4	25.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1093170	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1089066	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1089071	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1091346	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1088492	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1088975	1	16	6.2	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1088491	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1089067	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1089064	1	13	7.6	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1089063	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1093168	1	15	6.6	5.0	✓
pH by Meter	E108	1089070	1	12	8.3	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1089068	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1092374	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1088977	1	10	10.0	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1088979	1	15	6.6	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1090146	1	10	10.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1088490	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1088976	1	16	6.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1088981	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1088489	1	10	10.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1091247	2	26	7.6	5.0	✓
Turbidity by Nephelometry	E121	1091269	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1093378	1	4	25.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1089072	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1088978	1	18	5.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1093169	1	13	7.6	5.0	✓
Bromide in Seawater by IC	E235S.Br	1089065	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1093379	1	4	25.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1093170	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1089066	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1089071	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1091346	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1088492	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1088975	1	16	6.2	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1088491	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1089067	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1089064	1	13	7.6	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1089063	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1093168	1	15	6.6	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1089068	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1092374	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1088977	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1088979	1	15	6.6	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1090146	1	10	10.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1088490	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1088976	1	16	6.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1088981	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1088489	1	10	10.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1091247	2	26	7.6	5.0	✓
Turbidity by Nephelometry	E121	1091269	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1093378	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1088978	1	18	5.5	5.0	✓
Bromide in Seawater by IC	E235S.Br	1089065	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1093379	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1089066	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1091346	1	10	10.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1088492	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1088975	1	16	6.2	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1088491	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1089067	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1089064	1	13	7.6	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1089063	1	20	5.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1089068	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1088977	1	10	10.0	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1088979	1	15	6.6	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1090146	1	10	10.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1088490	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1088976	1	16	6.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1088981	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1088489	1	10	10.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1093378	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **YL2301042**	Page	: 1 of 21
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 14-Aug-2023 10:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 17-Aug-2023
C-O-C number	: ----	Issue Date	: 23-Aug-2023 15:07
Sampler	: MCR, NOB, SD		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1089070)											
YL2301042-003	MP-05-ENE-1-23	pH	----	E108	0.10	pH units	7.98	7.99	0.125%	4%	----
Physical Tests (QC Lot: 1089071)											
YL2301042-003	MP-05-ENE-1-23	Conductivity	----	E100S	2.0	µS/cm	17100	17400	1.45%	20%	----
Physical Tests (QC Lot: 1089072)											
YL2301042-003	MP-05-ENE-1-23	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	73.2	74.5	1.76%	20%	----
Physical Tests (QC Lot: 1091269)											
VA23B9085-002	Anonymous	Turbidity	----	E121	0.10	NTU	2.70	2.88	6.46%	15%	----
Physical Tests (QC Lot: 1092374)											
YL2301042-001	MP-05-Source-1-23	Solids, total dissolved [TDS]	----	E162S	40	mg/L	7020	7000	0.300%	20%	----
Anions and Nutrients (QC Lot: 1088977)											
YL2301042-001	MP-05-Source-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0103	0.0112	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1088978)											
VA23B8940-021	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0139	0.0126	0.0013	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1088979)											
VA23B8940-021	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1088981)											
YL2301042-001	MP-05-Source-1-23	Phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0099	0.0099	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1089063)											
VA23B8940-021	Anonymous	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1089064)											
YL2301042-001	MP-05-Source-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	0.040	0.039	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1089065)											
YL2301042-001	MP-05-Source-1-23	Bromide	24959-67-9	E235S.Br	5.0	mg/L	11.3	11.8	0.5	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1089066)											
YL2301042-001	MP-05-Source-1-23	Chloride	16887-00-6	E235S.Cl	50	mg/L	3540	3550	0.239%	20%	----
Anions and Nutrients (QC Lot: 1089067)											
YL2301042-001	MP-05-Source-1-23	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1089068)											
YL2301042-001	MP-05-Source-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	483	483	0.0398%	20%	----
Organic / Inorganic Carbon (QC Lot: 1088975)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1088975) - continued											
VA23B8940-021	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.13	1.08	0.05	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1088976)											
VA23B8940-021	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.04	1.11	0.07	Diff <2x LOR	----
Total Metals (QC Lot: 1088489)											
YL2301042-001	MP-05-Source-1-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	1760	1840	4.54%	20%	----
Total Metals (QC Lot: 1088490)											
YL2301042-001	MP-05-Source-1-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	0.0145	0.0112	0.0033	Diff <2x LOR	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	0.00045	0.00040	0.00005	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	0.0046	0.0048	0.0001	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	0.85	0.82	0.03	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	93.0	92.4	0.615%	20%	----
		Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	0.00065	0.00057	0.00008	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	0.014	0.014	0.0003	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	0.029	0.028	0.001	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	223	221	0.708%	20%	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	0.00096	0.00097	0.00001	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	0.00182	0.00191	4.78%	20%	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	67.3	66.2	1.60%	20%	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	0.0180	0.0181	0.00004	Diff <2x LOR	----
		Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1088490) - continued											
YL2301042-001	MP-05-Source-1-23	Strontium, total	7440-24-6	E466S	0.010	mg/L	1.25	1.24	0.818%	20%	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	151	152	0.609%	20%	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	0.00100	0.00104	3.34%	20%	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1090146)											
YL2301042-001	MP-05-Source-1-23	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1088491)											
YL2301042-001	MP-05-Source-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	1880	1940	3.23%	20%	----
Dissolved Metals (QC Lot: 1088492)											
YL2301042-001	MP-05-Source-1-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	0.0044	0.0045	0.0001	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	0.70	0.77	0.07	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	93.2	90.5	3.00%	20%	----
		Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1088492) - continued											
YL2301042-001	MP-05-Source-1-23	Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	0.030	0.032	0.002	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	240	229	4.76%	20%	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	0.00074	0.00076	0.00002	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	0.00190	0.00199	4.98%	20%	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	71.1	68.0	4.44%	20%	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	0.0185	0.0192	0.0007	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	1.28	1.31	2.54%	20%	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	165	162	2.28%	20%	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	0.00105	0.000991	6.06%	20%	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1091346)											
YL2301042-001	MP-05-Source-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1093379)											
YL2301042-001	MP-05-Source-1-23	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1093379) - continued											
YL2301042-001	MP-05-Source-1-23	Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1093378)											
YL2301042-001	MP-05-Source-1-23	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1089071)						
Conductivity	----	E100S	2	µS/cm	# 4.4	B
Physical Tests (QCLot: 1089072)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1091247)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1091248)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1091269)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1092374)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1088977)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1088978)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1088979)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1088981)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
Anions and Nutrients (QCLot: 1089063)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1089064)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1089065)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1089066)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1089067)						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1089068)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Organic / Inorganic Carbon (QCLot: 1088975)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1088975) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1088976)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1088489)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1088490)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1088490) - continued						
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Total Metals (QCLot: 1090146)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1088491)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 1088492)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1088492) - continued						
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1091346)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1093379)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1093169)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 1093169) - continued						
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1093170)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Hydrocarbons (QCLot: 1093378)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1093168)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1089070)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1089071)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	104	80.0	120	----
Physical Tests (QCLot: 1089072)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	110	85.0	115	----
Physical Tests (QCLot: 1091247)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	96.5	85.0	115	----
Physical Tests (QCLot: 1091248)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	92.5	85.0	115	----
Physical Tests (QCLot: 1091269)									
Turbidity	----	E121	0.1	NTU	200 NTU	100.0	85.0	115	----
Physical Tests (QCLot: 1092374)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1088977)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	87.6	80.0	120	----
Anions and Nutrients (QCLot: 1088978)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.5	85.0	115	----
Anions and Nutrients (QCLot: 1088979)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	92.5	75.0	125	----
Anions and Nutrients (QCLot: 1088981)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	89.7	80.0	120	----
Anions and Nutrients (QCLot: 1089063)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 1089064)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1089065)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1089066)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1089067)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	99.8	90.0	110	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1089068)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	104	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1088975)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.1	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1088976)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	95.9	80.0	120	----
Total Metals (QCLot: 1088489)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	110	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	105	80.0	120	----
Total Metals (QCLot: 1088490)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	95.6	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	97.6	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	103	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	92.0	80.0	120	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	100	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	97.9	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	96.9	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	98.4	80.0	120	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	98.7	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	96.7	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	103	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	98.1	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	96.0	80.0	120	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	104	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	97.7	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1088490) - continued									
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	103	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	99.3	80.0	120	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	97.3	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	98.2	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	105	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	99.4	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	98.9	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	93.5	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Total Metals (QCLot: 1090146)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	93.9	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	116	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	107	80.0	120	----
Dissolved Metals (QCLot: 1088492)									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	95.9	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	103	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	95.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	100	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	85.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	99.7	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	103	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	97.1	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	97.3	80.0	120	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	96.6	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	96.8	80.0	120	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	98.0	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1088492) - continued									
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	98.8	80.0	120	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	102	80.0	120	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	97.1	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	95.0	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	105	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	98.5	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	100	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	98.4	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	97.6	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	97.4	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	101	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	105	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	97.8	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	105	80.0	120	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	99.0	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	99.5	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	93.7	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	98.7	80.0	120	----
Volatile Organic Compounds (QCLot: 1093379)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	96.1	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	90.2	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	97.9	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	114	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	92.5	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 1093169)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	107	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	105	70.0	130	----
Hydrocarbons (QCLot: 1093170)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	123	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	104	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	117	70.0	130	----
Hydrocarbons (QCLot: 1093378)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	77.0	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	79.6	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1093168)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	104	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	112	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	110	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	112	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	106	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1088977)										
YL2301042-002	MP-05-North-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0430 mg/L	0.05 mg/L	85.9	70.0	130	----
Anions and Nutrients (QCLot: 1088978)										
VA23B8940-022	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.113 mg/L	0.1 mg/L	113	75.0	125	----
Anions and Nutrients (QCLot: 1088979)										
VA23B8940-022	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318S	2.03 mg/L	2.5 mg/L	81.3	70.0	130	----
Anions and Nutrients (QCLot: 1088981)										
YL2301042-002	MP-05-North-1-23	Phosphorus, total	7723-14-0	E372S	0.0821 mg/L	0.1 mg/L	82.1	70.0	130	----
Anions and Nutrients (QCLot: 1089063)										
VA23B8940-022	Anonymous	Nitrite (as N)	14797-65-0	E235S.NO2-L	4.88 mg/L	5 mg/L	97.6	75.0	125	----
Anions and Nutrients (QCLot: 1089064)										
YL2301042-002	MP-05-North-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	7.66 mg/L	7.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1089065)										
YL2301042-002	MP-05-North-1-23	Bromide	24959-67-9	E235S.Br	48.4 mg/L	50 mg/L	96.9	75.0	125	----
Anions and Nutrients (QCLot: 1089066)										
YL2301042-002	MP-05-North-1-23	Chloride	16887-00-6	E235S.Cl	9840 mg/L	10000 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 1089067)										
YL2301042-002	MP-05-North-1-23	Fluoride	16984-48-8	E235S.F-L	9.98 mg/L	10 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 1089068)										
YL2301042-002	MP-05-North-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	982 mg/L	1000 mg/L	98.2	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1088975)										
VA23B8940-022	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.93 mg/L	5 mg/L	98.6	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1088976)										
VA23B8940-022	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.08 mg/L	5 mg/L	102	70.0	130	----
Total Metals (QCLot: 1088489)										
YL2301042-002	MP-05-North-1-23	Silicon, total	7440-21-3	E468S.NaSi	495 mg/L	500 mg/L	99.0	70.0	130	----
		Sodium, total	7440-23-5	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1088490)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1088490) - continued										
YL2301042-002	MP-05-North-1-23	Aluminum, total	7429-90-5	E466S	3.45 mg/L	4 mg/L	86.2	70.0	130	----
		Antimony, total	7440-36-0	E466S	0.390 mg/L	0.4 mg/L	97.4	70.0	130	----
		Arsenic, total	7440-38-2	E466S	0.384 mg/L	0.4 mg/L	95.9	70.0	130	----
		Barium, total	7440-39-3	E466S	0.393 mg/L	0.4 mg/L	98.2	70.0	130	----
		Beryllium, total	7440-41-7	E466S	0.827 mg/L	0.8 mg/L	103	70.0	130	----
		Bismuth, total	7440-69-9	E466S	0.184 mg/L	0.2 mg/L	92.3	70.0	130	----
		Boron, total	7440-42-8	E466S	1.89 mg/L	2 mg/L	94.5	70.0	130	----
		Cadmium, total	7440-43-9	E466S	0.0748 mg/L	0.08 mg/L	93.5	70.0	130	----
		Calcium, total	7440-70-2	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E466S	0.194 mg/L	0.2 mg/L	97.3	70.0	130	----
		Chromium, total	7440-47-3	E466S	0.771 mg/L	0.8 mg/L	96.4	70.0	130	----
		Cobalt, total	7440-48-4	E466S	0.364 mg/L	0.4 mg/L	91.0	70.0	130	----
		Copper, total	7440-50-8	E466S	0.348 mg/L	0.4 mg/L	86.9	70.0	130	----
		Gallium, total	7440-55-3	E466S	0.0508 mg/L	0.05 mg/L	102	70.0	130	----
		Iron, total	7439-89-6	E466S	36.8 mg/L	40 mg/L	92.1	70.0	130	----
		Lead, total	7439-92-1	E466S	0.373 mg/L	0.4 mg/L	93.3	70.0	130	----
		Lithium, total	7439-93-2	E466S	1.79 mg/L	2 mg/L	89.6	70.0	130	----
		Magnesium, total	7439-95-4	E466S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466S	0.367 mg/L	0.4 mg/L	91.8	70.0	130	----
		Molybdenum, total	7439-98-7	E466S	0.382 mg/L	0.4 mg/L	95.5	70.0	130	----
		Nickel, total	7440-02-0	E466S	0.701 mg/L	0.8 mg/L	87.7	70.0	130	----
		Phosphorus, total	7723-14-0	E466S	188 mg/L	200 mg/L	93.8	70.0	130	----
		Potassium, total	7440-09-7	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Rhenium, total	7440-15-5	E466S	0.0523 mg/L	0.05 mg/L	104	70.0	130	----
		Rubidium, total	7440-17-7	E466S	0.373 mg/L	0.4 mg/L	93.2	70.0	130	----
		Selenium, total	7782-49-2	E466S	0.761 mg/L	0.8 mg/L	95.2	70.0	130	----
		Silver, total	7440-22-4	E466S	0.0753 mg/L	0.08 mg/L	94.2	70.0	130	----
		Strontium, total	7440-24-6	E466S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E466S	372 mg/L	400 mg/L	93.0	70.0	130	----
		Tellurium, total	13494-80-9	E466S	0.721 mg/L	0.8 mg/L	90.2	70.0	130	----
		Thallium, total	7440-28-0	E466S	0.0741 mg/L	0.08 mg/L	92.6	70.0	130	----
		Thorium, total	7440-29-1	E466S	0.388 mg/L	0.4 mg/L	97.1	70.0	130	----
		Tin, total	7440-31-5	E466S	0.395 mg/L	0.4 mg/L	98.8	70.0	130	----
		Titanium, total	7440-32-6	E466S	0.776 mg/L	0.8 mg/L	97.0	70.0	130	----
		Tungsten, total	7440-33-7	E466S	0.395 mg/L	0.4 mg/L	98.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1088490) - continued										
YL2301042-002	MP-05-North-1-23	Uranium, total	7440-61-1	E466S	0.0794 mg/L	0.08 mg/L	99.3	70.0	130	----
		Vanadium, total	7440-62-2	E466S	1.98 mg/L	2 mg/L	99.0	70.0	130	----
		Yttrium, total	7440-65-5	E466S	0.0509 mg/L	0.05 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E466S	6.99 mg/L	8 mg/L	87.4	70.0	130	----
		Zirconium, total	7440-67-7	E466S	0.821 mg/L	0.8 mg/L	103	70.0	130	----
Total Metals (QCLot: 1090146)										
YL2301042-002	MP-05-North-1-23	Mercury, total	7439-97-6	E508S	0.0000977 mg/L	0.0001 mg/L	97.7	70.0	130	----
Dissolved Metals (QCLot: 1088491)										
YL2301042-002	MP-05-North-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	526 mg/L	500 mg/L	105	70.0	130	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 1088492)										
YL2301042-002	MP-05-North-1-23	Aluminum, dissolved	7429-90-5	E465S	3.42 mg/L	4 mg/L	85.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E465S	0.388 mg/L	0.4 mg/L	96.9	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465S	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Barium, dissolved	7440-39-3	E465S	0.393 mg/L	0.4 mg/L	98.2	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465S	0.833 mg/L	0.8 mg/L	104	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465S	0.180 mg/L	0.2 mg/L	89.8	70.0	130	----
		Boron, dissolved	7440-42-8	E465S	1.86 mg/L	2 mg/L	93.0	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465S	0.0742 mg/L	0.08 mg/L	92.7	70.0	130	----
		Calcium, dissolved	7440-70-2	E465S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E465S	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		Chromium, dissolved	7440-47-3	E465S	0.754 mg/L	0.8 mg/L	94.3	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465S	0.360 mg/L	0.4 mg/L	90.1	70.0	130	----
		Copper, dissolved	7440-50-8	E465S	0.352 mg/L	0.4 mg/L	87.9	70.0	130	----
		Gallium, dissolved	7440-55-3	E465S	0.0513 mg/L	0.05 mg/L	102	70.0	130	----
		Iron, dissolved	7439-89-6	E465S	36.2 mg/L	40 mg/L	90.6	70.0	130	----
		Lead, dissolved	7439-92-1	E465S	0.368 mg/L	0.4 mg/L	91.9	70.0	130	----
		Lithium, dissolved	7439-93-2	E465S	1.76 mg/L	2 mg/L	88.2	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465S	0.368 mg/L	0.4 mg/L	92.0	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465S	0.371 mg/L	0.4 mg/L	92.8	70.0	130	----
		Nickel, dissolved	7440-02-0	E465S	0.693 mg/L	0.8 mg/L	86.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465S	185 mg/L	200 mg/L	92.4	70.0	130	----
		Potassium, dissolved	7440-09-7	E465S	ND mg/L	80 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1088492) - continued										
YL2301042-002	MP-05-North-1-23	Rhenium, dissolved	7440-15-5	E465S	0.0519 mg/L	0.05 mg/L	104	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465S	0.370 mg/L	0.4 mg/L	92.4	70.0	130	----
		Selenium, dissolved	7782-49-2	E465S	0.763 mg/L	0.8 mg/L	95.4	70.0	130	----
		Silver, dissolved	7440-22-4	E465S	0.0742 mg/L	0.08 mg/L	92.7	70.0	130	----
		Strontium, dissolved	7440-24-6	E465S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465S	373 mg/L	400 mg/L	93.2	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465S	0.718 mg/L	0.8 mg/L	89.8	70.0	130	----
		Thallium, dissolved	7440-28-0	E465S	0.0718 mg/L	0.08 mg/L	89.7	70.0	130	----
		Thorium, dissolved	7440-29-1	E465S	0.407 mg/L	0.4 mg/L	102	70.0	130	----
		Tin, dissolved	7440-31-5	E465S	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		Titanium, dissolved	7440-32-6	E465S	0.796 mg/L	0.8 mg/L	99.5	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465S	0.396 mg/L	0.4 mg/L	99.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E465S	0.0805 mg/L	0.08 mg/L	100	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465S	1.93 mg/L	2 mg/L	96.6	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465S	0.0508 mg/L	0.05 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E465S	6.93 mg/L	8 mg/L	86.6	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465S	0.786 mg/L	0.8 mg/L	98.2	70.0	130	----
Dissolved Metals (QCLot: 1091346)										
YL2301042-002	MP-05-North-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000985 mg/L	0.0001 mg/L	98.5	70.0	130	----
Volatile Organic Compounds (QCLot: 1093379)										
YL2301042-002	MP-05-North-1-23	Benzene	71-43-2	E611A	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Ethylbenzene	100-41-4	E611A	95.6 µg/L	100 µg/L	95.6	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	107 µg/L	100 µg/L	107	60.0	140	----
		Styrene	100-42-5	E611A	102 µg/L	100 µg/L	102	60.0	140	----
		Toluene	108-88-3	E611A	102 µg/L	100 µg/L	102	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	226 µg/L	200 µg/L	113	60.0	140	----
		Xylene, o-	95-47-6	E611A	95.8 µg/L	100 µg/L	95.8	60.0	140	----
Hydrocarbons (QCLot: 1093378)										
YL2301042-005	MP-06-Source-2-23	F1 (C6-C10)	----	E581.VH+F1	4670 µg/L	6310 µg/L	74.0	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4830 µg/L	6310 µg/L	76.5	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 21 -

Page 1 of 1

Environmental Division Yellowknife

Work Order Reference

YL2301042

Telephone : +1 867 873 5593

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Connor Pettem
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: elaine.irving@wsp.com

Email 2: connor.pettem@wsp.com

Email 3: trish.tomliens@wsp.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge

☐ Same day [E2] if received by 10am M-S - 200% rush sur

Additional fees may apply to rush requests on we

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	
Job #:	GOLD100-028
PO / AFE:	166372402/70000/03
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer **Sampler:** NOB, MCR, SD ~~FT/MR/DV~~

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General (alkalinity, turbidity, cond.)	Anions, TOC, DOC, Hard., Salinity	pH, TSS, TDS, Ammonia, TKN	Dissolved Metals F/P	Total Metals P	Dissolved Hg F/P	Total Hg P	Nutrients (including total phosphorus) P	Petroleum hydrocarbons (MTBE) P	Petroleum hydrocarbons (BTEX,F1) P	Hydrocarbons (LEPH/HEPH) P	PAH, F2-F4 P	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MP05-Source-1-23	11-AUG-23	15:46	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R			
	MP05-North-1-23 MP05-North-1-23 R	11-AUG-23	16:20	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R			
	MP05-ENE-1-23	11-AUG-23	16:32	Seawater	6	R	R	R	R	R	R	R	R							
	MP05-WNW-1-23	11-AUG-23	16:05	Seawater	6	R	R	R	R	R	R	R	R							
	MP06-Source-2-23	11-AUG-23	13:49	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R			
	MP06-North-2-23	11-AUG-23	14:25	Seawater	6	R	R	R	R	R	R	R	R							
	MP06-ENE-2-23	11-AUG-23	15:00	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R			
	MP06-WNW-2-23	11-AUG-23	14:39	Seawater	6	R	R	R	R	R	R	R	R							
	DUP- C-23	11-AUG-23		Seawater	6	R	R	R	R	R	R	R	R							
	MLP- B-23	11-AUG-23		Seawater	6	R	R	R	R	R	R	R	R							
	~~FG-23~~	~~12-AUG-23~~	~~15:10~~	~~Seawater~~																

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Refer to quote (GOLD100-028) for all analyses.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.6							

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
MA	Aug 14/23	10:00

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2301044**	Page	: 1 of 9
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 14-Aug-2023 10:00
PO	: ----	Date Analysis Commenced	: 18-Aug-2023
C-O-C number	: ----	Issue Date	: 23-Aug-2023 17:00
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Seawater** (Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: TGT-23	----	----	----	----
					Client sampling date / time: 12-Aug-2023 15:10	----	----	----	----
					YL2301044-001	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	78.4	----	----	----	----
Conductivity	----	E100S/VA	2.0	µS/cm	27200	----	----	----	----
pH	----	E108/VA	0.10	pH units	7.77	----	----	----	----
Salinity	----	EC100S/VA	1.0	psu	16.8	----	----	----	----
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L	18700	----	----	----	----
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L	<2.0	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.20	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L	3630	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L	3720	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	----	----	----	----
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L	31.7	----	----	----	----
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L	9130	----	----	----	----
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L	0.50	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L	0.089	----	----	----	----
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L	<0.010	----	----	----	----
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L	<0.010	----	----	----	----
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L	0.0096	----	----	----	----
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L	0.0088	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L	1290	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	0.94	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	1.15	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L	0.0134	----	----	----	----
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L	<0.0010	----	----	----	----
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L	0.00089	----	----	----	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: TGT-23	----	----	----	----
					Client sampling date / time: 12-Aug-2023 15:10	----	----	----	----
					YL2301044-001	--------	--------	--------	--------
					Result	----	----	----	----
Total Metals									
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L	0.0074	----	----	----	----
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Boron, total	7440-42-8	E466S/VA	0.30	mg/L	2.82	----	----	----	----
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L	<0.000020	----	----	----	----
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L	243	----	----	----	----
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L	<0.000050	----	----	----	----
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L	0.00212	----	----	----	----
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Iron, total	7439-89-6	E466S/VA	0.010	mg/L	0.017	----	----	----	----
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L	<0.00010	----	----	----	----
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L	0.086	----	----	----	----
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L	757	----	----	----	----
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L	0.00111	----	----	----	----
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L	0.00541	----	----	----	----
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L	213	----	----	----	----
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L	0.0553	----	----	----	----
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L	<1.0	----	----	----	----
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L	<0.00010	----	----	----	----
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L	5280	----	----	----	----
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L	3.65	----	----	----	----

Analytical Results

Sub-Matrix: Seawater (Matrix: Water)									
				Client sample ID	TGT-23	----	----	----	----
				Client sampling date / time	12-Aug-2023 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2301044-001	--------	--------	--------	--------
					Result	----	----	----	----
Total Metals									
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L	520	----	----	----	----
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L	<0.000050	----	----	----	----
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L	<0.0010	----	----	----	----
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L	<0.0050	----	----	----	----
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L	<0.0010	----	----	----	----
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L	0.00175	----	----	----	----
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L	0.00072	----	----	----	----
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L	<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L	0.0088	----	----	----	----
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L	<0.0010	----	----	----	----
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L	0.00093	----	----	----	----
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L	0.0070	----	----	----	----
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L	2.81	----	----	----	----
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L	<0.000020	----	----	----	----
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L	240	----	----	----	----
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L	<0.000050	----	----	----	----
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L	<0.00050	----	----	----	----
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L	<0.010	----	----	----	----
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L	0.00011	----	----	----	----
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L	0.082	----	----	----	----

Analytical Results

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	TGT-23	----	----	----	----
					Client sampling date / time	12-Aug-2023 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301044-001	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		735	----	----	----	----
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00134	----	----	----	----
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00518	----	----	----	----
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		206	----	----	----	----
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0536	----	----	----	----
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	----	----	----	----
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	----	----	----	----
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		5330	----	----	----	----
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		3.53	----	----	----	----
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		492	----	----	----	----
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	----	----	----	----
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	----	----	----	----
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	----	----	----	----
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	----	----	----	----
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00168	----	----	----	----
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		0.00070	----	----	----	----
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		0.0021	----	----	----	----
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	----	----	----	----
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	----	----	----	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: TGT-23	----	----	----	----
					Client sampling date / time: 12-Aug-2023 15:10	----	----	----	----
					YL2301044-001	--------	--------	--------	--------
					Result	----	----	----	----
Dissolved Metals									
Dissolved metals filtration location	----	EP421/VA	-	-	Field	----	----	----	----
Volatile Organic Compounds [Fuels]									
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	----	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	----	----	----	----
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	----	----	----	----
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	----	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	----	----	----	----
Hydrocarbons									
EPH (C10-C19)	----	E601A/VA	250	µg/L	<250	----	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L	<250	----	----	----	----
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	----	----	----	----
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	----	----	----	----
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	----	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L	<100	----	----	----	----
F1-BTEX	----	EC580/VA	100	µg/L	<100	----	----	----	----
HEPHw	----	EC600A/VA	250	µg/L	<250	----	----	----	----
LEPHw	----	EC600A/VA	250	µg/L	<250	----	----	----	----
VPHw	----	EC580A/VA	100	µg/L	<100	----	----	----	----
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L	<100	----	----	----	----
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%	76.2	----	----	----	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	74.9	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%	102	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	97.2	----	----	----	----

Analytical Results

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	TGT-23	----	----	----	----
					Client sampling date / time	12-Aug-2023 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301044-001	--------	--------	--------	--------
						Result	----	----	----	----
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		102	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/VA	0.015	µg/L		<0.015	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/VA	0.030	µg/L		<0.030	----	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/VA	0.060	µg/L		<0.060	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A/VA	0.065	µg/L		<0.065	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		73.4	----	----	----	----

Analytical Results

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	TGT-23	----	----	----	----
					Client sampling date / time	12-Aug-2023 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301044-001	--------	--------	--------	--------
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		85.9	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		107	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2301044**	Page	: 1 of 15
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 14-Aug-2023 10:00
PO	: ----	Issue Date	: 23-Aug-2023 17:00
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Total Metals	QC-1093977-002	----	Boron, total	7440-42-8	E466S	124 % B	80.0-120%	Recovery greater than upper control limit
Dissolved Metals	QC-1093435-002	----	Boron, dissolved	7440-42-8	E465S	122 % MES	80.0-120%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	*Description*
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
TGT-23	E298	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	21-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
TGT-23	E235S.Br	12-Aug-2023	22-Aug-2023	28 days	10 days	✓	23-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
TGT-23	E235S.Cl	12-Aug-2023	22-Aug-2023	28 days	10 days	✓	23-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
TGT-23	E235S.F-L	12-Aug-2023	22-Aug-2023	28 days	10 days	✓	23-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
TGT-23	E235S.NO3-T	12-Aug-2023	22-Aug-2023	3 days	10 days	× EHT	23-Aug-2023	3 days	11 days	× EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
TGT-23	E235S.NO2-L	12-Aug-2023	22-Aug-2023	3 days	10 days	× EHT	23-Aug-2023	3 days	11 days	× EHT
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
TGT-23	E235S.SO4-L	12-Aug-2023	22-Aug-2023	28 days	10 days	✓	23-Aug-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (sulfuric acid)										
TGT-23	E375-T	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	11 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
TGT-23	E318S	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	21-Aug-2023	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
TGT-23	E372S	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
TGT-23	E509S	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	19-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
TGT-23	E465S	12-Aug-2023	21-Aug-2023	180 days	9 days	✓	21-Aug-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
TGT-23	E469S.NaSi	12-Aug-2023	20-Aug-2023	180 days	8 days	✓	23-Aug-2023	180 days	11 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
TGT-23	E601A	12-Aug-2023	23-Aug-2023	14 days	11 days	✓	23-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
TGT-23	E601	12-Aug-2023	23-Aug-2023	14 days	11 days	✓	23-Aug-2023	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
TGT-23	E581.VH+F1	12-Aug-2023	22-Aug-2023	14 days	10 days	✓	22-Aug-2023	14 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
TGT-23	E358-L	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	20-Aug-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
TGT-23	E355-L	12-Aug-2023	19-Aug-2023	28 days	7 days	✓	20-Aug-2023	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
TGT-23	E290	12-Aug-2023	22-Aug-2023	14 days	10 days	✓	22-Aug-2023	14 days	10 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
TGT-23	E100S	12-Aug-2023	22-Aug-2023	28 days	10 days	✓	22-Aug-2023	28 days	10 days	✓
Physical Tests : pH by Meter										
HDPE										
TGT-23	E108	12-Aug-2023	22-Aug-2023	0.25 hrs	238 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	238 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
TGT-23	E162S	12-Aug-2023	----	----	----		19-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
TGT-23	E160S	12-Aug-2023	----	----	----		19-Aug-2023	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
TGT-23	E121	12-Aug-2023	----	----	----		21-Aug-2023	3 days	9 days	× EHT
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
TGT-23	E641A	12-Aug-2023	23-Aug-2023	14 days	11 days	✓	23-Aug-2023	40 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
TGT-23	E508S	12-Aug-2023	18-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	6 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
TGT-23	E466S	12-Aug-2023	20-Aug-2023	180 days	8 days	✓	21-Aug-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
TGT-23	E468S.NaSi	12-Aug-2023	20-Aug-2023	180 days	8 days	✓	23-Aug-2023	180 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
TGT-23	E611A	12-Aug-2023	22-Aug-2023	14 days	10 days	✓	22-Aug-2023	14 days	10 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1097508	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1093794	1	6	16.6	5.0	✓
Bromide in Seawater by IC	E235S.Br	1097511	1	1	100.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1096499	1	13	7.6	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1097512	1	1	100.0	5.0	✓
Conductivity in Seawater	E100S	1097509	1	1	100.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1093300	1	1	100.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1093435	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093795	1	4	25.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1093437	1	1	100.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1097513	1	1	100.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1097514	1	1	100.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1097515	1	1	100.0	5.0	✓
pH by Meter	E108	1097510	1	1	100.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1097516	1	1	100.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1093949	1	1	100.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1093797	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093798	1	1	100.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1093110	1	20	5.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1093977	1	1	100.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093789	1	5	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093792	1	8	12.5	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1093976	1	1	100.0	5.0	✓
Turbidity by Nephelometry	E121	1095402	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1096500	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1097508	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1093794	1	6	16.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1098538	1	10	10.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1097511	1	1	100.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1096499	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1098537	1	3	33.3	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1097512	1	1	100.0	5.0	✓
Conductivity in Seawater	E100S	1097509	1	1	100.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1093300	1	1	100.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1093435	1	1	100.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093795	1	4	25.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1093437	1	1	100.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1097513	1	1	100.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1097514	1	1	100.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1097515	1	1	100.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1098536	1	5	20.0	5.0	✓
pH by Meter	E108	1097510	1	1	100.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1097516	1	1	100.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1093949	1	1	100.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1093797	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093798	1	1	100.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1093110	1	20	5.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1093977	1	1	100.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093789	1	5	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093792	1	8	12.5	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1093976	1	1	100.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1093948	1	1	100.0	5.0	✓
Turbidity by Nephelometry	E121	1095402	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1096500	1	9	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1097508	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1093794	1	6	16.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1098538	1	10	10.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1097511	1	1	100.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1096499	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1098537	1	3	33.3	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1097512	1	1	100.0	5.0	✓
Conductivity in Seawater	E100S	1097509	1	1	100.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1093300	1	1	100.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1093435	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093795	1	4	25.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1093437	1	1	100.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1097513	1	1	100.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1097514	1	1	100.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1097515	1	1	100.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1098536	1	5	20.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1097516	1	1	100.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1093949	1	1	100.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1093797	1	9	11.1	5.0	✓

Matrix: **Water**

Evaluation: ✗ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093798	1	1	100.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1093110	1	20	5.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1093977	1	1	100.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093789	1	5	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093792	1	8	12.5	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1093976	1	1	100.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1093948	1	1	100.0	5.0	✓
Turbidity by Nephelometry	E121	1095402	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1096500	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1093794	1	6	16.6	5.0	✓
Bromide in Seawater by IC	E235S.Br	1097511	0	1	0.0	5.0	✗
BTEX by Headspace GC-MS	E611A	1096499	1	13	7.6	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1097512	0	1	0.0	5.0	✗
Dissolved Mercury in Seawater by CVAAS	E509S	1093300	0	1	0.0	5.0	✗
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1093435	0	1	0.0	5.0	✗
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093795	1	4	25.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1093437	0	1	0.0	5.0	✗
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1097513	0	1	0.0	5.0	✗
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1097514	0	1	0.0	5.0	✗
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1097515	0	1	0.0	5.0	✗
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1097516	0	1	0.0	5.0	✗
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1093797	0	9	0.0	5.0	✗
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093798	0	1	0.0	5.0	✗
Total Mercury in Seawater by CVAAS	E508S	1093110	1	20	5.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1093977	0	1	0.0	5.0	✗
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093789	1	5	20.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093792	1	8	12.5	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1093976	0	1	0.0	5.0	✗
VH and F1 by Headspace GC-FID	E581.VH+F1	1096500	1	9	11.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL REPORT

Work Order	: **YL2301044**	Page	: 1 of 19
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: +1 867 873 5593
Project	: 166372402/70000/03	Date Samples Received	: 14-Aug-2023 10:00
PO	: ----	Date Analysis Commenced	: 18-Aug-2023
C-O-C number	: ----	Issue Date	: 23-Aug-2023 17:00
Sampler	: ---- ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1093949)											
YL2301044-001	TGT-23	Solids, total dissolved [TDS]	----	E162S	400	mg/L	18700	18200	2.93%	20%	----
Physical Tests (QC Lot: 1095402)											
VA23B9384-001	Anonymous	Turbidity	----	E121	0.10	NTU	<0.10	<0.10	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1097508)											
YL2301044-001	TGT-23	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	78.4	78.2	0.255%	20%	----
Physical Tests (QC Lot: 1097509)											
YL2301044-001	TGT-23	Conductivity	----	E100S	2.0	µS/cm	27200	27200	0.00%	20%	----
Physical Tests (QC Lot: 1097510)											
YL2301044-001	TGT-23	pH	----	E108	0.10	pH units	7.77	7.80	0.385%	4%	----
Anions and Nutrients (QC Lot: 1093792)											
VA23B8940-019	Anonymous	Phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0277	0.0277	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1093794)											
FJ2302048-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1093797)											
FJ2302048-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1093798)											
YL2301044-001	TGT-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.089	0.088	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1097511)											
YL2301044-001	TGT-23	Bromide	24959-67-9	E235S.Br	5.0	mg/L	31.7	31.1	0.6	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1097512)											
YL2301044-001	TGT-23	Chloride	16887-00-6	E235S.Cl	50	mg/L	9130	9110	0.264%	20%	----
Anions and Nutrients (QC Lot: 1097513)											
YL2301044-001	TGT-23	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.50	0.51	0.008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1097514)											
YL2301044-001	TGT-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1097515)											
YL2301044-001	TGT-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1097516)											
YL2301044-001	TGT-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	1290	1290	0.0674%	20%	----
Organic / Inorganic Carbon (QC Lot: 1093789)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1093789) - continued											
FJ2302048-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.36	4.41	0.05	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1093795)											
FJ2302048-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.89	2.27	0.38	Diff <2x LOR	----
Total Metals (QC Lot: 1093110)											
VA23B8868-001	Anonymous	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1093976)											
YL2301044-001	TGT-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	5280	5230	1.08%	20%	----
Total Metals (QC Lot: 1093977)											
YL2301044-001	TGT-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	0.0134	0.0126	0.0008	Diff <2x LOR	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	0.00089	0.00088	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	0.0074	0.0072	0.0003	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	2.82	2.80	0.02	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	243	246	1.08%	20%	----
		Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	0.00212	0.00220	0.00008	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	0.017	0.015	0.002	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	0.086	0.083	0.003	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	757	777	2.62%	20%	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	0.00111	0.00103	0.00008	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	0.00541	0.00500	7.90%	20%	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	213	213	0.177%	20%	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	0.0553	0.0512	7.67%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1093977) - continued											
YL2301044-001	TGT-23	Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E466S	0.010	mg/L	3.65	3.36	8.11%	20%	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	520	507	2.55%	20%	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	0.00175	0.00164	6.34%	20%	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	0.00072	0.00070	0.00002	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1093300)											
YL2301044-001	TGT-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1093435)											
YL2301044-001	TGT-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	0.0088	0.0082	0.0006	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	0.00093	0.00086	0.00007	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	0.0070	0.0071	0.00010	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	2.81	2.80	0.006	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	240	248	3.10%	20%	----
		Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	0.00011	<0.00010	0.00001	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1093435) - continued											
YL2301044-001	TGT-23	Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	0.082	0.082	0.0004	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	735	777	5.58%	20%	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	0.00134	0.00117	13.3%	20%	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	0.00518	0.00495	4.54%	20%	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	206	215	4.49%	20%	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	0.0536	0.0516	3.67%	20%	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	3.53	3.38	4.49%	20%	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	492	502	1.85%	20%	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	0.00168	0.00164	2.35%	20%	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	0.00070	0.00062	0.00008	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	0.0021	0.0018	0.0003	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1093437)											
YL2301044-001	TGT-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	5330	5370	0.852%	20%	----
Volatile Organic Compounds (QC Lot: 1096499)											
VA23B8909-001	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1096499) - continued											
VA23B8909-001	Anonymous	Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1096500)											
WR2300861-003	Anonymous	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1093948)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1093949)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Physical Tests (QCLot: 1095402)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1097508)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1097509)						
Conductivity	----	E100S	2	µS/cm	<2.0	----
Anions and Nutrients (QCLot: 1093792)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1093794)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1093797)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1093798)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1097511)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1097512)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1097513)						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1097514)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1097515)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1097516)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Organic / Inorganic Carbon (QCLot: 1093789)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1093795)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1093795) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1093110)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1093976)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1093977)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1093977) - continued						
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1093300)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1093435)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1093435) - continued						
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1093437)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Volatile Organic Compounds (QCLot: 1096499)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1096500)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1098537)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 1098537) - continued						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Hydrocarbons (QCLot: 1098538)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1098536)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1093948)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	85.3	85.0	115	----
Physical Tests (QCLot: 1093949)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	100.0	85.0	115	----
Physical Tests (QCLot: 1095402)									
Turbidity	----	E121	0.1	NTU	200 NTU	100.0	85.0	115	----
Physical Tests (QCLot: 1097508)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1097509)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	95.6	80.0	120	----
Physical Tests (QCLot: 1097510)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Anions and Nutrients (QCLot: 1093792)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	90.5	80.0	120	----
Anions and Nutrients (QCLot: 1093794)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	96.8	85.0	115	----
Anions and Nutrients (QCLot: 1093797)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	91.7	80.0	120	----
Anions and Nutrients (QCLot: 1093798)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1097511)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	99.9	85.0	115	----
Anions and Nutrients (QCLot: 1097512)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	99.0	90.0	110	----
Anions and Nutrients (QCLot: 1097513)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1097514)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	99.2	90.0	110	----
Anions and Nutrients (QCLot: 1097515)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	97.0	90.0	110	----
Anions and Nutrients (QCLot: 1097516)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	101	90.0	110	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1093789)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	100	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1093795)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Metals (QCLot: 1093110)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	101	80.0	120	----
Total Metals (QCLot: 1093976)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	113	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	108	80.0	120	----
Total Metals (QCLot: 1093977)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	93.6	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	100.0	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	# 124	80.0	120	B
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	99.1	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	110	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	91.4	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	89.6	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	99.4	80.0	120	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	91.2	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	100.0	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	102	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	117	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	91.6	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	89.2	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	89.0	80.0	120	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	107	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	91.8	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1093977) - continued									
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	103	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	94.9	80.0	120	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	89.0	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	106	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	97.1	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	96.2	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	99.5	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	106	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	98.3	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	93.0	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	99.5	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	85.8	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	99.6	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	99.0	80.0	120	----
Dissolved Metals (QCLot: 1093435)									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	92.9	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	105	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	96.5	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	# 122	80.0	120	MES
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	97.7	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	103	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	108	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	90.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	88.9	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	98.7	80.0	120	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	90.4	80.0	120	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	97.2	80.0	120	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	97.7	80.0	120	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	118	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1093435) - continued									
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	90.8	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	88.9	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	87.2	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	106	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	98.7	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	91.4	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	93.9	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	88.2	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	96.7	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	98.7	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	91.7	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	97.3	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	97.5	80.0	120	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	92.2	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	95.5	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	85.8	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	94.8	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	108	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	104	80.0	120	----
Volatile Organic Compounds (QCLot: 1096499)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	96.1	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	99.9	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	105	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	100	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	114	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	101	70.0	130	----
Hydrocarbons (QCLot: 1096500)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	83.8	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 1096500) - continued									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	86.6	70.0	130	----
Hydrocarbons (QCLot: 1098537)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	129	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	114	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	112	70.0	130	----
Hydrocarbons (QCLot: 1098538)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	116	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	110	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1098536)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	114	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	128	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	127	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	128	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	123	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	117	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	126	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	110	60.0	130	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1093792)										
VA23B8940-020	Anonymous	Phosphorus, total	7723-14-0	E372S	ND mg/L	0.05 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1093794)										
FJ2302048-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
Organic / Inorganic Carbon (QCLot: 1093789)										
FJ2302048-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.31 mg/L	5 mg/L	106	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1093795)										
FJ2302048-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.94 mg/L	----	N/A	70.0	130	----
Total Metals (QCLot: 1093110)										
VA23B8868-002	Anonymous	Mercury, total	7439-97-6	E508S	0.0000983 mg/L	0.0001 mg/L	98.3	70.0	130	----
Volatile Organic Compounds (QCLot: 1096499)										
VA23B9048-001	Anonymous	Benzene	71-43-2	E611A	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Ethylbenzene	100-41-4	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		Styrene	100-42-5	E611A	107 µg/L	100 µg/L	107	60.0	140	----
		Toluene	108-88-3	E611A	ND µg/L	500 µg/L	ND	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	ND µg/L	200 µg/L	ND	60.0	140	----
		Xylene, o-	95-47-6	E611A	ND µg/L	100 µg/L	ND	60.0	140	----
Hydrocarbons (QCLot: 1096500)										
WR2300861-004	Anonymous	F1 (C6-C10)	----	E581.VH+F1	4810 µg/L	6310 µg/L	76.2	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4970 µg/L	6310 µg/L	78.8	60.0	140	----

Qualifiers

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Golder Associates Ltd.
Contact:	Elaine Irving/Connor Pettern
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: elaine.irving@wsp.com

Email 2: connor.pettern@wsp.com

Email 3: trish.tomliens@wsp.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	
Job #:	GOLD 100-028
PO / AFE:	166372402/70000/03
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer Sampler: TT/MR/DV

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINER	General (alkalinity, turbidity, conduc	Anions, TOC, DOC, Hardness, Salir	pH, TSS, TDS, Ammonia, TKN)	Dissolved Metals F/P	Total Metals P	Dissolved Mercury F/P	Total Mercury P	Nutrients (including total phosphorus P	Petroleum hydrocarbons (MTBE) P	Petroleum hydrocarbons (BTEX,F1) P	Hydrocarbons (LEPH/HEPH) P	PAH, F2-F4 P	Nutrients (including dissolved phosp F/P	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes
	TGT-23	12-AUG-22	15:10	Seawater	11	X	X	X	X	X	X	X	X	X	X	X	X	X			
				Seawater																	

Environmental Division
Yellowknife
Work Order Reference
YL2301044

Telephone : +1 867 873 5593

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?

☐ YES ☑ NO

Are samples for human consumption/ use?

☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Please refer to quote for all analyses.

S (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C			
3.6						

SHIPMENT RELEASE (client use)

Released by:	Date: 10 Aug 2022	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date: Aug 14/22	Time: 10:06

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B9367**	Page	: 1 of 14
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: GOLD100-028	Date Samples Received	: 19-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 19-Aug-2023
C-O-C number	: ----	Issue Date	: 30-Aug-2023 10:42
Sampler	: TT		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	15-Aug-2023 15:45	15-Aug-2023 15:14	15-Aug-2023 15:35	15-Aug-2023 15:00	15-Aug-2023 16:18
						VA23B9367-001	VA23B9367-002	VA23B9367-003	VA23B9367-004	VA23B9367-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		86.4	92.6	95.3	85.2	108
Conductivity	----	E100S/VA	2.0	µS/cm		30300	33600	35600	27800	43900
pH	----	E108/VA	0.10	pH units		7.93	7.94	7.95	7.92	7.96
Salinity	----	EC100S/VA	1.0	psu		18.9	21.2	22.6	17.2	28.5
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		23400	26000	19700	21200	35100
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		2.3	<2.0	<2.0	<2.0	2.3
Turbidity	----	E121/VA	0.10	NTU		1.11	0.52	0.65	1.02	1.57
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		4370	5100	5060	3990	6970
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		4400	5040	4890	4060	6870
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0062	0.0063	0.0065	0.0079	0.0142
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		34.1	38.6	34.8	20.7	39.2
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		10300	11800	10300	6290	11900
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		0.55	0.63	0.65	0.54	0.77
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.120	0.091	0.102	0.095	0.144
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		0.011	<0.010	<0.010	0.020	0.188
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0143	0.0251	0.0177	0.0128	0.0229
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0116	0.0148	0.0164	0.0109	0.0209
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		1430	1650	1750	1340	2210
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		1.00	0.78	0.83	0.76	0.93
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.21	1.37	1.27	1.21	1.31
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		0.0164	0.0108	0.0110	0.0171	0.0171
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00109	0.00124	0.00119	0.00091	0.00156

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	15-Aug-2023 15:45	15-Aug-2023 15:14	15-Aug-2023 15:35	15-Aug-2023 15:00	15-Aug-2023 16:18
						VA23B9367-001	VA23B9367-002	VA23B9367-003	VA23B9367-004	VA23B9367-005
						Result	Result	Result	Result	Result
Total Metals										
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0072	0.0076	0.0075	0.0071	0.0085
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		2.52	2.86	3.47	2.54	3.98
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		<0.000020	0.000023	0.000020	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		285	322	318	261	442
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	0.000064
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		<0.00050	0.00174	0.00308	0.00059	0.00189
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		0.022	0.014	0.014	0.029	0.040
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.083	0.097	0.113	0.081	0.144
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		896	1030	995	827	1400
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00174	0.00109	0.00099	0.00155	0.00195
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00569	0.00658	0.00738	0.00516	0.00897
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		247	284	277	223	394
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.0601	0.0692	0.0759	0.0536	0.0937
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		5990	7120	7470	5740	9340
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		3.94	4.51	5.01	3.51	6.13

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	15-Aug-2023 15:45	15-Aug-2023 15:14	15-Aug-2023 15:35	15-Aug-2023 15:00	15-Aug-2023 16:18
						VA23B9367-001	VA23B9367-002	VA23B9367-003	VA23B9367-004	VA23B9367-005
						Result	Result	Result	Result	Result
Total Metals										
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		574	676	689	528	913
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00237	0.00229	0.00236	0.00243	0.00900
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		0.00078	0.00090	0.00100	0.00069	0.00126
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		0.00099	0.00117	0.00117	0.00092	0.00153
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0071	0.0074	0.0076	0.0068	0.0081
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		2.87	3.16	3.88	3.02	4.60
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		283	328	327	257	448
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		0.00078	0.00082	0.00052	0.00055	<0.00050
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.088	0.101	0.115	0.088	0.148

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	15-Aug-2023 15:45	15-Aug-2023 15:14	15-Aug-2023 15:35	15-Aug-2023 15:00	15-Aug-2023 16:18
						VA23B9367-001	VA23B9367-002	VA23B9367-003	VA23B9367-004	VA23B9367-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		890	1040	1030	813	1420
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00133	0.00079	0.00078	0.00116	0.00060
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00564	0.00653	0.00736	0.00533	0.00902
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		244	288	289	225	406
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.0591	0.0682	0.0758	0.0554	0.0953
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		6000	7020	7300	5410	9500
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		3.89	4.47	5.01	3.64	6.28
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		569	658	683	517	923
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00226	0.00218	0.00227	0.00220	0.00337
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		0.00073	0.00084	0.00092	0.00073	0.00123
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		0.0010	<0.0010	<0.0010	0.0011	<0.0010
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	15-Aug-2023 15:45	15-Aug-2023 15:14	15-Aug-2023 15:35	15-Aug-2023 15:00	15-Aug-2023 16:18
						VA23B9367-001	VA23B9367-002	VA23B9367-003	VA23B9367-004	VA23B9367-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Styrene	100-42-5	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Toluene	108-88-3	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		<0.40	<0.40	----	----	<0.40
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		<0.30	<0.30	----	----	<0.30
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		<0.50	<0.50	----	----	<0.50
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	<250	----	----	<250
F2 (C10-C16)	----	E601/VA	100	µg/L		<100	<100	----	----	<100
F3 (C16-C34)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
F4 (C34-C50)	----	E601/VA	250	µg/L		<250	<250	----	----	<250
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
F1-BTEX	----	EC580/VA	100	µg/L		<100	<100	----	----	<100
HEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
LEPHw	----	EC600A/VA	250	µg/L		<250	<250	----	----	<250
VPHw	----	EC580A/VA	100	µg/L		<100	<100	----	----	<100
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	----	----	<100
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		90.4	88.8	----	----	86.5
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		86.2	86.4	----	----	82.9
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		112	128	----	----	123
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		92.0	91.2	----	----	90.1

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
					Client sampling date / time	15-Aug-2023 15:45	15-Aug-2023 15:14	15-Aug-2023 15:35	15-Aug-2023 15:00	15-Aug-2023 16:18
						VA23B9367-001	VA23B9367-002	VA23B9367-003	VA23B9367-004	VA23B9367-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		98.9	102	----	----	101
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	<0.0050
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	----	----	<0.020
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	<0.010
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		67.2	77.1	----	----	73.0
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		103	108	----	----	103
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		97.1	107	----	----	101

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-D-23	MLP-C-23
					Client sampling date / time	15-Aug-2023 17:03	15-Aug-2023 17:26	15-Aug-2023 11:48	15-Aug-2023 00:00	15-Aug-2023 00:00
						VA23B9367-006	VA23B9367-007	VA23B9367-008	VA23B9367-009	VA23B9367-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		114	113	111	107	<1.0
Conductivity	----	E100S/VA	2.0	µS/cm		47200	48000	46400	44000	<2.0
pH	----	E108/VA	0.10	pH units		7.97	7.98	7.97	7.97	5.52
Salinity	----	EC100S/VA	1.0	psu		30.9	31.4	30.3	28.5	<1.0
Solids, total dissolved [TDS]	----	E162S/VA	10	mg/L		39000	39100	39100	36200	<10
Solids, total suspended [TSS]	----	E160S/VA	2.0	mg/L		3.1	<2.0	2.8	3.2	<2.0
Turbidity	----	E121/VA	0.10	NTU		1.09	0.32	0.46	1.46	<0.10
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		7620	7550	7300	6970	<1.00
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		7500	7460	7160	6650	<1.00
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0058	0.0057	0.0166	0.0124	<0.0050
Bromide	24959-67-9	E235S.Br/VA	5.0	mg/L		31.0	31.0	29.4	44.1	<5.0
Chloride	16887-00-6	E235S.Cl/VA	50	mg/L		9210	9420	8870	13400	<50
Fluoride	16984-48-8	E235S.F-L/VA	0.20	mg/L		0.80	0.77	0.77	0.74	<0.20
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	0.050	mg/L		0.130	0.166	0.136	0.130	<0.050
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	0.010	mg/L		<0.010	<0.010	<0.010	0.172	<0.010
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	0.0020	mg/L		0.0247	0.0231	0.0246	0.0234	<0.0040
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L		0.0218	0.0222	0.0214	0.0203	<0.0020
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	3.0	mg/L		2390	2400	2300	2200	<3.0
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.93	1.04	0.80	0.98	<0.50
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.21	1.26	1.20	1.11	<0.50
Total Metals										
Aluminum, total	7429-90-5	E466S/VA	0.0050	mg/L		0.0076	0.0078	0.0086	0.0164	<0.0050
Antimony, total	7440-36-0	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	0.00040	mg/L		0.00165	0.00164	0.00167	0.00158	<0.00040
Barium, total	7440-39-3	E466S/VA	0.0010	mg/L		0.0085	0.0085	0.0084	0.0083	<0.0010

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-D-23	MLP-C-23
					Client sampling date / time	15-Aug-2023 17:03	15-Aug-2023 17:26	15-Aug-2023 11:48	15-Aug-2023 00:00	15-Aug-2023 00:00
						VA23B9367-006	VA23B9367-007	VA23B9367-008	VA23B9367-009	VA23B9367-010
						Result	Result	Result	Result	Result
Total Metals										
Beryllium, total	7440-41-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	0.30	mg/L		4.08	3.98	3.81	3.51	<0.30
Cadmium, total	7440-43-9	E466S/VA	0.000020	mg/L		0.000021	0.000022	0.000023	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	1.0	mg/L		480	479	462	422	<1.0
Cesium, total	7440-46-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	0.000063	<0.000050
Copper, total	7440-50-8	E466S/VA	0.00050	mg/L		0.00154	0.00108	<0.00050	0.00162	<0.00050
Gallium, total	7440-55-3	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	0.010	mg/L		0.010	<0.010	<0.010	0.035	<0.010
Lead, total	7439-92-1	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	0.020	mg/L		0.153	0.152	0.146	0.132	<0.020
Magnesium, total	7439-95-4	E466S/VA	1.0	mg/L		1530	1520	1460	1360	<1.0
Manganese, total	7439-96-5	E466S/VA	0.00020	mg/L		0.00062	0.00058	0.00063	0.00189	<0.00020
Mercury, total	7439-97-6	E508S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	0.00010	mg/L		0.00998	0.0101	0.00977	0.00908	<0.00010
Nickel, total	7440-02-0	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	1.0	mg/L		434	437	414	383	<1.0
Rhenium, total	7440-15-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	0.0050	mg/L		0.103	0.106	0.102	0.0943	<0.0050
Selenium, total	7782-49-2	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	2.5	mg/L		10400	10600	10100	9360	<2.5
Strontium, total	7440-24-6	E466S/VA	0.010	mg/L		6.81	6.98	6.61	6.13	<0.010
Sulfur, total	7704-34-9	E466S/VA	5.0	mg/L		1020	1000	983	931	<5.0

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-D-23	MLP-C-23
					Client sampling date / time	15-Aug-2023 17:03	15-Aug-2023 17:26	15-Aug-2023 11:48	15-Aug-2023 00:00	15-Aug-2023 00:00
						VA23B9367-006	VA23B9367-007	VA23B9367-008	VA23B9367-009	VA23B9367-010
						Result	Result	Result	Result	Result
Total Metals										
Tellurium, total	13494-80-9	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	0.000050	mg/L		0.00292	0.00304	0.00306	0.00862	<0.000050
Vanadium, total	7440-62-2	E466S/VA	0.00050	mg/L		0.00136	0.00142	0.00130	0.00118	<0.00050
Yttrium, total	7440-65-5	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium, total	7440-67-7	E466S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	0.0050	mg/L		<0.0050	0.0053	<0.0050	<0.0050	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	0.00040	mg/L		0.00152	0.00148	0.00159	0.00151	<0.00040
Barium, dissolved	7440-39-3	E465S/VA	0.0010	mg/L		0.0084	0.0083	0.0084	0.0081	<0.0010
Beryllium, dissolved	7440-41-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	0.30	mg/L		4.66	4.54	4.36	4.13	<0.30
Cadmium, dissolved	7440-43-9	E465S/VA	0.000020	mg/L		0.000021	0.000021	0.000022	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	1.0	mg/L		479	483	466	448	<1.0
Cesium, dissolved	7440-46-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	0.00050	mg/L		0.00072	0.00073	<0.00050	<0.00050	<0.00050
Gallium, dissolved	7440-55-3	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	0.00010	mg/L		0.00010	0.00020	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	0.020	mg/L		0.160	0.154	0.150	0.142	<0.020
Magnesium, dissolved	7439-95-4	E465S/VA	1.0	mg/L		1560	1540	1490	1420	<1.0

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-D-23	MLP-C-23
					Client sampling date / time	15-Aug-2023 17:03	15-Aug-2023 17:26	15-Aug-2023 11:48	15-Aug-2023 00:00	15-Aug-2023 00:00
						VA23B9367-006	VA23B9367-007	VA23B9367-008	VA23B9367-009	VA23B9367-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Manganese, dissolved	7439-96-5	E465S/VA	0.00010	mg/L		0.00044	0.00045	0.00047	0.00060	<0.00010
Mercury, dissolved	7439-97-6	E509S/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	0.00010	mg/L		0.00967	0.00952	0.00958	0.00876	<0.00010
Nickel, dissolved	7440-02-0	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	1.0	mg/L		441	440	422	401	<1.0
Rhenium, dissolved	7440-15-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	0.0050	mg/L		0.100	0.101	0.0997	0.0929	<0.0050
Selenium, dissolved	7782-49-2	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	2.5	mg/L		10100	10200	9820	9500	<2.5
Strontium, dissolved	7440-24-6	E465S/VA	0.010	mg/L		6.66	6.63	6.59	6.10	<0.010
Sulfur, dissolved	7704-34-9	E465S/VA	5.0	mg/L		1000	988	978	914	<5.0
Tellurium, dissolved	13494-80-9	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	0.000050	mg/L		0.00295	0.00312	0.00291	0.00342	<0.000050
Vanadium, dissolved	7440-62-2	E465S/VA	0.00050	mg/L		0.00128	0.00132	0.00130	0.00121	<0.00050
Yttrium, dissolved	7440-65-5	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	0.0010	mg/L		<0.0010	0.0018	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7	E465S/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-D-23	MLP-C-23
					Client sampling date / time	15-Aug-2023 17:03	15-Aug-2023 17:26	15-Aug-2023 11:48	15-Aug-2023 00:00	15-Aug-2023 00:00
						VA23B9367-006	VA23B9367-007	VA23B9367-008	VA23B9367-009	VA23B9367-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Styrene	100-42-5	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Toluene	108-88-3	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L		----	<0.40	----	<0.40	----
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L		----	<0.30	----	<0.30	----
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L		----	<0.50	----	<0.50	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		----	<250	----	<250	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		----	<250	----	<250	----
F2 (C10-C16)	----	E601/VA	100	µg/L		----	<100	----	<100	----
F3 (C16-C34)	----	E601/VA	250	µg/L		----	<250	----	<250	----
F4 (C34-C50)	----	E601/VA	250	µg/L		----	<250	----	<250	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	<100	----
F1-BTEX	----	EC580/VA	100	µg/L		----	<100	----	<100	----
HEPHw	----	EC600A/VA	250	µg/L		----	<250	----	<250	----
LEPHw	----	EC600A/VA	250	µg/L		----	<250	----	<250	----
VPHw	----	EC580A/VA	100	µg/L		----	<100	----	<100	----
F1 (C6-C10)	----	E581.VH+F1/VA	100	µg/L		----	<100	----	<100	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		----	91.1	----	85.8	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%		----	87.3	----	82.3	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		----	120	----	120	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%		----	90.3	----	90.9	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%		----	103	----	101	----
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-D-23	MLP-C-23
					Client sampling date / time	15-Aug-2023 17:03	15-Aug-2023 17:26	15-Aug-2023 11:48	15-Aug-2023 00:00	15-Aug-2023 00:00
						VA23B9367-006	VA23B9367-007	VA23B9367-008	VA23B9367-009	VA23B9367-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		----	<0.0050	----	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		----	<0.015	----	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		----	<0.0050	----	<0.0050	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		----	<0.050	----	<0.050	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		----	<0.020	----	<0.020	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		----	<0.010	----	<0.010	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		----	<0.050	----	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		----	78.1	----	71.5	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		----	113	----	98.5	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		----	110	----	99.5	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B9367**	Page	: 1 of 41
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: GOLD100-028	Date Samples Received	: 19-Aug-2023 11:00
PO	: 166372402/70000/03	Issue Date	: 30-Aug-2023 10:43
C-O-C number	: ----		
Sampler	: TT		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	VA23B9367-002	MP05-North-1-23	Beryllium, dissolved	7440-41-7	E465S	134 % MES	70.0-130%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-D-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MLP-C-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E298	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
DUP-D-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MLP-C-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-ENE-1-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-North-1-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-Source-1-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-WNW-1-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-ENE-2-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-North-2-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-Source-2-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-WNW-1-23	E235S.Br	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
DUP-D-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MLP-C-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-ENE-1-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-North-1-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-Source-1-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-WNW-1-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-ENE-2-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-North-2-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-Source-2-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-WNW-1-23	E235S.Cl	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
DUP-D-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MLP-C-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-North-1-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP05-Source-1-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP05-WNW-1-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP06-ENE-2-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP06-North-2-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP06-Source-2-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP06-WNW-1-23	E235S.F-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP06-ENE-2-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTL	23-Aug-2023	3 days	8 days	✗ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP06-North-2-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTL	23-Aug-2023	3 days	8 days	✗ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE DUP-D-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MLP-C-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-ENE-1-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-North-1-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-Source-1-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-WNW-1-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-Source-2-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-WNW-1-23	E235S.NO3-T	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTR	23-Aug-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTL	23-Aug-2023	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-North-2-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	× EHTL	23-Aug-2023	3 days	8 days	× EHTL

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE DUP-D-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MLP-C-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP05-ENE-1-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP05-North-1-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP05-Source-1-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP05-WNW-1-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP06-Source-2-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP06-WNW-1-23	E235S.NO2-L	15-Aug-2023	22-Aug-2023	3 days	7 days	✗ EHTR	23-Aug-2023	3 days	8 days	✗ EHTR-FM
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE DUP-D-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MLP-C-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-North-1-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-WNW-1-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-North-2-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-1-23	E235S.SO4-L	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-ENE-2-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTL	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-North-2-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTL	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) DUP-D-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MLP-C-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-ENE-1-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-North-1-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-Source-1-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP05-WNW-1-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved) MP06-Source-2-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	✗ EHTR	23-Aug-2023	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-WNW-1-23	E375-T	15-Aug-2023	21-Aug-2023	3 days	6 days	× EHTR	23-Aug-2023	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-D-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MLP-C-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E318S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
DUP-D-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MLP-C-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E372S	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-ENE-1-23	E509S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-North-1-23	E509S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-Source-1-23	E509S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP-D-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MLP-C-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-WNW-1-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-ENE-2-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-North-2-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-Source-2-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-WNW-1-23	E509S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
DUP-D-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MLP-C-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-North-1-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNW-1-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-North-2-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-1-23	E465S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-D-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MLP-C-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-North-1-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNW-1-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-North-2-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-1-23	E469S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-D-23	E601A	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-North-1-23	E601A	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601A	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601A	15-Aug-2023	25-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E601A	15-Aug-2023	25-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-D-23	E601	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-North-1-23	E601	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601	15-Aug-2023	25-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E601	15-Aug-2023	25-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E581.VH+F1	15-Aug-2023	26-Aug-2023	14 days	11 days	✓	26-Aug-2023	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
DUP-D-23	E581.VH+F1	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP05-North-1-23	E581.VH+F1	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E581.VH+F1	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E581.VH+F1	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	3 days	✓	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-North-2-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	3 days	✓	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
DUP-D-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	× EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MLP-C-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	× EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	× EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-North-1-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	× EHTR	20-Aug-2023	28 days	1 days	✓

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	✖ EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	✖ EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	✖ EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-WNW-1-23	E358-L	15-Aug-2023	19-Aug-2023	3 days	4 days	✖ EHTR	20-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP-D-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MLP-C-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E355-L	15-Aug-2023	19-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
DUP-D-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MLP-C-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-ENE-1-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-North-1-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-Source-1-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-WNW-1-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-ENE-2-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-North-2-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-Source-2-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP06-WNW-1-23	E290	15-Aug-2023	22-Aug-2023	14 days	7 days	✓	22-Aug-2023	14 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
DUP-D-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MLP-C-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE										
MP05-ENE-1-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Seawater										
HDPE MP05-North-1-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP05-Source-1-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP05-WNW-1-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-ENE-2-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-North-2-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-Source-2-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-WNW-1-23	E100S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE MP06-ENE-2-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	157 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	161 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-North-2-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	157 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	161 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE										
MP06-Source-2-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	158 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
DUP-D-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	159 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MLP-C-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	159 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP05-ENE-1-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	159 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP05-North-1-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	159 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP05-Source-1-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	159 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP05-WNW-1-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	159 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MP06-WNW-1-23	E108	15-Aug-2023	22-Aug-2023	0.25 hrs	163 hrs	× EHTR-FM	22-Aug-2023	0.25 hrs	167 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
DUP-D-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MLP-C-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-ENE-1-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-North-1-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-Source-1-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-WNW-1-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP06-ENE-2-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP06-North-2-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP06-Source-2-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP06-WNW-1-23	E162S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE DUP-D-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MLP-C-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-ENE-1-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-North-1-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-Source-1-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-WNW-1-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-ENE-2-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-North-2-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-Source-2-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP06-WNW-1-23	E160S	15-Aug-2023	----	----	----		22-Aug-2023	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-ENE-2-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-North-2-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
DUP-D-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE										
MLP-C-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP05-ENE-1-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP05-North-1-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP05-Source-1-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP05-WNW-1-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-Source-2-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-WNW-1-23	E121	15-Aug-2023	----	----	----		22-Aug-2023	3 days	7 days	× EHTR
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-D-23	E641A	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-North-1-23	E641A	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E641A	15-Aug-2023	25-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E641A	15-Aug-2023	25-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E641A	15-Aug-2023	25-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	0 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
DUP-D-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-ENE-1-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-North-1-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-Source-1-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-WNW-1-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-ENE-2-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-North-2-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-Source-2-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-WNW-1-23	E508S	15-Aug-2023	22-Aug-2023	28 days	7 days	✓	22-Aug-2023	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MLP-C-23	E508S	15-Aug-2023	23-Aug-2023	28 days	8 days	✓	23-Aug-2023	28 days	8 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid)										
DUP-D-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MLP-C-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-ENE-1-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-North-1-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-Source-1-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-WNW-1-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-ENE-2-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-North-2-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-Source-2-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-WNW-1-23	E466S	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	22-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
DUP-D-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MLP-C-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-ENE-1-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-North-1-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-Source-1-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-WNW-1-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-ENE-2-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-North-2-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-Source-2-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-WNW-1-23	E468S.NaSi	15-Aug-2023	21-Aug-2023	180 days	6 days	✓	23-Aug-2023	180 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E611A	15-Aug-2023	26-Aug-2023	14 days	11 days	✓	26-Aug-2023	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
DUP-D-23	E611A	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-North-1-23	E611A	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E611A	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E611A	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	24-Aug-2023	14 days	9 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1096613	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1093980	1	20	5.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1096615	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1101519	2	23	8.7	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1096616	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1096612	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1097475	2	10	20.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1094517	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093978	1	10	10.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1094516	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1096617	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1096618	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1096619	1	10	10.0	5.0	✓
pH by Meter	E108	1096614	1	10	10.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1096620	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1097573	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1095553	1	10	10.0	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093981	1	10	10.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1098199	2	10	20.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1095150	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093979	1	10	10.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093982	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1095149	1	10	10.0	5.0	✓
Turbidity by Nephelometry	E121	1098393	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	2	20	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1096613	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1093980	1	20	5.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1103098	1	12	8.3	5.0	✓
Bromide in Seawater by IC	E235S.Br	1096615	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1101519	2	23	8.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1103100	1	5	20.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1096616	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1096612	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1097475	2	10	20.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1094517	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093978	1	10	10.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1094516	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1096617	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1096618	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1096619	1	10	10.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1103099	1	13	7.6	5.0	✓
pH by Meter	E108	1096614	1	10	10.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1096620	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1097573	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1095553	1	10	10.0	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093981	1	10	10.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1098199	2	10	20.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1095150	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093979	1	10	10.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093982	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1095149	1	10	10.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1097317	2	22	9.0	5.0	✓
Turbidity by Nephelometry	E121	1098393	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	2	20	10.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1096613	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1093980	1	20	5.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1103098	1	12	8.3	5.0	✓
Bromide in Seawater by IC	E235S.Br	1096615	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1101519	2	23	8.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1103100	1	5	20.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1096616	1	10	10.0	5.0	✓
Conductivity in Seawater	E100S	1096612	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1097475	2	10	20.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1094517	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093978	1	10	10.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1094516	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1096617	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1096618	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1096619	1	10	10.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1103099	1	13	7.6	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1096620	1	10	10.0	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1097573	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1095553	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093981	1	10	10.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1098199	2	10	20.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1095150	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093979	1	10	10.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093982	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1095149	1	10	10.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1097317	2	22	9.0	5.0	✓
Turbidity by Nephelometry	E121	1098393	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	2	20	10.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1093980	1	20	5.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1096615	1	10	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1101519	2	23	8.7	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1096616	1	10	10.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1097475	2	10	20.0	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1094517	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1093978	1	10	10.0	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1094516	1	10	10.0	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1096617	1	10	10.0	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1096618	1	10	10.0	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1096619	1	10	10.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1096620	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1095553	1	10	10.0	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1093981	1	10	10.0	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1098199	1	10	10.0	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1095150	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1093979	1	10	10.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1093982	1	10	10.0	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1095149	1	10	10.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	2	20	10.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **VA23B9367**	Page	: 1 of 24
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: GOLD100-028	Date Samples Received	: 19-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 19-Aug-2023
C-O-C number	: ----	Issue Date	: 30-Aug-2023 10:42
Sampler	: TT ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Tony Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1096612)											
VA23B9367-001	MP05-Source-1-23	Conductivity	----	E100S	2.0	µS/cm	30300	29900	1.33%	20%	----
Physical Tests (QC Lot: 1096613)											
VA23B9367-001	MP05-Source-1-23	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	86.4	87.3	1.05%	20%	----
Physical Tests (QC Lot: 1096614)											
VA23B9367-001	MP05-Source-1-23	pH	----	E108	0.10	pH units	7.93	7.93	0.00%	4%	----
Physical Tests (QC Lot: 1097573)											
VA23B9367-001	MP05-Source-1-23	Solids, total dissolved [TDS]	----	E162S	800	mg/L	23400	23000	1.90%	20%	----
Physical Tests (QC Lot: 1098393)											
VA23B9350-002	Anonymous	Turbidity	----	E121	0.10	NTU	0.40	0.41	0.008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1093980)											
VA23B9031-014	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1093981)											
VA23B9367-001	MP05-Source-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.120	0.085	0.035	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1093982)											
VA23B9367-001	MP05-Source-1-23	Phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0143	0.0136	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1095553)											
VA23B9367-001	MP05-Source-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0116	0.0120	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1096615)											
VA23B9367-001	MP05-Source-1-23	Bromide	24959-67-9	E235S.Br	5.0	mg/L	34.1	33.8	0.3	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1096616)											
VA23B9367-001	MP05-Source-1-23	Chloride	16887-00-6	E235S.Cl	50	mg/L	10300	10300	0.192%	20%	----
Anions and Nutrients (QC Lot: 1096617)											
VA23B9367-001	MP05-Source-1-23	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.55	0.58	0.03	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1096618)											
VA23B9367-001	MP05-Source-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	0.011	0.011	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1096619)											
VA23B9367-001	MP05-Source-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1096620)											
VA23B9367-001	MP05-Source-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	1430	1410	0.819%	20%	----
Organic / Inorganic Carbon (QC Lot: 1093978)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1093978) - continued											
VA23B9367-001	MP05-Source-1-23	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.00	0.87	0.13	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1093979)											
VA23B9367-001	MP05-Source-1-23	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.21	1.20	0.006	Diff <2x LOR	----
Total Metals (QC Lot: 1095149)											
VA23B9367-001	MP05-Source-1-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	5990	6020	0.537%	20%	----
Total Metals (QC Lot: 1095150)											
VA23B9367-001	MP05-Source-1-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	0.0164	0.0162	0.0002	Diff <2x LOR	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	0.00109	0.00109	0.000004	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	0.0072	0.0075	0.0002	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	2.52	2.50	0.02	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	285	283	0.757%	20%	----
		Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	0.022	0.022	0.00004	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	0.083	0.084	0.001	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	896	890	0.579%	20%	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	0.00174	0.00167	0.00006	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	0.00569	0.00572	0.576%	20%	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	247	245	0.967%	20%	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	0.0601	0.0598	0.526%	20%	----
		Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1095150) - continued											
VA23B9367-001	MP05-Source-1-23	Strontium, total	7440-24-6	E466S	0.010	mg/L	3.94	3.89	1.25%	20%	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	574	579	0.927%	20%	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	0.00237	0.00235	1.13%	20%	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	0.00078	0.00078	0.000006	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1098199)											
VA23B9367-001	MP05-Source-1-23	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1099722)											
VA23B9367-010	MLP-C-23	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1094516)											
VA23B9367-001	MP05-Source-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	6000	5950	0.781%	20%	----
Dissolved Metals (QC Lot: 1094517)											
VA23B9367-001	MP05-Source-1-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	0.00099	0.00103	0.00004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	0.0071	0.0072	0.0001	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	2.87	2.79	0.08	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	283	285	0.792%	20%	----
		Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	0.00078	0.00077	0.000003	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1094517) - continued											
VA23B9367-001	MP05-Source-1-23	Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	0.088	0.087	0.001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	890	899	0.918%	20%	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	0.00133	0.00130	2.43%	20%	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	0.00564	0.00570	1.20%	20%	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	244	248	1.72%	20%	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	0.0591	0.0587	0.737%	20%	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	3.89	3.84	1.46%	20%	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	569	571	0.305%	20%	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	0.00226	0.00221	2.36%	20%	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	0.00073	0.00074	0.00001	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	0.0010	0.0010	0.00005	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1097475)											
VA23B9367-001	MP05-Source-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1099459)											
VA23B9367-004	MP05-WNW-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1101519)											
VA23B9329-001	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1101519) - continued											
VA23B9329-001	Anonymous	Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	1.08	1.06	0.02	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1105108)											
VA23B9367-001	MP05-Source-1-23	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1101518)											
VA23B8675-010	Anonymous	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Hydrocarbons (QC Lot: 1105107)											
VA23B9367-001	MP05-Source-1-23	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1096612)						
Conductivity	----	E100S	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1096613)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1097317)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1097318)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1097573)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Physical Tests (QCLot: 1098393)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 1093980)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1093981)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1093982)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
Anions and Nutrients (QCLot: 1095553)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1096615)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1096616)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1096617)						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1096618)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1096619)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1096620)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Organic / Inorganic Carbon (QCLot: 1093978)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1093978) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1093979)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1095149)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1095150)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1095150) - continued						
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Total Metals (QCLot: 1098199)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1099722)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1094516)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 1094517)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1094517) - continued						
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1097475)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1099459)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1101519)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1101519) - continued						
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 1105108)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1101518)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1103098)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1103100)						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Hydrocarbons (QCLot: 1105107)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1103099)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1103099) - continued						
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1096612)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	101	80.0	120	----
Physical Tests (QCLot: 1096613)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1096614)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1097317)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	94.3	85.0	115	----
Physical Tests (QCLot: 1097318)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	94.3	85.0	115	----
Physical Tests (QCLot: 1097573)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1098393)									
Turbidity	----	E121	0.1	NTU	200 NTU	99.5	85.0	115	----
Anions and Nutrients (QCLot: 1093980)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.4	85.0	115	----
Anions and Nutrients (QCLot: 1093981)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 1093982)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	89.3	80.0	120	----
Anions and Nutrients (QCLot: 1095553)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	90.1	80.0	120	----
Anions and Nutrients (QCLot: 1096615)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	94.3	85.0	115	----
Anions and Nutrients (QCLot: 1096616)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 1096617)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	95.7	90.0	110	----
Anions and Nutrients (QCLot: 1096618)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1096619)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	98.7	90.0	110	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1096620)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1093978)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	111	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1093979)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Total Metals (QCLot: 1095149)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	107	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	111	80.0	120	----
Total Metals (QCLot: 1095150)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	99.3	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	103	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	111	80.0	120	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	100	80.0	120	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	110	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	97.2	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	95.8	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	97.8	80.0	120	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	97.4	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	99.7	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	113	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	98.1	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	95.9	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	94.3	80.0	120	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	102	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	97.8	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1095150) - continued									
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	102	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	97.4	80.0	120	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	95.7	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	98.4	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	95.3	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	99.8	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	104	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	98.9	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	98.1	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	90.6	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
Total Metals (QCLot: 1098199)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	99.5	80.0	120	----
Total Metals (QCLot: 1099722)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	104	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	111	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	108	80.0	120	----
Dissolved Metals (QCLot: 1094517)									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	96.6	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	98.2	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	115	80.0	120	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	97.1	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	95.0	80.0	120	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	93.1	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	96.5	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Dissolved Metals (QCLot: 1094517) - continued									
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	95.2	80.0	120	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	97.9	80.0	120	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	98.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	114	80.0	120	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	95.3	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	93.6	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	91.8	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	102	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	99.3	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	95.1	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	100	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	94.9	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	92.2	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	94.3	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	98.6	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	92.3	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	98.4	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	105	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	99.4	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	99.3	80.0	120	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	95.7	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	88.0	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	99.2	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	102	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	105	80.0	120	----
Volatile Organic Compounds (QCLot: 1101519)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	105	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	100	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	101	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1101519) - continued									
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	106	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	102	70.0	130	----
Volatile Organic Compounds (QCLot: 1105108)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	103	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	112	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	106	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	114	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	108	70.0	130	----
Hydrocarbons (QCLot: 1101518)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	89.5	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	82.2	70.0	130	----
Hydrocarbons (QCLot: 1103098)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	109	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	104	70.0	130	----
Hydrocarbons (QCLot: 1103100)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	121	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	106	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	107	70.0	130	----
Hydrocarbons (QCLot: 1105107)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	77.4	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	76.4	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1103099)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	122	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	111	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	123	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1103099) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	120	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	95.7	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	121	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	119	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1093980)										
VA23B9031-015	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0936 mg/L	0.1 mg/L	93.6	75.0	125	----
Anions and Nutrients (QCLot: 1093981)										
VA23B9367-002	MP05-North-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	2.76 mg/L	2.5 mg/L	110	70.0	130	----
Anions and Nutrients (QCLot: 1093982)										
VA23B9367-002	MP05-North-1-23	Phosphorus, total	7723-14-0	E372S	0.0772 mg/L	0.1 mg/L	77.2	70.0	130	----
Anions and Nutrients (QCLot: 1095553)										
VA23B9367-002	MP05-North-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0444 mg/L	0.05 mg/L	88.9	70.0	130	----
Anions and Nutrients (QCLot: 1096615)										
VA23B9367-002	MP05-North-1-23	Bromide	24959-67-9	E235S.Br	46.3 mg/L	50 mg/L	92.6	75.0	125	----
Anions and Nutrients (QCLot: 1096616)										
VA23B9367-002	MP05-North-1-23	Chloride	16887-00-6	E235S.Cl	ND mg/L	10000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1096617)										
VA23B9367-002	MP05-North-1-23	Fluoride	16984-48-8	E235S.F-L	8.90 mg/L	10 mg/L	89.0	75.0	125	----
Anions and Nutrients (QCLot: 1096618)										
VA23B9367-002	MP05-North-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	7.18 mg/L	7.5 mg/L	95.7	75.0	125	----
Anions and Nutrients (QCLot: 1096619)										
VA23B9367-002	MP05-North-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	4.51 mg/L	5 mg/L	90.3	75.0	125	----
Anions and Nutrients (QCLot: 1096620)										
VA23B9367-002	MP05-North-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1093978)										
VA23B9367-002	MP05-North-1-23	Carbon, dissolved organic [DOC]	----	E358-L	5.30 mg/L	5 mg/L	106	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1093979)										
VA23B9367-002	MP05-North-1-23	Carbon, total organic [TOC]	----	E355-L	5.25 mg/L	5 mg/L	105	70.0	130	----
Total Metals (QCLot: 1095149)										
VA23B9367-002	MP05-North-1-23	Silicon, total	7440-21-3	E468S.NaSi	519 mg/L	500 mg/L	104	70.0	130	----
		Sodium, total	7440-23-5	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1095150)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1095150) - continued										
VA23B9367-002	MP05-North-1-23	Aluminum, total	7429-90-5	E466S	4.36 mg/L	4 mg/L	109	70.0	130	----
		Antimony, total	7440-36-0	E466S	0.369 mg/L	0.4 mg/L	92.4	70.0	130	----
		Arsenic, total	7440-38-2	E466S	0.398 mg/L	0.4 mg/L	99.6	70.0	130	----
		Barium, total	7440-39-3	E466S	0.407 mg/L	0.4 mg/L	102	70.0	130	----
		Beryllium, total	7440-41-7	E466S	1.03 mg/L	0.8 mg/L	129	70.0	130	----
		Bismuth, total	7440-69-9	E466S	0.159 mg/L	0.2 mg/L	79.4	70.0	130	----
		Boron, total	7440-42-8	E466S	ND mg/L	2 mg/L	ND	70.0	130	----
		Cadmium, total	7440-43-9	E466S	0.0683 mg/L	0.08 mg/L	85.3	70.0	130	----
		Calcium, total	7440-70-2	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E466S	0.204 mg/L	0.2 mg/L	102	70.0	130	----
		Chromium, total	7440-47-3	E466S	0.838 mg/L	0.8 mg/L	105	70.0	130	----
		Cobalt, total	7440-48-4	E466S	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Copper, total	7440-50-8	E466S	0.369 mg/L	0.4 mg/L	92.2	70.0	130	----
		Gallium, total	7440-55-3	E466S	0.0513 mg/L	0.05 mg/L	103	70.0	130	----
		Iron, total	7439-89-6	E466S	38.4 mg/L	40 mg/L	96.1	70.0	130	----
		Lead, total	7439-92-1	E466S	0.340 mg/L	0.4 mg/L	85.0	70.0	130	----
		Lithium, total	7439-93-2	E466S	1.77 mg/L	2 mg/L	88.5	70.0	130	----
		Magnesium, total	7439-95-4	E466S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466S	0.395 mg/L	0.4 mg/L	98.8	70.0	130	----
		Molybdenum, total	7439-98-7	E466S	0.386 mg/L	0.4 mg/L	96.6	70.0	130	----
		Nickel, total	7440-02-0	E466S	0.701 mg/L	0.8 mg/L	87.7	70.0	130	----
		Phosphorus, total	7723-14-0	E466S	231 mg/L	200 mg/L	116	70.0	130	----
		Potassium, total	7440-09-7	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Rhenium, total	7440-15-5	E466S	0.0482 mg/L	0.05 mg/L	96.3	70.0	130	----
		Rubidium, total	7440-17-7	E466S	0.387 mg/L	0.4 mg/L	96.8	70.0	130	----
		Selenium, total	7782-49-2	E466S	0.776 mg/L	0.8 mg/L	97.0	70.0	130	----
		Silver, total	7440-22-4	E466S	0.0660 mg/L	0.08 mg/L	82.6	70.0	130	----
		Strontium, total	7440-24-6	E466S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E466S	ND mg/L	400 mg/L	ND	70.0	130	----
		Tellurium, total	13494-80-9	E466S	0.613 mg/L	0.8 mg/L	76.6	70.0	130	----
		Thallium, total	7440-28-0	E466S	0.0701 mg/L	0.08 mg/L	87.6	70.0	130	----
		Thorium, total	7440-29-1	E466S	0.370 mg/L	0.4 mg/L	92.5	70.0	130	----
		Tin, total	7440-31-5	E466S	0.381 mg/L	0.4 mg/L	95.3	70.0	130	----
		Titanium, total	7440-32-6	E466S	0.935 mg/L	0.8 mg/L	117	70.0	130	----
		Tungsten, total	7440-33-7	E466S	0.386 mg/L	0.4 mg/L	96.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1095150) - continued										
VA23B9367-002	MP05-North-1-23	Uranium, total	7440-61-1	E466S	0.0770 mg/L	0.08 mg/L	96.2	70.0	130	----
		Vanadium, total	7440-62-2	E466S	2.17 mg/L	2 mg/L	108	70.0	130	----
		Yttrium, total	7440-65-5	E466S	0.0516 mg/L	0.05 mg/L	103	70.0	130	----
		Zinc, total	7440-66-6	E466S	6.32 mg/L	8 mg/L	79.0	70.0	130	----
		Zirconium, total	7440-67-7	E466S	0.931 mg/L	0.8 mg/L	116	70.0	130	----
Total Metals (QCLot: 1098199)										
VA23B9367-002	MP05-North-1-23	Mercury, total	7439-97-6	E508S	0.000100 mg/L	0.0001 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1094516)										
VA23B9367-002	MP05-North-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	526 mg/L	500 mg/L	105	70.0	130	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 1094517)										
VA23B9367-002	MP05-North-1-23	Aluminum, dissolved	7429-90-5	E465S	4.38 mg/L	4 mg/L	110	70.0	130	----
		Antimony, dissolved	7440-36-0	E465S	0.364 mg/L	0.4 mg/L	91.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465S	0.393 mg/L	0.4 mg/L	98.3	70.0	130	----
		Barium, dissolved	7440-39-3	E465S	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465S	1.07 mg/L	0.8 mg/L	134	70.0	130	MES
		Bismuth, dissolved	7440-69-9	E465S	0.154 mg/L	0.2 mg/L	76.9	70.0	130	----
		Boron, dissolved	7440-42-8	E465S	ND mg/L	2 mg/L	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465S	0.0678 mg/L	0.08 mg/L	84.8	70.0	130	----
		Calcium, dissolved	7440-70-2	E465S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E465S	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Chromium, dissolved	7440-47-3	E465S	0.840 mg/L	0.8 mg/L	105	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465S	0.380 mg/L	0.4 mg/L	95.1	70.0	130	----
		Copper, dissolved	7440-50-8	E465S	0.360 mg/L	0.4 mg/L	89.9	70.0	130	----
		Gallium, dissolved	7440-55-3	E465S	0.0509 mg/L	0.05 mg/L	102	70.0	130	----
		Iron, dissolved	7439-89-6	E465S	38.8 mg/L	40 mg/L	97.0	70.0	130	----
		Lead, dissolved	7439-92-1	E465S	0.332 mg/L	0.4 mg/L	83.1	70.0	130	----
		Lithium, dissolved	7439-93-2	E465S	1.82 mg/L	2 mg/L	91.2	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465S	0.395 mg/L	0.4 mg/L	98.8	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465S	0.387 mg/L	0.4 mg/L	96.9	70.0	130	----
		Nickel, dissolved	7440-02-0	E465S	0.700 mg/L	0.8 mg/L	87.5	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465S	231 mg/L	200 mg/L	115	70.0	130	----
		Potassium, dissolved	7440-09-7	E465S	ND mg/L	80 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1094517) - continued										
VA23B9367-002	MP05-North-1-23	Rhenium, dissolved	7440-15-5	E465S	0.0470 mg/L	0.05 mg/L	93.9	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465S	0.391 mg/L	0.4 mg/L	97.8	70.0	130	----
		Selenium, dissolved	7782-49-2	E465S	0.769 mg/L	0.8 mg/L	96.1	70.0	130	----
		Silver, dissolved	7440-22-4	E465S	0.0664 mg/L	0.08 mg/L	83.0	70.0	130	----
		Strontium, dissolved	7440-24-6	E465S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465S	ND mg/L	400 mg/L	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465S	0.607 mg/L	0.8 mg/L	75.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E465S	0.0686 mg/L	0.08 mg/L	85.7	70.0	130	----
		Thorium, dissolved	7440-29-1	E465S	0.366 mg/L	0.4 mg/L	91.4	70.0	130	----
		Tin, dissolved	7440-31-5	E465S	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Titanium, dissolved	7440-32-6	E465S	0.927 mg/L	0.8 mg/L	116	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465S	0.378 mg/L	0.4 mg/L	94.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E465S	0.0762 mg/L	0.08 mg/L	95.3	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465S	2.16 mg/L	2 mg/L	108	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465S	0.0512 mg/L	0.05 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E465S	6.31 mg/L	8 mg/L	78.9	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465S	0.918 mg/L	0.8 mg/L	115	70.0	130	----
Dissolved Metals (QCLot: 1097475)										
VA23B9367-002	MP05-North-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000938 mg/L	0.0001 mg/L	93.8	70.0	130	----
Dissolved Metals (QCLot: 1099459)										
VA23B9367-005	MP06-Source-2-23	Mercury, dissolved	7439-97-6	E509S	0.0000941 mg/L	0.0001 mg/L	94.1	70.0	130	----
Volatile Organic Compounds (QCLot: 1101519)										
VA23B9332-001	Anonymous	Benzene	71-43-2	E611A	105 µg/L	100 µg/L	105	60.0	140	----
		Ethylbenzene	100-41-4	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	109 µg/L	100 µg/L	109	60.0	140	----
		Styrene	100-42-5	E611A	102 µg/L	100 µg/L	102	60.0	140	----
		Toluene	108-88-3	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	104 µg/L	100 µg/L	104	60.0	140	----
Volatile Organic Compounds (QCLot: 1105108)										
VA23B9411-002	Anonymous	Benzene	71-43-2	E611A	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Ethylbenzene	100-41-4	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Styrene	100-42-5	E611A	101 µg/L	100 µg/L	101	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1105108) - continued										
VA23B9411-002	Anonymous	Toluene	108-88-3	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	219 µg/L	200 µg/L	109	60.0	140	----
		Xylene, o-	95-47-6	E611A	105 µg/L	100 µg/L	105	60.0	140	----
Hydrocarbons (QCLot: 1101518)										
VA23B9474-022	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5240 µg/L	6310 µg/L	83.1	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4810 µg/L	6310 µg/L	76.3	60.0	140	----
Hydrocarbons (QCLot: 1105107)										
WR2300887-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	4500 µg/L	6310 µg/L	71.2	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4500 µg/L	6310 µg/L	71.3	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 21 -

Page | of |

Environmental Division Vancouver
Work Order Reference
VA23B9367

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Connor Pettem
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Project Information	
ALS Account # / Quote #:	
Job #:	GOLD100-028
PO / AFE:	166372402/70000/03
LSD:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	elaine.irving@wsp.com
Email 2	connor.pettem@wsp.com
Email 3	trish.tomliens@wsp.com

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer Sampler: TT/[redacted]

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Additional fees may apply to rush requests on weekends.
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General (alkalinity, turbidity, cond.)	Anions, TOC, DOC, Hard., Salinity	pH, TSS, TDS, Ammonia, TKN	Dissolved Metals F/P	Total Metals P	Dissolved Hg F/P	Total Hg P	Nutrients (including total phosphorus) P	Petroleum hydrocarbons (MTBE) P	Petroleum hydrocarbons (BTEX,F1) P	Hydrocarbons (LEPH/HEPH) P	PAH, F2-F4 P			SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MP05-Source-1-23	15-Aug-23	15:45	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP05-North-1-23	15-Aug-23	15:14	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP05-ENE-1-23	15-Aug-23	15:35	Seawater	6	R	R	R	R	R	R	R	R									
	MP05-WNW-1-23	15-Aug-23	15:00	Seawater	6	R	R	R	R	R	R	R	R									
	MP06-Source-2-23	15-Aug-23	16:18	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP06-North-2-23	15-Aug-23	17:03	Seawater	6	R	R	R	R	R	R	R	R									
	MP06-ENE-2-23	15-Aug-23	17:26	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP06-WNW-2-23	15-Aug-23	17:49	Seawater	6	R	R	R	R	R	R	R	R									
	DUP- D-23	15-Aug-23		Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MLP- C-23	15-Aug-23		Seawater	6	R	R	R	R	R	R	R	R									

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Refer to quote (GOLD100-028) for all analyses.
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			15				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: N. O'Brien	Date: 16 AUG 2023	Time: 1500	Received by:	Date:	Time:	Received by:	Date: 8/18/23	Time: 7 AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23C0016**	Page	: 1 of 14
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 26-Aug-2023 13:40
PO	: 166372402/70000/03	Date Analysis Commenced	: 27-Aug-2023
C-O-C number	: ----	Issue Date	: 06-Sep-2023 16:30
Sampler	: TT/MR/DV		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Erin Sanchez		Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Parnian Sane	Analyst	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.
Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Accreditation

Accreditation	*Description*	*Laboratory*	*Address*
A	CALA ISO/IEC 17025:2017	VA ALS Environmental - Vancouver	8081 Lougheed Highway, Burnaby, BC

Applicable accreditations are indicated in the Method/Lab column as superscripts.

Qualifiers

Qualifier	*Description*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*
HTP	*Sample preparation or preservation hold time was exceeded.*
SFP	*Sample was filtered and preserved at the laboratory.*

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
						Client sampling date / time	23-Aug-2023 08:14	23-Aug-2023 09:07	23-Aug-2023 08:54	23-Aug-2023 08:28	23-Aug-2023 09:24
							VA23C0016-001	VA23C0016-002	VA23C0016-003	VA23C0016-004	VA23C0016-005
							Result	Result	Result	Result	Result
Physical Tests											
Alkalinity, total (as CaCO3)	----	E290/VA	A	1.0	mg/L		82.4	83.4	86.6	83.1	83.5
Conductivity	----	E100S/VA		2.0	µS/cm		21200	21800	29500	19400	22100
pH	----	E108/VA	A	0.10	pH units		7.90	7.90	7.91	7.90	7.87
Salinity	----	EC100S/VA		1.0	psu		12.7	13.1	18.3	11.6	13.3
Solids, total dissolved [TDS]	----	E162S/VA	A	10	mg/L		14600	16000	21700	13300	15900
Solids, total suspended [TSS]	----	E160S/VA	A	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	----	E121/VA	A	0.10	NTU		0.30	0.30	0.24	0.37	0.31
Hardness (as CaCO3), dissolved	----	EC100/VA		0.50	mg/L		2000	1730	3020	1810	2360
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA		0.50	mg/L		2260	2180	3110	1670	2320
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	A	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromide	24959-67-9	E235S.Br/VA	A	5.0	mg/L		22.6	23.6	33.6	20.1	22.9
Chloride	16887-00-6	E235S.Cl/VA	A	50	mg/L		7120	7450	10500	6560	7420
Fluoride	16984-48-8	E235S.F-L/VA	A	0.20	mg/L		0.39	0.42	0.51	0.39	0.37
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	A	0.050	mg/L		0.079	0.066	0.088	0.079	0.071
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	A	0.010	mg/L		0.023	<0.010	<0.010	0.014	<0.010
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	A	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, total	7723-14-0	E372S/VA	A	0.0020	mg/L		0.0087	0.0079	0.0120	0.0086	0.0097
Phosphorus, total dissolved	7723-14-0	E375-T/VA	A	0.0020	mg/L		<0.0020 HTP, SFP	0.0070	0.0109	0.0068	0.0072
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	A	3.0	mg/L		1010	958	1440	908	1020
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/VA	A	0.50	mg/L		0.87	0.97	0.92	1.02	1.03
Carbon, total organic [TOC]	----	E355-L/VA	A	0.50	mg/L		1.58	1.41	1.41	1.43	1.44
Total Metals											
Aluminum, total	7429-90-5	E466S/VA	A	0.0050	mg/L		0.0121	0.0144	0.0124	0.0125	0.0121
Antimony, total	7440-36-0	E466S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, total	7440-38-2	E466S/VA	A	0.00040	mg/L		0.00074	0.00076	0.00096	0.00058	0.00085

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
						Client sampling date / time	23-Aug-2023 08:14	23-Aug-2023 09:07	23-Aug-2023 08:54	23-Aug-2023 08:28	23-Aug-2023 09:24
							VA23C0016-001	VA23C0016-002	VA23C0016-003	VA23C0016-004	VA23C0016-005
							Result	Result	Result	Result	Result
Total Metals											
Barium, total	7440-39-3	E466S/VA	A	0.0010	mg/L		0.0080	0.0076	0.0090	0.0068	0.0078
Beryllium, total	7440-41-7	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, total	7440-69-9	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, total	7440-42-8	E466S/VA	A	0.30	mg/L		1.70	1.50	2.49	1.36	1.76
Cadmium, total	7440-43-9	E466S/VA	A	0.000020	mg/L		<0.000020	<0.000020	0.000020	<0.000020	<0.000020
Calcium, total	7440-70-2	E466S/VA	A	1.0	mg/L		175	169	248	138	188
Cesium, total	7440-46-2	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, total	7440-47-3	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E466S/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, total	7440-50-8	E466S/VA	A	0.00050	mg/L		<0.00050	0.00064	0.00147	0.00123	0.00450
Gallium, total	7440-55-3	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E466S/VA	A	0.010	mg/L		0.019	0.021	0.019	0.018	0.024
Lead, total	7439-92-1	E466S/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, total	7439-93-2	E466S/VA	A	0.020	mg/L		0.071	0.063	0.105	0.054	0.074
Magnesium, total	7439-95-4	E466S/VA	A	1.0	mg/L		443	426	604	322	449
Manganese, total	7439-96-5	E466S/VA	A	0.00020	mg/L		0.00164	0.00166	0.00193	0.00140	0.00156
Mercury, total	7439-97-6	E508S/VA	A	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E466S/VA	A	0.00010	mg/L		0.00418	0.00413	0.00587	0.00313	0.00432
Nickel, total	7440-02-0	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E466S/VA	A	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E466S/VA	A	1.0	mg/L		133	127	192	102	142
Rhenium, total	7440-15-5	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, total	7440-17-7	E466S/VA	A	0.0050	mg/L		0.0425	0.0413	0.0599	0.0316	0.0430
Selenium, total	7782-49-2	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, total	7440-21-3	E468S.NaSi/VA	A	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, total	7440-22-4	E466S/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, total	7440-23-5	E468S.NaSi/VA	A	2.5	mg/L		4130	4180	5730	3210	4260
Strontium, total	7440-24-6	E466S/VA	A	0.010	mg/L		3.00	2.90	4.18	2.19	3.02

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
						Client sampling date / time	23-Aug-2023 08:14	23-Aug-2023 09:07	23-Aug-2023 08:54	23-Aug-2023 08:28	23-Aug-2023 09:24
							VA23C0016-001	VA23C0016-002	VA23C0016-003	VA23C0016-004	VA23C0016-005
							Result	Result	Result	Result	Result
Total Metals											
Sulfur, total	7704-34-9	E466S/VA	A	5.0	mg/L		351	334	506	259	361
Tellurium, total	13494-80-9	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, total	7440-28-0	E466S/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, total	7440-29-1	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, total	7440-31-5	E466S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, total	7440-32-6	E466S/VA	A	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, total	7440-33-7	E466S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, total	7440-61-1	E466S/VA	A	0.000050	mg/L		0.00221	0.00189	0.00203	0.00177	0.00189
Vanadium, total	7440-62-2	E466S/VA	A	0.00050	mg/L		0.00060	0.00057	0.00076	<0.00050	0.00059
Yttrium, total	7440-65-5	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E466S/VA	A	0.0030	mg/L		<0.0030	<0.0030	<0.0030	0.0036	<0.0030
Zirconium, total	7440-67-7	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals											
Aluminum, dissolved	7429-90-5	E465S/VA	A	0.0050	mg/L		<0.0050	<0.0050	<0.0050	0.0072	<0.0050
Antimony, dissolved	7440-36-0	E465S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic, dissolved	7440-38-2	E465S/VA	A	0.00040	mg/L		0.00065	0.00072	0.00105	0.00065	0.00077
Barium, dissolved	7440-39-3	E465S/VA	A	0.0010	mg/L		0.0072	0.0075	0.0087	0.0070	0.0079
Beryllium, dissolved	7440-41-7	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, dissolved	7440-69-9	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, dissolved	7440-42-8	E465S/VA	A	0.30	mg/L		1.23	1.27	1.86	1.15	1.51
Cadmium, dissolved	7440-43-9	E465S/VA	A	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium, dissolved	7440-70-2	E465S/VA	A	1.0	mg/L		146	138	216	136	170
Cesium, dissolved	7440-46-2	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, dissolved	7440-47-3	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E465S/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper, dissolved	7440-50-8	E465S/VA	A	0.00050	mg/L		0.00106 DTC	0.00099	<0.00050	0.00069	0.00065
Gallium, dissolved	7440-55-3	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, dissolved	7439-89-6	E465S/VA	A	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E465S/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, dissolved	7439-93-2	E465S/VA	A	0.020	mg/L		0.057	0.054	0.086	0.050	0.069

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
						Client sampling date / time	23-Aug-2023 08:14	23-Aug-2023 09:07	23-Aug-2023 08:54	23-Aug-2023 08:28	23-Aug-2023 09:24
							VA23C0016-001	VA23C0016-002	VA23C0016-003	VA23C0016-004	VA23C0016-005
							Result	Result	Result	Result	Result
Dissolved Metals											
Magnesium, dissolved	7439-95-4	E465S/VA	A	1.0	mg/L		398	337	602	358	469
Manganese, dissolved	7439-96-5	E465S/VA	A	0.00010	mg/L		0.00096	0.00088	0.00128	0.00093	0.00098
Mercury, dissolved	7439-97-6	E509S/VA	A	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E465S/VA	A	0.00010	mg/L		0.00367	0.00327	0.00539	0.00339	0.00449
Nickel, dissolved	7440-02-0	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E465S/VA	A	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E465S/VA	A	1.0	mg/L		111	107	172	105	138
Rhenium, dissolved	7440-15-5	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium, dissolved	7440-17-7	E465S/VA	A	0.0050	mg/L		0.0364	0.0328	0.0536	0.0327	0.0435
Selenium, dissolved	7782-49-2	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	A	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, dissolved	7440-22-4	E465S/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	A	2.5	mg/L		3310	3270	5090	3060	4030
Strontium, dissolved	7440-24-6	E465S/VA	A	0.010	mg/L		2.50	2.31	3.77	2.27	3.02
Sulfur, dissolved	7704-34-9	E465S/VA	A	5.0	mg/L		304	284	465	278	366
Tellurium, dissolved	13494-80-9	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium, dissolved	7440-28-0	E465S/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium, dissolved	7440-29-1	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin, dissolved	7440-31-5	E465S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium, dissolved	7440-32-6	E465S/VA	A	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten, dissolved	7440-33-7	E465S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium, dissolved	7440-61-1	E465S/VA	A	0.000050	mg/L		0.00183	0.00157	0.00178	0.00170	0.00174
Vanadium, dissolved	7440-62-2	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	0.00065	<0.00050	0.00055
Yttrium, dissolved	7440-65-5	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E465S/VA	A	0.0010	mg/L		0.0013	<0.0010	0.0012	0.0018	0.0010
Zirconium, dissolved	7440-67-7	E465S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved mercury filtration location	----	EP509/VA		-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421S/VA		-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
						Client sampling date / time: 23-Aug-2023 08:14	23-Aug-2023 09:07	23-Aug-2023 08:54	23-Aug-2023 08:28	23-Aug-2023 09:24
						VA23C0016-001	VA23C0016-002	VA23C0016-003	VA23C0016-004	VA23C0016-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved metals filtration location	----	EP421/VA		-	-	Field	Field	Field	Field	Field
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
Ethylbenzene	100-41-4	E611A/VA	A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
Styrene	100-42-5	E611A/VA	A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
Toluene	108-88-3	E611A/VA	A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
Xylene, m+p-	179601-23-1	E611A/VA	A	0.40	µg/L	<0.40	<0.40	----	----	<0.40
Xylene, o-	95-47-6	E611A/VA	A	0.30	µg/L	<0.30	<0.30	----	----	<0.30
Xylenes, total	1330-20-7	E611A/VA		0.50	µg/L	<0.50	<0.50	----	----	<0.50
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	A	250	µg/L	<250	<250	----	----	<250
EPH (C19-C32)	----	E601A/VA	A	250	µg/L	<250	<250	----	----	<250
F2 (C10-C16)	----	E601/VA	A	100	µg/L	<100	<100	----	----	<100
F3 (C16-C34)	----	E601/VA	A	250	µg/L	<250	<250	----	----	<250
F4 (C34-C50)	----	E601/VA	A	250	µg/L	<250	<250	----	----	<250
VHw (C6-C10)	----	E581.VH+F1/VA	A	100	µg/L	<100	<100	----	----	<100
F1-BTEX	----	EC580/VA		100	µg/L	<100	<100	----	----	<100
HEPHw	----	EC600A/VA		250	µg/L	<250	<250	----	----	<250
LEPHw	----	EC600A/VA		250	µg/L	<250	<250	----	----	<250
VPHw	----	EC580A/VA		100	µg/L	<100	<100	----	----	<100
F1 (C6-C10)	----	E581.VH+F1/VA	A	100	µg/L	<100	<100	----	----	<100
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA		1.0	%	89.7	88.9	----	----	87.8
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA		1.0	%	86.2	85.7	----	----	83.8
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA		1.0	%	92.6	105	----	----	93.9
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA		1.0	%	86.2	86.6	----	----	84.2

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: MP05-Source-1-23	MP05-North-1-23	MP05-ENE-1-23	MP05-WNW-1-23	MP06-Source-2-23
						Client sampling date / time: 23-Aug-2023 08:14	23-Aug-2023 09:07	23-Aug-2023 08:54	23-Aug-2023 08:28	23-Aug-2023 09:24
						VA23C0016-001	VA23C0016-002	VA23C0016-003	VA23C0016-004	VA23C0016-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Difluorobenzene, 1,4-	540-36-3	E611A/VA		1.0	%	97.5	97.6	----	----	98.0
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Acenaphthylene	208-96-8	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Acridine	260-94-6	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Anthracene	120-12-7	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/VA	A	0.0050	µg/L	<0.0050	<0.0050	----	----	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A/VA		0.015	µg/L	<0.015	<0.015	----	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Chrysene	218-01-9	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/VA	A	0.0050	µg/L	<0.0050	<0.0050	----	----	<0.0050
Fluoranthene	206-44-0	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Fluorene	86-73-7	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Methylnaphthalene, 2-	91-57-6	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Naphthalene	91-20-3	E641A/VA	A	0.050	µg/L	<0.050	<0.050	----	----	<0.050
Phenanthrene	85-01-8	E641A/VA	A	0.020	µg/L	<0.020	<0.020	----	----	<0.020
Pyrene	129-00-0	E641A/VA	A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
Quinoline	91-22-5	E641A/VA	A	0.050	µg/L	<0.050	<0.050	----	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA		0.1	%	94.6	87.6	----	----	89.8
Naphthalene-d8	1146-65-2	E641A/VA		0.1	%	97.7	95.8	----	----	97.4
Phenanthrene-d10	1517-22-2	E641A/VA		0.1	%	105	103	----	----	106

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-E-23	----
						Client sampling date / time	23-Aug-2023 09:45	23-Aug-2023 10:00	23-Aug-2023 10:15	23-Aug-2023 00:00	----
							VA23C0016-006	VA23C0016-007	VA23C0016-008	VA23C0016-009	--------
							Result	Result	Result	Result	----
Physical Tests											
Alkalinity, total (as CaCO3)	----	E290/VA	A	1.0	mg/L		113	112	111	81.5	----
Conductivity	----	E100S/VA		2.0	µS/cm		47600	47300	46800	18200	----
pH	----	E108/VA	A	0.10	pH units		7.92	7.91	7.93	7.88	----
Salinity	----	EC100S/VA		1.0	psu		31.1	30.9	30.5	10.8	----
Solids, total dissolved [TDS]	----	E162S/VA	A	10	mg/L		38200	37000	37300	12700	----
Solids, total suspended [TSS]	----	E160S/VA	A	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	----
Turbidity	----	E121/VA	A	0.10	NTU		0.10	0.25	0.22	0.35	----
Hardness (as CaCO3), dissolved	----	EC100/VA		0.50	mg/L		5340	5190	5010	1620	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA		0.50	mg/L		4880	4710	4590	1570	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	A	0.0050	mg/L		0.0052	0.0074	0.0076	<0.0050	----
Bromide	24959-67-9	E235S.Br/VA	A	5.0	mg/L		59.0	57.8	58.5	18.0	----
Chloride	16887-00-6	E235S.Cl/VA	A	50	mg/L		17800	17500	17500	6080	----
Fluoride	16984-48-8	E235S.F-L/VA	A	0.20	mg/L		0.70	0.71	0.78	0.30	----
Kjeldahl nitrogen, total [TKN]	----	E318S/VA	A	0.050	mg/L		0.100	0.105	0.100	0.097	----
Nitrate (as N)	14797-55-8	E235S.NO3-T/VA	A	0.010	mg/L		<0.010	<0.010	0.015	0.012	----
Nitrite (as N)	14797-65-0	E235S.NO2-L/VA	A	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Phosphorus, total	7723-14-0	E372S/VA	A	0.0020	mg/L		0.0232	0.0233	0.0232	0.0074	----
Phosphorus, total dissolved	7723-14-0	E375-T/VA	A	0.0020	mg/L		0.0209 HTP	0.0208 HTP	0.0203 HTP	0.0060	----
Sulfate (as SO4)	14808-79-8	E235S.SO4-L/VA	A	3.0	mg/L		2480	2420	2390	868	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/VA	A	0.50	mg/L		1.05	0.99	1.03	1.01	----
Carbon, total organic [TOC]	----	E355-L/VA	A	0.50	mg/L		1.41	1.36	1.60	1.57	----
Total Metals											
Aluminum, total	7429-90-5	E466S/VA	A	0.0050	mg/L		<0.0050	<0.0050	0.0072	0.0106	----
Antimony, total	7440-36-0	E466S/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Arsenic, total	7440-38-2	E466S/VA	A	0.00040	mg/L		0.00162	0.00165	0.00168	0.00072	----
Barium, total	7440-39-3	E466S/VA	A	0.0010	mg/L		0.0085	0.0086	0.0086	0.0075	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-E-23	----
						Client sampling date / time	23-Aug-2023 09:45	23-Aug-2023 10:00	23-Aug-2023 10:15	23-Aug-2023 00:00	----
							VA23C0016-006	VA23C0016-007	VA23C0016-008	VA23C0016-009	--------
							Result	Result	Result	Result	----
Total Metals											
Beryllium, total	7440-41-7	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Bismuth, total	7440-69-9	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Boron, total	7440-42-8	E466S/VA	A	0.30	mg/L		3.98	3.90	3.77	1.44	----
Cadmium, total	7440-43-9	E466S/VA	A	0.000020	mg/L		0.000028	0.000025	0.000025	<0.000020	----
Calcium, total	7440-70-2	E466S/VA	A	1.0	mg/L		404	408	411	147	----
Cesium, total	7440-46-2	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Chromium, total	7440-47-3	E466S/VA	A	0.00050	mg/L		0.00110	<0.00050	<0.00050	<0.00050	----
Cobalt, total	7440-48-4	E466S/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Copper, total	7440-50-8	E466S/VA	A	0.00050	mg/L		0.00198	<0.00050	0.00167	0.00234	----
Gallium, total	7440-55-3	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Iron, total	7439-89-6	E466S/VA	A	0.010	mg/L		0.014	<0.010	0.010	0.017	----
Lead, total	7439-92-1	E466S/VA	A	0.00010	mg/L		<0.00010	<0.00010	0.00011	<0.00010	----
Lithium, total	7439-93-2	E466S/VA	A	0.020	mg/L		0.187	0.180	0.179	0.056	----
Magnesium, total	7439-95-4	E466S/VA	A	1.0	mg/L		941	896	866	293	----
Manganese, total	7439-96-5	E466S/VA	A	0.00020	mg/L		0.00057	0.00064	0.00092	0.00140	----
Mercury, total	7439-97-6	E508S/VA	A	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, total	7439-98-7	E466S/VA	A	0.00010	mg/L		0.00970	0.00945	0.00947	0.00314	----
Nickel, total	7440-02-0	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Phosphorus, total	7723-14-0	E466S/VA	A	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, total	7440-09-7	E466S/VA	A	1.0	mg/L		327	328	329	106	----
Rhenium, total	7440-15-5	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Rubidium, total	7440-17-7	E466S/VA	A	0.0050	mg/L		0.0982	0.0957	0.0972	0.0316	----
Selenium, total	7782-49-2	E466S/VA	A	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Silicon, total	7440-21-3	E468S.NaSi/VA	A	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Silver, total	7440-22-4	E466S/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Sodium, total	7440-23-5	E468S.NaSi/VA	A	2.5	mg/L		10100	9860	10000	3280	----
Strontium, total	7440-24-6	E466S/VA	A	0.010	mg/L		6.88	6.73	6.74	2.20	----
Sulfur, total	7704-34-9	E466S/VA	A	5.0	mg/L		817	789	783	265	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-E-23	----
						Client sampling date / time: 23-Aug-2023 09:45	23-Aug-2023 10:00	23-Aug-2023 10:15	23-Aug-2023 00:00	----
						VA23C0016-006	VA23C0016-007	VA23C0016-008	VA23C0016-009	--------
						Result	Result	Result	Result	----
Total Metals										
Tellurium, total	13494-80-9	E466S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Thallium, total	7440-28-0	E466S/VA	A	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
Thorium, total	7440-29-1	E466S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Tin, total	7440-31-5	E466S/VA	A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Titanium, total	7440-32-6	E466S/VA	A	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
Tungsten, total	7440-33-7	E466S/VA	A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Uranium, total	7440-61-1	E466S/VA	A	0.000050	mg/L	0.00278	0.00290	0.00280	0.00184	----
Vanadium, total	7440-62-2	E466S/VA	A	0.00050	mg/L	0.00124	0.00123	0.00122	<0.00050	----
Yttrium, total	7440-65-5	E466S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, total	7440-66-6	E466S/VA	A	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	----
Zirconium, total	7440-67-7	E466S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465S/VA	A	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
Antimony, dissolved	7440-36-0	E465S/VA	A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S/VA	A	0.00040	mg/L	0.00175	0.00178	0.00172	0.00059	----
Barium, dissolved	7440-39-3	E465S/VA	A	0.0010	mg/L	0.0088	0.0090	0.0086	0.0074	----
Beryllium, dissolved	7440-41-7	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Boron, dissolved	7440-42-8	E465S/VA	A	0.30	mg/L	3.36	3.38	3.39	1.20	----
Cadmium, dissolved	7440-43-9	E465S/VA	A	0.000020	mg/L	0.000024	0.000021	<0.000020	<0.000020	----
Calcium, dissolved	7440-70-2	E465S/VA	A	1.0	mg/L	392	398	395	134	----
Cesium, dissolved	7440-46-2	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Chromium, dissolved	7440-47-3	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S/VA	A	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
Copper, dissolved	7440-50-8	E465S/VA	A	0.00050	mg/L	<0.00050	0.00065	0.00058	<0.00050	----
Gallium, dissolved	7440-55-3	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Iron, dissolved	7439-89-6	E465S/VA	A	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
Lead, dissolved	7439-92-1	E465S/VA	A	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
Lithium, dissolved	7439-93-2	E465S/VA	A	0.020	mg/L	0.165	0.164	0.162	0.051	----
Magnesium, dissolved	7439-95-4	E465S/VA	A	1.0	mg/L	1060	1020	978	311	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-E-23	----
						Client sampling date / time: 23-Aug-2023 09:45	23-Aug-2023 10:00	23-Aug-2023 10:15	23-Aug-2023 00:00	----
						VA23C0016-006	VA23C0016-007	VA23C0016-008	VA23C0016-009	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Manganese, dissolved	7439-96-5	E465S/VA	A	0.00010	mg/L	0.00041	0.00051	0.00048	0.00086	----
Mercury, dissolved	7439-97-6	E509S/VA	A	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465S/VA	A	0.00010	mg/L	0.0103	0.0102	0.00994	0.00314	----
Nickel, dissolved	7440-02-0	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S/VA	A	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E465S/VA	A	1.0	mg/L	325	334	330	102	----
Rhenium, dissolved	7440-15-5	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S/VA	A	0.0050	mg/L	0.102	0.101	0.0981	0.0308	----
Selenium, dissolved	7782-49-2	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Silicon, dissolved	7440-21-3	E469S.NaSi/VA	A	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
Silver, dissolved	7440-22-4	E465S/VA	A	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
Sodium, dissolved	7440-23-5	E469S.NaSi/VA	A	2.5	mg/L	9690	9820	9420	2940	----
Strontium, dissolved	7440-24-6	E465S/VA	A	0.010	mg/L	7.14	7.05	6.81	2.14	----
Sulfur, dissolved	7704-34-9	E465S/VA	A	5.0	mg/L	891	895	866	274	----
Tellurium, dissolved	13494-80-9	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Thallium, dissolved	7440-28-0	E465S/VA	A	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
Thorium, dissolved	7440-29-1	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Tin, dissolved	7440-31-5	E465S/VA	A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Titanium, dissolved	7440-32-6	E465S/VA	A	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S/VA	A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Uranium, dissolved	7440-61-1	E465S/VA	A	0.000050	mg/L	0.00274	0.00277	0.00255	0.00168	----
Vanadium, dissolved	7440-62-2	E465S/VA	A	0.00050	mg/L	0.00131	0.00127	0.00123	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E465S/VA	A	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0016	----
Zirconium, dissolved	7440-67-7	E465S/VA	A	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Dissolved mercury filtration location	----	EP509/VA		-	-	Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421S/VA		-	-	Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/VA		-	-	Field	Field	Field	Field	----

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-E-23	----
						Client sampling date / time: 23-Aug-2023 09:45	23-Aug-2023 10:00	23-Aug-2023 10:15	23-Aug-2023 00:00	----
						VA23C0016-006	VA23C0016-007	VA23C0016-008	VA23C0016-009	--------
						Result	Result	Result	Result	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	A	0.50	µg/L	----	<0.50	----	----	----
Ethylbenzene	100-41-4	E611A/VA	A	0.50	µg/L	----	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	A	0.50	µg/L	----	<0.50	----	----	----
Styrene	100-42-5	E611A/VA	A	0.50	µg/L	----	<0.50	----	----	----
Toluene	108-88-3	E611A/VA	A	0.50	µg/L	----	<0.50	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	A	0.40	µg/L	----	<0.40	----	----	----
Xylene, o-	95-47-6	E611A/VA	A	0.30	µg/L	----	<0.30	----	----	----
Xylenes, total	1330-20-7	E611A/VA		0.50	µg/L	----	<0.50	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	A	250	µg/L	----	<250	----	----	----
EPH (C19-C32)	----	E601A/VA	A	250	µg/L	----	<250	----	----	----
F2 (C10-C16)	----	E601/VA	A	100	µg/L	----	<100	----	----	----
F3 (C16-C34)	----	E601/VA	A	250	µg/L	----	<250	----	----	----
F4 (C34-C50)	----	E601/VA	A	250	µg/L	----	<250	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	A	100	µg/L	----	<100	----	----	----
F1-BTEX	----	EC580/VA		100	µg/L	----	<100	----	----	----
HEPHw	----	EC600A/VA		250	µg/L	----	<250	----	----	----
LEPHw	----	EC600A/VA		250	µg/L	----	<250	----	----	----
VPHw	----	EC580A/VA		100	µg/L	----	<100	----	----	----
F1 (C6-C10)	----	E581.VH+F1/VA	A	100	µg/L	----	<100	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA		1.0	%	----	87.1	----	----	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA		1.0	%	----	83.9	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA		1.0	%	----	95.5	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA		1.0	%	----	86.5	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA		1.0	%	----	95.5	----	----	----
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Seawater**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	MP06-North-2-23	MP06-ENE-2-23	MP06-WNW-1-23	DUP-E-23	----
						Client sampling date / time	23-Aug-2023 09:45	23-Aug-2023 10:00	23-Aug-2023 10:15	23-Aug-2023 00:00	----
							VA23C0016-006	VA23C0016-007	VA23C0016-008	VA23C0016-009	--------
							Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Acridine	260-94-6	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Anthracene	120-12-7	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	A	0.0050	µg/L		----	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA		0.015	µg/L		----	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Chrysene	218-01-9	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	A	0.0050	µg/L		----	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Fluorene	86-73-7	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Naphthalene	91-20-3	E641A/VA	A	0.050	µg/L		----	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/VA	A	0.020	µg/L		----	<0.020	----	----	----
Pyrene	129-00-0	E641A/VA	A	0.010	µg/L		----	<0.010	----	----	----
Quinoline	91-22-5	E641A/VA	A	0.050	µg/L		----	<0.050	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/VA		0.1	%		----	85.8	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA		0.1	%		----	95.2	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA		0.1	%		----	99.4	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23C0016**	Page	: 1 of 38
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 26-Aug-2023 13:40
PO	: 166372402/70000/03	Issue Date	: 06-Sep-2023 16:14
C-O-C number	: ----		
Sampler	: TT/MR/DV		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Anions and Nutrients	QC-1111331-001	----	Phosphorus, total dissolved	7723-14-0	E375-T	0.0028 B mg/L	0.002 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-E-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E298	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
DUP-E-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-ENE-1-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-North-1-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-Source-1-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP05-WNW-1-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-ENE-2-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-North-2-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-Source-2-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE										
MP06-WNW-1-23	E235S.Br	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
DUP-E-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-ENE-1-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-North-1-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-Source-1-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP05-WNW-1-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-ENE-2-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-North-2-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-Source-2-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE										
MP06-WNW-1-23	E235S.Cl	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
DUP-E-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-North-1-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP05-WNW-1-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-North-2-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-1-23	E235S.F-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
DUP-E-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-ENE-1-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-North-1-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-Source-1-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP05-WNW-1-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-ENE-2-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-North-2-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-Source-2-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE										
MP06-WNW-1-23	E235S.NO3-T	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
DUP-E-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-North-1-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP05-WNW-1-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-North-2-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	× EHTL	29-Aug-2023	3 days	6 days	× EHTL

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	✗ EHTL	29-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-1-23	E235S.NO2-L	23-Aug-2023	29-Aug-2023	3 days	6 days	✗ EHTL	29-Aug-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
DUP-E-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-ENE-1-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-North-1-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-Source-1-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP05-WNW-1-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-ENE-2-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-North-2-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-Source-2-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE										
MP06-WNW-1-23	E235S.SO4-L	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
DUP-E-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-North-1-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-North-2-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (lab preserved)										
MP06-WNW-1-23	E375-T	23-Aug-2023	30-Aug-2023	3 days	7 days	× EHTL	31-Aug-2023	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
DUP-E-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen in Seawater by Fluorescence										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E318S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	31-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
DUP-E-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E372S	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	30-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP-E-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-ENE-1-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-North-1-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-Source-1-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP05-WNW-1-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-ENE-2-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-North-2-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-Source-2-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MP06-WNW-1-23	E509S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
DUP-E-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-North-1-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNW-1-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-North-2-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Seawater by Triple Quad ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-1-23	E465S	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	31-Aug-2023	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-E-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-ENE-1-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-North-1-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-Source-1-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP05-WNW-1-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-ENE-2-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-North-2-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-Source-2-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid)										
MP06-WNW-1-23	E469S.NaSi	23-Aug-2023	29-Aug-2023	180 days	6 days	✓	30-Aug-2023	180 days	7 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-North-1-23	E601A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	02-Sep-2023	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	02-Sep-2023	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	02-Sep-2023	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E601A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	02-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-North-1-23	E601	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	05-Sep-2023	40 days	4 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E601	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	05-Sep-2023	40 days	4 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E601	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	05-Sep-2023	40 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E601	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	05-Sep-2023	40 days	4 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP05-North-1-23	E581.VH+F1	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E581.VH+F1	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E581.VH+F1	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E581.VH+F1	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
DUP-E-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	× EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-ENE-1-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	× EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-North-1-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	× EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-Source-1-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	× EHTL	28-Aug-2023	28 days	1 days	✓

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP05-WNW-1-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	✗ EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-ENE-2-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	✗ EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-North-2-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	✗ EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-Source-2-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	✗ EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved)										
MP06-WNW-1-23	E358-L	23-Aug-2023	27-Aug-2023	3 days	4 days	✗ EHTL	28-Aug-2023	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP-E-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-ENE-1-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-North-1-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-Source-1-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP05-WNW-1-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-ENE-2-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-North-2-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-Source-2-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MP06-WNW-1-23	E355-L	23-Aug-2023	27-Aug-2023	28 days	4 days	✓	28-Aug-2023	28 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
DUP-E-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-ENE-1-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-North-1-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MP05-Source-1-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MP05-WNW-1-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP06-ENE-2-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP06-North-2-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP06-Source-2-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP06-WNW-1-23	E290	23-Aug-2023	29-Aug-2023	14 days	6 days	✓	29-Aug-2023	14 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-E-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP05-ENE-1-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP05-North-1-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP05-Source-1-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Seawater										
HDPE MP05-WNW-1-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-ENE-2-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-North-2-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-Source-2-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP06-WNW-1-23	E100S	23-Aug-2023	29-Aug-2023	28 days	6 days	✓	29-Aug-2023	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE DUP-E-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	143 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-WNW-1-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	143 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-ENE-2-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-North-2-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE MP05-North-1-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	145 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP06-Source-2-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	144 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	145 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-ENE-1-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	145 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	145 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-Source-1-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	145 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	146 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MP05-WNW-1-23	E108	23-Aug-2023	29-Aug-2023	0.25 hrs	145 hrs	× EHTR-FM	29-Aug-2023	0.25 hrs	146 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-E-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-ENE-1-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-North-1-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP05-Source-1-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP05-WNW-1-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-ENE-2-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-North-2-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-Source-2-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE										
MP06-WNW-1-23	E162S	23-Aug-2023	----	----	----		30-Aug-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
DUP-E-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP05-ENE-1-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP05-North-1-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE										
MP05-Source-1-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP05-WNW-1-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-ENE-2-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-North-2-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-Source-2-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP06-WNW-1-23	E160S	23-Aug-2023	----	----	----		28-Aug-2023	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-E-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-ENE-1-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-North-1-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP05-Source-1-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP05-WNW-1-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-ENE-2-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-North-2-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-Source-2-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE										
MP06-WNW-1-23	E121	23-Aug-2023	----	----	----		27-Aug-2023	3 days	4 days	× EHTL
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-North-1-23	E641A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	01-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP05-Source-1-23	E641A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	01-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-ENE-2-23	E641A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	01-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MP06-Source-2-23	E641A	23-Aug-2023	01-Sep-2023	14 days	9 days	✓	01-Sep-2023	40 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
DUP-E-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-ENE-1-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-North-1-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-Source-1-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP05-WNW-1-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-ENE-2-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-North-2-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-Source-2-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid)										
MP06-WNW-1-23	E508S	23-Aug-2023	31-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) DUP-E-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-ENE-1-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-North-1-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-Source-1-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP05-WNW-1-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-ENE-2-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-North-2-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-Source-2-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Metals in Seawater by Triple Quad ICPMS										
HDPE total (nitric acid) MP06-WNW-1-23	E466S	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
DUP-E-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-ENE-1-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-North-1-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-Source-1-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP05-WNW-1-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-ENE-2-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-North-2-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-Source-2-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid)										
MP06-WNW-1-23	E468S.NaSi	23-Aug-2023	30-Aug-2023	180 days	7 days	✓	01-Sep-2023	180 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-North-1-23	E611A	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP05-Source-1-23	E611A	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-ENE-2-23	E611A	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MP06-Source-2-23	E611A	23-Aug-2023	02-Sep-2023	14 days	10 days	✓	02-Sep-2023	14 days	10 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1108588	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1106194	1	11	9.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1108590	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	1117253	1	19	5.2	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1108591	1	9	11.1	5.0	✓
Conductivity in Seawater	E100S	1108587	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1114414	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1106925	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1106237	1	9	11.1	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1106923	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1108592	1	9	11.1	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1108593	1	9	11.1	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1108594	1	9	11.1	5.0	✓
pH by Meter	E108	1108589	1	9	11.1	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1108595	1	9	11.1	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1110985	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1111331	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1106195	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1113678	1	9	11.1	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1106885	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1106193	1	9	11.1	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1106235	1	9	11.1	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1106884	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	1106191	1	16	6.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1117252	1	18	5.5	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1108588	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1106194	1	11	9.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1115467	1	18	5.5	5.0	✓
Bromide in Seawater by IC	E235S.Br	1108590	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	1117253	1	19	5.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1115470	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1108591	1	9	11.1	5.0	✓
Conductivity in Seawater	E100S	1108587	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1114414	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1106925	1	9	11.1	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1106237	1	9	11.1	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1106923	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1108592	1	9	11.1	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1108593	1	9	11.1	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1108594	1	9	11.1	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1115469	1	16	6.2	5.0	✓
pH by Meter	E108	1108589	1	9	11.1	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1108595	1	9	11.1	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1110985	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1111331	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1106195	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1113678	1	9	11.1	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1106885	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1106193	1	9	11.1	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1106235	1	9	11.1	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1106884	1	9	11.1	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1107768	1	16	6.2	5.0	✓
Turbidity by Nephelometry	E121	1106191	1	16	6.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1117252	1	18	5.5	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1108588	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1106194	1	11	9.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1115467	1	18	5.5	5.0	✓
Bromide in Seawater by IC	E235S.Br	1108590	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	1117253	1	19	5.2	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1115470	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1108591	1	9	11.1	5.0	✓
Conductivity in Seawater	E100S	1108587	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1114414	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1106925	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1106237	1	9	11.1	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1106923	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1108592	1	9	11.1	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1108593	1	9	11.1	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1108594	1	9	11.1	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1115469	1	16	6.2	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1108595	1	9	11.1	5.0	✓
TDS by Gravimetry (Seawater)	E162S	1110985	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1111331	1	9	11.1	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1106195	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1113678	1	9	11.1	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1106885	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1106193	1	9	11.1	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1106235	1	9	11.1	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1106884	1	9	11.1	5.0	✓
TSS by Gravimetry (Seawater)	E160S	1107768	1	16	6.2	5.0	✓
Turbidity by Nephelometry	E121	1106191	1	16	6.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1117252	1	18	5.5	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1106194	1	11	9.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	1108590	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	1117253	1	19	5.2	5.0	✓
Chloride in Seawater by IC	E235S.Cl	1108591	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	1114414	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S	1106925	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1106237	1	9	11.1	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	1106923	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	1108592	1	9	11.1	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	1108593	1	9	11.1	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	1108594	1	9	11.1	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	1108595	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1111331	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S	1106195	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	1113678	1	9	11.1	5.0	✓
Total Metals in Seawater by Triple Quad ICPMS	E466S	1106885	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1106193	1	9	11.1	5.0	✓
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S	1106235	1	9	11.1	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	1106884	1	9	11.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1117252	1	18	5.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids.
TDS by Gravimetry (Seawater)	E162S ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen in Seawater by Fluorescence	E318S ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry (0.002 mg/L)	E372S ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Metals in Seawater by Triple Quad ICPMS	E465S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Triple Quadrupole ICPMS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Seawater by Triple Quad ICPMS	E466S ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Water (calculation)	EC100S ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Metals Seawater Filtration	EP421S ALS Environmental - Vancouver	Water	PUGET SOUND PROTOCOLS, EPA 6020A	This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by Collision/Reaction Cell ICPMS.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **VA23C0016**	Page	: 1 of 21
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 26-Aug-2023 13:40
PO	: 166372402/70000/03	Date Analysis Commenced	: 27-Aug-2023
C-O-C number	: ----	Issue Date	: 06-Sep-2023 16:14
Sampler	: TT/MR/DV ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Parnian Sane	Analyst	Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1106191)											
VA23B9971-003	Anonymous	Turbidity	----	E121	0.10	NTU	1.35	1.50	10.5%	15%	----
Physical Tests (QC Lot: 1108587)											
VA23C0016-003	MP05-ENE-1-23	Conductivity	----	E100S	2.0	µS/cm	29500	29600	0.338%	20%	----
Physical Tests (QC Lot: 1108588)											
VA23C0016-003	MP05-ENE-1-23	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	86.6	87.5	1.03%	20%	----
Physical Tests (QC Lot: 1108589)											
VA23C0016-003	MP05-ENE-1-23	pH	----	E108	0.10	pH units	7.91	7.92	0.126%	4%	----
Physical Tests (QC Lot: 1110985)											
VA23C0016-001	MP05-Source-1-23	Solids, total dissolved [TDS]	----	E162S	80	mg/L	14600	14600	0.534%	20%	----
Anions and Nutrients (QC Lot: 1106194)											
VA23B9481-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	3.46	3.24	6.67%	20%	----
Anions and Nutrients (QC Lot: 1106195)											
VA23C0016-001	MP05-Source-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.079	0.082	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1106235)											
VA23C0016-001	MP05-Source-1-23	Phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0087	0.0086	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1108590)											
VA23C0016-001	MP05-Source-1-23	Bromide	24959-67-9	E235S.Br	5.0	mg/L	22.6	21.7	0.9	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1108591)											
VA23C0016-001	MP05-Source-1-23	Chloride	16887-00-6	E235S.Cl	50	mg/L	7120	7090	0.371%	20%	----
Anions and Nutrients (QC Lot: 1108592)											
VA23C0016-001	MP05-Source-1-23	Fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.39	0.41	0.02	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1108593)											
VA23C0016-001	MP05-Source-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	0.023	0.029	0.006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1108594)											
VA23C0016-001	MP05-Source-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1108595)											
VA23C0016-001	MP05-Source-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	1010	992	1.45%	20%	----
Anions and Nutrients (QC Lot: 1111331)											
VA23C0016-003	MP05-ENE-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0109	0.0105	0.0004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1106193)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1106193) - continued											
VA23C0016-001	MP05-Source-1-23	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.58	1.50	0.07	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1106237)											
VA23C0016-001	MP05-Source-1-23	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.87	0.96	0.09	Diff <2x LOR	----
Total Metals (QC Lot: 1106884)											
VA23C0016-001	MP05-Source-1-23	Silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	4130	4000	3.00%	20%	----
Total Metals (QC Lot: 1106885)											
VA23C0016-001	MP05-Source-1-23	Aluminum, total	7429-90-5	E466S	0.0050	mg/L	0.0121	0.0117	0.0004	Diff <2x LOR	----
		Antimony, total	7440-36-0	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466S	0.00040	mg/L	0.00074	0.00077	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E466S	0.0010	mg/L	0.0080	0.0083	0.0003	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466S	0.30	mg/L	1.70	1.75	0.05	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466S	1.0	mg/L	175	187	6.28%	20%	----
		Cesium, total	7440-46-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Gallium, total	7440-55-3	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466S	0.010	mg/L	0.019	0.021	0.002	Diff <2x LOR	----
		Lead, total	7439-92-1	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466S	0.020	mg/L	0.071	0.073	0.002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466S	1.0	mg/L	443	447	0.968%	20%	----
		Manganese, total	7439-96-5	E466S	0.00020	mg/L	0.00164	0.00173	0.00008	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E466S	0.00010	mg/L	0.00418	0.00446	6.60%	20%	----
		Nickel, total	7440-02-0	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466S	1.0	mg/L	133	140	4.66%	20%	----
		Rhenium, total	7440-15-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466S	0.0050	mg/L	0.0425	0.0433	0.0008	Diff <2x LOR	----
		Selenium, total	7782-49-2	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E466S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1106885) - continued											
VA23C0016-001	MP05-Source-1-23	Strontium, total	7440-24-6	E466S	0.010	mg/L	3.00	3.04	1.27%	20%	----
		Sulfur, total	7704-34-9	E466S	5.0	mg/L	351	353	0.775%	20%	----
		Tellurium, total	13494-80-9	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466S	0.000050	mg/L	0.00221	0.00226	1.97%	20%	----
		Vanadium, total	7440-62-2	E466S	0.00050	mg/L	0.00060	0.00054	0.00006	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1113678)											
VA23C0016-001	MP05-Source-1-23	Mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1106923)											
VA23C0016-001	MP05-Source-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	3310	3220	2.56%	20%	----
Dissolved Metals (QC Lot: 1106925)											
VA23C0016-001	MP05-Source-1-23	Aluminum, dissolved	7429-90-5	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465S	0.00040	mg/L	0.00065	0.00069	0.00004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E465S	0.0010	mg/L	0.0072	0.0072	0.00006	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465S	0.30	mg/L	1.23	1.26	0.03	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465S	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465S	1.0	mg/L	146	147	0.790%	20%	----
		Cesium, dissolved	7440-46-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E465S	0.00050	mg/L	0.00106	0.00093	0.00014	Diff <2x LOR	----
		Gallium, dissolved	7440-55-3	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1106925) - continued											
VA23C0016-001	MP05-Source-1-23	Lead, dissolved	7439-92-1	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465S	0.020	mg/L	0.057	0.057	0.0004	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465S	1.0	mg/L	398	403	1.03%	20%	----
		Manganese, dissolved	7439-96-5	E465S	0.00010	mg/L	0.00096	0.00096	0.000006	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E465S	0.00010	mg/L	0.00367	0.00369	0.561%	20%	----
		Nickel, dissolved	7440-02-0	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465S	1.0	mg/L	111	113	1.77%	20%	----
		Rhenium, dissolved	7440-15-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465S	0.0050	mg/L	0.0364	0.0362	0.0003	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E465S	0.010	mg/L	2.50	2.54	1.25%	20%	----
		Sulfur, dissolved	7704-34-9	E465S	5.0	mg/L	304	300	1.28%	20%	----
		Tellurium, dissolved	13494-80-9	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465S	0.000050	mg/L	0.00183	0.00185	1.34%	20%	----
		Vanadium, dissolved	7440-62-2	E465S	0.00050	mg/L	<0.00050	0.00053	0.00003	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465S	0.0010	mg/L	0.0013	0.0012	0.00006	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1114414)											
VA23C0016-001	MP05-Source-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1117253)											
VA23C0016-001	MP05-Source-1-23	Benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1117253) - continued											
VA23C0016-001	MP05-Source-1-23	Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1117252)											
VA23C0016-001	MP05-Source-1-23	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1106191)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1107768)						
Solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
Physical Tests (QCLot: 1108587)						
Conductivity	----	E100S	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1108588)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1110985)						
Solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1106194)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1106195)						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1106235)						
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1108590)						
Bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
Anions and Nutrients (QCLot: 1108591)						
Chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
Anions and Nutrients (QCLot: 1108592)						
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
Anions and Nutrients (QCLot: 1108593)						
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1108594)						
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1108595)						
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1111331)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	# 0.0028	B
Organic / Inorganic Carbon (QCLot: 1106193)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1106237)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1106237) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1106884)						
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	<2.5	----
Total Metals (QCLot: 1106885)						
Aluminum, total	7429-90-5	E466S	0.005	mg/L	<0.0050	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	<0.0010	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	<0.00040	----
Barium, total	7440-39-3	E466S	0.001	mg/L	<0.0010	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	<0.00050	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	<0.00050	----
Boron, total	7440-42-8	E466S	0.3	mg/L	<0.30	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	<0.000020	----
Calcium, total	7440-70-2	E466S	1	mg/L	<1.0	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	<0.00050	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	<0.000050	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	<0.00050	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E466S	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	<0.00010	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	<0.020	----
Magnesium, total	7439-95-4	E466S	1	mg/L	<1.0	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	<0.00020	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	<0.00010	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E466S	1	mg/L	<1.0	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	<0.00050	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	<0.0050	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	<0.00050	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	<0.00010	----
Strontium, total	7440-24-6	E466S	0.01	mg/L	<0.010	----
Sulfur, total	7704-34-9	E466S	5	mg/L	<5.0	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1106885) - continued						
Thallium, total	7440-28-0	E466S	0.00005	mg/L	<0.000050	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	<0.00050	----
Tin, total	7440-31-5	E466S	0.001	mg/L	<0.0010	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	<0.0050	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	<0.0010	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	<0.000050	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	<0.00050	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	<0.00050	----
Total Metals (QCLot: 1113678)						
Mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1106923)						
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 1106925)						
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	<0.0050	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	<0.00040	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	<0.0010	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	<0.00050	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	<0.00050	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	<0.30	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	<0.000020	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	<1.0	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	<0.00050	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	<0.000050	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	<0.00050	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	<0.00010	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	<0.020	----
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	<1.0	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1106925) - continued						
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	<0.00010	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	<1.0	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	<0.00050	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	<0.0050	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	<0.00050	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	<0.00010	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	<0.010	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	<5.0	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	<0.00050	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	<0.000050	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	<0.00050	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	<0.0010	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	<0.0050	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	<0.0010	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	<0.000050	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	<0.00050	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 1114414)						
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1117253)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1115467)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1115470)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 1115470) - continued						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Hydrocarbons (QCLot: 1117252)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1115469)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1106191)									
Turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 1107768)									
Solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	96.3	85.0	115	----
Physical Tests (QCLot: 1108587)									
Conductivity	----	E100S	2	µS/cm	146.9 µS/cm	98.0	80.0	120	----
Physical Tests (QCLot: 1108588)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	110	85.0	115	----
Physical Tests (QCLot: 1108589)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 1110985)									
Solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 1106194)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1106195)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1106235)									
Phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	98.2	80.0	120	----
Anions and Nutrients (QCLot: 1108590)									
Bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	95.8	85.0	115	----
Anions and Nutrients (QCLot: 1108591)									
Chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1108592)									
Fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 1108593)									
Nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1108594)									
Nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1108595)									
Sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1111331)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	92.1	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1106193)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	107	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1106237)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.5	80.0	120	----
Total Metals (QCLot: 1106884)									
Silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	106	80.0	120	----
Sodium, total	7440-23-5	E468S.NaSi	2.5	mg/L	50 mg/L	112	80.0	120	----
Total Metals (QCLot: 1106885)									
Aluminum, total	7429-90-5	E466S	0.005	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E466S	0.001	mg/L	1 mg/L	114	80.0	120	----
Arsenic, total	7440-38-2	E466S	0.0004	mg/L	1 mg/L	107	80.0	120	----
Barium, total	7440-39-3	E466S	0.001	mg/L	0.25 mg/L	108	80.0	120	----
Beryllium, total	7440-41-7	E466S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Bismuth, total	7440-69-9	E466S	0.0005	mg/L	1 mg/L	112	80.0	120	----
Boron, total	7440-42-8	E466S	0.3	mg/L	1 mg/L	101	80.0	120	----
Cadmium, total	7440-43-9	E466S	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E466S	1	mg/L	50 mg/L	99.4	80.0	120	----
Cesium, total	7440-46-2	E466S	0.0005	mg/L	0.05 mg/L	107	80.0	120	----
Chromium, total	7440-47-3	E466S	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Cobalt, total	7440-48-4	E466S	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Copper, total	7440-50-8	E466S	0.0005	mg/L	0.25 mg/L	98.9	80.0	120	----
Gallium, total	7440-55-3	E466S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E466S	0.01	mg/L	1 mg/L	107	80.0	120	----
Lead, total	7439-92-1	E466S	0.0001	mg/L	0.5 mg/L	111	80.0	120	----
Lithium, total	7439-93-2	E466S	0.02	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, total	7439-95-4	E466S	1	mg/L	50 mg/L	102	80.0	120	----
Manganese, total	7439-96-5	E466S	0.0002	mg/L	0.25 mg/L	108	80.0	120	----
Molybdenum, total	7439-98-7	E466S	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, total	7440-02-0	E466S	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Phosphorus, total	7723-14-0	E466S	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E466S	1	mg/L	50 mg/L	104	80.0	120	----
Rhenium, total	7440-15-5	E466S	0.0005	mg/L	0.1 mg/L	109	80.0	120	----
Rubidium, total	7440-17-7	E466S	0.005	mg/L	0.1 mg/L	104	80.0	120	----
Selenium, total	7782-49-2	E466S	0.0005	mg/L	1 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E466S	0.0001	mg/L	0.1 mg/L	99.2	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1106885) - continued									
Strontium, total	7440-24-6	E466S	0.01	mg/L	0.25 mg/L	105	80.0	120	----
Sulfur, total	7704-34-9	E466S	5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E466S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, total	7440-28-0	E466S	0.00005	mg/L	1 mg/L	109	80.0	120	----
Thorium, total	7440-29-1	E466S	0.0005	mg/L	0.1 mg/L	99.7	80.0	120	----
Tin, total	7440-31-5	E466S	0.001	mg/L	0.5 mg/L	107	80.0	120	----
Titanium, total	7440-32-6	E466S	0.005	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, total	7440-33-7	E466S	0.001	mg/L	0.1 mg/L	106	80.0	120	----
Uranium, total	7440-61-1	E466S	0.00005	mg/L	0.005 mg/L	105	80.0	120	----
Vanadium, total	7440-62-2	E466S	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Yttrium, total	7440-65-5	E466S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Zinc, total	7440-66-6	E466S	0.003	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, total	7440-67-7	E466S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
Total Metals (QCLot: 1113678)									
Mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----
Silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	105	80.0	120	----
Sodium, dissolved	7440-23-5	E469S.NaSi	2.5	mg/L	50 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 1106925)									
Aluminum, dissolved	7429-90-5	E465S	0.005	mg/L	2 mg/L	100	80.0	120	----
Antimony, dissolved	7440-36-0	E465S	0.001	mg/L	1 mg/L	109	80.0	120	----
Arsenic, dissolved	7440-38-2	E465S	0.0004	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E465S	0.001	mg/L	0.25 mg/L	108	80.0	120	----
Beryllium, dissolved	7440-41-7	E465S	0.0005	mg/L	0.1 mg/L	95.8	80.0	120	----
Bismuth, dissolved	7440-69-9	E465S	0.0005	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E465S	0.3	mg/L	1 mg/L	87.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E465S	0.00002	mg/L	0.1 mg/L	99.7	80.0	120	----
Calcium, dissolved	7440-70-2	E465S	1	mg/L	50 mg/L	93.8	80.0	120	----
Cesium, dissolved	7440-46-2	E465S	0.0005	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, dissolved	7440-47-3	E465S	0.0005	mg/L	0.25 mg/L	99.9	80.0	120	----
Cobalt, dissolved	7440-48-4	E465S	0.00005	mg/L	0.25 mg/L	99.1	80.0	120	----
Copper, dissolved	7440-50-8	E465S	0.0005	mg/L	0.25 mg/L	96.4	80.0	120	----
Gallium, dissolved	7440-55-3	E465S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Iron, dissolved	7439-89-6	E465S	0.01	mg/L	1 mg/L	97.4	80.0	120	----
Lead, dissolved	7439-92-1	E465S	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, dissolved	7439-93-2	E465S	0.02	mg/L	0.25 mg/L	99.7	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Dissolved Metals (QCLot: 1106925) - continued									
Magnesium, dissolved	7439-95-4	E465S	1	mg/L	50 mg/L	98.6	80.0	120	----
Manganese, dissolved	7439-96-5	E465S	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465S	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
Nickel, dissolved	7440-02-0	E465S	0.0005	mg/L	0.5 mg/L	96.5	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465S	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E465S	1	mg/L	50 mg/L	101	80.0	120	----
Rhenium, dissolved	7440-15-5	E465S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----
Rubidium, dissolved	7440-17-7	E465S	0.005	mg/L	0.1 mg/L	96.1	80.0	120	----
Selenium, dissolved	7782-49-2	E465S	0.0005	mg/L	1 mg/L	98.4	80.0	120	----
Silver, dissolved	7440-22-4	E465S	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Strontium, dissolved	7440-24-6	E465S	0.01	mg/L	0.25 mg/L	98.0	80.0	120	----
Sulfur, dissolved	7704-34-9	E465S	5	mg/L	50 mg/L	103	80.0	120	----
Tellurium, dissolved	13494-80-9	E465S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
Thallium, dissolved	7440-28-0	E465S	0.00005	mg/L	1 mg/L	101	80.0	120	----
Thorium, dissolved	7440-29-1	E465S	0.0005	mg/L	0.1 mg/L	99.0	80.0	120	----
Tin, dissolved	7440-31-5	E465S	0.001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, dissolved	7440-32-6	E465S	0.005	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, dissolved	7440-33-7	E465S	0.001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, dissolved	7440-61-1	E465S	0.00005	mg/L	0.005 mg/L	105	80.0	120	----
Vanadium, dissolved	7440-62-2	E465S	0.0005	mg/L	0.5 mg/L	100.0	80.0	120	----
Yttrium, dissolved	7440-65-5	E465S	0.0005	mg/L	0.1 mg/L	99.5	80.0	120	----
Zinc, dissolved	7440-66-6	E465S	0.001	mg/L	0.5 mg/L	96.2	80.0	120	----
Zirconium, dissolved	7440-67-7	E465S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	88.3	80.0	120	----
Volatile Organic Compounds (QCLot: 1117253)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	99.3	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	98.9	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	93.1	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	101	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	100	70.0	130	----
Hydrocarbons (QCLot: 1115467)									
EPH (C10-C19)	----	E601A	250	µg/L	6491 µg/L	106	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 1115467) - continued									
EPH (C19-C32)	----	E601A	250	µg/L	3363 µg/L	101	70.0	130	----
Hydrocarbons (QCLot: 1115470)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	115	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	103	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	102	70.0	130	----
Hydrocarbons (QCLot: 1117252)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	93.4	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	85.6	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1115469)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	92.5	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	94.2	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	97.4	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	94.6	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	84.5	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	105	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	93.3	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	99.7	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	86.5	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	98.2	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	98.2	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	98.0	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	103	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	87.7	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	89.6	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	91.4	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	99.8	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	99.0	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	97.2	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1106194)										
VA23B9481-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1106195)										
VA23C0016-002	MP05-North-1-23	Kjeldahl nitrogen, total [TKN]	----	E318S	2.42 mg/L	2.5 mg/L	96.9	70.0	130	----
Anions and Nutrients (QCLot: 1106235)										
VA23C0016-002	MP05-North-1-23	Phosphorus, total	7723-14-0	E372S	0.0484 mg/L	0.05 mg/L	96.8	70.0	130	----
Anions and Nutrients (QCLot: 1108590)										
VA23C0016-002	MP05-North-1-23	Bromide	24959-67-9	E235S.Br	51.2 mg/L	50 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1108591)										
VA23C0016-002	MP05-North-1-23	Chloride	16887-00-6	E235S.Cl	10000 mg/L	10000 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1108592)										
VA23C0016-002	MP05-North-1-23	Fluoride	16984-48-8	E235S.F-L	9.37 mg/L	10 mg/L	93.7	75.0	125	----
Anions and Nutrients (QCLot: 1108593)										
VA23C0016-002	MP05-North-1-23	Nitrate (as N)	14797-55-8	E235S.NO3-T	7.42 mg/L	7.5 mg/L	98.9	75.0	125	----
Anions and Nutrients (QCLot: 1108594)										
VA23C0016-002	MP05-North-1-23	Nitrite (as N)	14797-65-0	E235S.NO2-L	5.04 mg/L	5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1108595)										
VA23C0016-002	MP05-North-1-23	Sulfate (as SO4)	14808-79-8	E235S.SO4-L	987 mg/L	1000 mg/L	98.7	75.0	125	----
Anions and Nutrients (QCLot: 1111331)										
VA23C0016-002	MP05-North-1-23	Phosphorus, total dissolved	7723-14-0	E375-T	0.0408 mg/L	0.05 mg/L	81.5	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1106193)										
VA23C0016-002	MP05-North-1-23	Carbon, total organic [TOC]	----	E355-L	5.37 mg/L	5 mg/L	107	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1106237)										
VA23C0016-002	MP05-North-1-23	Carbon, dissolved organic [DOC]	----	E358-L	5.31 mg/L	5 mg/L	106	70.0	130	----
Total Metals (QCLot: 1106884)										
VA23C0016-002	MP05-North-1-23	Silicon, total	7440-21-3	E468S.NaSi	504 mg/L	500 mg/L	101	70.0	130	----
		Sodium, total	7440-23-5	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 1106885)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1106885) - continued										
VA23C0016-002	MP05-North-1-23	Aluminum, total	7429-90-5	E466S	3.52 mg/L	4 mg/L	87.9	70.0	130	----
		Antimony, total	7440-36-0	E466S	0.443 mg/L	0.4 mg/L	111	70.0	130	----
		Arsenic, total	7440-38-2	E466S	0.403 mg/L	0.4 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E466S	0.438 mg/L	0.4 mg/L	110	70.0	130	----
		Beryllium, total	7440-41-7	E466S	0.730 mg/L	0.8 mg/L	91.2	70.0	130	----
		Bismuth, total	7440-69-9	E466S	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Boron, total	7440-42-8	E466S	2.16 mg/L	2 mg/L	108	70.0	130	----
		Cadmium, total	7440-43-9	E466S	0.0786 mg/L	0.08 mg/L	98.2	70.0	130	----
		Calcium, total	7440-70-2	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E466S	0.221 mg/L	0.2 mg/L	110	70.0	130	----
		Chromium, total	7440-47-3	E466S	0.867 mg/L	0.8 mg/L	108	70.0	130	----
		Cobalt, total	7440-48-4	E466S	0.410 mg/L	0.4 mg/L	103	70.0	130	----
		Copper, total	7440-50-8	E466S	0.375 mg/L	0.4 mg/L	93.6	70.0	130	----
		Gallium, total	7440-55-3	E466S	0.0498 mg/L	0.05 mg/L	99.6	70.0	130	----
		Iron, total	7439-89-6	E466S	41.9 mg/L	40 mg/L	105	70.0	130	----
		Lead, total	7439-92-1	E466S	0.407 mg/L	0.4 mg/L	102	70.0	130	----
		Lithium, total	7439-93-2	E466S	2.18 mg/L	2 mg/L	109	70.0	130	----
		Magnesium, total	7439-95-4	E466S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466S	0.426 mg/L	0.4 mg/L	106	70.0	130	----
		Molybdenum, total	7439-98-7	E466S	0.406 mg/L	0.4 mg/L	102	70.0	130	----
		Nickel, total	7440-02-0	E466S	0.770 mg/L	0.8 mg/L	96.2	70.0	130	----
		Phosphorus, total	7723-14-0	E466S	204 mg/L	200 mg/L	102	70.0	130	----
		Potassium, total	7440-09-7	E466S	ND mg/L	80 mg/L	ND	70.0	130	----
		Rhenium, total	7440-15-5	E466S	0.0527 mg/L	0.05 mg/L	105	70.0	130	----
		Rubidium, total	7440-17-7	E466S	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Selenium, total	7782-49-2	E466S	0.810 mg/L	0.8 mg/L	101	70.0	130	----
		Silver, total	7440-22-4	E466S	0.0766 mg/L	0.08 mg/L	95.7	70.0	130	----
		Strontium, total	7440-24-6	E466S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E466S	404 mg/L	400 mg/L	101	70.0	130	----
		Tellurium, total	13494-80-9	E466S	0.755 mg/L	0.8 mg/L	94.4	70.0	130	----
		Thallium, total	7440-28-0	E466S	0.0804 mg/L	0.08 mg/L	100	70.0	130	----
		Thorium, total	7440-29-1	E466S	0.364 mg/L	0.4 mg/L	90.9	70.0	130	----
		Tin, total	7440-31-5	E466S	0.414 mg/L	0.4 mg/L	103	70.0	130	----
		Titanium, total	7440-32-6	E466S	0.881 mg/L	0.8 mg/L	110	70.0	130	----
		Tungsten, total	7440-33-7	E466S	0.412 mg/L	0.4 mg/L	103	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1106885) - continued										
VA23C0016-002	MP05-North-1-23	Uranium, total	7440-61-1	E466S	0.0802 mg/L	0.08 mg/L	100	70.0	130	----
		Vanadium, total	7440-62-2	E466S	2.18 mg/L	2 mg/L	109	70.0	130	----
		Yttrium, total	7440-65-5	E466S	0.0496 mg/L	0.05 mg/L	99.3	70.0	130	----
		Zinc, total	7440-66-6	E466S	7.65 mg/L	8 mg/L	95.6	70.0	130	----
		Zirconium, total	7440-67-7	E466S	0.804 mg/L	0.8 mg/L	100	70.0	130	----
Total Metals (QCLot: 1113678)										
VA23C0016-002	MP05-North-1-23	Mercury, total	7439-97-6	E508S	0.000100 mg/L	0.0001 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1106923)										
VA23C0016-002	MP05-North-1-23	Silicon, dissolved	7440-21-3	E469S.NaSi	480 mg/L	500 mg/L	95.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 1106925)										
VA23C0016-002	MP05-North-1-23	Aluminum, dissolved	7429-90-5	E465S	3.67 mg/L	4 mg/L	91.7	70.0	130	----
		Antimony, dissolved	7440-36-0	E465S	0.420 mg/L	0.4 mg/L	105	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465S	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Barium, dissolved	7440-39-3	E465S	0.432 mg/L	0.4 mg/L	108	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465S	0.751 mg/L	0.8 mg/L	93.9	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465S	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		Boron, dissolved	7440-42-8	E465S	1.72 mg/L	2 mg/L	86.1	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465S	0.0763 mg/L	0.08 mg/L	95.4	70.0	130	----
		Calcium, dissolved	7440-70-2	E465S	ND mg/L	80 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E465S	0.214 mg/L	0.2 mg/L	107	70.0	130	----
		Chromium, dissolved	7440-47-3	E465S	0.863 mg/L	0.8 mg/L	108	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465S	0.413 mg/L	0.4 mg/L	103	70.0	130	----
		Copper, dissolved	7440-50-8	E465S	0.371 mg/L	0.4 mg/L	92.7	70.0	130	----
		Gallium, dissolved	7440-55-3	E465S	0.0514 mg/L	0.05 mg/L	103	70.0	130	----
		Iron, dissolved	7439-89-6	E465S	41.3 mg/L	40 mg/L	103	70.0	130	----
		Lead, dissolved	7439-92-1	E465S	0.381 mg/L	0.4 mg/L	95.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E465S	1.99 mg/L	2 mg/L	99.5	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465S	ND mg/L	20 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465S	0.418 mg/L	0.4 mg/L	104	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465S	0.407 mg/L	0.4 mg/L	102	70.0	130	----
		Nickel, dissolved	7440-02-0	E465S	0.787 mg/L	0.8 mg/L	98.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465S	208 mg/L	200 mg/L	104	70.0	130	----
		Potassium, dissolved	7440-09-7	E465S	ND mg/L	80 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1106925) - continued										
VA23C0016-002	MP05-North-1-23	Rhenium, dissolved	7440-15-5	E465S	0.0522 mg/L	0.05 mg/L	104	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465S	0.400 mg/L	0.4 mg/L	99.9	70.0	130	----
		Selenium, dissolved	7782-49-2	E465S	0.755 mg/L	0.8 mg/L	94.4	70.0	130	----
		Silver, dissolved	7440-22-4	E465S	0.0743 mg/L	0.08 mg/L	92.8	70.0	130	----
		Strontium, dissolved	7440-24-6	E465S	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465S	416 mg/L	400 mg/L	104	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465S	0.728 mg/L	0.8 mg/L	91.0	70.0	130	----
		Thallium, dissolved	7440-28-0	E465S	0.0740 mg/L	0.08 mg/L	92.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E465S	0.384 mg/L	0.4 mg/L	96.0	70.0	130	----
		Tin, dissolved	7440-31-5	E465S	0.387 mg/L	0.4 mg/L	96.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E465S	0.862 mg/L	0.8 mg/L	108	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465S	0.404 mg/L	0.4 mg/L	101	70.0	130	----
		Uranium, dissolved	7440-61-1	E465S	0.0771 mg/L	0.08 mg/L	96.4	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465S	2.24 mg/L	2 mg/L	112	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465S	0.0533 mg/L	0.05 mg/L	107	70.0	130	----
		Zinc, dissolved	7440-66-6	E465S	7.88 mg/L	8 mg/L	98.5	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465S	0.895 mg/L	0.8 mg/L	112	70.0	130	----
Dissolved Metals (QCLot: 1114414)										
VA23C0016-002	MP05-North-1-23	Mercury, dissolved	7439-97-6	E509S	0.0000945 mg/L	0.0001 mg/L	94.5	70.0	130	----
Volatile Organic Compounds (QCLot: 1117253)										
VA23C0016-002	MP05-North-1-23	Benzene	71-43-2	E611A	100 µg/L	100 µg/L	100	60.0	140	----
		Ethylbenzene	100-41-4	E611A	96.8 µg/L	100 µg/L	96.8	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	95.7 µg/L	100 µg/L	95.7	60.0	140	----
		Styrene	100-42-5	E611A	102 µg/L	100 µg/L	102	60.0	140	----
		Toluene	108-88-3	E611A	97.5 µg/L	100 µg/L	97.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	198 µg/L	200 µg/L	99.0	60.0	140	----
		Xylene, o-	95-47-6	E611A	100 µg/L	100 µg/L	100	60.0	140	----
Hydrocarbons (QCLot: 1117252)										
VA23C0016-005	MP06-Source-2-23	F1 (C6-C10)	----	E581.VH+F1	4850 µg/L	6310 µg/L	76.8	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4440 µg/L	6310 µg/L	70.4	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Vancouver
Work Order Reference
VA23C0016

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Connor Pettem
Phone:	1-604-297-2030/1-604-296-4200
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: elaine.irving@wsp.com
Email 2: connor.pettem@wsp.com
Email 3: trish.tomliens@wsp.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Additional fees may apply to rush requests on weekends, st
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:
Job #: GOLD100-028
PO / AFE: 166372402/70000/03
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer **Sampler:** TT/MR/DV

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General (alkalinity, turbidity, cond.)	Anions, TOC, DOC, Hard., Salinity	pH, TSS, TDS, Ammonia, TKN	Dissolved Metals (F/P)	Total Metals (P)	Dissolved Hg (F/P)	Total Hg (P)	Nutrients (including total phosphorus) (P)	Petroleum hydrocarbons (MTBE) (P)	Petroleum hydrocarbons (BTEX,F1) (P)	Hydrocarbons (LEPH/HEPH) (P)	PAH, F2-F4 (P)			SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MP05-Source-1-23	23-Aug-23	8:14	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP05-North-1-23	23-Aug-23	9:07	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP05-ENE-1-23	23-Aug-23	8:54	Seawater	6	R	R	R	R	R	R	R	R									
	MP05-WNW-1-23	23-Aug-23	8:28	Seawater	6	R	R	R	R	R	R	R	R									
	MP05-Source-2-23	23-Aug-23	9:24	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP06-North-2-23	23-Aug-23	9:45	Seawater	6	R	R	R	R	R	R	R	R									
	MP06-ENE-2-23	23-Aug-23	10:00	Seawater	10	R	R	R	R	R	R	R	R	R	R	R	R					
	MP06-WNW-2-23	23-Aug-23	10:15	Seawater	6	R	R	R	R	R	R	R	R									
	DUP-E-23	23-Aug-23	—	Seawater	6	R	R	R	R	R	R	R	R									
	~~MLP~~			Seawater		R	R	R	R	R	R	R	R									

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☑ NO
Are samples for human consumption/ use?
☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Refer to quote (GOLD100-028) for all analyses.

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
						16°C	

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	24 Aug 23	1:40 pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX 2C

Water Quality Screening Table

Parameter	CCME AQUATIC LIFE MARINE WATER - LONG TERM	CCME AQUATIC LIFE MARINE WATER - SHORT TERM	Unit	Station	MP-05																			
				Sample Name	MP-05 ENE					MP-05 North						MP-05-Source					MP-05 WNW				
				Sample Date	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023
				FIELD_SDG	YL2300991-003	VA23B8519-003	YL2301042-003	VA23B9367-003	VA23C0016-003	YL2300991-002	VA23B8519-002	YL2301042-002	VA23B9367-002	VA23C0016-002	YL2300991-001	VA23B8519-001	YL2301042-001	VA23B9367-001	VA23C0016-001	YL2300991-004	VA23B8519-004	YL2301042-004	VA23B9367-004	VA23C0016-004
	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions + Nutrients																								
Alkalinity, Total as CaCO3	-	-	mg/L		62.2	81.5	73.2	95.3	86.6	62.0	72.5	73.8	92.6	83.4	62.1	69.9	71.4	86.4	82.4	61.1	70.9	72.4	85.2	83.1
Total Kjeldahl Nitrogen	-	-	mg/L		<0.050	0.07	0.07	0.10	0.09	<0.050	<0.050	0.06	0.09	0.07	<0.050	0.10	0.07	0.12	0.08	<0.050	<0.050	<0.050	0.10	0.08
Ammonia (as N)	-	-	mg/L		0.01	<0.0050	<0.0050	0.01	<0.0050	0.01	<0.0050	<0.0050	0.01	<0.0050	<0.0050	0.01	<0.0050	0.01	<0.0050	0.01	<0.0050	<0.0050	0.01	<0.0050
Bromide (Br)	-	-	mg/L		6.2	28.8	18.5	34.8	33.6	<5.0	19.1	22.0	38.6	23.6	<5.0	12.0	11.3	34.1	22.6	<5.0	17.0	16.4	20.7	20.1
Chloride (Cl)	-	-	mg/L		1920	8660	5530	10300	10500	840	5880	6720	11800	7450	770	3680	3540	10300	7120	579	5210	4970	6290	6560
Fluoride (F)	-	-	mg/L		<0.20	0.43	0.36	0.65	0.51	<0.20	0.32	0.40	0.63	0.42	<0.20	0.22	<0.20	0.55	0.39	<0.20	0.28	0.32	0.54	0.39
Nitrate (as N)	339	45	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.04	0.01	0.02	<0.010	<0.010	0.01	0.02	0.01
Nitrite (as N)	-	-	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, Total	-	-	mg/L		0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sulfate (SO4)	-	-	mg/L		241	1160	781	1750	1440	98	787	921	1650	958	97	482	483	1430	1010	66	673	695	1340	908
Carbon																								
Dissolved Organic Carbon	-	-	mg/L		0.63	0.81	0.90	0.83	0.92	0.71	0.71	0.94	0.78	0.97	0.72	0.84	0.99	1.00	0.87	0.66	0.73	0.91	0.76	1.02
Field + Physical																								
pH	7.0 - 8.7	-	pH units		7.88	7.96	7.98	7.95	7.91	7.86	7.88	7.96	7.94	7.90	7.84	7.86	7.96	7.93	7.90	7.87	7.87	7.97	7.92	7.90
Conductivity	-	-	µS/cm		6620	23700	17100	35600	29500	3010	17000	19900	33600	21800	2840	11100	11200	30300	21200	2010	14600	15300	27800	19400
Hardness, Calcium Carbonate (Dissolved)	-	-	mg/L		651	2520	1850	5060	3020	320	1920	2090	5100	1730	291	1220	1220	4370	2000	235	1630	1640	3990	1810
Total Dissolved Solids	-	-	mg/L		3570	19700	11200	19700	21700	1600	14000	13000	26000	16000	1520	8680	7020	23400	14600	1050	10800	9720	21200	13300
Total Suspended Solids	-	-	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.30	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	-	-	NTU		0.32	0.58	0.28	0.65	0.24	0.31	0.56	0.21	0.52	0.30	0.38	0.45	0.65	1.11	0.30	0.38	0.58	0.30	1.02	0.37
Salinity	-	-	PSU		3.5	15.1	10.0	22.6	18.3	1.5	10.5	11.8	21.2	13.1	1.4	6.6	6.3	18.9	12.7	1.0	8.9	8.8	17.2	11.6
Total Organic Carbon	-	-	mg/L		1.23	1.25	1.34	1.27	1.41	1.04	1.22	1.29	1.37	1.41	1.09	1.15	1.16	1.21	1.58	0.93	1.13	1.12	1.21	1.43
Dissolved Organic Carbon	-	-	mg/L		0.63	0.81	0.90	0.83	0.92	0.71	0.71	0.94	0.78	0.97	0.72	0.84	0.99	1.00	0.87	0.66	0.73	0.91	0.76	1.02
Hydrocarbons																								
Acenaphthene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Acenaphthylene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Acridine	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Anthracene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benz(a)anthracene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benzo(a)pyrene	-	-	µg/L		-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-
Benzo(b+j)fluoranthene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benzo(b+j+k)fluoranthene	-	-	µg/L		-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benzo(k)fluoranthene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Chrysene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	µg/L		-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-
Fluoranthene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Fluorene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	1.4	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Methylnaphthalene, 1+2-	-	-	µg/L		-	-	-	-	-	<0.015	-	<0.015	-	-	<0.015	-	<0.015	-	-	-	-	-	-	-
Methylnaphthalene, 1-	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Methylnaphthalene, 2-	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Naphthalene	-	-	µg/L		-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-
Phenanthrene	-	-	µg/L		-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	-	-	-	-
Pyrene	-	-	µg/L		-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Quinoline	-	-	µg/L		-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-
B(a)P total potency equivalents [B(a)P TPE]	-	-	µg/L		-	-	-	-	-	<0.010	-	<0.010	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-
PAHs, high molecular weight (BC AWQ)	-	-	µg/L		-	-	-	-	-	<0.030	-	<0.030	-	-	<0.030	-	<0.030	-	-	-	-	-	-	-
PAHs, low molecular weight (BC AWQ)	-	-	µg/L		-	-	-	-	-	<0.060	-	<0.060	-	-	<0.060	-	<0.060	-	-	-	-	-	-	-
PAHs, total (EPA 16)	-	-	µg/L		-	-	-	-	-	<0.065	-	<0.065	-	-	<0.065	-	<0.065	-	-	-	-	-	-	-
Petroleum Hydrocarbons - F1 (C6-C10)	-	-	µg/L		-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-	-	-	-	-
Petroleum Hydrocarbons - F2 (C10-C16)	-	-	µg/L		-	-	-	-	-	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-	-	-	-	-
Petroleum Hydrocarbons - F3 (C16-C34)	-	-	µg/L		-	-	-	-	-	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	-	-	-	-	-
Petroleum Hydrocarbons - F4 (C34-C50)	-	-	µg/L		-	-	-	-	-	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	-	-	-	-	-
Volatile Hydrocarbons (C6-C10)	-	-	µg/L							<100	<100	<100	<100	<100	<100	<100	<100	<100	<100					
Volatile Petroleum Hydrocarbons (C6-C10)	-	-	µg/L							<100	<100	<100	<100	<100	<100	<100	<100	<100	<100					
Metals, Dissolved																								
Aluminum	-	-	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.006	<0.0050	<0.0050	<0.0050	0.007
Antimony	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	0.0125	-	mg/L		<0.00040	0.00068	0.00052	0.00117	0.00105	<0.00040	0.00059	0.00065	0.00117	0.00072	<0.00040	0.00044	<0.00040	0.00099	0.00065	<0.00040	0.00051	0.00053	0.00092	0.00065
Barium	-	-	mg/L		0.003	0.005	0.005	0.008	0.009	0.003	0.005	0.006	0.007	0.008	0.003	0.004	0.004	0.007	0.007	0.003	0.004	0.005	0.007	0.007
Beryllium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron	-	-	mg/L		0.43	1.71	1.22	3.88	1.86	<0.30	1.43	1.49	3.16	1.27	<0.30	0.75	0.70	2.87	1.23	<0.30	1.10	1.10	3.02	1.15
Cadmium	0.00012	-	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium	-	-	mg/L		52.8	180	135	327	216	32.6	144	159	328	138	30.8	93.5	93.2	283	146	26.4	121	123	257	136
Cesium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper	-	-	mg/L		<0.00050	<0.00050	<0.00050	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	0.0008	0.0010	0.0005	<0.00050	<0.00050	0.0008	0.0011	<0.00050	<0.00050	0.0006	0.0006	0.0007
Gallium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	-	-	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	-	-	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium	-	-	mg/L		<0.020	0.07	0.05	0.12	0.09	<0.020	0.05	0.05	0.10	0.05	<0.020	0.03	0.03	0.09	0.06	<0.020	0.04	0.04	0.09	0.05
Magnesium	-	-	mg/L		126	502	368	1030	602	57.9	378	412	1040	337	52.0	239	240	890	398	41.0	322	325	813	358
Manganese	-	-	mg/L		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mercury	0.000016	-	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	-	-	mg/L		0.001	0.004	0.003	0.007	0.005	0.001	0.003	0.003	0.007	0.003	0.000	0.002	0.002	0.006	0.004	0.000	0.003	0.003	0.005	0.003
Nickel	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	-	-	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	-	-	mg/L		35.9	137	100	289	172	16.6	106	118	288	107	15.2	73.2	71.1	244	111	11.1	88.1	89.2	225	105
Rhenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium	-	-	mg/L		0.01	0.04	0.03	0.08	0.05	<0.0050	0.03	0.03	0.07	0.03	<0.0050	0.02	0.02	0.06	0.04	<0.0050	0.03	0.03	0.06	0.03
Selenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon	-	-	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	-	0.0075	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	-	-	mg/L		910	3990	3120	7300	5090	431	3120	3770	7020	3270	405	1860	1880	6000	3310	269	2580	2680	5410	3060
Strontium	-	-	mg/L		0.66	2.92	2.07	5.01	3.77	0.31	2.17	2.30	4.47	2.31	0.29	1.43	1.28	3.89	2.50	0.20	1.86	1.79	3.64	2.27
Sulphur (Colloidal)	-	-	mg/L		91.2	354	259	683	465	40.1	253	269	658	284	36.7	168	165	569	304	26.6	222	224	517	278
Tellurium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium-232	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	-	-	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium	-	-	mg/L		0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.002
Vanadium	-	-	mg/L		<0.00050	0.001	<0.00050	0.001	0.001	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050
Yttrium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	0.001	<0.0010	<0.0010	<0.0010	0.001	0.002
Zirconium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Appendix 2C - Table 1: Water Quality Screening
Table for Marine Environmental Effects Monitoring Program 2023

Parameter	CCME AQUATIC LIFE MARINE WATER - LONG TERM	CCME AQUATIC LIFE MARINE WATER - SHORT TERM	Unit	Station	MP-05																			
				Sample Name	MP-05 ENE					MP-05 North							MP-05-Source				MP-05 WNW				
				Sample Date	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023
				FIELD_SDG	YL2300991-003	VA23B8519-003	YL2301042-003	VA23B9367-003	VA23C0016-003	YL2300991-002	VA23B8519-002	YL2301042-002	VA23B9367-002	VA23C0016-002	YL2300991-001	VA23B8519-001	YL2301042-001	VA23B9367-001	VA23C0016-001	YL2300991-004	VA23B8519-004	YL2301042-004	VA23B9367-004	VA23C0016-004
					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals, Total																								
Aluminum	-	-	mg/L		<0.0050	0.02	0.01	0.01	0.01	<0.0050	0.01	0.01	0.01	0.01	<0.0050	0.05	0.01	0.02	0.01	0.01	0.03	0.01	0.02	0.01
Antimony	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	**0.0125**	-	mg/L		<0.00040	0.0009	0.0006	0.0012	0.0010	<0.00040	0.0006	0.0006	0.0012	0.0008	<0.00040	0.0005	0.0005	0.0011	0.0007	<0.00040	0.0006	0.0005	0.0009	0.0006
Barium	-	-	mg/L		0.004	0.007	0.005	0.008	0.009	0.003	0.006	0.006	0.008	0.008	0.003	0.005	0.005	0.007	0.008	0.003	0.007	0.005	0.007	0.007
Beryllium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron	-	-	mg/L		0.37	1.92	1.25	3.47	2.49	<0.30	1.40	1.54	2.86	1.50	<0.30	0.78	0.85	2.52	1.70	<0.30	1.17	1.14	2.54	1.36
Cadmium	**0.00012**	-	mg/L		<0.000020	0.00002	<0.000020	0.00002	0.00002	<0.000020	<0.000020	<0.000020	0.00002	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Calcium	-	-	mg/L		52.4	200	135	318	248	32.6	146	159	322	169	31.7	93.6	93.0	285	175	25.3	127	119	261	138
Cesium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium	**0.0015**	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper	-	-	mg/L		<0.00050	0.004	0.001	0.003	0.001	<0.00050	0.004	0.001	0.002	0.001	<0.00050	0.001	0.001	<0.00050	<0.00050	<0.00050	<0.00050	0.001	0.001	0.001
Gallium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	-	-	mg/L		<0.010	0.02	0.01	0.01	0.02	<0.010	0.02	0.01	0.01	0.02	<0.010	0.01	0.01	0.02	0.02	<0.010	0.02	0.02	0.03	0.02
Lead	-	-	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium	-	-	mg/L		<0.020	0.07	0.05	0.11	0.11	<0.020	0.05	0.05	0.10	0.06	<0.020	0.03	0.03	0.08	0.07	<0.020	0.04	0.04	0.08	0.05
Magnesium	-	-	mg/L		117	546	370	995	604	58.7	369	421	1030	426	52.4	240	223	896	443	36.5	329	321	827	322
Manganese	-	-	mg/L		0.001	0.002	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.001
Mercury	**0.000016**	-	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	-	-	mg/L		0.001	0.005	0.003	0.007	0.006	0.001	0.003	0.003	0.007	0.004	0.001	0.002	0.002	0.006	0.004	0.000	0.003	0.003	0.005	0.003
Nickel	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	-	-	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	-	-	mg/L		34.8	150	102	277	192	16.8	104	115	284	127	15.8	73.0	67.3	247	133	10.4	91.2	88.4	223	102
Rhenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium	-	-	mg/L		0.01	0.05	0.03	0.08	0.06	0.01	0.03	0.04	0.07	0.04	<0.0050	0.02	0.02	0.06	0.04	<0.0050	0.03	0.03	0.05	0.03
Selenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon	-	-	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	-	**0.0075**	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	-	-	mg/L		1090	4660	2940	7470	5730	514	3300	3460	7120	4180	461	2010	1760	5990	4130	310	2720	2550	5740	3210
Strontium	-	-	mg/L		0.76	3.17	2.11	5.01	4.18	0.35	2.22	2.31	4.51	2.90	0.33	1.38	1.25	3.94	3.00	0.24	1.88	1.82	3.51	2.19
Sulphur (Colloidal)	-	-	mg/L		86.5	371	255	689	506	39.6	249	282	676	334	37.0	168	151	574	351	24.7	224	217	528	259
Tellurium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium-232	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	-	-	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium	-	-	mg/L		0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.002
Vanadium	-	-	mg/L		<0.00050	0.001	<0.00050	0.001	0.001	<0.00050	<0.00050	<0.00050	0.001	0.001	<0.00050	<0.00050	<0.00050	0.001	0.001	<0.00050	<0.00050	<0.00050	0.001	<0.00050
Yttrium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	-	-	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.004
Zirconium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
VOCs + BTEX																								
Benzene	**110**	-	µg/L		-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Ethylbenzene	**25**	-	µg/L		-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Methyl-tert-butyl ether [MTBE]	**5000**	-	µg/L		-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Styrene	-	-	µg/L		-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Toluene	**215**	-	µg/L		-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Xylene, m+p-	-	-	µg/L		-	-	-	-	-	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	-	-	-	-	-
Xylene, o-	-	-	µg/L		-	-	-	-	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	-	-	-	-	-
Xylenes, total	-	-	µg/L		-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
SUM OF BTEX	-	-	µg/L		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

(VI), hexavalent chromium

BTEX - Benzene, Toluene, Ethylene and Xylene; F1, F2, F3. F4 - Fractions of hydrocarbons; CCME - Canadian Council of Ministers for the Environment; MP-05 - monitoring stations west of the ore dock, downstream from the MP-05 discharge in a radial design; MP-06 - monitoring stations east of the ore dock; N - nitrogen; NTU - Nephelometric Turbidity Units; pH - scale of acidity; VOC - volatile organic

CCME MARINE - LONG TERM GUIDELINE EXCEEDANCE

CCME MARINE - SHORT TERM GUIDELINE EXCEEDANCE

Parameter	CCME AQUATIC LIFE MARINE WATER - LONG TERM	CCME AQUATIC LIFE MARINE WATER - SHORT TERM	Unit	Station	MP-06																			
				Sample Name	MP-06 ENE					MP-06 North							MP-06 Source				MP-06 WNW				
				Sample Date	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023
				FIELD_SDG	YL2300991-007	VA23B8519-007	YL2301042-007	VA23B9367-007	VA23C0016-007	YL2300991-006	VA23B8519-006	YL2301042-006	VA23B9367-006	VA23C0016-006	YL2300991-005	VA23B8519-005	YL2301042-005	VA23B9367-005	VA23C0016-005	YL2300991-008	VA23B8519-008	YL2301042-008	VA23B9367-008	VA23C0016-008
					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anions + Nutrients																								
Alkalinity, Total as CaCO3	-	-	mg/L		112.0	112.0	112.0	113.0	112.0	111.0	111.0	112.0	114.0	113.0	61.9	71.2	71.2	108.0	83.5	111.0	110.0	111.0	111.0	111.0
Total Kjeldahl Nitrogen	-	-	mg/L		0.08	0.10	0.07	0.17	0.11	0.07	0.09	0.07	0.13	0.10	<0.050	0.07	<0.050	0.14	0.07	0.08	0.09	0.08	0.14	0.10
Ammonia (as N)	-	-	mg/L		0.01	0.01	<0.0050	0.01	0.01	<0.0050	0.01	<0.0050	0.01	0.01	<0.0050	<0.0050	0.01	0.01	<0.0050	0.01	<0.0050	0.01	0.02	0.01
Bromide (Br)	-	-	mg/L		51.6	58.1	60.7	31.0	57.8	48.6	57.6	61.8	31.0	59.0	<5.0	17.6	16.7	39.2	22.9	48.3	56.9	58.6	29.4	58.5
Chloride (Cl)	-	-	mg/L		15400	17400	18000	9420	17500	14500	17300	18600	9210	17800	1340	5430	4930	11900	7420	14400	17100	17600	8870	17500
Fluoride (F)	-	-	mg/L		0.80	0.72	0.82	0.77	0.71	0.79	0.70	0.82	0.80	0.70	<0.20	0.30	0.31	0.77	0.37	0.79	0.69	0.86	0.77	0.78
Nitrate (as N)	**339**	**45**	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.19	<0.010	<0.010	<0.010	<0.010	<0.010	0.02
Nitrite (as N)	-	-	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phosphorus, Total	-	-	mg/L		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Sulfate (SO4)	-	-	mg/L		2410	2320	2480	2400	2420	2380	2290	2530	2390	2480	175	736	675	2210	1020	2350	2250	2480	2300	2390
Carbon																								
Dissolved Organic Carbon	-	-	mg/L		0.93	0.86	1.03	1.04	0.99	0.93	0.89	1.05	0.93	1.05	1.14	0.74	0.97	0.93	1.03	0.81	0.89	1.10	0.80	1.03
Field + Physical																								
pH	**7.0 - 8.7**	-	pH units		8.01	7.92	8.02	7.98	7.91	8.01	7.94	8.01	7.97	7.92	7.87	7.86	7.98	7.96	7.87	8.01	7.94	8.01	7.97	7.93
Conductivity	-	-	µS/cm		49400	45600	49100	48000	47300	49700	45300	49200	47200	47600	4650	16000	15000	43900	22100	49000	45400	48400	46400	46800
Hardness, Calcium Carbonate (Dissolved)	-	-	mg/L		6080	5750	5750	7550	5190	6290	5730	5870	7620	5340	427	1450	1630	6970	2360	5860	5610	5660	7300	5010
Total Dissolved Solids	-	-	mg/L		33400	38300	37600	39100	37000	33600	38000	37800	39000	38200	2620	12400	9670	35100	15900	33300	37600	37000	39100	37300
Total Suspended Solids	-	-	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3.10	<2.0	<2.0	<2.0	<2.0	2.30	<2.0	<2.0	<2.0	<2.0	2.80	<2.0
Turbidity	-	-	NTU		0.10	0.19	<0.10	0.32	0.25	0.22	0.17	<0.10	1.09	0.10	0.32	0.40	0.23	1.57	0.31	0.14	0.26	<0.10	0.46	0.22
Salinity	-	-	PSU		31.7	31.1	31.8	31.4	30.9	31.9	30.9	31.9	30.9	31.1	2.4	9.8	8.6	28.5	13.3	31.4	31.0	31.3	30.3	30.5
Total Organic Carbon	-	-	mg/L		1.13	1.19	1.48	1.26	1.36	1.14	1.33	1.49	1.21	1.41	1.22	0.99	1.37	1.31	1.44	1.18	1.38	1.46	1.20	1.60
Dissolved Organic Carbon	-	-	mg/L		0.93	0.86	1.03	1.04	0.99	0.93	0.89	1.05	0.93	1.05	1.14	0.74	0.97	0.93	1.03	0.81	0.89	1.10	0.80	1.03
Hydrocarbons																								
Acenaphthene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Acenaphthylene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Acridine	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Anthracene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benz(a)anthracene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benzo(a)pyrene	-	-	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-
Benzo(b+j)fluoranthene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benzo(b+j+k)fluoranthene	-	-	µg/L		<0.015	<0.015	<0.015	<0.015	<0.015	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Benzo(k)fluoranthene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Chrysene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	-	-
Fluoranthene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Fluorene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	**1.4**	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Methylnaphthalene, 1+2-	-	-	µg/L		<0.015	<0.010	<0.015	-	-	-	-	-	-	-	<0.015	-	<0.015	-	-	-	-	-	-	-
Methylnaphthalene, 1-	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Methylnaphthalene, 2-	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Naphthalene	-	-	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-
Phenanthrene	-	-	µg/L		<0.020	<0.020	<0.020	<0.020	<0.020	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	-	-	-	-	-
Pyrene	-	-	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	-	-	-	-
Quinoline	-	-	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-
B(a)P total potency equivalents [B(a)P TPE]	-	-	µg/L		<0.010	-	<0.010	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-
PAHs, high molecular weight (BC AWQ)	-	-	µg/L		<0.030	-	<0.030	-	-	-	-	-	-	-	<0.030	-	<0.030	-	-	-	-	-	-	-
PAHs, low molecular weight (BC AWQ)	-	-	µg/L		<0.060	-	<0.060	-	-	-	-	-	-	-	<0.060	-	<0.060	-	-	-	-	-	-	-
PAHs, total (EPA 16)	-	-	µg/L		<0.065	-	<0.065	-	-	-	-	-	-	-	<0.065	-	<0.065	-	-	-	-	-	-	-
Petroleum Hydrocarbons - F1 (C6-C10)	-	-	µg/L		<100	<100	<100	<100	<100	-	-	-	-	-	<100	<100	<100	<100	<100	-	-	-	-	-
Petroleum Hydrocarbons - F2 (C10-C16)	-	-	µg/L		<100	<100	<100	<100	<100	-	-	-	-	-	<100	<100	<100	<100	<100	-	-	-	-	-
Petroleum Hydrocarbons - F3 (C16-C34)	-	-	µg/L		<250	<250	<250	<250	<250	-	-	-	-	-	<250	<250	<250	<250	<250	-	-	-	-	-
Petroleum Hydrocarbons - F4 (C34-C50)	-	-	µg/L		<250	<250	<250	<250	<250	-	-	-	-	-	<250	<250	<250	<250	<250	-	-	-	-	-
Volatile Hydrocarbons (C6-C10)	-	-	µg/L		<100	<100	<100	<100	<100	-	-	-	-	-	<100	<100	<100	<100	<100	-	-	-	-	-
Volatile Petroleum Hydrocarbons (C6-C10)	-	-	µg/L		<100	<100	<100	<100	<100	-	-	-	-	-	<100	<100	<100	<100	<100	-	-	-	-	-
Metals, Dissolved																								
Aluminum	-	-	mg/L		<0.0050	<0.0050	<0.0050	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.010	<0.0050	<0.0050	<0.0050	<0.0050
Antimony	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	**0.0125**	-	mg/L		0.00174	0.00170	0.00159	0.00148	0.00178	0.00160	0.00162	0.00155	0.00152	0.00175	<0.00040	0.00047	0.00054	0.00153	0.00077	0.00157	0.00165	0.00160	0.00159	0.00172
Barium	-	-	mg/L		0.008	0.008	0.008	0.008	0.009	0.008	0.008	0.008	0.008	0.009	0.003	0.004	0.005	0.008	0.008	0.008	0.008	0.008	0.008	0.009
Beryllium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron	-	-	mg/L		4.20	4.22	4.07	4.54	3.38	4.10	3.98	3.91	4.66	3.36	<0.30	1.02	1.08	4.60	1.51	3.75	4.12	4.05	4.36	3.39
Cadmium	**0.00012**	-	mg/L		<0.000020	<0.000020	0.000022	0.000022	0.000022	<0.000020	0.000022	0.000022	0.000022	0.000023	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000022	0.000022	<0.000020
Calcium	-	-	mg/L		408	406	407	483	398	409	399	406	479	392	38.6	109	121	448	170	400	401	404	466	395
Cesium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper	-	-	mg/L		0.0009	<0.00050	<0.00050	0.0007	0.0007	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	0.0007	<0.00050	<0.00050	<0.00050	<0.00050	0.0006
Gallium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	-	-	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	-	-	mg/L		<0.00010	<0.00010	<0.00010	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium	-	-	mg/L		0.15	0.14	0.14	0.15	0.16	0.16	0.14	0.15	0.16	0.17	<0.020	0.04	0.04	0.15	0.07	0.14	0.13	0.14	0.15	0.16
Magnesium	-	-	mg/L		1230	1150	1150	1540	1020	1280	1150	1180	1560	1060	80.3	286	323	1420	469	1180	1120	1130	1490	978
Manganese	-	-	mg/L		0.0004	0.0003	0.0003	0.0005	0.001	0.0004	0.0004	0.0004	0.0004	0.0004	0.001	0.001	0.001	0.001	0.001	0.0005	0.0004	0.001	0.0005	0.0005
Mercury	**0.000016**	-	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	-	-	mg/L		0.009	0.009	0.009	0.010	0.010	0.009	0.010	0.009	0.010	0.010	0.001	0.002	0.003	0.009	0.004	0.009	0.009	0.009	0.010	0.010
Nickel	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	-	-	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	-	-	mg/L		316	315	318	440	334	325	315	325	441	325	22.9	86.2	87.6	406	138	320	317	316	422	330
Rhenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium	-	-	mg/L		0.09	0.09	0.09	0.10	0.10	0.09	0.09	0.09	0.10	0.10	0.01	0.02	0.03	0.10	0.04	0.09	0.09	0.09	0.10	0.10
Selenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon	-	-	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	-	**0.0075**	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	-	-	mg/L		9100	9370	10100	10200	9820	9410	9250	10200	10100	9690	580	2330	2730	9500	4030	9160	9170	10100	9820	9420
Strontium	-	-	mg/L		6.16	6.58	6.19	6.63	7.05	6.38	6.63	6.47	6.66	7.14	0.41	1.66	1.77	6.28	3.02	6.54	6.41	6.20	6.59	6.81
Sulphur (Colloidal)	-	-	mg/L		758	755	758	988	895	799	768	769	1000	891	56.2	202	222	923	366	751	730	738	978	866
Tellurium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium-232	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	-	-	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium	-	-	mg/L		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.001	0.001	0.001	0.003	0.002	0.003	0.003	0.003	0.003	0.003
Vanadium	-	-	mg/L		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.00050	<0.00050	<0.00050	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Yttrium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	-	-	mg/L		<0.0010	<0.0010	<0.0010	0.002	<0.0010	<0.0010	<0.0010	0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	0.001	0.014	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Appendix 2C - Table 1: Water Quality Screening
Table for Marine Environmental Effects Monitoring Program 2023

Parameter	CCME AQUATIC LIFE MARINE WATER - LONG TERM	CCME AQUATIC LIFE MARINE WATER - SHORT TERM	Unit	Station	MP-06																			
				Sample Name	MP-06 ENE					MP-06 North						MP-06 Source					MP-06 WNW				
				Sample Date	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023	04-Aug-2023	07-Aug-2023	11-Aug-2023	15-Aug-2023	23-Aug-2023
				FIELD_SDG	YL2300991-007	VA23B8519-007	YL2301042-007	VA23B9367-007	VA23C0016-007	YL2300991-006	VA23B8519-006	YL2301042-006	VA23B9367-006	VA23C0016-006	YL2300991-005	VA23B8519-005	YL2301042-005	VA23B9367-005	VA23C0016-005	YL2300991-008	VA23B8519-008	YL2301042-008	VA23B9367-008	VA23C0016-008
					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals, Total																								
Aluminum	-	-	mg/L		<0.0050	0.01	0.01	0.01	<0.0050	<0.0050	<0.0050	<0.0050	0.01	<0.0050	<0.0050	0.01	0.01	0.02	0.01	0.01	<0.0050	<0.0050	0.01	0.01
Antimony	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	**0.0125**	-	mg/L		0.0016	0.0016	0.0016	0.0016	0.0017	0.0018	0.0015	0.0016	0.0017	0.0016	<0.00040	0.0005	0.0006	0.0016	0.0009	0.0015	0.0016	0.0015	0.0017	0.0017
Barium	-	-	mg/L		0.008	0.008	0.008	0.009	0.009	0.009	0.008	0.008	0.009	0.009	0.003	0.005	0.005	0.009	0.008	0.008	0.008	0.008	0.008	0.009
Beryllium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron	-	-	mg/L		3.47	4.17	4.18	3.98	3.90	3.42	4.01	4.05	4.08	3.98	<0.30	1.16	1.11	3.98	1.76	3.39	4.10	4.23	3.81	3.77
Cadmium	**0.00012**	-	mg/L		<0.000020	0.00002	0.00002	0.00002	0.00003	<0.000020	0.00002	0.00002	0.00002	0.00003	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.00002	0.00002	0.00003
Calcium	-	-	mg/L		415	415	414	479	408	417	414	407	480	404	37.5	124	118	442	188	398	404	402	462	411
Cesium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium	**0.0015**	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	-	-	mg/L		0.0001	<0.000050	<0.000050	<0.000050	<0.000050	0.0001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.0001	<0.000050	0.0001	<0.000050	<0.000050	<0.000050	<0.000050
Copper	-	-	mg/L		0.001	<0.00050	0.001	0.001	<0.00050	<0.00050	0.001	0.001	0.002	0.002	<0.00050	0.001	0.001	0.002	0.005	<0.00050	0.002	0.001	<0.00050	0.002
Gallium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	-	-	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.01	<0.010	0.01	0.01	0.04	0.02	<0.010	<0.010	<0.010	<0.010	0.01
Lead	-	-	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001
Lithium	-	-	mg/L		0.15	0.14	0.14	0.15	0.18	0.15	0.15	0.15	0.15	0.19	<0.020	0.04	0.04	0.14	0.07	0.14	0.13	0.13	0.15	0.18
Magnesium	-	-	mg/L		1110	1150	1180	1520	896	1100	1170	1190	1530	941	73.9	317	317	1400	449	963	1090	1140	1460	866
Manganese	-	-	mg/L		0.0004	0.001	0.001	0.001	0.001	0.0004	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.0005	0.001	0.001	0.001	0.001
Mercury	**0.000016**	-	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	-	-	mg/L		0.011	0.009	0.009	0.010	0.009	0.011	0.009	0.010	0.010	0.010	0.001	0.003	0.003	0.009	0.004	0.011	0.009	0.009	0.010	0.009
Nickel	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	-	-	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	-	-	mg/L		340	319	318	437	328	341	323	319	434	327	21.8	88.9	86.5	394	142	328	311	312	414	329
Rhenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium	-	-	mg/L		0.11	0.09	0.09	0.11	0.11	0.09	0.10	0.10	0.10	0.10	0.01	0.03	0.03	0.09	0.04	0.10	0.09	0.09	0.10	0.10
Selenium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon	-	-	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	-	**0.0075**	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	-	-	mg/L		10200	9920	9850	10600	9860	10300	9880	10000	10400	10100	720	2770	2550	9340	4260	10100	9930	9790	10100	10000
Strontium	-	-	mg/L		7.83	6.54	6.45	6.98	6.73	8.08	6.52	6.62	6.81	6.88	0.47	1.87	1.83	6.13	3.02	7.48	6.30	6.45	6.61	6.74
Sulphur (Colloidal)	-	-	mg/L		865	730	767	1000	789	874	740	761	1020	817	54.9	225	219	913	361	847	704	727	983	783
Tellurium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium	-	-	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium-232	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	-	-	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten	-	-	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium	-	-	mg/L		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.001	0.001	0.001	0.009	0.002	0.003	0.003	0.003	0.003	0.003
Vanadium	-	-	mg/L		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.00050	<0.00050	<0.00050	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Yttrium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	-	-	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.01	<0.0030	<0.0030	0.02	0.004	<0.0030	<0.0030	<0.0030
Zirconium	-	-	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
VOCs + BTEX																								
Benzene	**110**	-	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Ethylbenzene	**25**	-	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Methyl-tert-butyl ether [MTBE]	**5000**	-	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Styrene	-	-	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Toluene	**215**	-	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
Xylene, m+p-	-	-	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40	-	-	-	-	-	<0.40	<0.40	<0.40	<0.40	<0.40	-	-	-	-	-
Xylene, o-	-	-	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30	-	-	-	-	-	<0.30	<0.30	<0.30	<0.30	<0.30	-	-	-	-	-
Xylenes, total	-	-	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-
SUM OF BTEX	-	-	µg/L		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

(VI), hexavalent chromium

BTEX - Benzene, Toluene, Ethylene and Xylene; F1, F2, F3. F4 - Fractions of hydrocarbons; CCME - Canadian Council of Ministers for the Environment; MP-05 - monitoring stations west of the ore dock, downstream from the MP-05 discharge in a radial design; MP-06 - monitoring stations east of the ore dock; N - nitrogen; NTU - Nephelometric Turbidity Units; pH - scale of acidity; VOC - volatile organic

CCME MARINE - LONG TERM GUIDELINE EXCEEDANCE

CCME MARINE - SHORT TERM GUIDELINE EXCEEDANCE

APPENDIX 2D

QA/QC Results

1.0 QAQC RESULTS

This appendix describes the QAQC results for surface water sampled for the 2023 MEEMP conducted at Milne Port and in Milne Inlet during the 2023 open-water season. Water quality samples were collected during five sampling events scheduled between 4 August and 23 August 2023, to monitor for potential changes in water quality associated with site drainage and treated effluent discharges to the marine environment (including iron ore stockpile run-off). Samples were collected to align with the confirmed active site discharges.

Most chemical analyses on surface water samples were completed within the sample hold time requirements, with the exception of some hold time exceedances for parameters such as DOC, nitrite, nitrate, turbidity, and pH (Table 1). Although exceedances of sample hold time requirements have been documented, the hold times for the parameters in question are relatively short. Given the remote location of the site, such exceedances were unavoidable, and so efforts were taken to minimize the extent of any hold time exceedances. The hold time exceedances did not affect interpretation of the 2023 water quality data. Baffinland continues to minimize hold time exceedances where feasible given the northern location of the sampling program.

Table 1: Hold time requirements for discrete water quality samples collected at MP-05 and MP-06 marine discharge sites

Analysis	Hold Times	Exceeded Hold Times?	Actual Time
General (pH, Alkalinity, Turbidity, Conductivity, Anions, TSS, DOC, TDS, TOC, Ammonia, TKN, Hardness, Salinity)	15 minutes for pH 3 days for NO_2, NO_3, Turbidity, DOC 7 days for TSS/TDS 14 days for Alkalinity 28 days for Ammonia, Salinity, TKN	Yes – pH, Turbidity, DOC, Nitrite (NO_2), Nitrate (NO_3)	pH – 134 to 181 hours Turbidity, DOC – 4 to 7 days NO_2, NO_3 – 6 to 11 days
Total Metals	6 months	No	N/A
Dissolved Metals	6 months	No	N/A
Total Mercury	28 days	No	N/A
Dissolved mercury	28 days	No	N/A
Petroleum hydrocarbons (BTEX/MTBE/F1)	14 days	No	N/A
Hydrocarbons (LEPH/HEPH), F2-F4, PAHs	14 days	No	N/A
Nutrients (including total phosphorus)	28 days	No	N/A

ALS is certified by the Canadian Association for Laboratory Accreditation (CALA) for the analyses conducted. The analytical laboratory also incorporated and reported the results of internal QA/QC checks. These were used to assess the reliability and reproducibility of the data. Reports from the laboratory are provided in Appendix 2B and were reviewed by WSP. Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment.

From the field blanks collected during the field program, measured concentrations were generally all less than the analytical detection limit (Appendix D - Table D1). All parameters met QAQC requirements, and field blank concentrations were less than 5-times the detection limit, with the exception of nitrate concentrations being 5.5 and 5.6-times greater than the detection limit in samples MLP A-23 and MLP B-23, respectively, and dissolved zinc concentrations being 5.2 and 6.2-times greater in samples MLP A-23 and MLP B-23, respectively. Sample detection limits were increased by ALS for dissolved hardness, TDS, and total phosphorus.

To demonstrate that the samples and analytical results can be considered valid, representative, and reproducible, five field duplicate samples were collected. The RPD between field duplicate sample results was used to assess duplicate sample data. The RPD is a measure of the variability between two outcomes from the same procedure or process and is calculated as:

$$RPD = \frac{absolute\ value\ (sample\ concentration - duplicate\ concentration)}{mean\ concentration} \times 100$$

An RPD less than 20% for inorganic parameters in water is considered acceptable (BC ENV 2020). The QA/QC results of field RPDs are provided in Appendix D - Table D2. Only one sample exceeded RPD data quality objectives:

- Duplicate B and its parent sample MP-05 Source (sampled 7 August 2023) had a RPD percentage of 153% for total aluminum.

The QA/QC results indicate that the water chemistry data collected during the 2023 MEEMP were of acceptable quality.

Table D1 - Results of Water Quality QAQC Blank Sample Results
Milne Port, 2023

Sample ID Date Sampled Laboratory ID	Units	Reported Detection Limit (RDL)	MLP-A-23 04-Aug-2023 YL2300991-010	MLP-D-23 08-Aug-2023 VA23B8529-001	MLP-B-23 11-Aug-2023 YL2301042-010	MLP-C-23 15-Aug-2023 VA23B9367-010
Conventional						
Total Suspended Solids	mg/L	2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU	0.10	<0.10	<0.10	<0.10	<0.10
Salinity	PSU	1.0	<1.0	<1.0	<1.0	<1.0
Anions and Nutrients						
Total Kjeldahl Nitrogen	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Ammonia (as N)	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromide (Br)	mg/L	5.0	<5.0	<5.0	<5.0	<5.0
Chloride (Cl)	mg/L	50	<50	<50	<50	<50
Fluoride (F)	mg/L	0.20	<0.20	<0.20	<0.20	<0.20
Nitrate (as N)	mg/L	0.010	0.055	<0.010	0.056	<0.010
Nitrite (as N)	mg/L	0.010	<0.010	<0.010	<0.010	<0.010
Sulfate (SO4)	mg/L	3.0	<3.0	<3.0	<3.0	<3.0
Total Organic Carbon	mg/L	0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Organic Carbon	mg/L	0.50	<0.50	0.62	<0.50	<0.50
Metals, Total						
Aluminum	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	mg/L	0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Barium	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Beryllium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron	mg/L	0.30	<0.30	<0.30	<0.30	<0.30
Cadmium	mg/L	0.000010	<0.000020	<0.000020	<0.000020	<0.000020
Calcium	mg/L	1.0	<1.0	<1.0	<1.0	<1.0
Cesium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Gallium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	mg/L	0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.000050	<0.00010	<0.00010	<0.00010	<0.00010
Lithium	mg/L	0.020	<0.020	<0.020	<0.020	<0.020
Magnesium	mg/L	1.0	2.90	<1.0	3.30	<1.0
Manganese	mg/L	0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Mercury	mg/L	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	mg/L	0.00010	0.0001	<0.00010	0.0001	<0.00010
Nickel	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	1.0	1.10	<1.0	1.00	<1.0
Rubidium	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050
Rhenium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Selenium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon	mg/L	1.0	<1.0	<1.0	<1.0	<1.0
Silver	mg/L	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	mg/L	2.5	6.90	<2.5	3.00	<2.5
Strontium	mg/L	0.010	<0.010	<0.010	<0.010	<0.010
Sulphur (Colloidal)	mg/L	5.0	<5.0	<5.0	<5.0	<5.0
Tellurium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium-232	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Vanadium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Yttrium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	mg/L	0.0030	0.01	<0.0030	0.01	<0.0030
Zirconium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Metals, Dissolved						
Aluminum (Al)	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Antimony (Sb)	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic (As)	mg/L	0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Barium (Ba)	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Beryllium (Be)	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth (Bi)	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)	mg/L	0.30	<0.30	<0.30	<0.30	<0.30
Cadmium (Cd)	mg/L	0.000010	<0.000020	<0.000020	<0.000020	<0.000020
Calcium (Ca)	mg/L	1.0	<1.0	<1.0	<1.0	<1.0
Cesium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium (Cr)	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Copper (Cu)	mg/L	0.00020	<0.00050	<0.00050	<0.00050	<0.00050
Gallium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron (Fe)	mg/L	0.010	<0.010	<0.010	<0.010	<0.010
Lead (Pb)	mg/L	0.000050	<0.00010	<0.00010	<0.00010	<0.00010
Lithium (Li)	mg/L	0.020	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	mg/L	1.0	3.90	<1.0	3.60	<1.0
Manganese (Mn)	mg/L	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Mercury (Hg)	mg/L	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)	mg/L	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Nickel (Ni)	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus (P)	mg/L	0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)	mg/L	1.0	<1.0	<1.0	<1.0	<1.0
Rhenium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Rubidium	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Selenium (Se)	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon	mg/L	1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	mg/L	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)	mg/L	2.5	3.40	<2.5	3.50	<2.5
Strontium (Sr)	mg/L	0.010	<0.010	<0.010	<0.010	<0.010
Sulfur (S)	mg/L	5.0	<5.0	<5.0	<5.0	<5.0
Tellurium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (Tl)	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Thorium-232	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tin (Sn)	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium (Ti)	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tungsten (W)	mg/L	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Uranium (U)	mg/L	0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Vanadium (V)	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Yttrium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)	mg/L	0.0010	0.005	<0.0010	0.006	<0.0010
Zirconium	mg/L	0.00050	<0.00050	<0.00050	<0.00050	<0.00050
VOCs and BTEX						
Benzene	µg/L	0.5	-	<0.50	-	-
Ethylbenzene	µg/L	0.5	-	<0.50	-	-
Methyl tert-Butyl Ether	µg/L	0.5	-	<0.50	-	-
Styrene	µg/L	0.5	-	<0.50	-	-
Toluene	µg/L	0.5	-	<0.50	-	-
o-Xylene	µg/L	0.3	-	<0.30	-	-
m,p-Xylenes	µg/L	0.4	-	<0.40	-	-
Xylenes, Total	µg/L	0.5	-	<0.50	-	-
Hydrocarbons						
Petroleum Hydrocarbons - F1 (C6-C10)	µg/L	100	-	<100	-	-
Petroleum Hydrocarbons - F2 (C10-C16)	µg/L	100	-	<100	-	-
Petroleum Hydrocarbons - F3 (C16-C34)	µg/L	250	-	<250	-	-
Petroleum Hydrocarbons - F4 (C34-C50)	µg/L	250	-	<250	-	-
Acenaphthene	µg/L	0.01	-	<0.010	-	-
Acenaphthylene	µg/L	0.01	-	<0.010	-	-
Acridine	µg/L	0.01	-	<0.010	-	-
Anthracene	µg/L	0.01	-	<0.010	-	-
Benz(a)anthracene	µg/L	0.01	-	<0.010	-	-
Benzo(a)pyrene	µg/L	0.05	-	<0.0050	-	-
Benzo(b,j) fluoranthene	µg/L	0.01	-	<0.010	-	-
Benzo[b,j,k]fluoranthene	µg/L	0.015	-	<0.015	-	-
Benzo(g,h,i)perylene	µg/L	0.01	-	<0.010	-	-
Benzo(k)fluoranthene	µg/L	0.01	-	<0.010	-	-
Chrysene	µg/L	0.01	-	<0.010	-	-
Dibenz(a,h)anthracene	µg/L	0.05	-	<0.0050	-	-
Fluoranthene	µg/L	0.01	-	<0.010	-	-
Fluorene	µg/L	0.01	-	<0.010	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.01	-	<0.010	-	-
methylnaphthalene, 1-	µg/L	0.01	-	<0.010	-	-
methylnaphthalene, 2-	µg/L	0.01	-	<0.010	-	-
Naphthalene	µg/L	0.05	-	<0.050	-	-
Phenanthrene	µg/L	0.02	-	<0.020	-	-
Pyrene	µg/L	0.01	-	<0.010	-	-
Quinoline	µg/L	0.05	-	<0.050	-	-
VHCs						
Volatile Hydrocarbons (C6-C10)	µg/L	100	-	<100	-	-
Volatile Petroleum Hydrocarbons (C6-C10)	µg/L	100	-	<100	-	-

Notes:
µg/L = micrograms per litre; cm = centimeter; RDL = reported detection limit; < = less than detection limit; VHC = volatile hydrocarbons; VOCs = volatile organic compounds; BTEX = benzen, toluene, ethylbenzene and xylene
Bolded values indicate parameter concentrations that are greater than 5-times the detection limit.

Table D2 - Results of Water Quality QAQC Duplicate Sample Results
Milne Port, 2023

Sample ID		MP06-WNW-2-23	DUP-A-23					MP05-Source-1-23	DUP-B-23					MP-05-WNW-1-23	DUP-C-23					MP06-Source-2-23	DUP-D-23					MP05-WNW-1-23	DUP-E-23				
Date Sampled	Units	04-Aug-2023	04-Aug-2023	Reported Detection Limit	Mean	Relative Percent Difference (RPD)	Difference Factor (DF)	07-Aug-2023	07-Aug-2023	Reported Detection Limit	Mean	Relative Percent Difference (RPD)	Difference Factor (DF)	2023-08-11	2023-08-11	Reported Detection Limit	Mean	Relative Percent Difference (RPD)	Difference Factor (DF)	15-Aug-2023	15-Aug-2023	Reported Detection Limit	Mean	Relative Percent Difference (RPD)	Difference Factor (DF)	23-Aug-2023 08:28	23-Aug-2023 00:00	Reported Detection Limit	Mean	Relative Percent Difference (RPD)	Difference Factor (DF)
Laboratory ID		YL2300991-008	YL2300991-009					VA23B8519-001	VA23B8519-009					YL2301042-004	YL2301042-009					VA23B9367-005	VA23B9367-009					VA23C0016-004	VA23C0016-009				
QA/QC		FDA	FD					FDA	FD					FDA	FD					FDA	FD										
Field and Physical																															
Alkalinity, Total as CaCO3	mg/L	111	111	1.0	111	0%	NA	69.9	69.6	1.0	70	0%	NA	72.4	72.4	1.0	72	0%	NA	108	107	1.0	108	1%	NA	83.1	81.5	1.0	82	2%	NA
Conductivity	uS/cm	49000	48600	2.0	48800	1%	NA	11100	11400	2.0	11250	3%	NA	15300	15000	2.0	15150	2%	NA	43900	44000	2.0	43950	0%	NA	19400	18200	2.0	18800	6%	NA
Hardness, Calcium Carbonate (Dissolved)	mg/L	5860	5690	1.0	5775	3%	NA	1220	1180	1.0	1200	3%	NA	1640	1580	1.0	1610	4%	NA	6970	6970	0.50	6970	0%	NA	1810	1620	0.50	1715	11%	NA
pH	pH Units	8.01	8.01	0.1	8.01	0%	NA	7.86	7.87	0.1	7.87	0%	NA	7.97	7.97	0.1	8.0	NA	0.0	7.96	7.97	0.10	7.97	0%	NA	7.90	7.88	0.10	7.89	0%	NA
Total Dissolved Solids	mg/L	33300	33600	10.0	33450	1%	NA	8680	8380	10.0	8530	4%	NA	9720	9810	10.0	9765	1%	NA	35100	36200	10	35650	3%	NA	13300	12700	10	13000	5%	NA
Total Suspended Solids	mg/L	<2.0	<2.0	2.0	NC	NC	NC	<2.0	<2.0	2.0	NC	NC	NC	<2.0	<2.0	2.0	NC	NC	NC	2.30	3.20	2.0	2.8	NA	0.5	<2.0	<2.0	2.0	NC	NC	NC
Turbidity	NTU	0.14	0.30	0.1	0.22	NA	1.6	0.45	0.39	0.1	0.42	NA	0.6	0.30	0.33	0.1	0.3	NA	0.3	1.57	1.46	0.10	1.52	7%	NA	0.37	0.35	0.10	0.36	NA	0.2
Salinity	PSU	31.4	31.1	1.0	31.3	1%	NA	6.60	6.80	1.0	6.7	3%	NA	8.80	8.60	1.0	8.7	2%	NA	28.5	28.5	1.0	28.5	0%	NA	11.6	10.8	1.0	11.2	7%	NA
Anions and Nutrients																															
Total Kjeldahl Nitrogen	mg/L	0.08	0.09	0.1	0.1	NA	0.2	0.10	0.08	0.1	0.1	NA	0.8	<0.050	<0.050	0.1	NC	NC	NC	0.14	0.13	0.050	0.1	NA	0.3	0.08	0.10	0.050	0.1	NA	0.4
Ammonia (as N)	mg/L	0.01	<0.0050	0.01	NC	NC	NC	0.01	<0.0050	0.01	NC	NC	NC	<0.0050	<0.0050	0.01	NC	NC	NC	0.01	0.01	0.0050	0.01	NA	0.4	<0.0050	<0.0050	0.0050	NC	NC	NC
Bromide (Br)	mg/L	48.3	49.4	5.0	49	2%	NA	12.0	10.9	5.0	11.5	NA	0.2	16.4	16.7	5.0	17	NA	0.1	39.2	44.1	5.0	42	12%	NA	20.1	18.0	5.0	19.1	NA	0.4
Chloride (Cl)	mg/L	14400	14800	50.0	14600	3%	NA	3680	3320	50.0	3500	10%	NA	4970	4930	50.0	4950	1%	NA	11900	13400	50	12650	12%	NA	6560	6080	50	6320	8%	NA
Fluoride (F)	mg/L	0.79	0.81	0.2	1	NA	0.1	0.22	0.21	0.2	0.2	NA	0.1	0.32	0.32	0.2	0.3	NA	0.0	0.77	0.74	0.20	0.76	NA	0.2	0.39	0.30	0.20	0.3	NA	0.5
Nitrate (as N)	mg/L	<0.010	<0.010	0.01	NC	NC	NC	<0.010	<0.010	0.01	NC	NC	NC	0.01	<0.010	0.01	NC	NC	NC	0.19	0.17	0.010	0.2	9%	NA	0.01	0.01	0.010	0.01	NA	0.2
Nitrite (as N)	mg/L	<0.010	<0.010	0.01	NC	NC	NC	<0.010	<0.010	0.01	NC	NC	NC	<0.010	<0.010	0.01	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC
Sulfate (SO4)	mg/L	2350	2390	3.0	2370	2%	NA	482	492	3.0	487	2%	NA	695	690	3.0	693	1%	NA	2210	2200	3.0	2205	0%	NA	908	868	3.0	888	5%	NA
Total Organic Carbon	mg/L	1.18	1.19	0.5	1.2	NA	0.0	1.15	1.14	0.5	1.15	NA	0.0	1.12	1.30	0.5	1.21	NA	0.4	1.31	1.11	0.50	1.21	NA	0.4	1.43	1.57	0.50	1.50	NA	0.3
Dissolved Organic Carbon	mg/L	0.81	0.74	0.5	0.8	NA	0.1	0.84	0.74	0.5	0.79	NA	0.2	0.91	0.90	0.5	0.91	NA	0.0	0.93	0.98	0.50	0.96	NA	0.1	1.02	1.01	0.50	1.02	NA	0.0
Metals, Total																															
Aluminum	mg/L	0.01	<0.0050	0.0050	NC	NC	NC	0.05	0.01	0.0050	0.03	**153%**	NA	0.01	0.01	0.0050	0.01	NA	0.7	0.02	0.02	0.0050	0.02	NA	0.1	0.01	0.01	0.0050	0.01	NA	0.4
Antimony	mg/L	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC
Arsenic	mg/L	0.002	0.002	0.00040	0.002	NA	0.6	0.0005	0.0004	0.00040	0.0004	NA	0.2	0.0005	0.001	0.00040	0.0005	NA	0.1	0.002	0.002	0.00040	0.002	NA	0.1	0.001	0.001	0.00040	0.001	NA	0.4
Barium	mg/L	0.01	0.01	0.0010	0.008	1%	NA	0.005	0.01	0.0010	0.005	NA	0.2	0.01	0.01	0.0010	0.01	4%	NA	0.01	0.01	0.0010	0.01	2%	NA	0.01	0.01	0.0010	0.01	10%	NA
Beryllium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Bismuth	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Boron	mg/L	3.39	3.34	0.30	3.37	1%	NA	0.78	0.94	0.30	0.86	NA	0.8	1.14	1.28	0.30	1.2	NA	0.5	3.98	3.51	0.30	3.75	13%	NA	1.36	1.44	0.30	1.40	NA	0.3
Cadmium	mg/L	<0.0000020	<0.0000020	0.0000020	NC	NC	NC	<0.0000020	<0.0000020	0.0000020	NC	NC	NC	<0.0000020	<0.0000020	0.0000020	NC	NC	NC	<0.0000020	<0.0000020	0.0000010	NC	NC	NC	<0.0000020	<0.0000020	0.0000010	NC	NC	NC
Calcium	mg/L	398	395	1.0	397	1%	NA	94	96	1.0	95	2%	NA	119	124	1.0	122	4%	NA	442	422	1.0	432	5%	NA	138	147	1.0	143	6%	NA
Cesium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Chromium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Cobalt	mg/L	0.0001	0.0001	0.00005	0.0001	NA	0.0	<0.00050	<0.00050	0.00005	NC	NC	NC	<0.00050	<0.00050	0.00005	NC	NC	NC	0.0001	0.0001	0.00005	0.0001	NA	0.0	<0.00050	<0.00050	0.00005	NC	NC	NC
Copper	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	0.001	<0.00050	0.00050	NC	NC	NC	0.001	0.001	0.00050	0.001	NA	0.3	0.002	0.002	0.00050	0.002	NA	0.5	0.001	0.002	0.00050	0.002	NA	**2.2**
Gallium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Iron	mg/L	<0.010	<0.010	0.010	NC	NC	NC	0.01	<0.010	0.010	NC	NC	NC	0.02	0.01	0.010	0.015	NA	0.1	0.04	0.04	0.010	0.02	NA	0.5	0.02	0.02	0.010	0.02	NA	0.1
Lead	mg/L	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC
Lithium	mg/L	0.14	0.02	0.02	0.14	1%	NA	0.03	0.03	0.020	0.03	NA	0.3	0.04	0.04	0.020	0.041	NA	0.3	0.14	0.13	0.020	0.14	9%	NA	0.05	0.06	0.020	0.06	NA	0.1
Magnesium	mg/L	963	925	1.0	944	4%	NA	240	220	1.0	230	9%	NA	321	314	1.0	318	2%	NA	1400	1360	1.0	1380	3%	NA	322	293	1.0	308	9%	NA
Manganese	mg/L	0.0005	0.001	0.00020	0.000	NA	0.1	0.001	0.001	0.00020	0.001	NA	0.6	0.001	0.001	0.00020	0.001	NA	0.3	0.002	0.002	0.00020	0.002	3%	NA	0.001	0.001	0.00020	0.00	0%	NA
Mercury	mg/L	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC
Molybdenum	mg/L	0.01	0.01	0.00010	0.01	2%	NA	0.002	0.002	0.00010	0.002	5%	NA	0.003	0.003	0.00010	0.003	9%	NA	0.01	0.01	0.00010	0.01	1%	NA	0.00	0.00	0.00010	0.003	0%	NA
Nickel	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Phosphorus	mg/L	<0.050	<0.050	0.050	NC	NC	NC	<0.050	<0.050	0.050	NC	NC	NC	<0.050	<0.050	0.050	NC	NC	NC	<0.050	<0.050	0.050	NC	NC	NC	<0.050	<0.050	0.050	NC	NC	NC
Potassium	mg/L	328	328	1.0	328	0%	NA	73.00	69.00	1.0	71	6%	NA	88	86	1.0	87	3%	NA	394	383	1.0	389	3%	NA	102	106	1.0	104	4%	NA
Rhenium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Rubidium	mg/L	0.10	0.10	0.0050	0.10	1%	NA	0.02	0.02	0.0050	0.02	NA	0.2	0.03	0.03	0.0050	0.026	4%	NA	0.09	0.09	0.0050	0.09	1%	NA	0.03	0.03	0.0050	0.03	0%	NA
Selenium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Silicon	mg/L	<1.0	<1.0	1.0	NC	NC	NC	<1.0	<1.0	1.0	NC	NC	NC	<1.0	<1.0	1.0	NC	NC	NC	<1.0	<1.0	1.0	NC	NC	NC	<1.0	<1.0	1.0	NC	NC	NC
Silver	mg/L	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC	<0.00010	<0.00010	0.00010	NC	NC	NC
Sodium	mg/L	9160.00	9410.00	2.5	9285	3%	NA	1860.00	1990.00	2.5	1925	7%	NA	2680	2770	2.5	2725	3%	NA	9500.00	9500.00	2.5	9500	0%	NA	3060.00	2940.00	2.5	3000	4%	NA
Strontium (Sr)	mg/L	6.54	6.28	0.010	6.41	4%	NA	1.43	1.35	0.010	1.39	6%	NA	1.79	1.70	0.010	1.75	5%	NA	6.28	6.10	0.010	6.19	3%	NA	2.27	2.14	0.010	2.21	6%	NA
Sulfur (S)	mg/L	751	730	5.0	741	3%	NA	168	146	5.0	157	14%	NA	224	199	5.0	212	12%	NA	923	914	5.0	919	1%	NA	278	274	5.0	276	1%	NA
Tellurium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Thallium (Tl)	mg/L	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC	<0.0000050	<0.0000050	0.0000050	NC	NC	NC
Thorium-232	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC
Titanium (Ti)	mg/L	<0.0050	<0.0050	0.0050	NC	NC	NC	<0.0050	<0.0050	0.0050	NC	NC	NC	<0.0050	<0.0050	0.0050	NC	NC	NC	<0.0050	<0.0050	0.0050	NC	NC	NC	<0.0050	<0.0050	0.0050	NC	NC	NC
Tungsten (W)	mg/L	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC
Uranium (U)	mg/L	0.003	0.003	0.000050	0.003	0%	NA	0.001	0.001	0.000050	0.00	6%	NA	0.001	0.001	0.000050	0.001	3%	NA	0.003	0.003	0.000050	0.003	1%	NA	0.002	0.002	0.000050	0.002	1%	NA
Vanadium (V)	mg/L	0.001	0.001	0.00050	0.001	NA	0.2	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	0.001	0.001	0.00050	0.001	NA	0.0	<0.00050	<0.00050	0.00050	NC	NC	NC
Yttrium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
Zinc (Zn)	mg/L	0.01	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	<0.0010	<0.0010	0.0010	NC	NC	NC	0.002	0.002	0.0010	0.002	NA	0.2
Zirconium	mg/L	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC	<0.00050	<0.00050	0.00050	NC	NC	NC
VOCs and BTEX																															
Benzene	µg/L	-	-	-	-	-	-	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC
Ethylbenzene	µg/L	-	-	-	-	-	-	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC
Methyl-tert-butyl ether [MTBE]	µg/L	-	-	-	-	-	-	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC
Styrene	µg/L	-	-	-	-	-	-	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC
Toluene	µg/L	-	-	-	-	-	-	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC
Xylene, m+p-	µg/L	-	-	-	-	-	-	<0.40	<0.40	0.40	NC	NC	NC	-	-	0.40	NC	NC	NC	<0.40	<0.40	0.40	NC	NC	NC	-	-	0.40	NC	NC	NC
Xylene, o-	µg/L	-	-	-	-	-	-	<0.30	<0.30	0.30	NC	NC	NC	-	-	0.30	NC	NC	NC	<0.30	<0.30	0.30	NC	NC	NC	-	-	0.30	NC	NC	NC
Xylenes, total	µg/L	-	-	-	-	-	-	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC	<0.50	<0.50	0.50	NC	NC	NC	-	-	0.50	NC	NC	NC
Hydrocarbons																															
Petroleum Hydrocarbons - F1 (C6-C10)	µg/L	-	-	-	-	-	-	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC
Petroleum Hydrocarbons - F2 (C10-C16)	µg/L	-	-	-	-	-	-	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC
Petroleum Hydrocarbons - F3 (C16-C34)	µg/L	-	-	-	-	-	-	<250	<250	250	NC	NC	NC	-	-	250	NC	NC	NC	<250	<250	250	NC	NC	NC	-	-	250	NC	NC	NC
Petroleum Hydrocarbons - F4 (C34-C50)	µg/L	-	-	-	-	-	-	<250	<250	250	NC	NC	NC	-	-	250	NC	NC	NC	<250	<250	250	NC	NC	NC	-	-	250	NC	NC	NC
Acenaphthene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Acenaphthylene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Acridine	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Anthracene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Benz(a)anthracene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Benzo(a)pyrene	µg/L	-	-	-	-	-	-	<0.0050	<0.0050	0.0050	NC	NC	NC	-	-	0.0050	NC	NC	NC	<0.0050	<0.0050	0.0050	NC	NC	NC	-	-	0.0050	NC	NC	NC
Benzo(b,j) fluoranthene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Benzo[b,j,k]fluoranthene	µg/L	-	-	-	-	-	-	<0.015	<0.015	0.015	NC	NC	NC	-	-	0.015	NC	NC	NC	<0.015	<0.015	0.015	NC	NC	NC	-	-	0.015	NC	NC	NC
Benzo(g,h,i)perylene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Benzo(k)fluoranthene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Chrysene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Dibenz(a,h)anthracene	µg/L	-	-	-	-	-	-	<0.0050	<0.0050	0.0050	NC	NC	NC	-	-	0.0050	NC	NC	NC	<0.0050	<0.0050	0.0050	NC	NC	NC	-	-	0.0050	NC	NC	NC
Fluoranthene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Fluorene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Methylnaphthalene, 1-	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Methylnaphthalene, 2-	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Naphthalene	µg/L	-	-	-	-	-	-	<0.050	<0.050	0.050	NC	NC	NC	-	-	0.050	NC	NC	NC	<0.050	<0.050	0.050	NC	NC	NC	-	-	0.050	NC	NC	NC
Phenanthrene	µg/L	-	-	-	-	-	-	<0.020	<0.020	0.020	NC	NC	NC	-	-	0.020	NC	NC	NC	<0.020	<0.020	0.020	NC	NC	NC	-	-	0.020	NC	NC	NC
Pyrene	µg/L	-	-	-	-	-	-	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC	<0.010	<0.010	0.010	NC	NC	NC	-	-	0.010	NC	NC	NC
Quinoline	µg/L	-	-	-	-	-	-	<0.050	<0.050	0.050	NC	NC	NC	-	-	0.050	NC	NC	NC	<0.050	<0.050	0.050	NC	NC	NC	-	-	0.050	NC	NC	NC
VHCs																															
Volatile Hydrocarbons (C6-C10)	µg/L	-	-	-	-	-	-	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC
Volatile Petroleum Hydrocarbons (C6-C10)	µg/L	-	-	-	-	-	-	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC	<100	<100	100	NC	NC	NC	-	-	100	NC	NC	NC

Notes:

DF = difference factor; FDA = field duplicate available; FD = field duplicate; Mean = average of two values; mg/kg = milligrams per kilogram; NA = not applicable; NC = not calculated; QA/QC = Quality Assurance/Quality Control; RPD = releative percent difference; < = less than detection limit; VHC = volatile hydrocarbons; VOCs = volatile organic compounds; BTEX = benzen, toluene, ethylbenzene and xylene

When different detection limits are used for the sample and duplicate results, and one detectable result is reported at a value below the detection limit of a non-detectable result, the RPD is not calculated.

Relative percent difference (RPD) = the difference between two values divided by the mean of the two values. RPD is calculated when the concentration is greater than five times the detection limit.

Acceptable RPD for in sediment is less than or equal to 20%.
Difference factor (DF) = absolute difference between two values divided by the method detection limit. The DF is calculated when the concentration is less than five times the detection limit.

Acceptable DF is less than or equal to 2.0.
Bold values indicate an exceedance of the acceptable RPD or DF.

https://golderassociates.sharepoint.com/sites/11208g/Deliverables (Do Not Use)/Issued to Client_For WP1400-499/1663724-499-R-Rev0-70000/1663724-499-R-Rev0-70000/APP/Appendix 2D - QA/QC Results/Appendix

APPENDIX 2E

MEEMP Annual Comparison Table

Table 1: Marine Water Quality - Receiving Environment Annual Summary Statistics from 2015 to 2023 for the MP-05 and MP-06 Milne Port Site Discharges (all five stations sampled per discharge)

Parameter	CCME Marine WQG for Protection of Aquatic Life[a]		2015 (MP-05)			2016 (MP-05)			2017 (MP-05)			2018 (MP-05)			2019 (MP-05)			2020			2021			2022			2023		
			n = 12			n = 20			n = 20			n = 20			n = 20			(MP-05 and MP-06) n = 40			(MP-05 and MP-06) n = 40			(MP-05 and MP-06) n = 40			(MP-05 and MP-06) n = 40		
	Short Term	Long Term	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Physical																													
pH	—	7.0–8.7	7.8	7.5	7.9	7.8	7.7	7.9	7.8	7	8	8	7.9	8.1	8	7.9	8.2	8	7.9	8.1	8	7.9	8.1	7.96	7.80	8.00	7.93	7.84	8.02
Salinity (ppt)	—	Within 10% of background ppt	NR	NR	NR	NR	NR	NR	13.9	4.1	24.4	8.8	5.4	19.3	20.7	6.4	31.5	8.6	4.1	29.4	16.4	1.7	30.8	17.1	2.5	32.9	18.8	1.0	31.9
TSS (mg/L)	**<25 mg/L above background**	**<5 mg/L above background**	1.2	0.5	2.2	1.6	1	3	4.2	< 2.0	**25.5**	1.4	1	4.3	1.3	< 2.0	2.9	3.4	< 2.0	7.5	2.5	< 2.0	7.9	2.9	< 2.0	12.2	2.1	< 2.0	3.1
Turbidity (NTU)	**<8 NTU above background**	**<2 NTU above background**	0.2	0.1	0.9	0.4	0.1	1	1.1	0.3	**9.6**	0.7	0.2	**2.5**	0.3	< 0.1	0.7	0.3	< 0.1	0.7	0.5	< 0.1	1.7	0.5	< 0.10	3.3	0.4	< 0.10	1.6
Nutrients (mg/L)																													
Nitrate (as N)	339	45	0.04	0.03	0.2	0.16	0.05	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.02	< 0.01	0.3	0.02	< 0.01	0.21	0.02	< 0.01	0.45	0.02	< 0.01	0.19
Total Metals (µg/L)																													
Aluminum	—	—	NR	< 50	50	16	9	25	25	8	142	18	8	48	25	< 5	334	12.5	5.4	26.5	15.8	5	38.3	20.5	5	64.2	11.0	5	52.3
Arsenic	—	12.5	< 10	< 10	< 10	< 10	< 10	< 10	< 2	< 2	< 2	< 2	< 2	< 2	1	< 0.4	1.6	0.54	< 0.4	1.4	0.88	0.4	1.7	0.96	< 0.4	1.70	1.05	< 0.4	1.81
Cadmium	—	0.12	< 0.01	< 0.01	< 0.01	0.02	0.01	0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.03	< 0.01	0.05	0.01	< 0.01	0.02	0.02	< 0.01	0.05	0.02	< 0.01	0.03	0.02	< 0.02	0.03
Chromium	—	**1.5 (Cr[VI])**	< 10	< 10	< 10	< 10	< 10	< 10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.3	< 0.5	0.5	0.55	< 0.5	**2.4**	< 0.5	< 0.5	< 0.5	0.57	< 0.5	**1.65**	0.52	< 0.5	1.10
Copper	—	—	< 20	< 20	< 20	< 20	< 20	< 20	0.61	< 0.5	1	0.6	< 0.5	0.9	1.7	< 0.5	11	0.51	< 0.5	0.6	0.7	< 0.5	2.1	3.5	< 0.5	23.6	1.2	< 0.5	4.5
Iron	—	—	< 500	< 500	< 500	< 500	< 500	< 500	40	< 10	286	25.3	< 10	93	14	< 10	20	15.6	< 10	53	20.2	< 10	71	24.7	< 10	96	14.4	< 10	40
Mercury	—	**0.016**	0.01	0.01	**0.03**	< 0.013	< 0.013	< 0.013	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	7.5	—	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.11	< 0.1	0.25	< 0.1	< 0.1	< 0.1
PAHs (µg/L)																													
Naphthalene	—	1.4	NR	NR	NR	NR	NR	NR	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.032	< 0.02	< 0.05

Notes: Bold Font = max exceeding a short term guideline or mean exceeding a long term guideline; (a) = Guidelines from CMME Marine WQG for the protection of Aquatic Life (http://ceqg-rcqe.ccme.ca/download/en/221. CCME = Canadian council of ministers of the environment; WQG = water quality guidelines; Min = minimum; Max = maximum; — = no guideline available; NR = not recorded; PSU = practical salinity unit; TSS = Total suspended solid; mg/L = milligrams per liter; < = less than; N = Nitrogen; CFU = colony forming unit; Cr(VI) = hexavalent chromium; PAH = polycyclic aromatic hydrocarbon; µg/L = micrograms per liter; mL = milliliter.

APPENDIX 2F

Water Quality Power Analysis

POWER ANALYSIS - METHODS

A Type I error is concluding there is a significant effect when none exists (i.e., a false positive). Alpha (α) is the probability of committing a Type I error. A Type II error is the probability of concluding there is no significant effect when there is a real effect of some specified magnitude (i.e., a false negative). Beta (β) is the probability of committing a Type II error. The power of a statistical test (1 - β) is the probability of detecting a real effect. In this analysis, the Type I error-rate (α), also referred to as the significance level, was set to 0.05. The desired minimum statistical power was 80%, which corresponds to a type II error-rate of 0.2. Power analyses were conducted to assess the power of statistical tests under multiple effect sizes. For each model, a set of effect sizes was created, based on preliminary power analyses, so that power >80% was achieved at the largest absolute values of effect sizes, but also so that power is assessed at a range of effect sizes. Both negative and positive effect sizes were used, to assess the power of detecting either a reduction or an increase in values of the response variables. Since the analysis focused on assessment of changes to statistical power at different effect sizes, the power analysis used the observed samples sizes from the collected data.

Data Simulation following Effect Size Application

The power to detect statistically significant effects was estimated using residual bootstrapping in R v. 4.3.2 (R 2023), following the approach of Fox and Weisberg (2018). The general approach was to simulate data based on the model selected for interpretation, the observed sample size, and the residuals, and re-run the models that were used for the original analysis using the simulated data. The data simulation and analysis were repeated 5,000 times, and the proportion of repetitions where the *P*-values of interest were significant ($P<0.05$) was interpreted as the statistical power of the test.

To produce simulated data, the original model was used to predict values of the response variable. The predicted values were then adjusted according to the effect size, depending on the analysis (see below for details). The simulated data were then analyzed using the same model structure as the original analysis. Effect sizes and statistical tests were applied differently to different models, as detailed below.

Effect Sizes

In this power analysis, the question of interest was the models' power to detect a temporal effect at each of the two areas.

To assess the power to detect temporal trends, the effect size was applied relative to the 2022 estimates, and it was only applied to 2023 data, whereas all data collected previously only had an effect size of zero. That is, only 2023 had an effect size applied to it, and an effect size of 0% would mean that 2023 values were identical to those from 2022. This allowed assessing what effect size, relative to the values in 2022, the model would be able to identify as a significant trend. An example of the effect size application to the 2019-2023 fines content dataset is provided in Figure 1.

The simulated data based on effect sizes applied to values of the response variable from 2023 were combined with simulated data from previous years (with an effect size of zero). This combined dataset was analyzed using the models from the original analysis in the main report. To estimate the power to detect a temporal effect for MP-05 data, where a continuous effect of year was used, the significance of all model terms associated with the temporal trend (i.e., main effect and interaction with Site) was assessed, and the minimum *P*-values for the parameters were retained. For the MP-06 model, there were large effect sizes between years, leading to a high proportion of the simulated data resulting in a significant interaction term regardless of the effect size applied during simulation. Therefore, to estimate

the power to detect a temporal effect for MP-06 data, where a categorical effect of year was used, the significance of the pairwise comparison between 2022 and 2023 values was assessed, and the *P*-value for the comparison was retained for the calculation of statistical power.

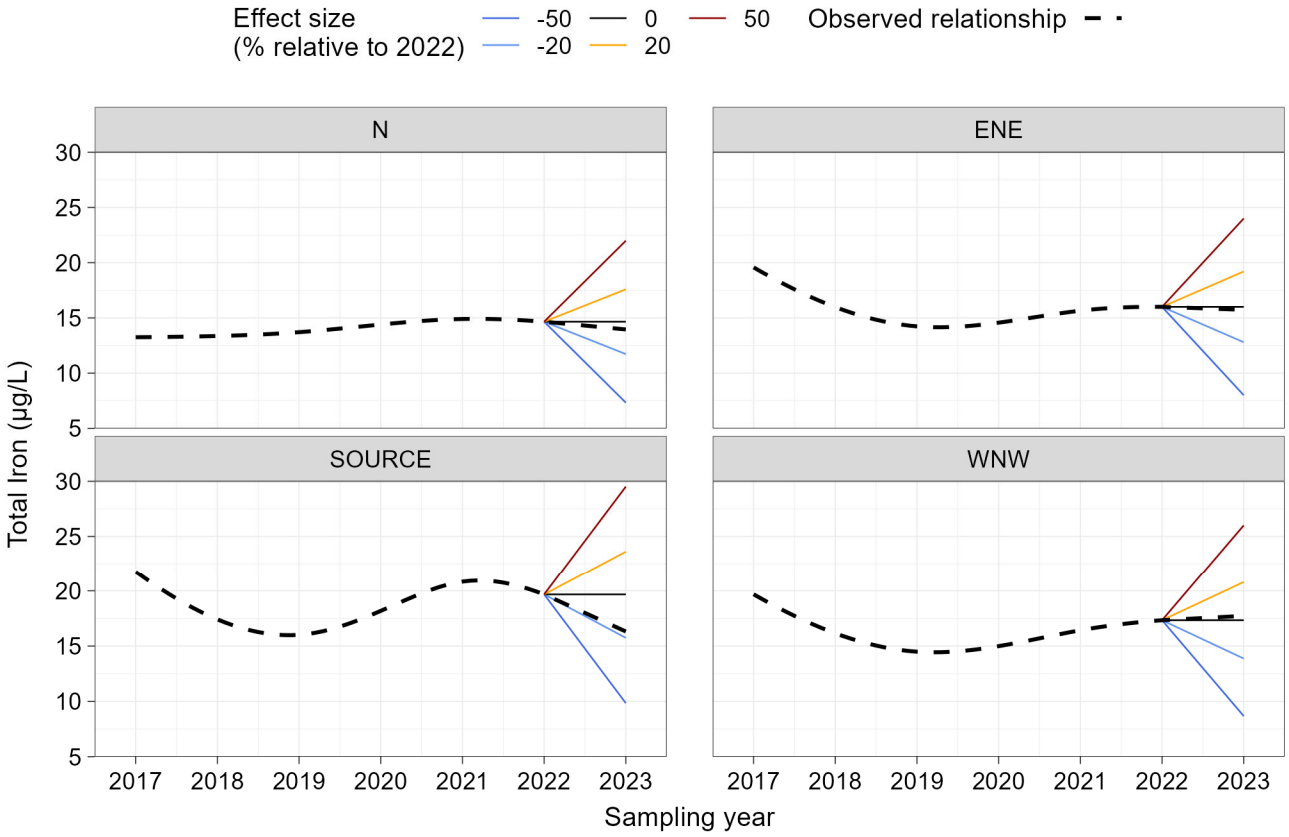


Figure 1: Application of effect sizes to examine effect of year in iron concentrations at MP-05, illustrating how effect sizes are applied relative to the 2022 estimates.

Power Analysis – Reporting of Results

Power curves were produced, showing statistical power as a function of effect size in percentages. Horizontal lines were added to visualize statistical power values of 0.8 (hereafter sufficient power) and 0.9 (hereafter high power), and a vertical line was added to visualize the maximum magnitude of differences that were observed between every two consecutive years in the original analysis.

POWER ANALYSIS – RESULTS

Iron Concentrations for the MP-05 Milne Port Site, 2017-2023

The power analysis indicated that the analysis of iron concentration data collected in 2017-2023 had sufficient power (>0.8) to detect a single-year decrease or increase in iron concentrations at effect sizes of -60% and +120%, respectively (Figure 2). Observed maximum effect sizes were +7% (comparison between 2021 and 2020 for ENE), +5% (comparison between 2020 and 2019 for N), +15% (comparison

between 2021 and 2020 for Source), and +10% (comparison between 2021 and 2020 for WNW). Power to detect the observed effect sizes was low, due to the small observed effect sizes. This is consistent with the lack of statistical significance of either the interaction or the main effect of year in the original analysis (Section 2.4.2.3 in the 2023 MEEMP main report [WSP 2024]).

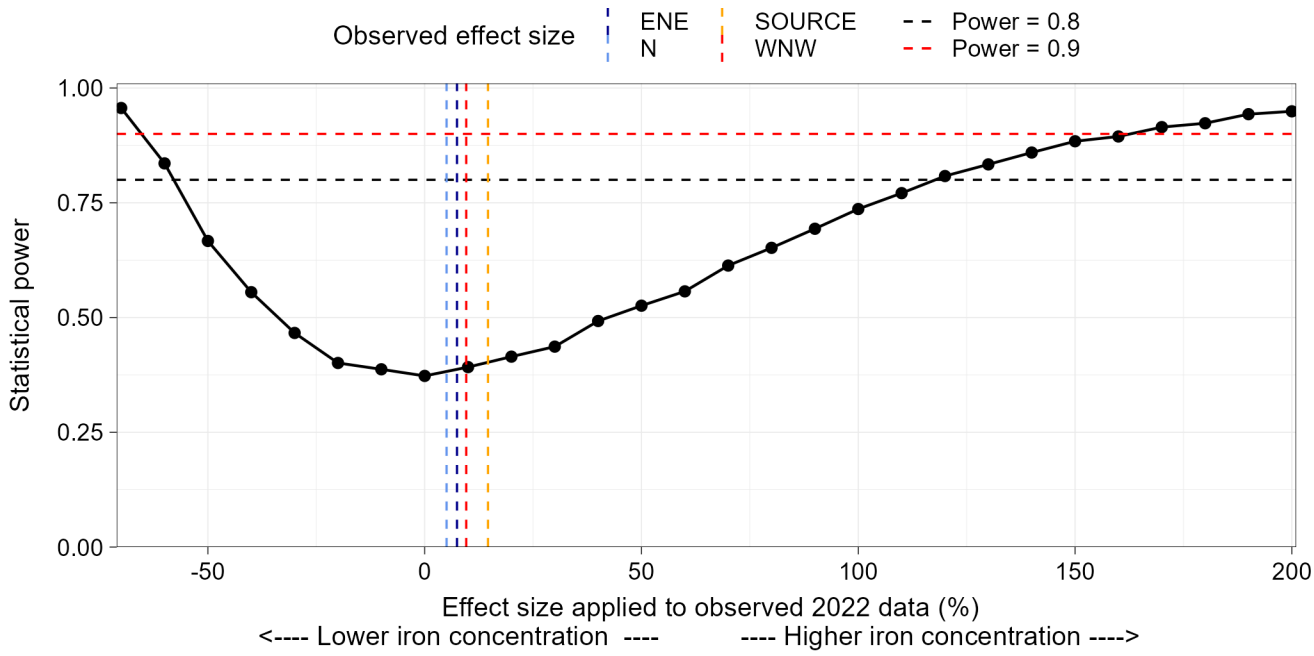


Figure 2: Statistical power of the 2017-2023 iron concentration model at MP-05 to detect a significant temporal trend.

Iron Concentrations for the MP-06 Milne Port Site, 2020-2023

The power analysis indicated that the analysis of iron concentration data collected in 2020-2023 had sufficient power (>0.8) to detect a single-year decrease or increase in iron concentrations at effect sizes of -60% and +150%, respectively (Figure 3). Observed effect sizes (comparisons between 2022 and 2023 values) were -84% for ENE, +14% for N, -24% for Source, and -39 for WNW. Power to detect the observed effect sizes was high for ENE, but low for the remaining three sites, to the higher variability compared to ENE data. This is consistent with the finding of a statistically significant difference between 2022 and 2023 for ENE but no other significant differences between years (Section 2.4.2.3 in the 2023 MEEMP main report [WSP 2024]).

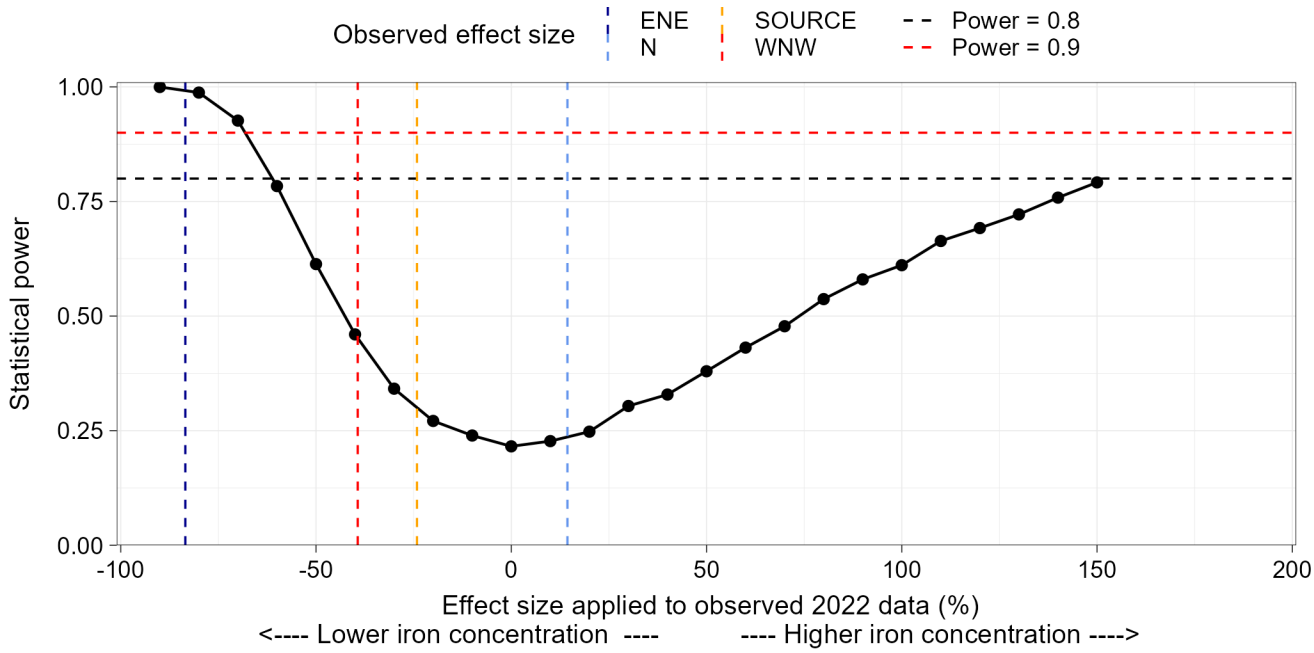


Figure 3: Statistical power of the 2020-2023 iron concentration model at MP-06 to detect a significant difference between 2022 and 2023 data.

POWER ANALYSIS – SUMMARY

Summary of Findings

- Iron concentrations, MP-05 – there was sufficient power to detect a single-year decrease or increase in iron concentrations at effect sizes of -60% and +120%, respectively.
- Iron concentrations, MP-06 – there was sufficient power to detect a single-year decrease or increase in iron concentrations at effect sizes of -60% and +150%, respectively.

Overall, the results of the power analysis presented here indicate that analyses of iron concentrations in at MP-05 and MP-06 data had low power to detect effect sizes that would be large enough to be ecologically relevant. Therefore, the temporal effects should be assessed using effect sizes rather than a strict adherence to statistical significance.

References

Fox, J. and Weisberg, S. 2018. Bootstrapping Regression Models in R. An Appendix to An R Companion to Applied Regression – 3rd Edition. https://socialsciences.mcmaster.ca/jfox/Books/Companion/appendices/Appendix-Bootstrapping.pdf.

Golder. 2018. Baffinland Iron Mines Corporation, Mary River Project – Phase 2 Proposal. TSD #22: Ship Wake and Propeller Wash Assessment. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-030-R-Rev3; 13 July 2019. 33 pp + appendices.

Golder. 2021. 2020 Milne Inlet Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Lenth R.2019. emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.4. https://CRAN.R-project.org/package=emmeans

R Core Team. 2020. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/



wsp.com

REPORT

Chapter 3.0 Marine Sediment Quality

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario L6H 6K8
Canada

Submitted by:

WSP Canada Inc.

1663724-499c-R-Rev0-70000

15 March 2024



Table of Contents

3.0 SEDIMENT QUALITY 1

3.1 Introduction 1

3.1.1 Objectives 1

3.2 Study Design 1

3.2.1 Background 1

3.2.2 Modifications to the Program (2023) 4

3.2.3 Capesize Vessel Existing Conditions Sampling Program 4

3.2.4 Sampling Parameters and Indicators 4

3.3 Materials and Methods 5

3.3.1 Field Methodology 5

3.3.2 Data Analysis 10

3.3.2.1 Comparison to Sediment Quality Guidelines 10

3.3.2.2 Principal Component Analysis (PCA) 10

3.3.2.3 Spatio-temporal Statistical Models 11

3.3.2.4 Inverse Distance Weighting (IDW) of the Distribution of Fine Sediments and Sediment Iron Concentrations 13

3.3.3 Quality Management 13

3.3.3.1 Field QA/QC 13

3.3.3.2 Laboratory and Data Analysis QA/QC 14

3.4 Results 15

3.4.1 Sediment Particle Size Composition 15

3.4.1.1 Particle Size Composition Stations on the West Transect Closest to the Ore Dock Area 17

3.4.2 Spatial Relationships between Sediment Parameters 18

3.4.3 Comparison to Sediment Quality Guidelines 20

3.4.3.1 Sediment Metals 20

3.4.4 Spatio-temporal Distribution of Fines in Sediments 25

3.4.4.1 Post-2018 Dataset (2019-2023): Spatial and Temporal Comparison 27

3.4.4.2 Entire Dataset (2014-2023): Spatial and Temporal Comparison 29

3.4.5 Spatio-temporal Iron Concentrations in Sediments 34
3.4.5.1 Post 2018 Dataset (2019, 2020 and 2023): Spatial and Temporal Comparison 37
3.4.5.2 Entire Dataset (2014 to 2020 and 2023): Spatial and Temporal Comparison 41
3.4.6 Capesize Vessel Existing Conditions Sampling Program 45
3.4.6.1.1 Particle Size Composition 46
3.4.6.1.2 Metals 46
3.4.6.1.3 BTEX and VOCs 47
3.4.6.1.4 Capesize Vessel Scour Predictions 47
3.4.7 QA/QC Results 49
3.5 Discussion 49
3.5.1 Percent Fines and Substrate Composition 50
3.5.2 Sediment Quality and Iron 50
3.5.3 Sediment Sampling to Support Assessment of the Use of Capesize Vessels 51
3.6 Conclusion and Recommendations 52
3.7 Closure 53
3.8 References 54

TABLES

Table 3-1: MEEMP Sediment Quality Stations at Milne Port (2023) 5
Table 3-2: Marine Environment TARP Framework for Sediment Quality 15
Table 3-3: Effect Significance in Analysis of the Post-2018 Dataset Fines Content 27
Table 3-4: Effect Significance in Analysis of the Entire Dataset Fines Content 29
Table 3-5: Effect Significance in Analysis of Post 2018 Dataset Iron Concentrations 37
Table 3-6: Effect Significance in Analysis of Entire Dataset Iron Concentrations. 41

FIGURES

Figure 3-1: Radial Gradient Study Design for 2023 MEEMP. 3

Figure 3-2: MEEMP Sediment Quality and Benthic Infauna Sampling Stations 2023. 8

Figure 3-3: Sediment Particle Size Distribution for Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023. 16

Figure 3-4: Sediment Particle Size Distribution for Stations SW-1 through SW-4 (i.e., Stations Closest to the Ore Dock Area) Located along the West Transect, Milne Port 2019-2023. 17

Figure 3-5: Principal Component Analysis (PCA) of Sediment Quality at Stations Along the Transects Radiating Out from the Ore Dock Area in Milne Port (2023). 18

Figure 3-6: Principal Component Scores for Sediment Quality Stations Located Along the Transects Radiating Out from the Ore Dock Area at Milne Port, 2023. 19

Figure 3-7: Sediment Arsenic Concentrations at Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023. 22

Figure 3-8: Sediment Copper Concentrations at Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023. 23

Figure 3-9: Sediment Nickel Concentrations at Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023. 24

Figure 3-10: Inverse Distance Weighting (IDW) for 2023 MEEMP Fine-Grained Sediments. 26

Figure 3-11: Observed (points) and Estimated (lines) Percent Fines in Sediment Relative to Sampling Distance Along Transects, 2019, 2020, and 2023. 28

Figure 3-12: Observed (points) and Estimated (lines) Percent Fines in Sediment Relative to Sampling Distance Along Transects, 2014 to 2020 and 2023. 31

Figure 3-13: Observed (points) and Estimated (lines) Percent Fines in Sediment Relative to Survey Year at Four Distances Along Each Transect – 250 m, 500 m, 1000 m, and 1500 m from Transect Origin. 33

Figure 3-14: Inverse Distance Weighting (IDW) for 2023 MEEMP Total Iron Concentrations in Sediment. 35

Figure 3-15: Relationship Between Iron Concentration and Fines Content in Sediment, Post 2018 Dataset. 36

Figure 3-16: Relationship Between Iron Concentration and Fines Content in Sediment, Entire Dataset. 36

Figure 3-17: Observed (points) and Estimated (lines) Iron Concentrations in Sediment Relative to Sampling Distance Along Transects, 2019, 2020, and 2023. 39

Figure 3-18: Observed (bars) and Estimated (points and error bars) Iron Concentration in Sediment Relative to Sampling Year and Transect, 2019, 2020, and 2023. 40

Figure 3-19: Observed (points) and Estimated (lines) Iron Concentrations (mg/kg) in Sediment Relative to Sampling Distance Along Transects, 2014 to 2020 and 2023. 43

Figure 3-20: Observed (points) and Estimated (lines) Iron Concentrations (mg/kg) in Sediment Relative to Survey Year at Four Distances Along Each Transect – 250 m, 500 m, 1000 m, and 1500 m from Transect Origin. 45

Figure 3-21: Sediment Particle Size Distribution for Capesize Vessel Stations Located in the Vicinity of the Ore Dock Area in Milne Port, 2023. 46

APPENDICES

Appendix 3A
Photo Log

Appendix 3B
Sediment Field Datasheets

Appendix 3C
Sediment Quality Laboratory Data

Appendix 3D
Sediment Analytical Results

Appendix 3E
Sediment QA/QC Results

Appendix 3F
Sediment PCA Results

Appendix 3G
Power Analysis

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
AET	Apparent Effects Threshold
AIC	Akaike information criterion
ALS	ALS Canada Ltd.
ANCOVA	Analysis of covariance
BC	British Columbia
BC MOE	BC Ministry of Environment and Climate Change Strategy
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CCME	Canadian Council of Ministers of the Environment
CD	Chart datum
COPCs	Contaminants of potential concern
Df	Degrees of freedom
DL	Detection limit
DQO	Data Quality Objective
e.g.	Exempli gratia
=	Equal
FCSAP	Federal Contaminated Sites Action Plan
FEIS	Final Environmental Impact Statement
>	Greater than
IDW	Inverse Distance Weighting
ISQG	Interim Sediment Quality Guideline
i.e.	In other words
<	Less than
m	Metre
mm	millimetre
m^2	Square metre
MDL	Method Detection Limit
MEEMP	Marine Environmental Effects Monitoring Program
mg/kg	Milligram per kilogram
MMP	Marine Monitoring Plan
Mtpa	Million tons per annum
NIRB	Nunavut Impact Review Board

Acronym or Abbreviation	Definitions
NIS/AIS	Non-Indigenous Species and Aquatic Invasive Species
No.	Number
NOAA	National Oceanic and Atmospheric Administration
PAH	Polycyclic aromatic hydrocarbon
PC	Project Certificate
PCA	Principal Components Analysis
PEL	Probable Effect Level
PHC	Petroleum Hydrocarbon
%	Percent
QA/QC	Quality Assurance / Quality Control
QC	Quality Control
RPD	Relative Percent Difference
SE	East Transect
SEM	Sikumiut Environmental Management Ltd.
SNE	Northeast Transect
SNW	Northwest Transect
SOP	Sustainable Operations Proposal
SW	West Transect
TARP	Trigger Action Response Plan
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
WSP	WSP Canada Inc.
WSQG	Working Sediment Quality Guidelines

3.0 SEDIMENT QUALITY

3.1 Introduction

This chapter presents the results of the marine sediment quality monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted within the vicinity of Milne Port in Milne Inlet, during the 2023 open-water season. The 2023 MEEMP sediment sampling program was focused on sampling at the East, Northeast, Northwest, and West transect stations based on the radial transect study design last implemented in 2020 (Golder 2021).

This component was developed in consideration of the monitoring requirements outlined in the Project Certificate (PC) Conditions described in Chapter 1.0, Table 1-2. PC No. 005 Conditions related to the monitoring include PC Conditions No. 76, 83(a), 84, 85, 87, and 99(a).

3.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 of Chapter 1.0 (Program Overview). The objectives specific to the 2023 sediment quality program are:

- Characterize and interpret marine sediment quality in Milne Port for the purpose of identifying Project-related effects.
- Verify predictions made in the Final Environmental Impact Statement (FEIS; Baffinland 2012, 2013) and other submissions to the Nunavut Impact Review Board (NIRB) regarding effects on sediment quality, as applicable.
- Characterize marine sediment quality to support interpretation of the benthic infauna component along the East, Northeast, Northwest, and West transects.
- Collect sediment samples at non-transect stations added to the MEEMP in 2023 to characterize sediment quality under existing conditions to support the assessment of Project-related effects due to the use of larger ore vessels (Baby Cape and Capesize) at Milne Port.
- Recommend any necessary and appropriate changes to the sediment quality component of the MEEMP for future years.
- Involve Inuit in the marine sediment quality monitoring program and include protocols that are responsive to Inuit concerns.

3.2 Study Design

3.2.1 Background

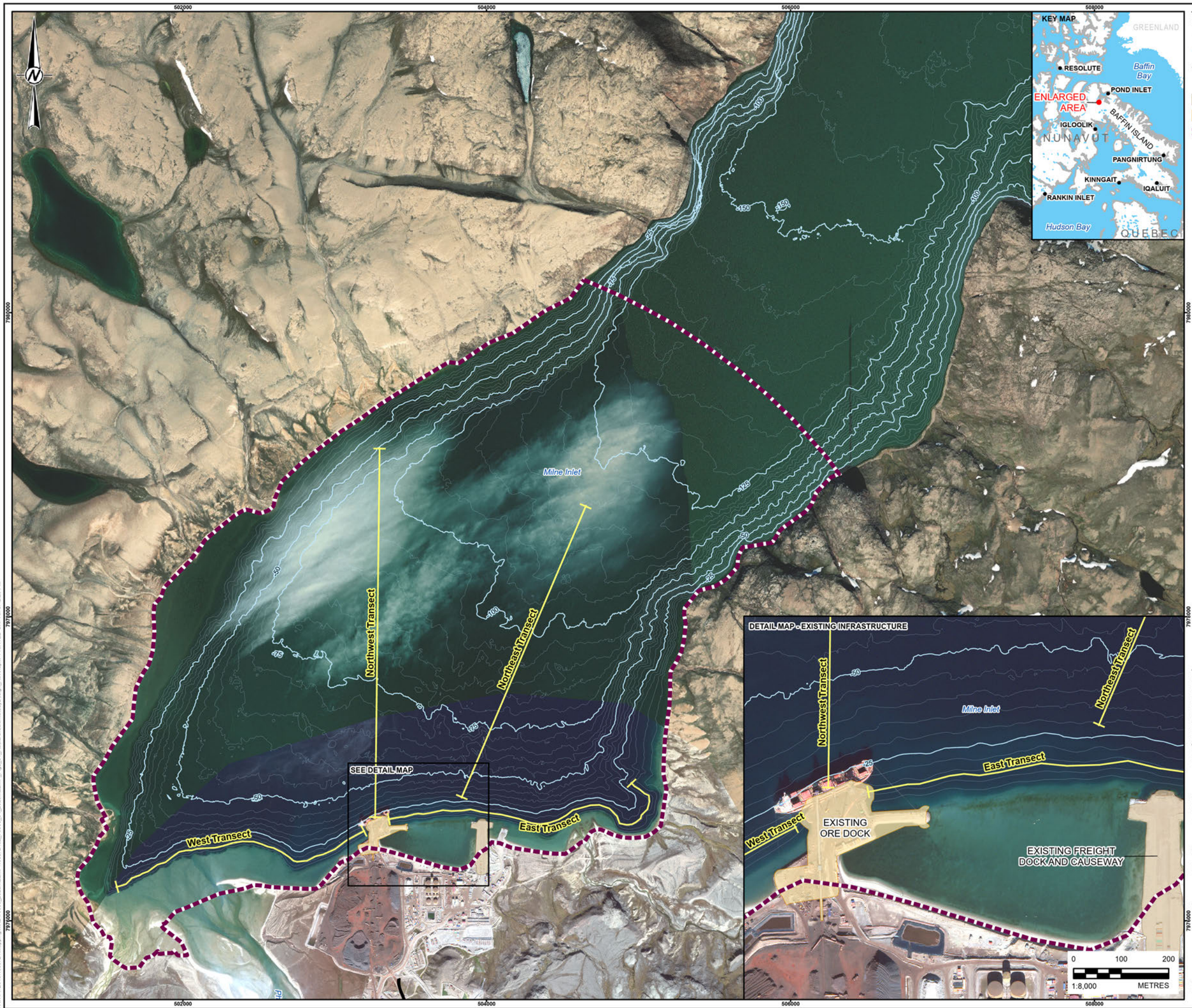
In the 2020 MEEMP Report, Golder (2021) reported that monitoring results to date have not identified Project-induced changes to sediment quality in the marine receiving environment. After three consecutive years of implementation, the joint radial benthic and sediment sampling program was moved from an annual to a three-year cycle. The revised monitoring frequency was more comparable with the Federal Metal Mining Environmental

Effects Monitoring Program and was commensurate with the lack of directional trends observed from 2014 to 2020 that indicated the Project had not adversely impacted marine sediments in Milne Inlet.

In 2020, station SW-2 was identified as a potential anomaly due to coarser sediment composition and reductions in benthic infauna indicators relative to other coastal stations along the West Transect. To determine whether Project activities contributed to these differences, targeted sediment quality and benthic infauna sampling was performed at station SW-2 in 2021 and 2022, with the addition of sampling at adjacent West Transect stations SW-1, SW-3, and SW-4 in 2022. The additional stations were added in 2022 to better characterize natural variation across a wider area along the West Transect and, hence, contextualize results. The targeted sediment quality programs in 2021 and 2022 indicated that sediment quality parameters at SW-2 (Golder 2021) and SW-1 to SW-4 (Golder 2022) along the West Transect stations were consistent with previous MEEMP years: concentrations of metals and hydrocarbons were below applicable Canadian Council of Ministers of the Environment (CCME) sediment quality guidelines, and the data do not suggest Project-related impacts. However, particle size results at SW-2 in 2021 indicated changes in sediment particle size was consistent with expected effects of propeller wash in Ore Dock area and that particle size along SW-1 to SW-4 were variable as expected and driven by natural factors such as ice movement and coastal sediment processes. Overall, monitoring results during the targeted sediment sampling programs in 2021 and 2022 remained within predictions for the FEIS and subsequent addenda (Baffinland 2012, 2013).

In 2023, the full sampling program was conducted based on the adjusted monitoring frequency of every three years, 2020 being the last year the full joint sediment and benthic program was sampled. In short, the radial study design involves sampling at 15 stations per transect, which are co-located with benthic infauna stations to allow for evaluation of exposure data (sediment quality) in relation to biological variables (benthic infauna community characteristics) (Golder 2021; Figure 3-1). As per the 2020 sediment sampling program, the two Coastal Transects (East and West) and the two Northern Offshore Transects (Northwest and Northeast) are described below:

- *East and West Transects*: arranged along the 15 metre (m) depth contour to minimize the confounding influence of water depth on sediment and associated biota. The 15 m depth contour is considered to be unaffected by winter ice scour and has been associated with relatively higher species counts and increased species diversity for both marine flora and fauna (SEM 2015). The East and West Transects extend approximately 1,500 m to the east and the west of the Ore Dock area, respectively.
- *Northwest and Northeast Transects*: extend directly offshore from the existing Ore Dock area, out to a distance of 2,000 m, corresponding with water depths of approximately 100 m and 120 m. These transects include both distance and depth gradients for consideration in the analysis, such that both distance and depth along a transect represent potential confounding factors in the evaluation of potential effects on sediment quality from the Project.



LEGEND

- BATHYMETRIC CONTOUR (5 m INTERVAL)
- BATHYMETRIC CONTOUR (25 m INTERVAL)
- MILNE INLET TOTE ROAD
- TRANSECT
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK
- LOCAL STUDY AREA

0 500 1,000
1:25,000 METRES

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
RADIAL GRADIENT STUDY DESIGN FOR 2023 MEEMP

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	3-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: I:\2016\166372402\Mapping\MXD\70000_2023MEEMP_166372402_70000_04_2023MEEMP_Fig3_01_RadialGradientStudyDesign_Rev0.aprx, PRINTED ON: AT 5:42:29 PM

3.2.2 Modifications to the Program (2023)

The radial transect sampling program was designed such that 15 stations along each of the four transects (East, West, Northwest and Northeast) were to be sampled for sediment quality according to a gradient sampling design. While this was achieved in 2020, in 2023 a total of 41 stations out of the intended 60 stations were sampled due to logistical and time constraints. The sediment sampling program is one of several sampling programs that are safely implemented within a short open water season given the northern latitude of Baffin Island. Stations were sampled along each of the four transects to optimize spatial coverage in the time available and the number of stations sampled was considered in the data analysis and interpretation.

Two new sampling stations, SCV-1 and SCV-2 located West of the Ore Dock area were added to the 2023 program. These two stations were collected as part of the existing conditions sampling program to account for Capesize vessels arriving in Milne Inlet for the first time. This sampling program is further discussed in Section 3.2.3.

3.2.3 Capesize Vessel Existing Conditions Sampling Program

In 2023, NIRB accepted the Sustaining Operations Proposal and issued Amendment 5 of Project Certificate 005. Under Amendment 5, Term and Condition 83(a) required Baffinland to update the marine sediment quality program to reflect the increased use of larger ore vessels at Milne Port. Baffinland committed that stations SW-1 through SW-4, SE18-1, SNW-1, and two new stations (SCV-1 and SCV-2) would be monitored for scouring effects on sediment and benthic infauna for three years after the initial use of large (Baby Cape and Capesize) ore carriers in fall 2023 (Commitment 10, SOP Technical Comment QIA ME-7(3); NIRB, 2023). Following this three-year period, Baffinland will consider a reduced frequency in sampling at these locations (once every three years) if sediment and benthic conditions at these sites are shown to be stable and within the limits of impact predictions. As the initial Capesize ore carrier use in Milne Port was planned to take place in the late ice-free period of 2023 (29 August 2023), sampling for Capesize vessel effects monitoring commenced in August 2023 (August 4-19, 2023) with the intention of documenting existing conditions for sediment quality prior to the use of the larger vessels.

Three of the stations to be monitored for Capesize vessel impacts are in addition to the 60 stations sampled under the radial sampling design. The three stations are SE18-1, which was established in 2019 to maintain consistency with previous MEEMP programs (i.e., previous sediment station SE-1) and the two new stations established in 2023 specifically for Capesize vessel impacts monitoring (SCV-1 and SCV-2). Sediment quality parameters measured as part of the Capesize Vessel Existing Conditions Sampling Program included moisture, pH, particle size, organic carbon, metals, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylene (BTEX), volatile organic compounds (VOCs), and petroleum hydrocarbons (PHCs).

3.2.4 Sampling Parameters and Indicators

For marine sediment quality, parameters measured included particle size, organic carbon, nutrients, metals, PAHs, BTEX, and PHCs. A sub-set of these parameters (i.e., percent fines, nutrients, metals, and hydrocarbons) were identified as sediment quality indicators to assess the potential for environmental effects from the Project. To provide early warning of environmental effects from the Project, applicable sediment quality guidelines were used as thresholds, where they exist (i.e., CCME sediment quality guidelines for the protection of aquatic life in marine

environments [CCME 1999]). For indicators of particular concern for the Project, with no applicable sediment quality guideline (i.e., percent fines and iron), data were analyzed statistically to evaluate Project-related effects within the Milne Inlet study area. The purpose of the radial transect design adopted for the sediment and benthic MEEMP surveys is to assess sediment quality and benthic invertebrate communities over time, and relative to previous years, in order to evaluate the potential for Project-related effects on these indicators. Overall trends in percent fines and iron are evaluated both spatially and temporally in the sediment assessment.

Along with several other components of the MEEMP, the marine sediment quality monitoring program has indicators, thresholds and risk categories that are part of Baffinland's Trigger Action Response Plan (TARP), an adaptive management process. The TARP uses effect indicators that are measured against a series of tiered thresholds (i.e., low, moderate and high-risk thresholds) that are designed to guide short-term and long-term adaptive management strategies as outlined in Baffinland (2023). Baffinland has updated the TARP as part of the revised draft Marine Monitoring Plan (MMP) (Baffinland 2023). The pre-defined actions identified in the TARP describe the responses that Baffinland would implement should the corresponding threshold levels be exceeded and assuming there is some degree of certainty that the measured change is Project-related. As adaptive management is beyond the scope of the present report, only the indicators, risk categories and thresholds are presented here (section 3.3.4).

3.3 Materials and Methods

3.3.1 Field Methodology

In addition to the 41 transect stations sampled as part of the 2023 MEEMP, a sediment sample from one additional station (SE18-2) was collected and submitted for chemical analyses (Table 3-1; Figure 3-2). This station was included for consistency with previous MEEMP programs but was not part of the updated radial gradient sampling design, and so it is not subject to the same analysis and interpretation. In total, 45 sediment quality samples (41 transect stations, three Capesize stations [SE18-1, SCV-1, and SCV-2] and SE18-2) plus four duplicates were collected for sediment chemistry analysis.

Table 3-1: MEEMP Sediment Quality Stations at Milne Port (2023)

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance Along Transect (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
East Transect				
SE-1	503907	7976727	651	15.4
SE-2	504009	7976714	750	17.8
SE-3	504100	7976698	839	15.5
SE-4	504202	7976677	939	16.8
SE-5	504299	7976648	1,035	12.6
SE-6	504400	7976654	1,136	Not sampled
SE-7	504480	7976667	1,216	14.8
SE-8	504559	7976721	1,298	Not sampled
SE-9	504651	7976754	1,393	Not sampled
SE-10	504749	7976762	1,491	Not sampled

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance Along Transect (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
SE-11	504839	7976720	1,578	17.2
SE-12	504903	7976629	1,639	Not sampled
SE-13	505003	7976652	1,739	15.3
SE-14	505057	7976724	1,796	Not sampled
SE-15	505045	7976845	1,794	17.2
Northeast Transect				
SNE-1	503839	7976800	600	28.0
SNE-2	503897	7976938	705	46.2
SNE-3	503955	7977076	824	54.7
SNE-4	504014	7977214	953	66.4
SNE-5	504072	7977352	1,086	78.9
SNE-6	504131	7977490	1,224	Not sampled
SNE-7	504189	7977629	1,364	93.8
SNE-8	504248	7977767	1,507	Not sampled
SNE-9	504306	7977905	1,649	101.4
SNE-10	504364	7978043	1,793	103.4
SNE-11	504423	7978181	1,939	Not sampled
SNE-12	504481	7978319	2,085	Not sampled
SNE-13	504540	7978458	2,232	116.2
SNE-14	504598	7978596	2,379	Not sampled
SNE-15	504656	7978734	2,526	120.5
Northwest Transect				
SNW-1	503303	7976751	131	30.0
SNW-2	503263	7976884	258	50.0
SNW-3	503262	7977040	414	60.3
SNW-4	503266	7977199	573	65.7
SNW-5	503273	7977355	729	70.2
SNW-6	503267	7977496	870	Not sampled
SNW-7	503268	7977649	1,023	77.8
SNW-8	503277	7977790	1,164	Not sampled
SNW-9	503276	7977915	1,289	87.1
SNW-10	503280	7978056	1,430	Not sampled
SNW-11	503282	7978204	1,578	90.7
SNW-12	503286	7978340	1,714	Not sampled
SNW-13	503282	7978455	1,829	95.0
SNW-14	503283	7978567	1,941	Not sampled
SNW-15	503271	7978697	2,071	97.5
West Transect				
SW-1	503147	7976571	130	14.2
SW-2	503064	7976526	224	17.4

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance Along Transect (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
SW-3	502963	7976477	336	18.1
SW-4	502874	7976431	436	14.6
SW-5	502771	7976394	545	15.9
SW-6	502674	7976444	618	9.5
SW-7	502587	7976495	690	Not sampled
SW-8	502486	7976534	784	17.2
SW-9	502362	7976527	907	Not sampled
SW-10	502255	7976511	1,016	17.0
SW-11	502146	7976494	1,126	14.9
SW-12	502037	7976473	1,237	16.1
SW-13	501920	7976428	1,359	12.2
SW-14	501797	7976360	1,491	Not sampled
SW-15	501678	7976303	1,619	14.6
Additional Non-Transect Stations				
SE18-1	503433	7976699	Not on transect	15.5
SE18-2	503639	7976748	Not on transect	18.9
Capesize Vessel Stations (please note that there is duplication with the stations marked *)				
SCV-1	503120	7976660	Not on transect	34.2
SCV-2	503080	7976588	Not on transect	25.5
SE18-1*	503433	7976699	Not on transect	15.5
SW-1*	503147	7976571	130	14.2
SW-2*	503064	7976526	224	17.4
SW-3*	502963	7976477	336	18.1
SW-4*	502874	7976431	436	14.6
SNW-1*	503303	7976751	131	30.0

Notes:

m = metres; UTM = Universal Transverse Mercator.

[1]Sample depth was converted to meters chart datum (CD), estimated using tide table for Milne Inlet, Nunavut (https://tides.gc.ca/en/stations/05791 [accessed November 2023]). The negative (-) numbers indicate ‘below’ CD.



LEGEND

- CAPESIZE STATION ONLY
- CAPESIZE AND TRANSECT STATION
- SEDIMENT STATION ONLY
- TRANSECT STATION
- BATHYMETRIC CONTOUR (5 m INTERVAL)
- BATHYMETRIC CONTOUR (25 m INTERVAL)

0 250 500

1:12,500 METRES

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
MEEMP SEDIMENT QUALITY AND BENTHIC INFAUNA SAMPLING STATIONS 2023

CONSULTANT

YYYY-MM-DD	2024-03-21
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	3-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: I:\2016\166372\4Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig3_02_Sediment_BenthicInfauna_Rev0.aprx PRINTED ON: AT: 5:07:48 PM

Sediment samples were collected using a standard Van Veen grab sampler (area of 0.1 m^2). Each grab sample was examined for acceptability based on the following criteria:

- The sampler was fully closed.
- There was adequate penetration depth (i.e., sediment volume greater than 25% full).
- The sample did not appear overfilled or disturbed, and the sample did not appear to have been collected on an angle.
- The sampler did not appear to be leaking sediment at a substantial rate (i.e., the top of the sediment profile did not appear to be sloping inwards).

Upon acceptance, the overlying water in the grab was removed using a siphon tube or turkey baster, taking care to minimize the loss of sediment from the surface of the grab contents. After decanting, the sample consisted of sediment with minimal overlying water visible. For each sample collected, two terra core samples were taken from the undisturbed sediments and placed into pre-labeled methanol preserved vials for VOCs and/or BTEX. A description of the sediment with respect to colour, particle size, depth of sediment horizon sampled, grab penetration depth and presence of non-sediment materials (e.g., shells, debris, biota) was recorded on the sediment collection log. Prior to the sample collection, a stainless-steel spoon and bowl were cleaned with laboratory-grade detergent and rinsed with de-ionized (analyte-free) water. The remaining top 5 centimetres (cm) of sediment from the grab sample was removed from the center of the grab using a stainless-steel spoon and transferred to a stainless-steel bowl. The sediment was then homogenized, and aliquots transferred to clean, laboratory supplied sampling containers.

Physical and chemical parameters were analyzed in sediment samples collected from a total of 41 stations along four transects in Milne Inlet, as well as four additional non-transect locations (SE18-1, SE18-2, SCV-1, and SCV-2) and field duplicate quality control (QC) samples collected from four randomly selected stations (approximately 10%) of the total number of stations. Photographs were taken of each sample in the grab and homogenized (Appendix 3A).

Sediment samples were sent to ALS Canada Ltd. (ALS) for analysis of the following parameters:

- Particle size distribution (Wentworth scale [Wentworth 1922]), moisture
- Organic and inorganic carbon
- VOCs (Capesize Vessel Stations only) and/or BTEX
- PHCs F1-F4 and PAHs
- Metals (including mercury), and pH

3.3.2 Data Analysis

The physical composition of sediments from stations located along the four transects and at the non-transect stations was characterized and sediment quality parameters were screened against applicable sediment quality guidelines. A Principal Component Analysis (PCA) was performed on the radial transect stations to investigate the relationship between measured physical and chemical parameters. To address the objectives outlined in Section 3.1.1, further statistical evaluation of marine sediment quality focused on the distribution of fine sediments and iron concentrations along the four transects. Iron is of primary importance because of the potential for increased deposition of iron ore in the form of dust or in runoff from storage stockpiles, generated from the Project. An increase in iron content over time in Milne Inlet sediments could represent a Project-related effect due to the potential for release of iron ore in the form of dust, stockpile runoff, or during loading of ore onto vessels at the Port. Given that the iron ore consists primarily of iron (>65%; FEIS; Baffinland 2012, 2013), monitoring for changes in the concentration of this element in marine sediments is an important component of the MEEMP.

There is no iron marine sediment quality guideline in Canada. Sediment data for iron and percent fines were evaluated spatially and temporally along the transects using modeling.

3.3.2.1 Comparison to Sediment Quality Guidelines

Analytical results were compiled, and parameter concentrations compared to applicable sediment quality guidelines. Concentrations of metals and hydrocarbons were compared to CCME ISQGs and Probable Effect Level (PELs) for the protection of aquatic life in the marine environment (CCME 1999), applicable within the Project jurisdiction. The CCME ISQGs are intended to represent concentrations below which adverse biological effects are rarely expected to occur. By comparison, the CCME PELs are intended to represent concentrations above which adverse effects are predicted to occur frequently, based on a concurrence data set with sediment chemical concentration and benthic invertebrate effects data from other sites. Notably, the Federal Contaminated Sites Action Plan (FCSAP) guidance for working harbours (FCSAP 2021) recommends use of PELs over ISQGs for screening primary contaminants of potential concern (COPCs), as screening with ISQGs is considered overly conservative and does not always correlate well with observed effects under field conditions (FCSAP 2021).

To provide a screening value to inform the sediment evaluation, in the absence of a CCME guideline, metals and hydrocarbons were compared to British Columbia (BC) Working Sediment Quality Guidelines (WSQG) (British Columbia Ministry of the Environment and Climate Change Strategy [BC MOE] 2021), and the National Oceanic and Atmospheric Administration (NOAA) sediment benchmarks (Buchman 2008).

3.3.2.2 Principal Component Analysis (PCA)

The PCA is an ordination technique that examines ecological distances (differences or similarities) between samples and allows plotting of high dimensional data in two or three-dimensional graphs, with the distances between the samples in the graphs representing the degree of similarity or difference in chemistry indicators. Essentially, a PCA takes a large data set (in this case, sediment chemistry data) and reduces it to a small number of variables (i.e., principal components) that characterize the variability inherent in the data set. The magnitude of concentration is less important than variability in the analysis, which makes PCA useful to evaluate spatial patterns that could otherwise be missed because of the influence of stations with highly variable sediment parameters.

For this assessment, a PCA was undertaken to evaluate the following:

- Whether there is an association between metal concentrations measured in the sediments and distance from the Ore Dock area in the 2023 sediment program. Any direct impacts on sediment quality resulting from Port operations (i.e., prop wash scouring, ore dust, hydrocarbon leaks, wastewater, and site runoff) would be greatest within the vicinity of the Ore Dock area, with direct effects progressively decreasing with distance away from the Ore Dock area.
- The relationship between sediment physical and chemical data collected during the 2023 field program. Metals, in general, tend to accumulate to a greater degree in finer sediments due to a combination of physical (e.g., increased surface area to volume ratio) and chemical (e.g., geochemical substrate) factors (Jones and Bowser 1978; Horowitz 1991).

The PCA was conducted on sediment physical and chemical parameters measured in sediment samples collected from the four transects. Parameters with a high frequency of data below detection limit (DL) (i.e., >20%) were excluded from the PCA. For parameters with a low frequency of data below DL (i.e., <20%), any values reported as below DL were replaced with the DL value. In addition, highly correlated parameters (e.g., total organic carbon and organic matter content) were identified and reduced such that only one parameter was included, in order to reduce collinearity in the dataset. As sediment parameters were measured on different scales (i.e., log-scale [pH], percent [particle size], concentrations [metals]), values were transformed to z-scores (also known as scaling, or scaling and centering; i.e., $z = \frac{value - mean}{standard\ deviation}$) to remove effects of unit differences. The PCA was conducted in the statistical environment R v.4.0.3 (R Core Group 2023), using the package FactoMineR (Le et al. 2008).

3.3.2.3 Spatio-temporal Statistical Models

Sediment fines composition was evaluated further statistically because metals tend to accumulate to a greater degree in finer sediments as a result of both physical and chemical factors (e.g., increased surface area to volume ratio). Additionally, iron concentrations in sediment were further analysed statistically because iron has been raised as a concern to local Inuit due to the potential for increased disposition of iron ore in the form of dust or in runoff from storage stockpiles because of the Project. Therefore, both parameters were evaluated further using spatio-temporal statistical models.

The use of regression analyses to analyse the transect data for sediment fines and iron concentrations required the use of a distance variable as a predictor in the spatio-temporal models. Prior to 2020 (Golder 2021), distance from the Ore Dock area was used; however, in line with analysis performed after the collection of 2020 data to standardize the values and improve interpretation, a single origin point was used for spatio-temporal modelling. This point (the transect origin), an imaginary intersection between the East, West, and Northwest transects, was determined to be at coordinates of -80.905917°, 71.889649°, and was at the center of the Ore Dock area. All distances reported in the analyses were calculated as straight-line distances from each sampling location to this point of origin.

In order to account for nonlinear relationships between response variables and distance from transect origin, as well as year (for the Entire Dataset analyses), these variables were modelled using natural splines, a form of non-linear regression. The number of spline knots was determined using Akaike information criterion (AIC), where models with the lowest AIC was selected as the preferred model. Statistical outliers and influential points were identified and removed during the analysis but were shown on the plots depicting raw values and model predictions for transparency. Following regression analysis, multiple comparisons were performed to assess differences in modelled variables among years at select distances along the transects. These multiple comparisons were performed at distances of 250 m, 500 m, 1,000 m, and 1,500 m along each transect for each year, as applicable based on the length of the transect. In addition, where year was modeled as a categorical variable (Post-2018 Dataset), multiple comparisons, with familywise p-value adjustments, were performed at each distance across sampling years, in order to evaluate temporal variation in response variables at distance.

The analyses were performed in the statistical environment R v.4.3.2 (R 2023), using the packages “car” (Fox and Weisberg 2019), “emmeans” (Lenth 2020), and “glmmTMB” (Brooks et al. 2017).

Fines Content in Sediment

Fines content (i.e., sum of clay and silt fractions) was analyzed separately for the radial transect ‘Post-2018 Dataset’ (i.e., 2019, 2020 and 2023) and the ‘Entire Dataset’ (i.e., 2014–2020 and 2023) to assess spatial and temporal gradients.

Both models included the main effects of distance from the Ore Dock area, year, transect, and all possible interactions between the three variables. The effect of distance was modeled as a natural cubic spline with three degrees of freedom, to account for the non-linearity in percent fines relative to distance from the Ore Dock area. While previously the effect of year was analyzed as a categorical variable (Golder 2021), given that eight years of data were available in the Entire Dataset, the effect of year was included as a continuous variable, modeled as a spline, to account for the nonlinear trends over time. In the Post-2018 Dataset, year was modeled as a categorical variable, similar to the analysis performed previously (Golder 2021). Model fit was assessed via diagnostic and residual plots using the DHARMa package (Hartig 2019).

Following both regressions, the significance of spatial and temporal trends was assessed using the package emmeans (Lenth 2020). Specifically, the significance of slopes of the spatial trendlines was assessed along each transect in each sampling year, in 10 m increments (alpha = 0.05). The significance of temporal trends was estimated for each sampling year at distances of 250 m, 500 m, 1,000 m, and 1,500 m along each transect.

Sediment Iron Concentrations

The analysis of iron sediment concentrations was performed in a similar manner to the analysis of fines content. However, in the case of iron, a general linear model was used. To account for the strong relationship between fines content and iron concentrations, fines content (percent fines) was added as a covariate in the analysis. Similar to the analysis of fines, the effects of distance and year (as a continuous variable in the Entire Dataset analysis) were modeled as natural cubic splines with three and four degrees of freedom, respectively. In the model of the Post-2018 Dataset, year was modeled as a categorical variable, similar to the analysis performed previously (Golder 2021).

Following both linear regressions, the significance of spatial and temporal trends was assessed using the package emmeans (Lenth 2020). Specifically, the significance of slopes of the spatial trendlines was assessed

along each transect in each sampling year, in 10 m increments (alpha = 0.05). The significance of temporal trends was estimated for each sampling year at distances of 250 m, 500 m, 1,000 m, and 1,500 m along each transect.

In all prediction plots, the mean value of fines content for the respective transect (and year, where applicable) was used to calculate predicted values of iron concentrations. That is, the predictions represented fines-adjusted iron concentrations (where the fines value used was the average for each transect and year). Hence, predicted trends shown on the plots may not match observed values, since iron concentrations are influenced by fines content, and observed values would vary in the fines content.

3.3.2.4 Inverse Distance Weighting (IDW) of the Distribution of Fine Sediments and Sediment Iron Concentrations

An Inverse Distance Weighting (IDW) interpolation method in ArcGIS was used to create figures to provide a visual depiction of the spatial variability in fine sediments and sediment iron concentrations across the study area, as informed by the results of the radial study design in 2023. IDW is a deterministic interpolation method that assumes the variable being interpolated decreases in influence (its weight) with increased distance from its sample location, or the reverse, that an interpolated value is most influenced by the known sample(s) closest to it.

3.3.3 Quality Management

Of primary importance to the sediment sampling program was the collection of reliable data, which was achieved through the consistent application of Quality Assurance / Quality Control (QA/QC) measures. These quality management procedures were applied to the field collection, data analysis, and reporting tasks for the sampling in 2023 to verify that the data presented are valid and of acceptable quality to objectives outlined in Section 3.1.1.

3.3.3.1 Field QA/QC

Field staff were trained to be proficient in standardized sampling procedures, data recording using standard forms, and equipment operations applicable to the monitoring program. Field work was completed according to specified instructions and established technical procedures for standard sample collection, preservation, handling, storage, and shipping procedures.

General QA/QC tasks applicable to the sediment quality program included, but were not limited to, the following:

- Preparing geo-referenced field maps for use during the surveys to accurately document sampling locations and project-specific data collection forms to standardize the field data collection process.
- Maintaining regular communications between the Project Manager and field staff.
- Collecting and processing samples by qualified experienced personnel.
- Placing samples in appropriate clean containers in such a way that no foreign material was introduced to the sample and handled carefully so there would be no loss of material.
- Collecting QC (duplicate) samples in the field. Specifically, four field duplicates were collected to represent at least 10% of the total number of collected samples.

- Rinsing and filtering equipment including the Van Veen grab sampler, materials collection totes, field splitter and sieves with seawater between stations. Visual inspection confirmed that materials were not retained on equipment before use on the next station.
- Checking and validating field survey data sheets before leaving the station.
- Selecting accredited laboratories for sample analysis. Performance quality of selected laboratories was verified through WSP's internal vendor approval and assessment procedures.
- Using chain-of-custody documentation to track sample shipments to the individual subcontractor laboratories.
- Packaging and shipping samples to the laboratory in accordance with required holding times and storage conditions.

3.3.3.2 Laboratory and Data Analysis QA/QC

Laboratory QA/QC reports were reviewed upon receipt to confirm adherence to sample hold times and laboratory data quality objectives (DQOs), and that the appropriate QA/QC information had been reported. Laboratory QA/QC included verification of recommended sample holding times and the analysis of laboratory control samples, laboratory duplicates, and spiked samples to assess precision and accuracy of analytical methods.

Field duplicates were sampled from four randomly selected samples (approximately 10% of total number of samples collected). Field duplicates were sampled as a 'split sample' from the same discrete homogenized grab sample as the 'original' sample and identified as Duplicate A, C, D, and E (blind samples). To assess variability between field duplicates, the Relative Percent Difference (RPD) was calculated as follows:

$$RPD = \left(\frac{sample - duplicate}{(sample + duplicate)/2}\right) \times 100$$

In accordance with the BC Field Sampling Manual (BC ENV 2023) and CCME (2016), an RPD value of >50% was used to identify notable differences between original and duplicate samples. Values less than five times the Method Detection Limit (MDL) were not included in the RPD calculations because analytical variability near the MDL is higher and does not provide a reliable measure of variability associated with the collection of field samples.

3.3.4 TARP Assessment

As part of applying the Trigger Action Response Plan (TARP) sediment quality performance indicators were screened against condition status/thresholds in 2023, in order to assess risk levels for each performance indicator (Table 3-2).

Table 3-2: Marine Environment TARP Framework for Sediment Quality

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Sediment Quality	• Particle Size • Nutrients • Metals • Hydrocarbons	Measured concentrations of a parameter at one or more stations are > the CCME[1] ISQG or another relevant lower bound guideline, and are higher than background concentrations. AND Spatial and temporal sediment trend analysis suggest a pattern indicative of Port-related effects beyond FEIS[2] predictions.	Measured concentrations of a parameter at one or more stations are > the CCME PEL or another relevant upper bound guideline[1]. AND Spatial and temporal sediment trend analysis suggest a pattern indicative of Port-related effects beyond FEIS[2] predictions. AND Sediment toxicity testing as a special study indicates a Port-related effect.	To be determined based on outcome of moderate response investigations.

[1] Canadian Council of Minsters of the Environment (CCME 1999) sediment quality guidelines for the protection of marine aquatic life. ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Level.
[2] Baffinland 2012, 2013.

3.4 Results

Representative photographs and field data sheets from the field program are provided in Appendix 3A and Appendix 3B, respectively. Analytical laboratory reports are provided in Appendix 3C, and the compiled dataset for both the radial transect stations and the non-transect stations screened to applicable sediment quality guidelines are provided in Appendix 3D, and the QA/QC results are provided in Appendix 3E.

The particle size composition and comparison to sediment quality guidelines for the Capesize vessel stations are presented in Section 3.4.6. These include both transect and non-transect stations.

3.4.1 Sediment Particle Size Composition

The physical composition of sediments differed among stations and transects in 2023 (Figure 3-3). Sediment from the East (SE) and West (SW) transects consisted of a mix comprised primarily of sand and silt, while the Northern Offshore Transects (SNE and SNW) sediment consistently had higher proportions of fines (i.e., silt and clay). Proportions of fines appeared to increase with distance from the Ore Dock area for the Northeast Transect while the proportion of fines in the Northwest Transect was more uniform with distance from the Ore Dock area. These observations were consistent with 2020 and previous MEEMP years, with the observed overall difference in physical grain size distributions between coastal and offshore sediments expected. However, compared to the

proportion of fines in 2020 (34% to 78%), the proportion of fines at the Northwest Transect was generally lower in 2023 (43% to 69%), and there was only a marginal increase in fines with distance from the Ore Dock area in comparison to the other three transects.

Coastal sediments located at shallower depths tend to be influenced by the nearshore environment and features such as rivers and streams, whereas offshore sediment is more isolated to these influences because they are located in progressively deeper water at a distance from the shore. Overall, there was a decrease in finer sediments along both nearshore transects in 2023 compared to 2020. Offshore sediments are more influenced by internal mixing and sediment redistribution processes such that finer sediments tend to deposit and accumulate in sediments further from shore. Accordingly, in the 2023 program, the proportion of fine-grained sediments tended to increase with distance from the Ore Dock area along the Northeast Transect and was variable along the Northwest Transect. When compared to 2020, there was an overall decrease in the proportion of fines along both offshore transect stations sampled in 2023.

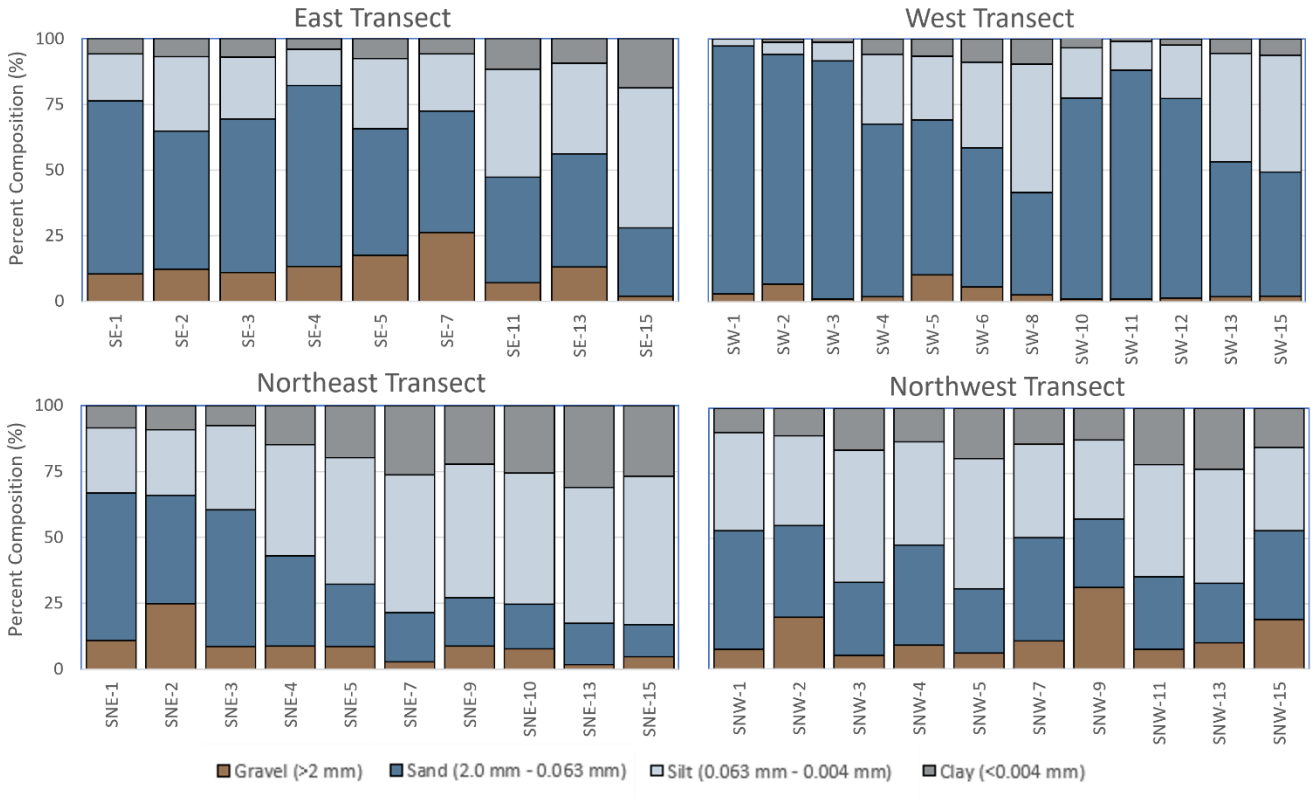


Figure 3-3: Sediment Particle Size Distribution for Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023.

3.4.1.1 Particle Size Composition Stations on the West Transect Closest to the Ore Dock Area

In 2020, station SW-2 was an outlier because of considerably lower fines and higher sand content, in addition to lower benthos density and richness values, compared to other stations along the West Transect in 2020 and previous sampling programs. In 2022, the joint sediment and benthic program focused on targeting sampling at four stations along the West Transect (SW-1 to SW-4) due to the anomalous patterns in sediment and benthic infaunal indicators documented in 2020 at SW-2, relative to other stations along the West Transect. As mentioned in Section 3.2.1, results from the targeted sampling programs indicated there was no evidence of Project-related impacts to sediment quality at SW-2 and other West Transect stations.

In 2023, stations SW-1 through SW-4 were sampling as part of the radial benthic and sediment sampling program. Particle size results at these four stations are presented in Figure 3-4. Most stations along the West Transect and closest to the Ore Dock area are comprised, predominantly, of sand (i.e., >60%) since 2019. Percent fines has steadily decreased over time except at Station SW-4 where fines composition has been more stable. SW-1 and SW-2 have shown a decrease in fines in 2022 and 2023 compared to 2019 and 2020.

Overall, monitoring results during the targeted sediment sampling programs in 2021, 2022 and 2023 remained within predictions for the FEIS and subsequent addenda (Baffinland 2012, 2013).

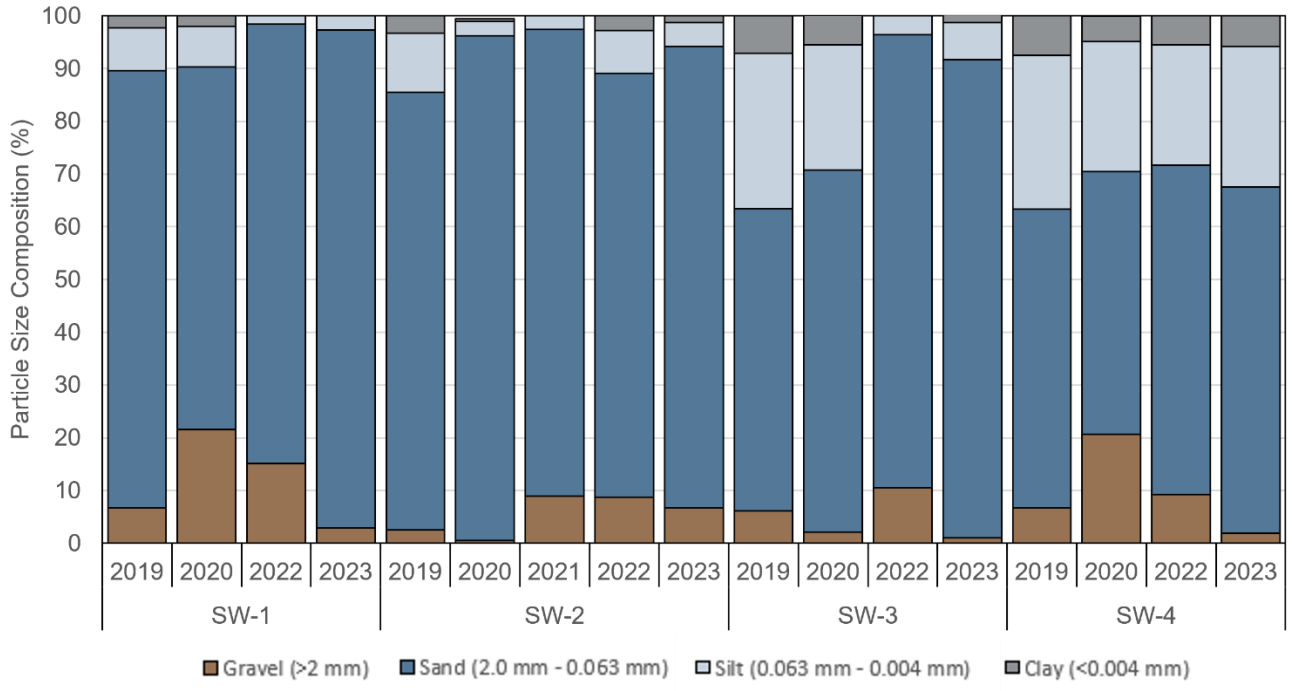


Figure 3-4: Sediment Particle Size Distribution for Stations SW-1 through SW-4 (i.e., Stations Closest to the Ore Dock Area) Located along the West Transect, Milne Port 2019-2023.

3.4.2 Spatial Relationships between Sediment Parameters

The results of the PCA shown in Figure 3-5 for sediment data collected in 2023 showed strong linear relationships between sediment metal concentrations and the proportion of fine-grained sediments such as silt (particle size of 0.004 millimetres [mm] – 0.063 mm) and clay (particle size of <0.004 mm) and less with sand and gravel. The PCA showed three components with eigenvalues >1 that accounted for 91.4% of the total variance. The first component (PC1) explained the highest percentage of the variance in the original data (83.5%). The other two principal components accounted for the remaining 7.9% of the explained variance and will not be discussed further. Details of the PCA, including the eigenvalues, loadings, correlations, and quality of representation are presented in Appendix 3F.

As depicted in Figure 3-5, PC1 positively correlated strongly with fine fractions of sediments (silt and clay), but also with phosphorus (correlation coefficient > 0.88), metals concentrations (correlation coefficient >0.81), and inorganic carbon (correlation coefficient >0.90), and to a lesser extent with total carbon (correlation coefficient > 0.86), moisture (correlation coefficient = 0.87), and molybdenum (correlation coefficient = 0.81). PC1 strongly negatively correlated with sand (correlation coefficient = -0.96) and pH (correlation coefficient = -0.44).

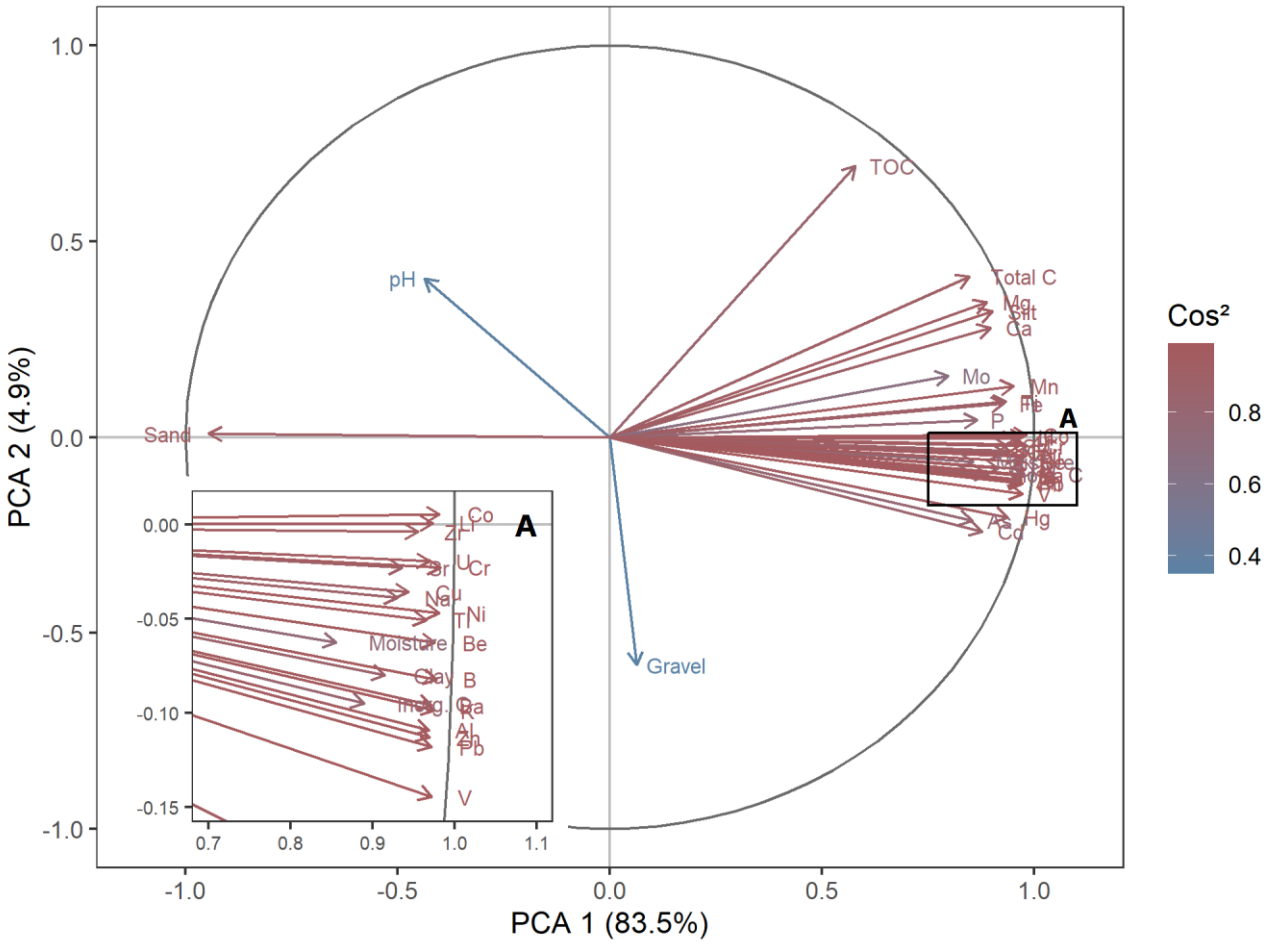


Figure 3-5: Principal Component Analysis (PCA) of Sediment Quality at Stations Along the Transects Radiating Out from the Ore Dock Area in Milne Port (2023).

PC1 and PC2 were plotted to identify where samples lie in two-dimensional ordinal space, allowing for further interpretation of the data (Figure 3-6). The right half of Figure 3-6 represents stations associated with higher silt and clay content, and metals concentrations consisting of mostly of the two Northern Offshore Transect Stations (SNE and SNW) and the left half of the figure represents stations with higher sand content and lower metal concentrations, consisting mostly of the Coastal Transect Stations (SW and SW). Stations along the coastal transects are reflective of shallower environments with a variable mix of sediments (i.e., sand and gravel), and subsequently relatively lower metal concentrations.

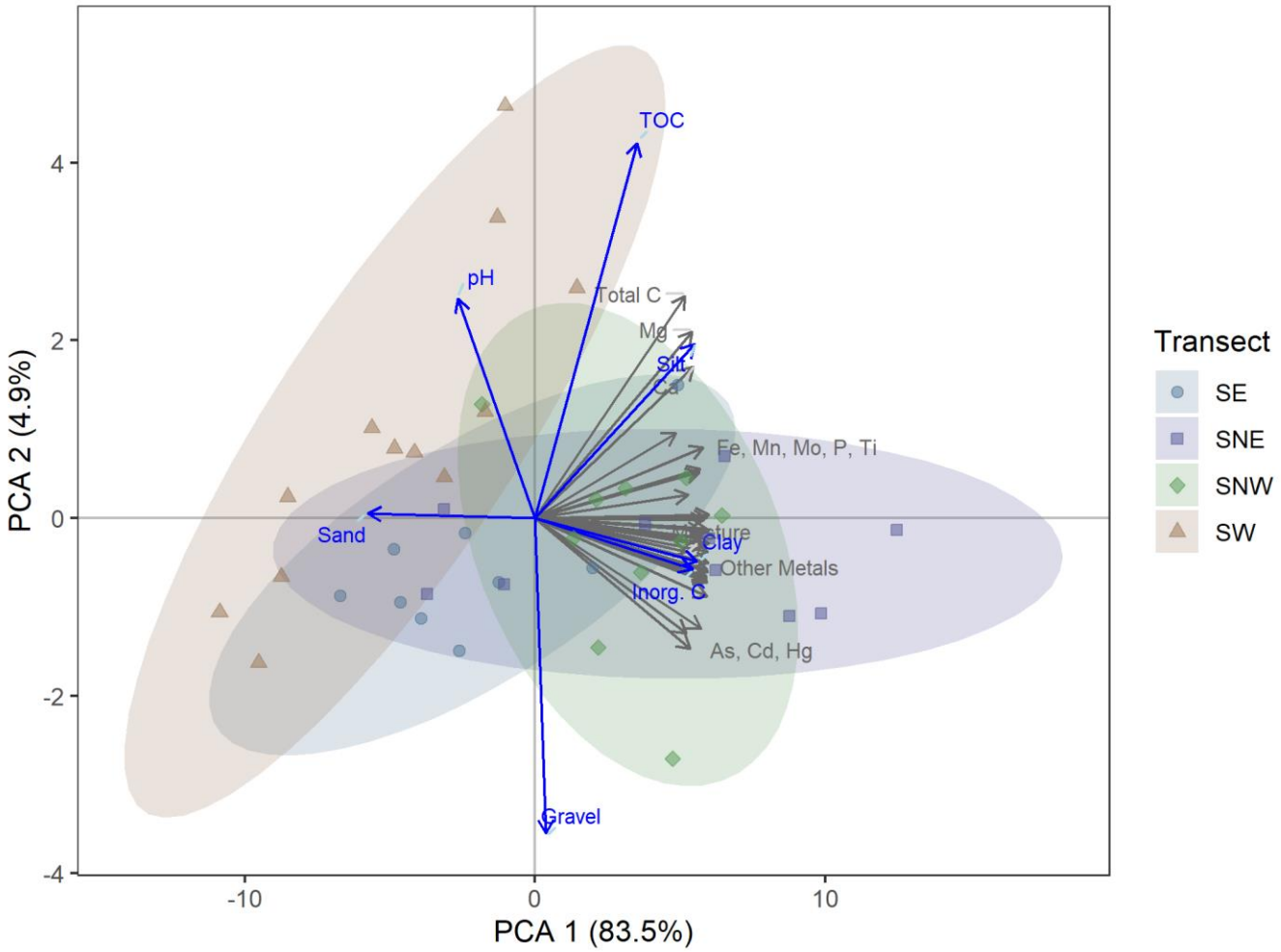


Figure 3-6: Principal Component Scores for Sediment Quality Stations Located Along the Transects Radiating Out from the Ore Dock Area at Milne Port, 2023.

Overall, the results of the 2023 PCA suggested that:

- A clear relationship exists between sediment metal concentrations and the proportion of fine-grained sediments (i.e., silt and clay). Strong linear relationships were also observed between sediment metal concentrations, and the proportion of fine-grained sediments in Milne Inlet during baseline programs (Baffinland 2013; SEM 2014; 2015), and previous MEEMP years between 2014, 2019, and 2020.
- The substrate composition along each transect seems to differ based on natural depositional forces rather than Project activities. Coastal transect stations tend to have more variable sediment compositions (i.e., due to ice scouring, wave actions, currents, coastal topography, and freshwater inputs from Phillips Creek) than deeper offshore transect stations sediments along the Northern Transects.

Metal concentrations in sediments were greater in areas with proportionally more fines which increased with distance from the Ore Dock area (Figure 3-3, Figure 3-5, Figure 3-6). For example, arsenic (Figure 3-7), copper (Figure 3-8), and nickel (Figure 3-9) concentrations generally increased with greater distance from the Ore Dock area particularly along the Northwest and Northeast Transects. Variability in concentrations of these metals and in percent fines was lower along the West and East Transects because they are situated parallel to the coast and samples were collected along the same shallow depth profile.

3.4.3 Comparison to Sediment Quality Guidelines

3.4.3.1 Sediment Metals

Sediment metal concentrations at stations sampled in 2023 were lower than applicable sediment quality guidelines with the exceptions of arsenic, copper, and nickel, as described below for each of the three metals. Measured concentrations and spatial patterns for arsenic, copper, and nickel were well explained by the variability in percent fines, which was shown to increase with greater distance from the Ore Dock area due to natural coastal sorting processes. Therefore, the infrequent low magnitude exceedances of the conservatively derived ISQG in some samples along the Northern Offshore transects are likely reflective of background conditions and related to physical sediment properties (i.e., percent fines due to natural coastal sorting processes), rather than the influence of Port activities. Arsenic, copper, and nickel are not associated with ore processing at Mary River (Baffinland 2012) and are not present in elevated concentrations close to the Ore Dock area, further supporting the likelihood that the observed concentrations reflect regional background concentrations. Concentrations of arsenic or copper in 2023 did not approach their respective CCME PELs in any sediment sample.

Arsenic concentrations were below applicable guidelines along the East and West Transects but were slightly above the conservatively derived CCME ISQG (7.24 milligrams per kilogram [mg/kg]) at seven stations[1] sampled along the two Northern Transects (Figure 3-7) by up to 1.5 times. Concentrations in the seven Northern Transect samples were also marginally above the NOAA T20 benchmark (7.4 mg/kg; Buchman 2008) and five of those samples were marginally above the NOAA Effects Range-Low (ERL) of 8.2 mg/kg (Buchman 2008). Concentrations appeared to increase with greater distance from the Ore Dock area along the Northeast Transect concomitant with finer sediments (Figure 3-7). Along the West Transect arsenic concentrations increased towards

[1] Four stations along the Northeast Transect (SNE-5, 9, 10 and 15) and three stations along the Northwest Transect (SNW-2, 7 and 9).

the mid-transect stations reaching a maximum concentration at SW-6 then generally decreasing with distance from the Ore Dock area, likely due to substrate changes because of the influence of Phillips Creek. The relationship between fines and arsenic is further supported by the results of the PCA, which suggest that arsenic concentrations were strongly (R = 0.86) correlated to sediment particle size (i.e., silt and clay).

Copper concentrations appeared to increase with distance from the Ore Dock area at all transects (Figure 3-8). This is further supported by the results of the PCA, which suggest that reported copper concentrations were related to sediment particle size (i.e., proportion of fines) with a correlation coefficient of 0.96. Copper concentrations measured during the 2023 MEEMP were below the applicable guidelines for all sampling stations, except for a single station (SNE-9) along the Northeast Transect which was marginally above the CCME ISQG (18.7 mg/kg) by 1.2 times, likely due to the higher fines content at that station (73% fines).

Nickel concentrations appeared to increase, generally, with distance from the Ore Dock area along all transects except the West Transect (Figure 3-9). This is further supported by the results of the PCA, which suggest that reported nickel concentrations were related to sediment particle size (i.e., proportion of fines) with a correlation coefficient of 0.99. CCME guidelines are not available for nickel but sediment concentrations were less than the lower (30 mg/kg) and upper (50 mg/kg) BC WSQGs. When compared to NOAA benchmarks, concentrations were slightly above the T_{20} benchmark (15 mg/kg) at 12 stations located along the Northern Offshore Transects and on station (SE-15) along the East Transect (Figure 3-9) by up to 1.6 times, in addition to the Threshold Effect Level (TEL) of 15.9 mg/kg at nine stations by up to 1.5 times.

Overall, the 2023 results are consistent with those reported during previous MEEMP radial transect programs (2014–2020), which documented sporadic and marginal exceedances of ISQGs for some metals in Milne Inlet sediments. Exceedance of generic CCME ISQGs for sediment metals in Northern Canada is not uncommon under naturally occurring background conditions, as evident under baseline conditions in Milne Inlet (e.g., baseline concentrations of up to 9.0 mg/kg arsenic, 25 mg/kg nickel, and 10.0 mg/kg copper were documented in Milne Inlet by SEM [2015]). These 2023 guideline comparison indicate that sediment quality remains within applicable guidelines or expected background conditions.

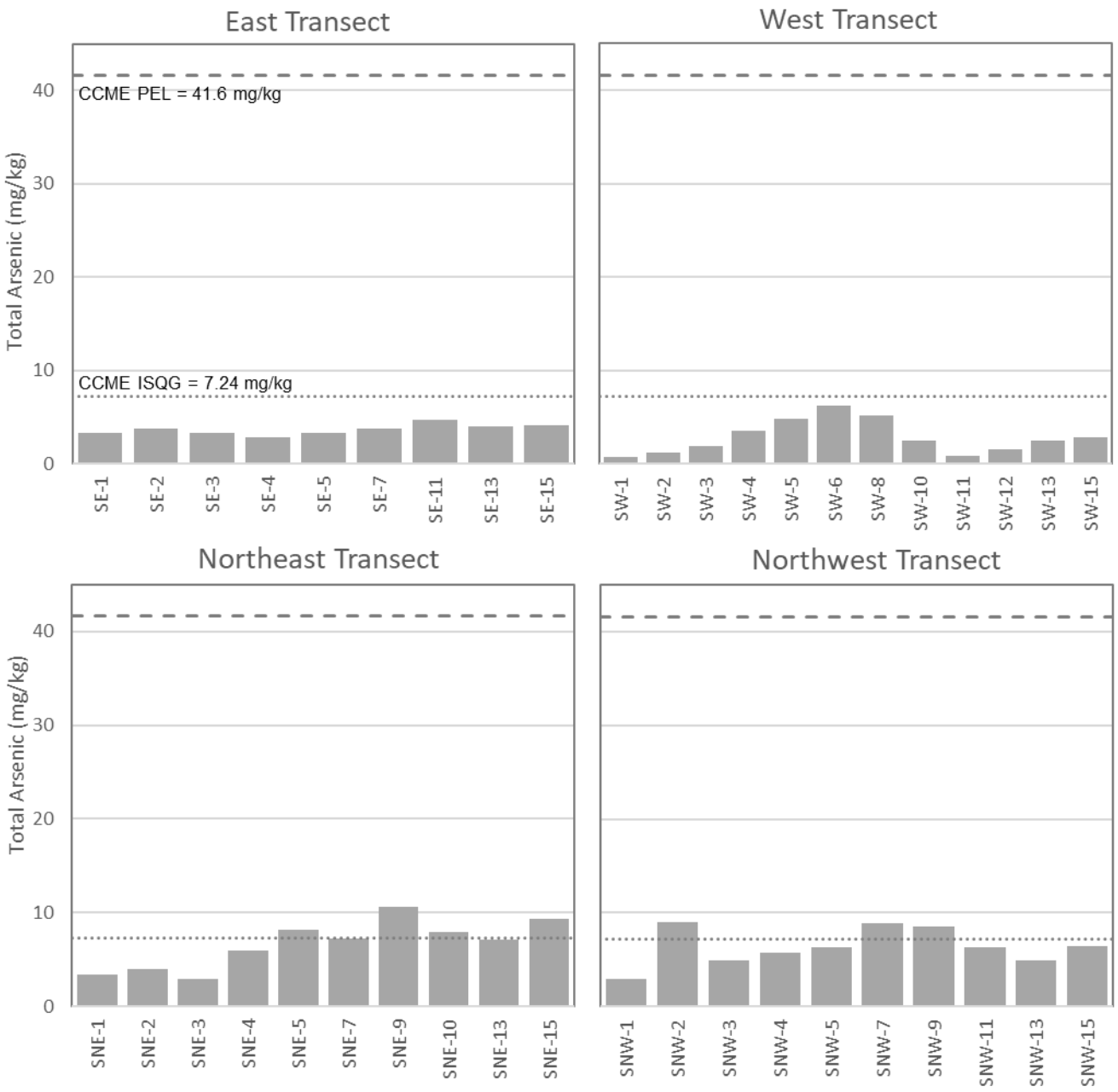


Figure 3-7: Sediment Arsenic Concentrations at Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023.

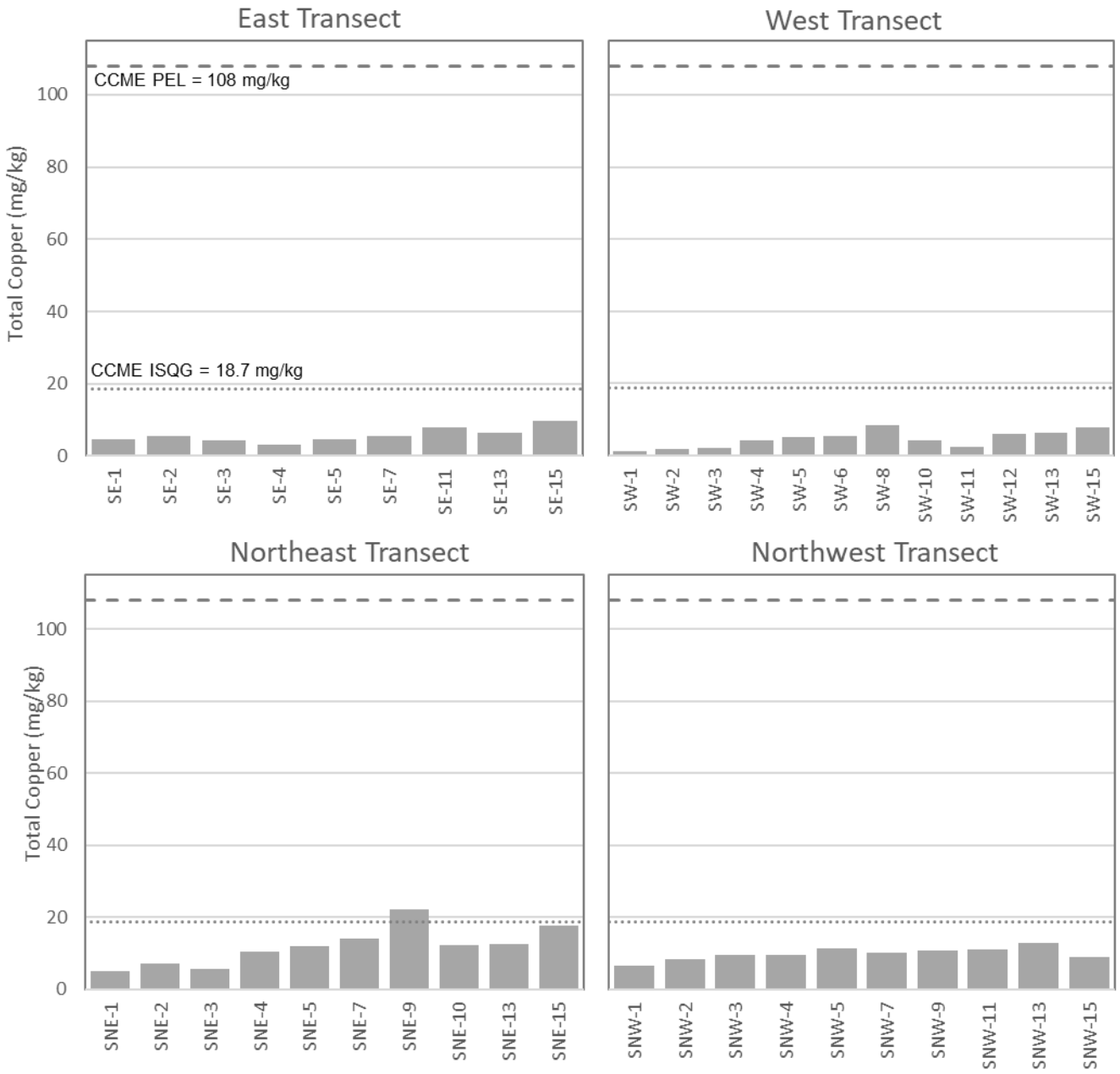


Figure 3-8: Sediment Copper Concentrations at Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023.

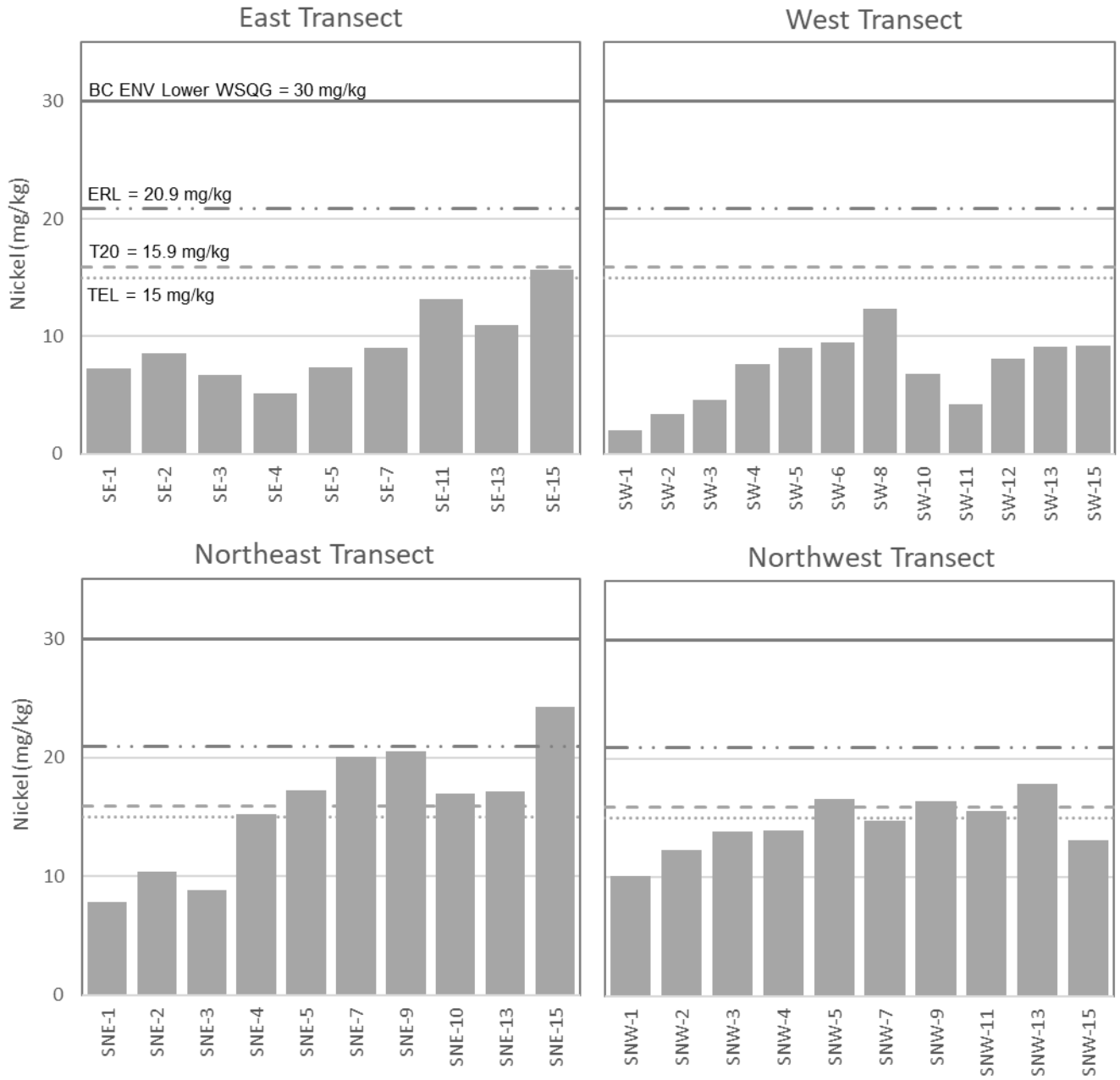


Figure 3-9: Sediment Nickel Concentrations at Stations Located Along Transects Radiating Out from the Ore Dock Area in Milne Port, 2023.

3.4.3.2 Sediment Organic Parameters

Similar to previous MEEMP years, sediment BTEX, petroleum hydrocarbons, and PAHs in 2023 were largely below detection limits in Milne Inlet (Appendix 3D) except for the following sporadic detected low concentrations in the following parameters:

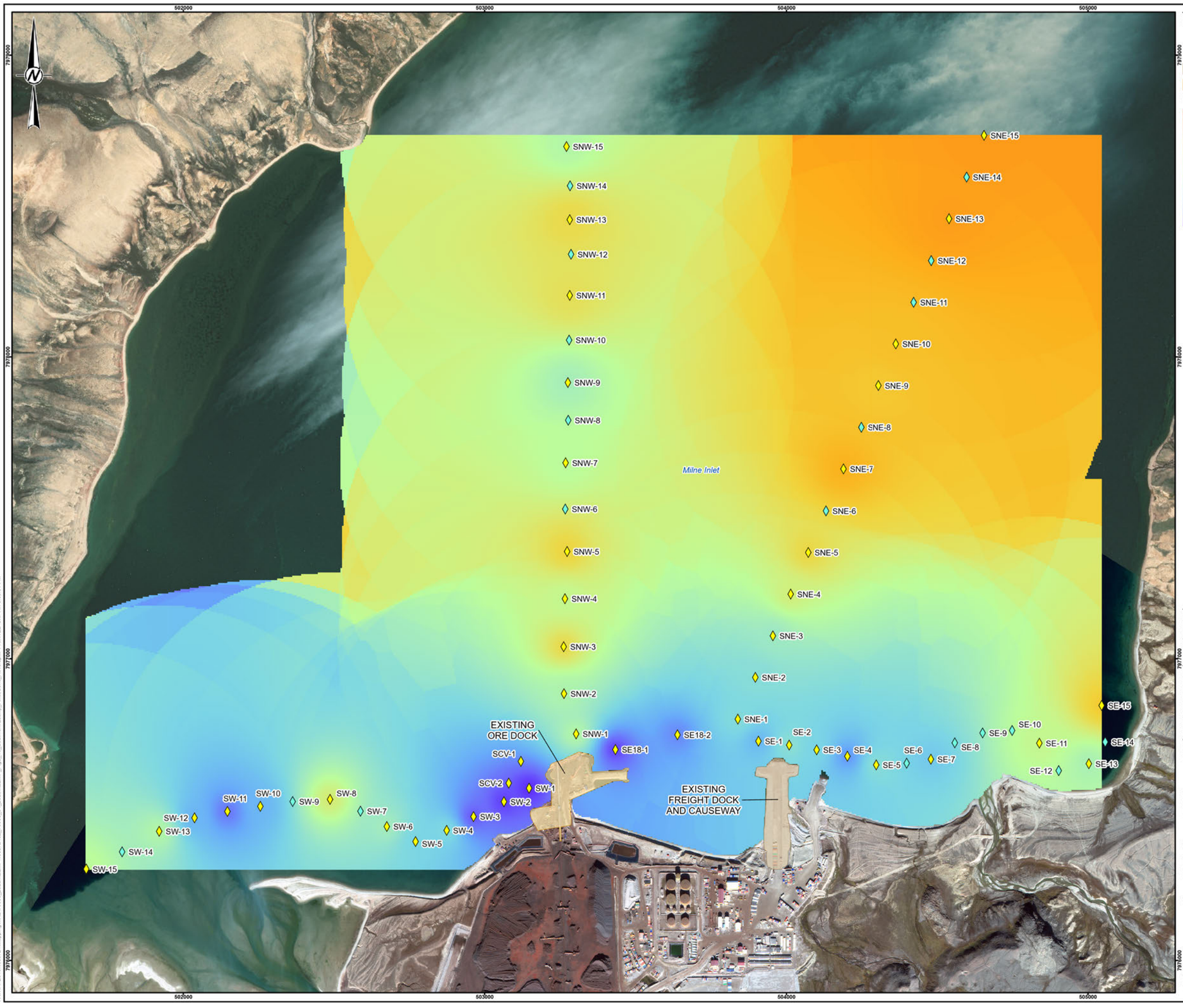
- Ethylbenzene (0.032 mg/kg) and xylene-o (0.06 mg/kg) were detectable at station SNW-13.
- Total PAH (Environmental Protection Agency [EPA] 16-DAS) was detectable with a concentration of 0.141 mg/kg at station SNE-15.

No organic parameter measured in sediments sampled during the 2023 sediment program exceeded sediment quality guidelines except for ethylbenzene. When compared to the NOAA benchmarks, the concentration was above the Apparent Effects Threshold (AET) benchmark (0.004 mg/kg) by 8 times; however, the laboratory detection limit for ethylbenzene is 0.015 mg/kg which is above the NOAA AET benchmark.

3.4.4 Spatio-temporal Distribution of Fines in Sediments

The relationship between the proportion of fine-grained sediments and distance from the Ore Dock area is depicted in Figure 3-3 and Figure 3-10. In Figure 3-10, the proportion of fine-grained sediments tended to increase with distance (yellow to dark orange shade) to north of the Ore Dock area along the Northern Offshore Transects. Although both of these transects showed a pattern of increasing fines with distance from the Ore Dock area, the Northeast Transect had a higher fines content at stations a greater distance from the Ore Dock area relative to the other offshore transect.

This relationship was not observed for the Coastal Transects to the east and west of the Ore Dock area, where the percent fines was more variable and tended to be concentrated in sheltered areas along the coastline, as is expected under natural conditions. Correspondingly, in less sheltered areas consistent with the natural topography of the coastline, coarser sediments were present, as shown on Figure 3-10 (blue shade). As discussed in previous MEEMP reports (Golder 2021), the influence of Phillips Creek on the composition of nearshore sediments downstream of the creek mouth is also evident. The proportion of percent fines at the mouth of Phillips Creek is lower than sediment sampling stations further west and east of the creek; therefore, along the West Transection, particle size composition is influenced by natural transport processes associated with Phillips Creek.



LEGEND

- 2023 SEDIMENT QUALITY SAMPLE LOCATION
- PROPOSED, NOT SAMPLED IN 2023
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK

FINE-GRAINED SEDIMENTS (%)

100
90
80
70
60
50
40
30
20
10
0

0 250 500

1:12,500 METRES

NOTE(S)

IDW INTERPOLATION METHOD:
GRID SIZE: 5 m
VARIABLE SEARCH RADIUS: 750 m
MAXIMUM SAMPLE POINTS: 12
POWER: 2

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
INVERSE DISTANCE WEIGHTING (IDW) FOR 2023 MEEMP FINE-GRAINED SEDIMENTS

CONSULTANT

YYYY-MM-DD	2024-03-21
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	3-10

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig3_10_SedimentQuality_FinesConc_Rev0.aprx PRINTED ON: AT: 5:09:01 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm

3.4.4.1 Post-2018 Dataset (2019-2023): Spatial and Temporal Comparison

Fines content at sediment stations sampled during the 2019, 2020, and 2023 MEEMP programs, which comprises the Post-2018 Dataset, was evaluated using a beta regression, with main effects of distance from the Ore Dock area, year (as a categorical variable), transect, and all possible interactions between the three variables. The effect of distance was modelled as a natural cubic spline with three degrees of freedom, to account for the non-linearity in spatial trends in fines content. The three-way interaction between distance, year, and transect was not statistically significant (P=0.14; Table 3-3). The only significant two-way interaction was the interaction between distance from transect origin and transect, indicating that spatial trends differed between transects. That is, spatial trends differed between transects but not between sampling years. This finding supported the overall finding from visual examination of the data, where spatial effects were overall similar between years within the same transect (Figure 3-11).

Table 3-3: Effect Significance in Analysis of the Post-2018 Dataset Fines Content

Parameter	Df	X^2	*P*-value
Distance from transect origin	3	155.92	<0.001
Year	2	2.57	0.277
Transect	3	312.24	<0.001
Distance from transect origin × Year	6	9.98	0.125
Distance from transect origin × Transect	**9**	**195.85**	**<0.001**
Year × Transect	6	5.87	0.438
Distance from transect origin × Year × Transect	18	24.65	0.135

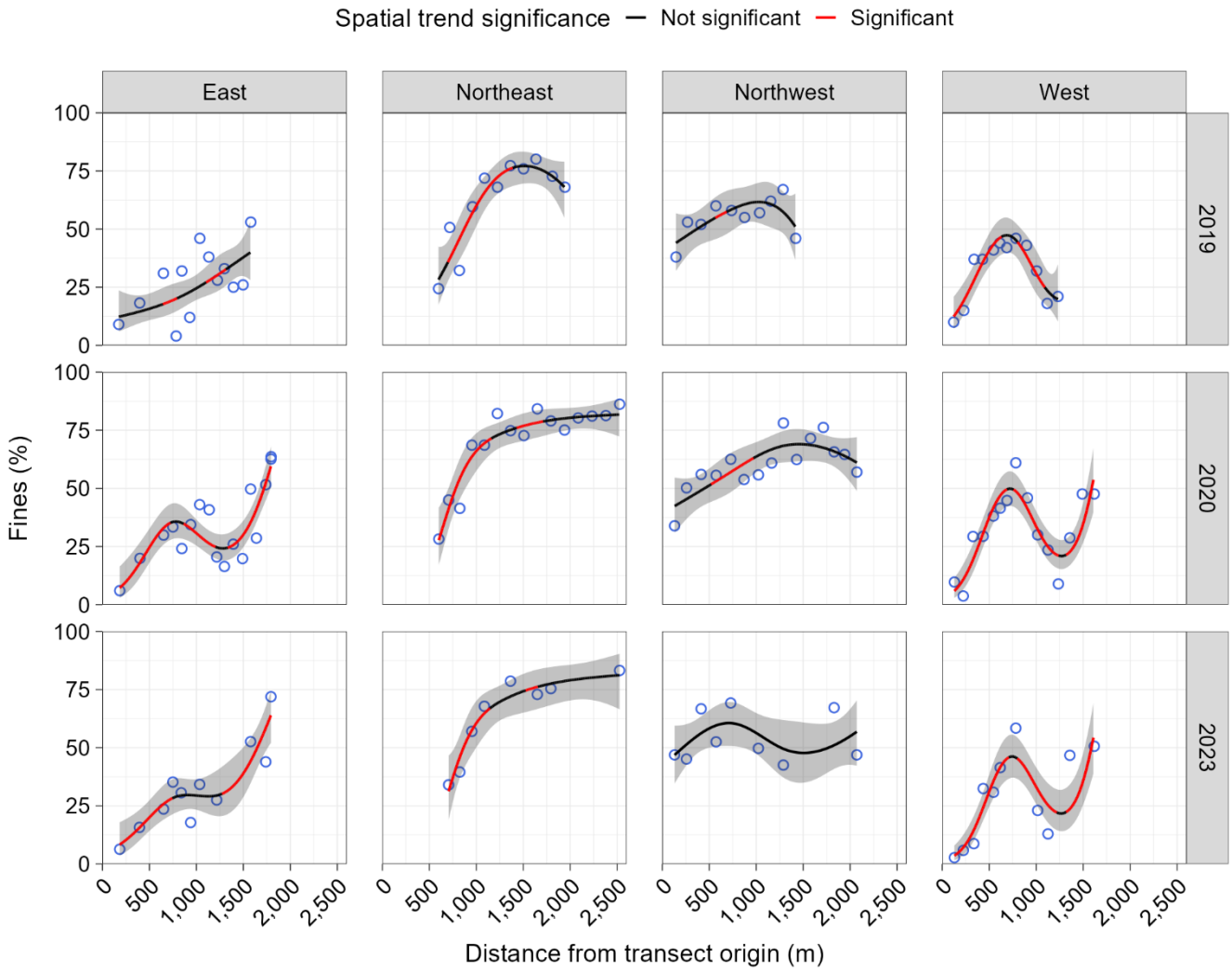
Notes: Df = degrees of freedom. Distance and effect of year were modeled as splines. *P*-values of significant interactions (P<0.05) and significant main effects (where no significant interactions were found) are shown in bold.

The results of spatial trends in the assessed transects were as follows:

- **East Transect** – in all three monitoring years there was an increase in fines content with increasing distance from the transect origin, however in 2019, the trend was only significant at two short segments of the transect, whereas in 2020 and 2023, the trends were significant up to ~750 m, followed by another significant increase at distances ~1,400 m to 1,700 m; Figure 3-11). Within 1,000 m from the transect origin, the spatial increase in fines was up to 13% per 100 m in 2019, 69% per 100 m in 2020, and 43% per 100 m in 2023.
- **Northeast Transect** – in all three monitoring years, there was a significant increasing trend in fines content from a distance of ~550 m to a distance of ~1,100 m, followed by a stabilization and a relatively flat trend in fines content (Figure 3-11). That is, along the Northeast Transect, fines increased up to a distance of ~1,100 m, then remained relatively stable within the measured range until the end of the sampled transect. Within 1,000 m from the transect origin, the spatial increase in fines was up to 42% per 100 m in 2019, 137% per 100 m in 2020, and 183% per 100 m in 2023.
- **Northwest Transect** – fines content in proximity to the transect origin had a relatively variable increasing trend, up to a distance of ~1,000 m in 2019 and up to 1,500 m in 2020, and up to a distance of ~750 m in 2023 (Figure 3-11). Likely due to the variability, the trend was only significant at a short segment along the transect in 2019, and between ~500 m and 1,000 m in 2020, with no other significant trends along the

transect. Within 1,000 m from the transect origin, the spatial increase in fines was the lowest compared to other transects, only up to 12% per 100 m, 11% per 100 m, and 16% per 100 m in 2019, 2020, and 2023, respectively.

- **West Transect** – In all sampling years, a significant increase in fines content was estimated up to a distance of ~750 m, followed by a significant decrease in fines (up to a distance of ~1,200 m; Figure 3-11). The drop in fines content at 750 m, followed by an increase again at ~1,300 m, coincides with the convergence of the mouth of Phillips Creek with Milne Inlet on the West Transect (as shown on Figure 3-1). Within 1,000 m from the transect origin, the spatial increase in fines was up to 63% per 100 m in 2019, 102% per 100 m in 2020, and 117% per 100 m in 2023.



Notes: Grey ribbons are 95% confidence intervals. Red lines indicate slopes significantly different from zero.

Figure 3-11: Observed (points) and Estimated (lines) Percent Fines in Sediment Relative to Sampling Distance Along Transects, 2019, 2020, and 2023.

The overall model did not find temporal effects in either interaction or main effects (Table 3-3), despite 2023 values in proximity to the transect origins being up to 33% higher in 2023 compared to 2020 for the Northwest Transect and up to 24% to 50% lower in 2023 compared to 2020, depending on the transect. The significance of multiple comparisons between years was not tested due to the lack of significant year effects in the overall model.

Statistical power was sufficient to detect a reduction of 70% in fines content along each transect between 1,000 m from transect origin and the first sampling station (Appendix 3G). Most observed differences were larger, ranging from -94% (East Transect) to -90% (Northeast Transect), with the exception of the Northwest Transect, where the observed difference was -21%. For three of the four transects, statistical power to detect the observed scouring effects was high (>0.9). For the temporal effects, statistical power was sufficient to detect a decrease in fines content between 2020 and 2023 ranging between 55% and 85%, and an increase in fines content between 2020 and 2023 ranging between 100% and 150% (Appendix 3G). Observed effect sizes ranged from -36% to +27%, and statistical power to detect those was low.

3.4.4.2 Entire Dataset (2014-2023): Spatial and Temporal Comparison

Fines content at sediment stations sampled during the 2014-2020 and 2023 MEEMP programs, which comprises the Entire Dataset, was evaluated using a beta regression with main effects of distance from the Ore Dock area, year (as a continuous variable), transect, and all possible interactions between the three variables. The effects of distance and year were modelled as natural cubic splines with three and four degrees of freedom, respectively, to account for the non-linearity in spatial and temporal trends in fines content. The three-way interaction between distance, year, and transect was statistically significant (P<0.001; Table 3-4), indicating that the interannual difference in spatial trends differed between transects (i.e., the interaction between distance from transect origin and year differed between transects). This finding supported the visual differences seen in spatial trends between the different survey years and transects (Figure 3-12). Comparison of trends between years was not possible for the Northeast Transect because 2019 was the first year that this transect was sampled; thus, results for the Northeast Transect are included in the Post 2018 Dataset analysis only. The ‘North’ Transect referred to in this section refers to the ‘Northwest Transect in the 2019, 2020 and 2023 MEEMP years.

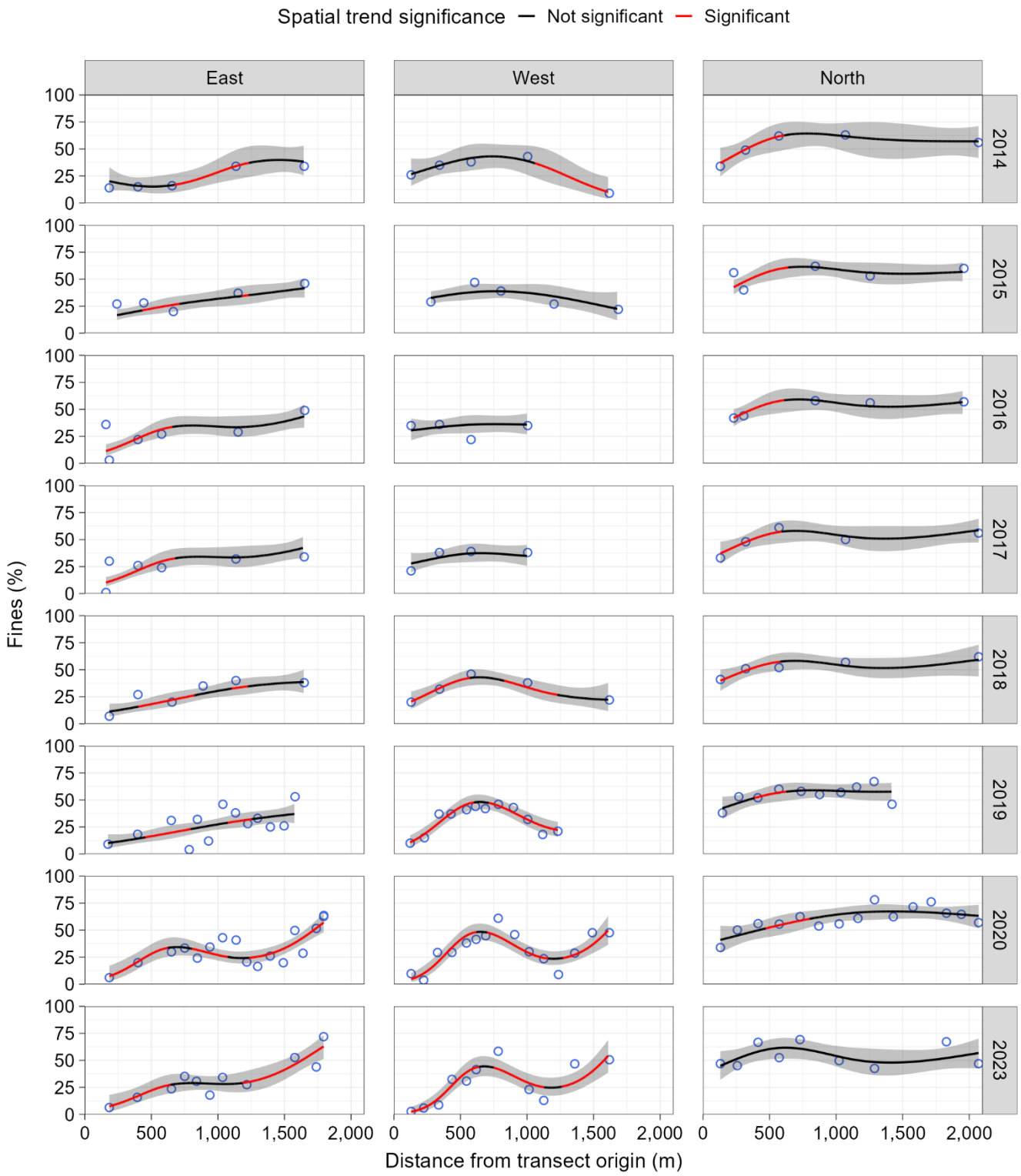
Table 3-4: Effect Significance in Analysis of the Entire Dataset Fines Content

Parameter	Df	X^2	*P*-value
Distance from transect origin	3	129.68	<0.001
Year	4	1.60	0.808
Transect	2	316.15	<0.001
Distance from transect origin × Year	12	16.19	0.182
Distance from transect origin × Transect	6	82.24	<0.001
Year × Transect	8	7.27	0.508
Distance from transect origin × Year × Transect	24	81.37	**<0.001**

Notes: Df = degrees of freedom. Distance and effect of year were modeled as splines. *P*-values of significant interactions (P<0.05) and significant main effects (where no significant interactions were found) are shown in bold.

The results of spatial trends in the assessed transects were as follows:

- **East Transect** – generally, there was a significant increase in fines content with distance from the transect origin in proximity to the transect origin (distances up to ~750 m) between 2014 and 2023; Figure 3-12). Within 1,000 m from the transect origin, the maximum annual value of spatial increase in fines ranged between 18% per 100 m (2015) and 87% per 100 m (2020).
- **West Transect** – in the earlier sampling years (2014-2017), fines content in proximity to the transect origin did not have a significant spatial trend. However, between 2018 and 2023, a significant increase in fines content was estimated up to a distance of ~750 m, followed by a significant decrease in fines (up to a distance of ~1,200 m; Figure 3-12) due to the influence of Phillips Creek. Within 1,000 m from the transect origin, the maximum annual value of spatial increase in fines ranged between 7% per 100 m (2016) and 169% per 100 m (2023).
- **North (Northwest) Transect** – between 2014 and 2018, fines content in proximity to the transect origin had a significant spatial trend, up to a distance of ~600 m (Figure 3-12). However, the significance of the trend had a smaller spatial extent in 2019 and 2020 and was absent altogether in 2023. That is, in 2023, there was no significant increase or decrease in fines content along the North Transect. Within 1,000 m from the transect origin, the spatial increase in fines was the lowest compared to other transects, ranging between only between 14% per 100 m (2020) and 33% per 100 m (2014).

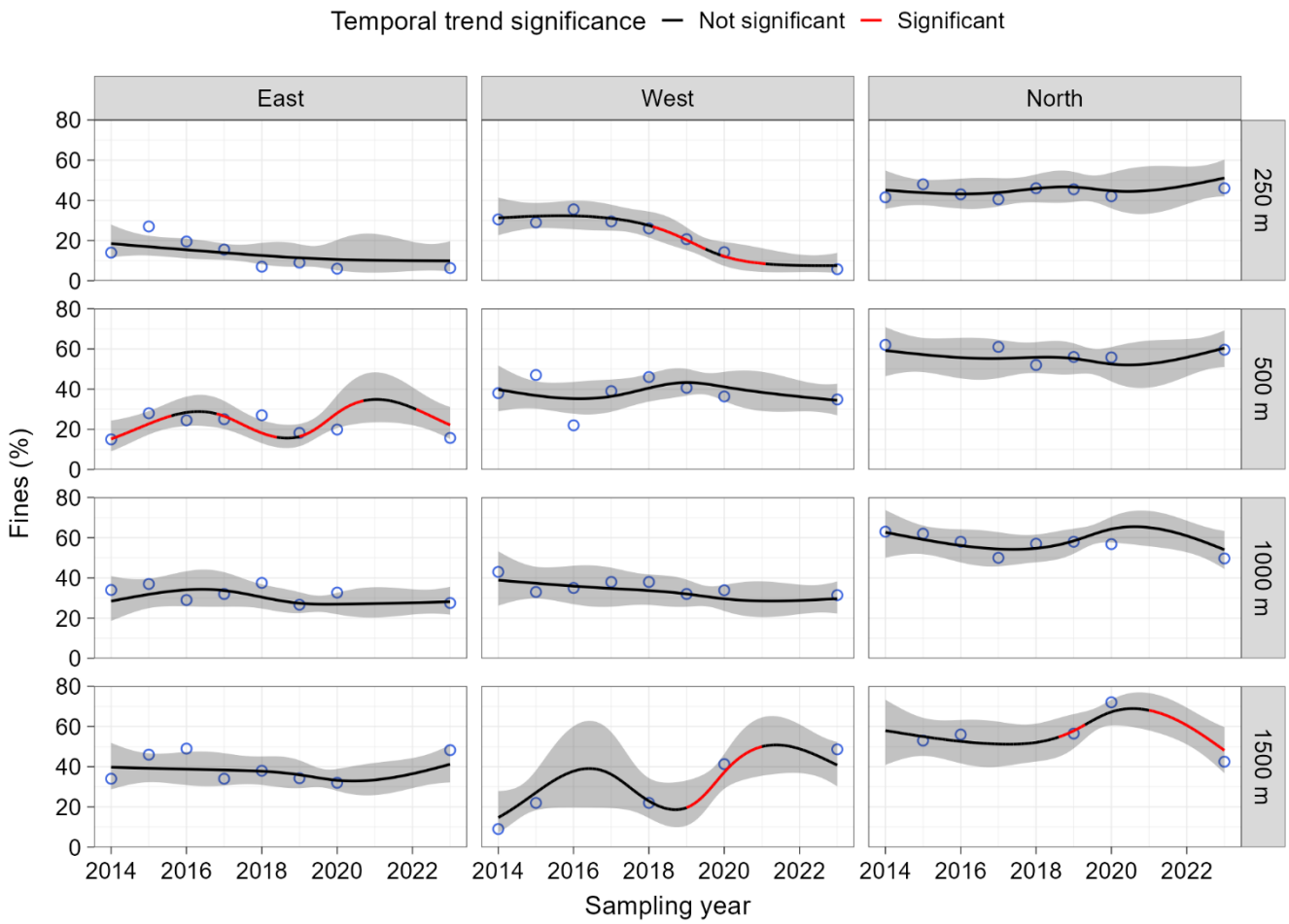


Notes: Grey ribbons are 95% confidence intervals. Red lines indicate slopes significantly different from zero.

Figure 3-12: Observed (points) and Estimated (lines) Percent Fines in Sediment Relative to Sampling Distance Along Transects, 2014 to 2020 and 2023.

The results of temporal trends in the assessed transects at distances of 250 m, 500 m, 1,000 m, and 1,500 m from transect origin were as follows:

- **East Transect** – a significant temporal trend was only found at 500 m, with alternating significant increasing and decreasing trends. While trends were significant, the values of fines content sampled in 2020 and 2023 were similar to the value in 2014 (Figure 3-13). No other temporal trends were found at the remaining assessed distances. At proximity to transect origin between 2020 and 2023, the change in fines contents ranged from -37% per year (500 m) to -1% per year (250 m).
- **West Transect** – a significant decreasing trend in fines content was estimated at 250 m from the transect origin between 2018 and 2020, likely due to the propeller wash scouring in the immediate vicinity of the Ore Dock area (Figure 3-13). In addition, at 1,500 m, a significant increasing trend was estimated between 2018 and 2020 likely due to the continual influence of Phillips Creek. No other temporal trends were found at the remaining assessed distances. At proximity to transect origin between 2020 and 2023, change in fines contents ranged from -8% per year (500 m) to -1% per year (250 m).
- **North (Northwest) Transect** – a significant increasing trend was estimated in 2019, followed by a significant decreasing trend between 2020 and 2023 (Figure 3-13). The cause for this trend is not clear (Figure 3-13); however, as shown in Figure 3-3, the Northeast Transect continued to show a progressive increase in fines with distance from the Ore Dock area but this transect was not included in the temporal trend analysis because it was added in 2019. Future reporting could include the Northeast Transect in the temporal trend analysis if there is a sufficient number of years of data. No other temporal trends were found at the remaining assessed distances for the North Transect. At proximity to transect origin between 2020 and 2023, change in fines contents ranged from +16% per year (250 m) to +21% per year (500 m).



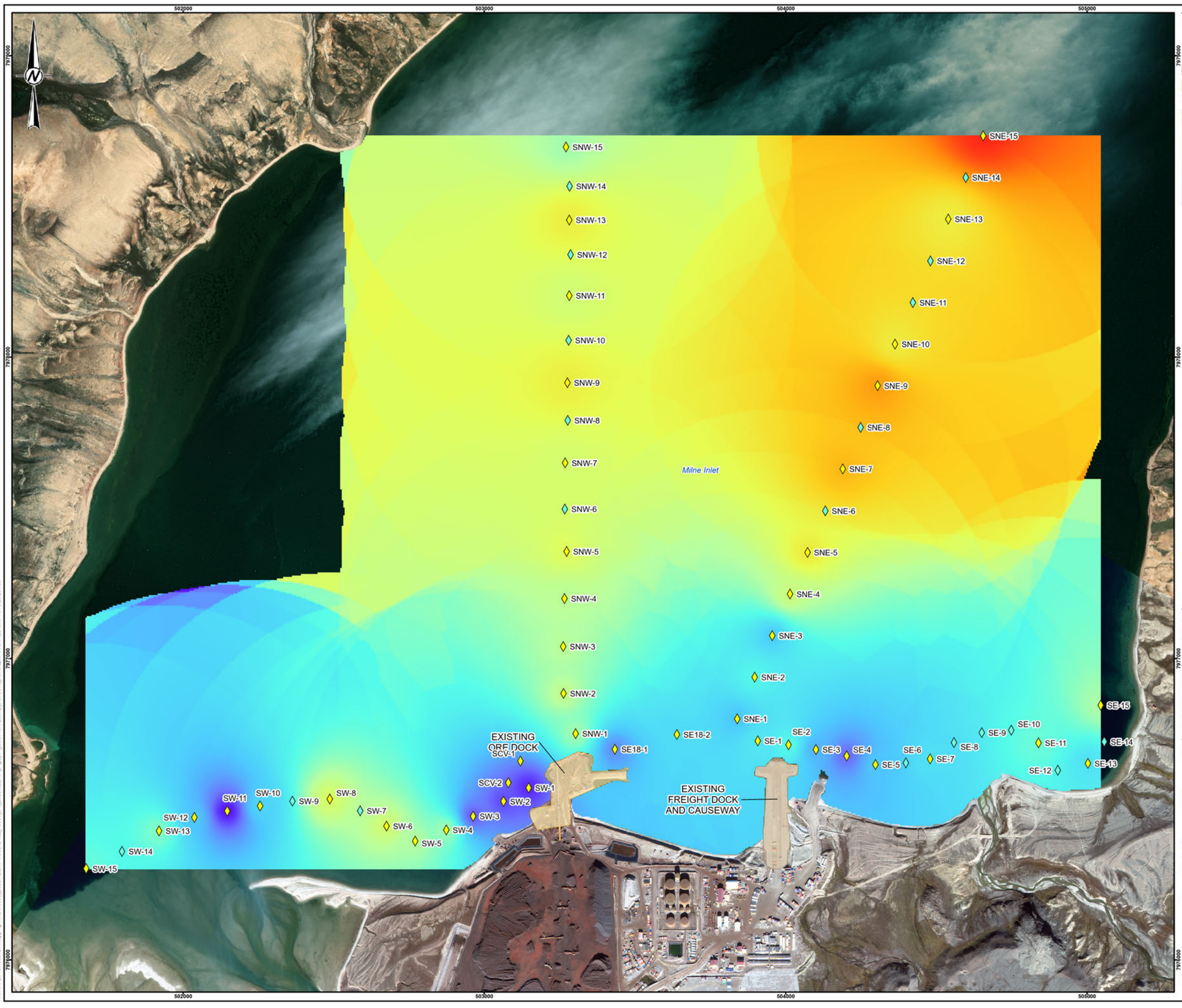
Notes: Grey ribbons are 95% confidence intervals. Red lines indicate slopes significantly different from zero.

Figure 3-13: Observed (points) and Estimated (lines) Percent Fines in Sediment Relative to Survey Year at Four Distances Along Each Transect – 250 m, 500 m, 1000 m, and 1500 m from Transect Origin.

Statistical power was sufficient to detect a reduction of 70% in fines content along each transect between 1,000 m from transect origin and the first sampling station on each transect (Appendix 3G). Two of the three transects in 2023 had differences larger than this cut-off (-94 and -93% for the East and West Transects, respectively), whereas the observed difference for the North Transect was smaller (-20%). That is, power was high to detect the observed effects for two of the three transects. For the temporal effects assessment, statistical power was sufficient to detect a 70% to 80% decrease in fines content between 2020 and 2023 for the East and North Transects, respectively, but not for any of the examined negative effect sizes for the West Transect (see Appendix 3G). Observed differences between 2023 and 2020 ranged from -41% to +39%, and statistical power to detect those was low.

3.4.5 Spatio-temporal Iron Concentrations in Sediments

The relationship between the distance from the Ore Dock area and sediment iron concentrations is depicted in Figure 3-14. The sediment iron content tends to increase with distance (yellow to orange to red shade) to north of the Ore Dock area along the Northern Offshore Transects (Figure 3-14). This relationship was not observed for the Coastal Transects to the east and west of the Ore Dock area, where iron concentrations were lower and more variable, a pattern that mirrored that described for the distribution of fines in Section 3.4.4. There was a strong linear relationship between percent fines in sediments and the iron content in the Post-2018 Data (Figure 3-15) and the Entire Dataset (Figure 3-16).



LEGEND

- 2023 SEDIMENT QUALITY SAMPLE LOCATION
- PROPOSED, NOT SAMPLED IN 2023
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK

IRON CONCENTRATION (MG/KG)

25000
22500
20000
17500
15000
12500
10000
7500
5000

0 250 500

1:12,500 METRES

NOTE(S)

IDW INTERPOLATION METHOD:
GRID SIZE: 5 m
VARIABLE SEARCH RADIUS: 750 m
MAXIMUM SAMPLE POINTS: 12
POWER: 2

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

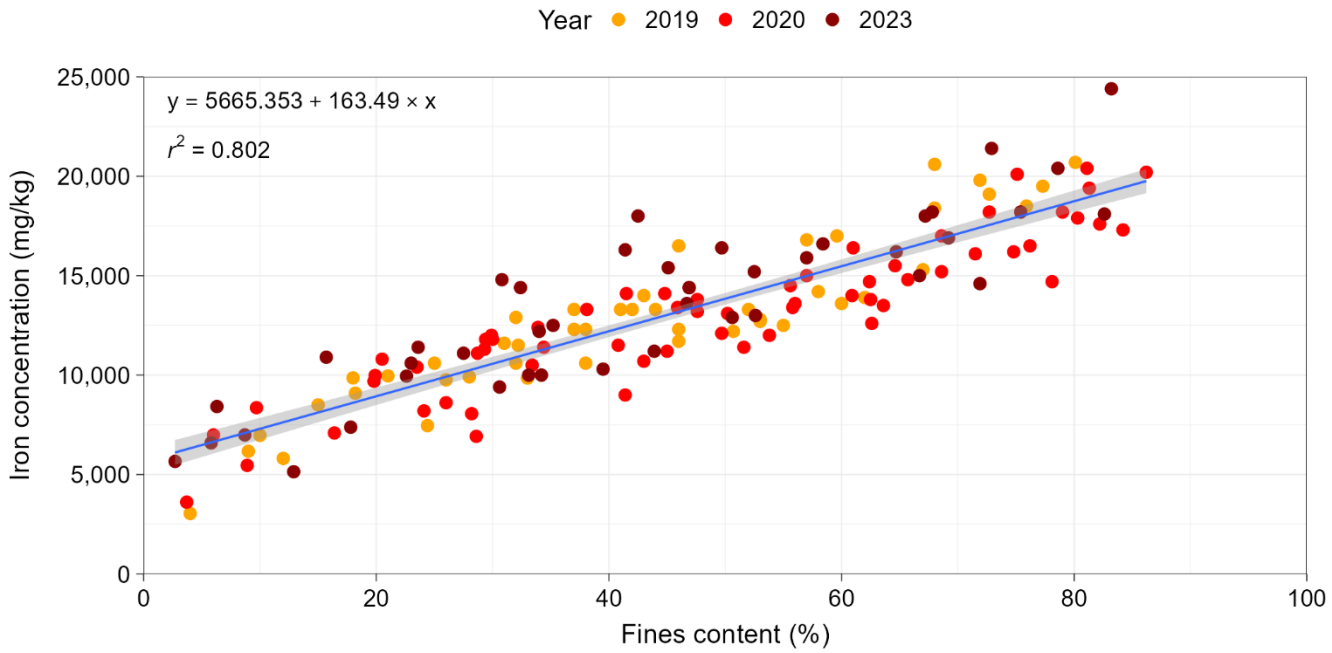
TITLE
INVERSE DISTANCE WEIGHTING (IDW) FOR 2023 MEEMP TOTAL IRON CONCENTRATIONS IN SEDIMENT

CONSULTANT

YYYY-MM-DD	2024-03-28
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

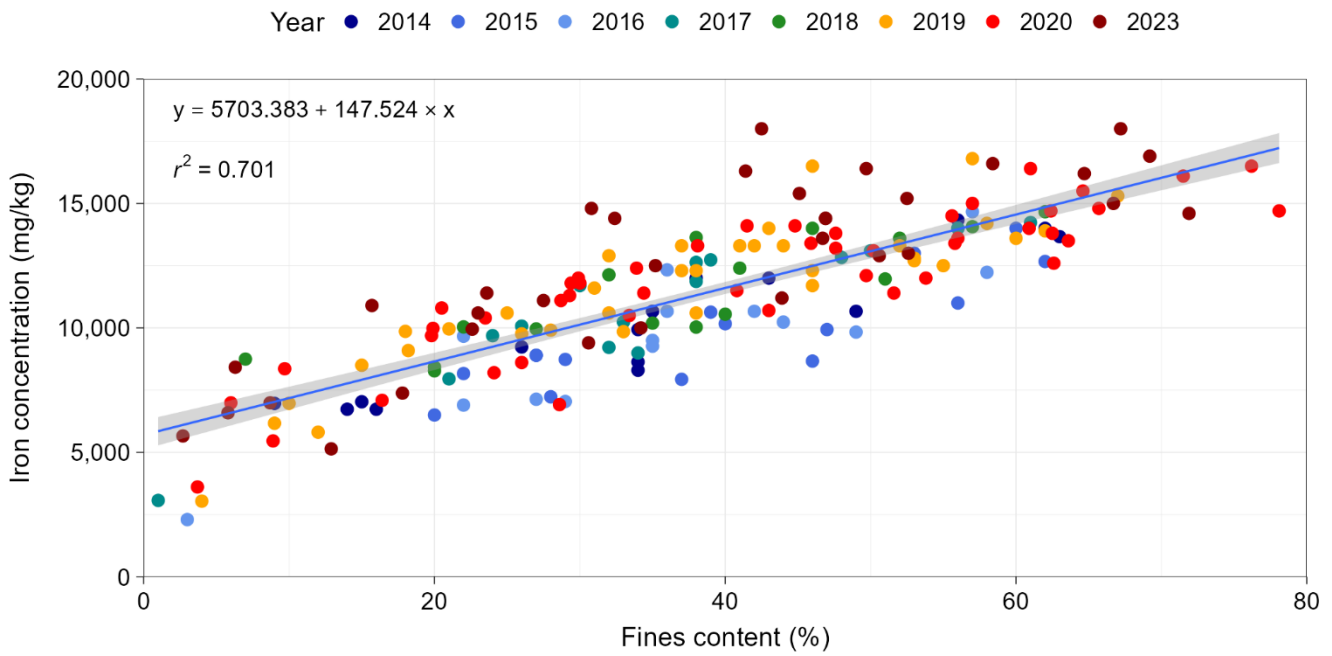
PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	3-14

PATH: I:\2016\166372402\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig3_14_SedimentQuality_IronConc_Rev0.aprx, PRINTED ON: AT 8:23:29 AM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm



Note: Grey ribbon is 95% confidence interval.

Figure 3-15: Relationship Between Iron Concentration and Fines Content in Sediment, Post 2018 Dataset.



Note: Grey ribbon is 95% confidence interval.

Figure 3-16: Relationship Between Iron Concentration and Fines Content in Sediment, Entire Dataset.

3.4.5.1 Post 2018 Dataset (2019, 2020 and 2023): Spatial and Temporal Comparison

Iron concentration at sediment stations sampled during the 2019, 2020, and 2023 MEEMP programs was evaluated using a linear regression, with main effects of distance from the Ore Dock area, year (as a categorical variable), transect, all possible interactions between the three variables, and a main effect of fines content, to account for the relationship between fines content and iron concentrations. The effect of distance was modeled as a natural cubic spline with three degrees of freedom, to account for the non-linearity in spatial trends in fines content. The three-way interaction between distance, year, and transect was not statistically significant (P=0.071; Table 3-5), indicating that the interannual difference in spatial trends did not differ between transects (i.e., the interaction between distance from transect origin and year did not differ between transects). The two-way interactions between distance and transect, as well as between year and transect were statistically significant (P<0.001 and P=0.005, respectively). These findings supported the visualization of spatial trends, where spatial trends differed between transects, however transect-level trends generally did not differ between years (Figure 3-17) The main effect of fines was significant (P<0.001; Table 3-5), as expected, given the strong relationship between the two variables (Figure 3-16).

Table 3-5: Effect Significance in Analysis of Post 2018 Dataset Iron Concentrations

Parameter	Df	X^2	*P*-value
Distance from transect origin	3	3.28	0.024
Year	2	14.97	<0.001
Transect	3	7.85	<0.001
Fines	1	121.87	<0.001
Distance from transect origin × Year	6	1.24	0.291
Distance from transect origin × Transect	9	6.27	**<0.001**
Year × Transect	6	3.30	**0.005**
Distance from transect origin × Year × Transect	18	1.61	0.071

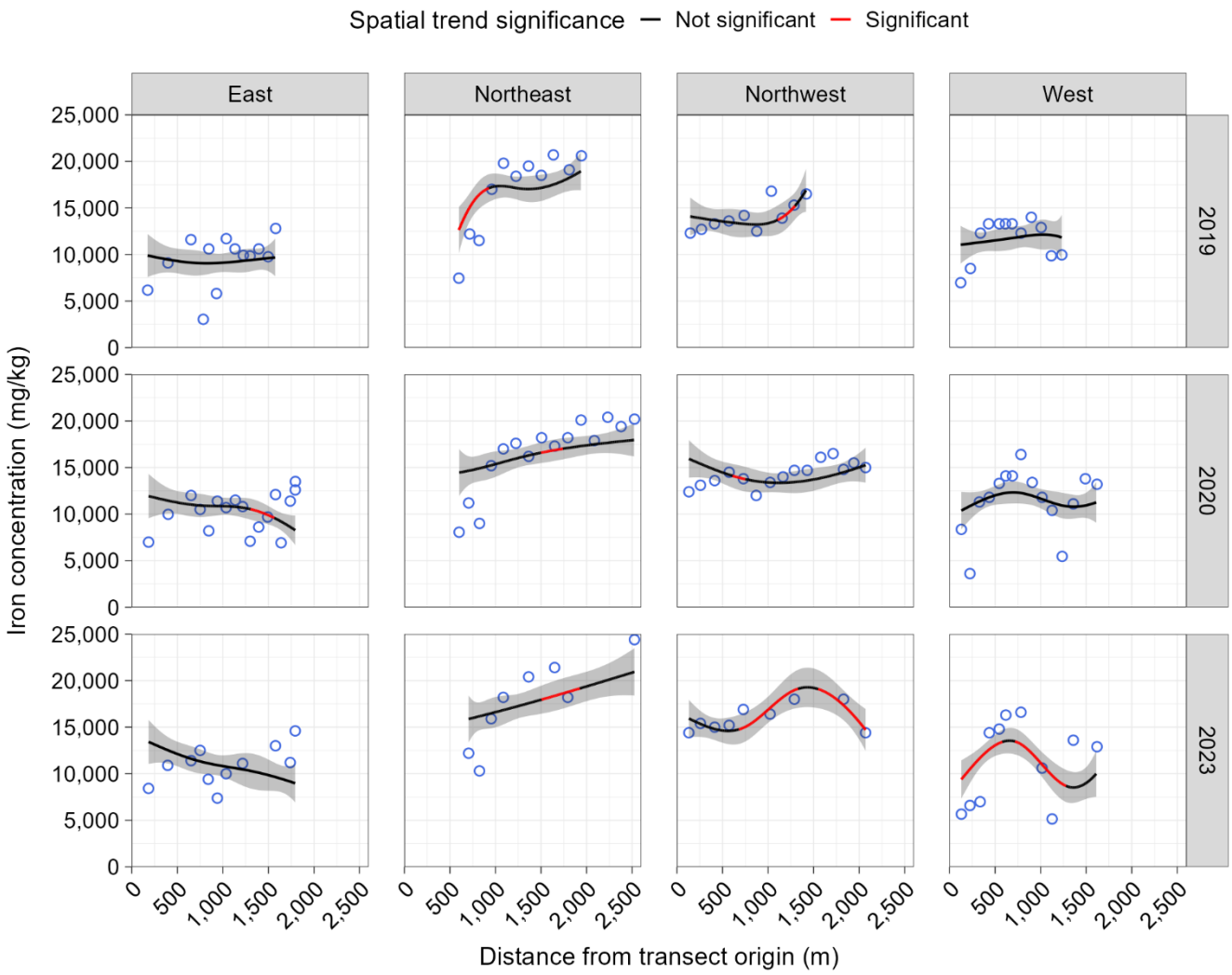
Notes: Df = degrees of freedom. Distance and effect of year were modeled as splines. *P*-values of significant interactions (P<0.05) and significant main effects (where no significant interactions were found) are shown in bold.

The results of spatial trends in the assessed transects were as follows:

- **East Transect** – in 2019, there was no consistent trend in fines-adjusted iron concentrations along the East Transect, while in 2020 and 2023, there was a decreasing trend with distance from transect origin (Figure 3-17). This trend was only significant at ~1,500 m in 2020, likely due to the higher uncertainty around estimates in 2023 (Figure 3-17). Within 1,000 m from the transect origin, the maximum annual value of spatial decrease in fines-adjusted iron concentrations ranged between -437 mg/kg per 100 m (2023) and -205 mg/kg per 100 m (2020).
- **West Transect** – In all sampling years, an increase in fines-adjusted iron content was estimated between transect origin and ~600 m distance, however it was slight and not significant in 2019 and 2020 and more pronounced and statistically significant in 2023 (Figure 3-17). In both 2020 and 2023, this increase was followed by a decrease in fines-adjusted iron concentrations, between ~600 m and ~1,250 m; however, this increase was also slight and not statistically significant in 2020. These results mirror that found for percent

fines and are reflective of the influence of Phillips Creek on the grain size distribution in Milne Inlet at the creek mouth. Within 1,000 m from the transect origin, the maximum annual value of spatial increase in fines-adjusted iron concentrations ranged between 149 mg/kg per 100 m (2019) and 1,188 mg/kg per 100 m (2023).

- **Northeast Transect** – in all three years, there was an increasing trend in fines-adjusted iron concentration with distance from transect origin (Figure 3-17). The significance of the trend differed between years, with a significant increase at distances of ~600 m to ~900 m in 2019, but only at ~1,500 m in 2020 and 2023, likely due to the less pronounced trend in 2020 and the higher uncertainty in estimates in 2023 (Figure 3-17). The lack of sampling between 2,000 m and 2,500 m in 2023 precluded a more refined estimate of trends in fines-adjusted iron at the farthest distances from the origin. Within 1,000 m from the transect origin, the maximum annual value of spatial increase in fines-adjusted iron concentrations ranged between 104 mg/kg per 100 m (2020) and 3,712 mg/kg per 100 m (2019).
- **Northwest Transect** – fines-adjusted iron concentrations decreased slightly between the transect origin and ~600 m in all three years (Figure 3-17). This spatial decrease was followed by an increase in iron content, which was significant in 2019 (at ~1,250 m) and in 2023 (between ~750 m and 1,300 m), but not in 2020. Within 1,000 m from the transect origin, the maximum annual value of spatial decrease in fines-adjusted iron concentrations ranged between -160 mg/kg per 100 m (2019) and -467 mg/kg per 100 m (2023).

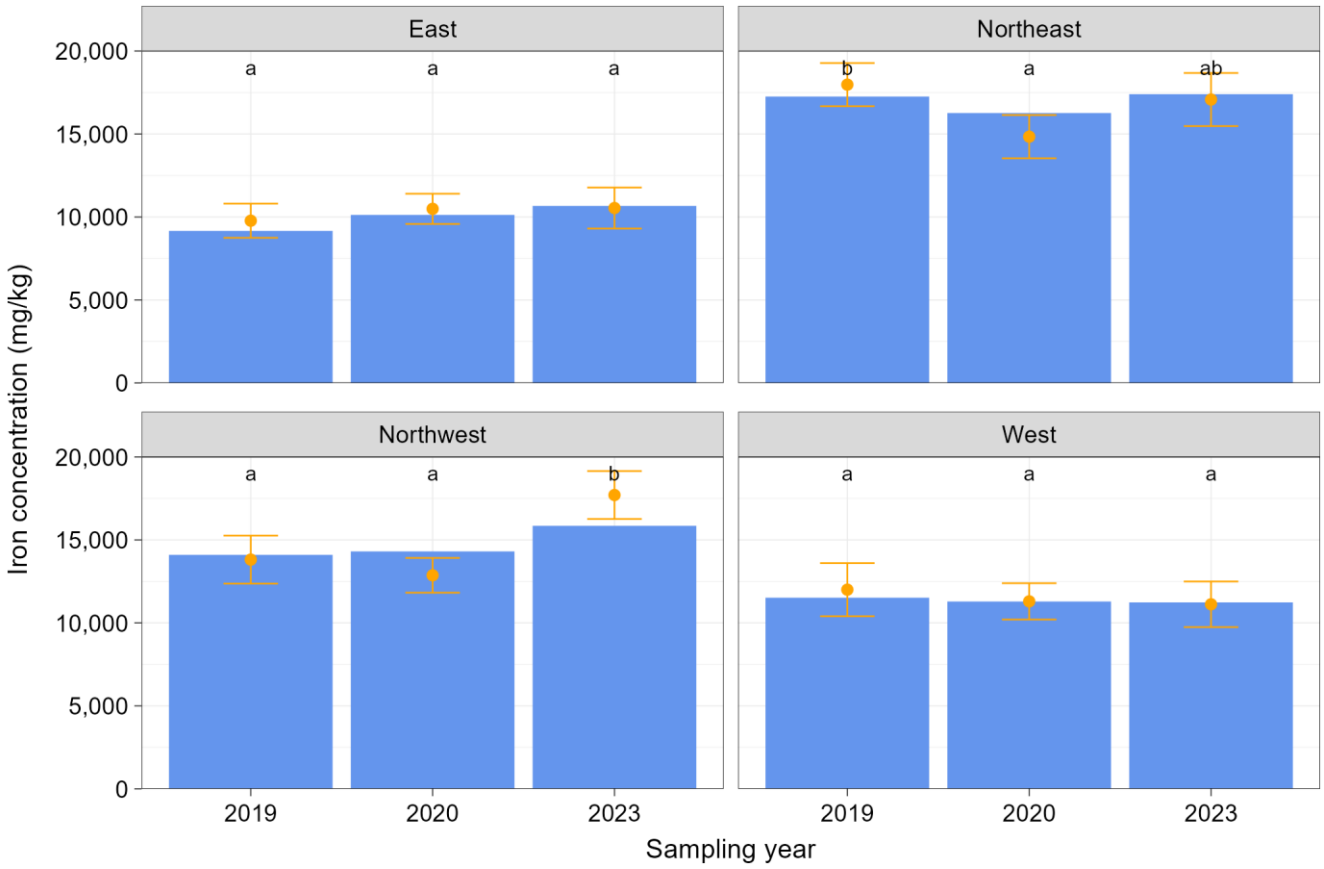


Notes: Grey ribbons are 95% confidence intervals. Red lines indicate slopes significantly different from zero. Predicted values used mean fines content for each transect/year combination, and hence may not align with the observed data points which had individual fines content values.

Figure 3-17: Observed (points) and Estimated (lines) Iron Concentrations in Sediment Relative to Sampling Distance Along Transects, 2019, 2020, and 2023.

The overall model found a significant two-way interaction between year and transect, but no other interactions with year temporal effects in either interaction or main effects (Table 3-5). Therefore, multiple comparisons between years were averaged across distances from transect origin, as opposed to at individual distances. Multiple comparisons indicated no significant temporal changes in fines-adjusted iron concentrations at the East and West Transects (Figure 3-18). At the Northeast Transect, fines-adjusted iron concentrations decreased significantly between 2019 and 2020 (P=0.003, effect size of -21%), followed by a 19% increase between 2020 and 2023, which was not significantly different from either 2019 or 2020 (P=0.7 and P=0.09, respectively). At the Northwest Transect, fines-adjusted iron values remained stable between 2019 and 2020 (P=0.5, effect size of -8%), followed by a significant increase between 2020 and 2023 (P<0.001, effect size of +44%).

Statistical power was sufficient to detect a reduction of 35% in fines-adjusted iron concentrations along the Northeast and Northwest Transects, but not for any of the assessed effect sizes for the East and West Transects (Appendix 3G). The low power to detect decreasing iron concentrations at the East and West Transects was due to the low fines content in proximity to the transect origins. Since low fines would be associated with low iron concentrations, the simulated decreases in iron had little effect, resulting in low statistical power. The model had sufficient power to detect increases in iron concentrations in the proximity to transect origins at effect sizes of +120%, +30%, +35%, and +140% for the East, Northeast, Northwest, and West Transects, respectively. The model had sufficient power to detect the observed effect size for the Northeast Transect (-31%), but low power to detect the effect sizes observed at the other transects (-30% to +5%). For the temporal effects, the model had sufficient power (>0.8) to detect a 35%, 35%, 15%, and 25% decreases or increases in fines-adjusted iron concentrations for the East, Northeast, Northwest, and West Transects, respectively (Appendix 3G). Observed effect sizes ranged from +3% to +20%, and statistical power to detect those was low.



Notes: Error bars are 95% confidence intervals. Bars with different letters indicate significant difference between years within the relevant transect panel. Predicted values used mean fines content for each transect, and hence may not align with the observed data points which had individual fines content values.

Figure 3-18: Observed (bars) and Estimated (points and error bars) Iron Concentration in Sediment Relative to Sampling Year and Transect, 2019, 2020, and 2023.

3.4.5.2 Entire Dataset (2014 to 2020 and 2023): Spatial and Temporal Comparison

Iron concentration at sediment stations sampled during the 2014 to 2020 and 2023 MEEMP programs was evaluated using a linear regression, with main effects of distance from the Ore Dock area, year (as a continuous variable), transect, all possible interactions between the three variables, and a main effect of fines content, to account for the relationship between fines content and iron concentrations. The effects of distance and year were modelled as natural cubic splines with three and four degrees of freedom, respectively, to account for the non-linearity in spatial and temporal trends in fines content. The three-way interaction between distance, year, and transect was not significant (Table 3-6), indicating that the interannual difference in spatial trends did not differ between transects (i.e., the interaction between distance from transect origin and year did not differ between transects). The two-way interactions between distance and transect, as well as between year and transect were statistically significant. These findings supported the visualization of spatial trends, where spatial trends differed between transects, however transect-level trends generally did not differ between years (Figure 3-19). The main effect of fines was significant (Table 3-6), as expected, given the strong relationship between the two variables (Figure 3-16).

Comparison of trends between years was not possible for the Northeast Transect because 2019 was the first year that this transect was sampled; thus, results for the Northeast Transect are included in the Post 2018 Dataset analysis only. The ‘North’ Transect referred to in this section refers to the ‘Northwest Transect in the 2019, 2020 and 2023 MEEMP years. In future monitoring years there is expected to be sufficient data to include the Northeast Transect in this analysis.

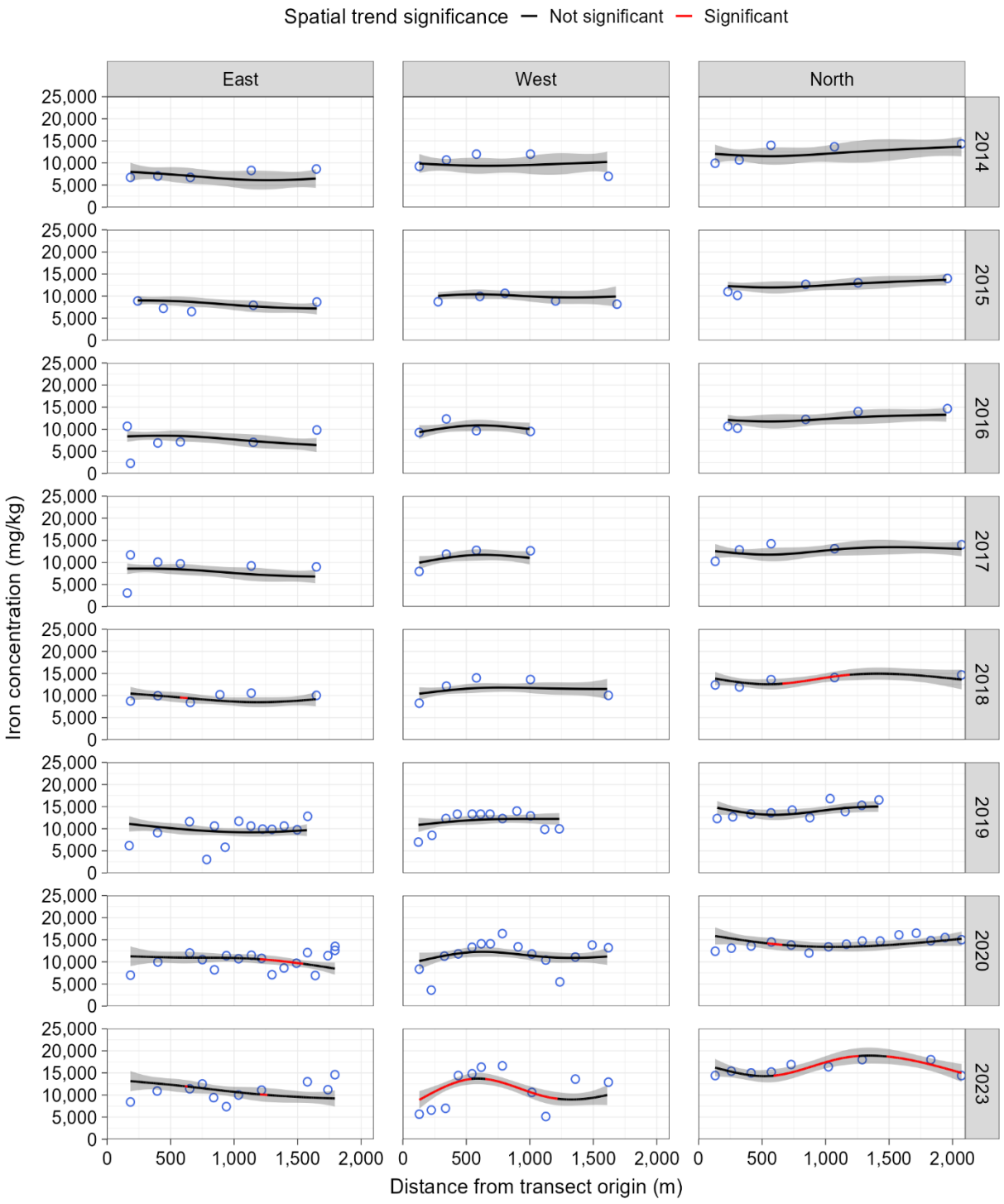
Table 3-6: Effect Significance in Analysis of Entire Dataset Iron Concentrations.

Parameter	Df	F value	*P*-value
Distance from transect origin	3	2.53	0.060
Year	4	23.33	<0.001
Transect	2	18.76	<0.001
Fines	1	168.43	**<0.001**
Distance from transect origin × Year	12	0.84	0.609
Distance from transect origin × Transect	6	7.18	**<0.001**
Year × Transect	8	2.29	**0.025**
Distance from transect origin × Year × Transect	24	1.31	0.167

Notes: Df= degrees of freedom. Distance and effect of year were modeled as splines. *P*-values of significant interactions (*P*<0.05) and significant main effects (where no significant interactions were found) are shown in bold.

The results of spatial of fines-adjusted iron concentration trends in the assessed transects were as follows:

- **East Transect** – generally, there were no consistent significant spatial trends in fines-adjusted iron concentrations along the East Transect (Figure 3-19). Within 1,000 m from the transect origin, the maximum annual value of spatial decrease in fines-adjusted iron concentrations ranged between 337 mg/kg per 100 m (2023) and 101 mg/kg per 100 m (2020).
- **West Transect** – between 2014 and 2020, there were no significant spatial trends in fines-adjusted iron concentrations along the West Transect. In 2023, fines-adjusted iron concentrations increased significantly with distance from the transect origin, up to a distance of ~600 m, followed by a significant decrease in concentrations up to a distance of ~1,200 m (Figure 3-19). Within 1,000 m from the transect origin, the maximum annual value of spatial decrease in fines-adjusted iron concentrations ranged between 1,029 mg/kg per 100 m (2023) and 3 mg/kg per 100 m (2019).
- **North (Northwest) Transect** – between 2014 and 2017, there were no significant spatial trends in fines-adjusted iron concentrations along the North Transect (Figure 3-19). In 2018, and 2023, there was a significant increasing trend in fines-adjusted iron between distances of ~600 m and ~1,200 m. Within 1,000 m from the transect origin, the maximum annual value of spatial decrease in fines-adjusted iron concentrations ranged between 750 mg/kg per 100 m (2023) and 162 mg/kg per 100 m (2015).



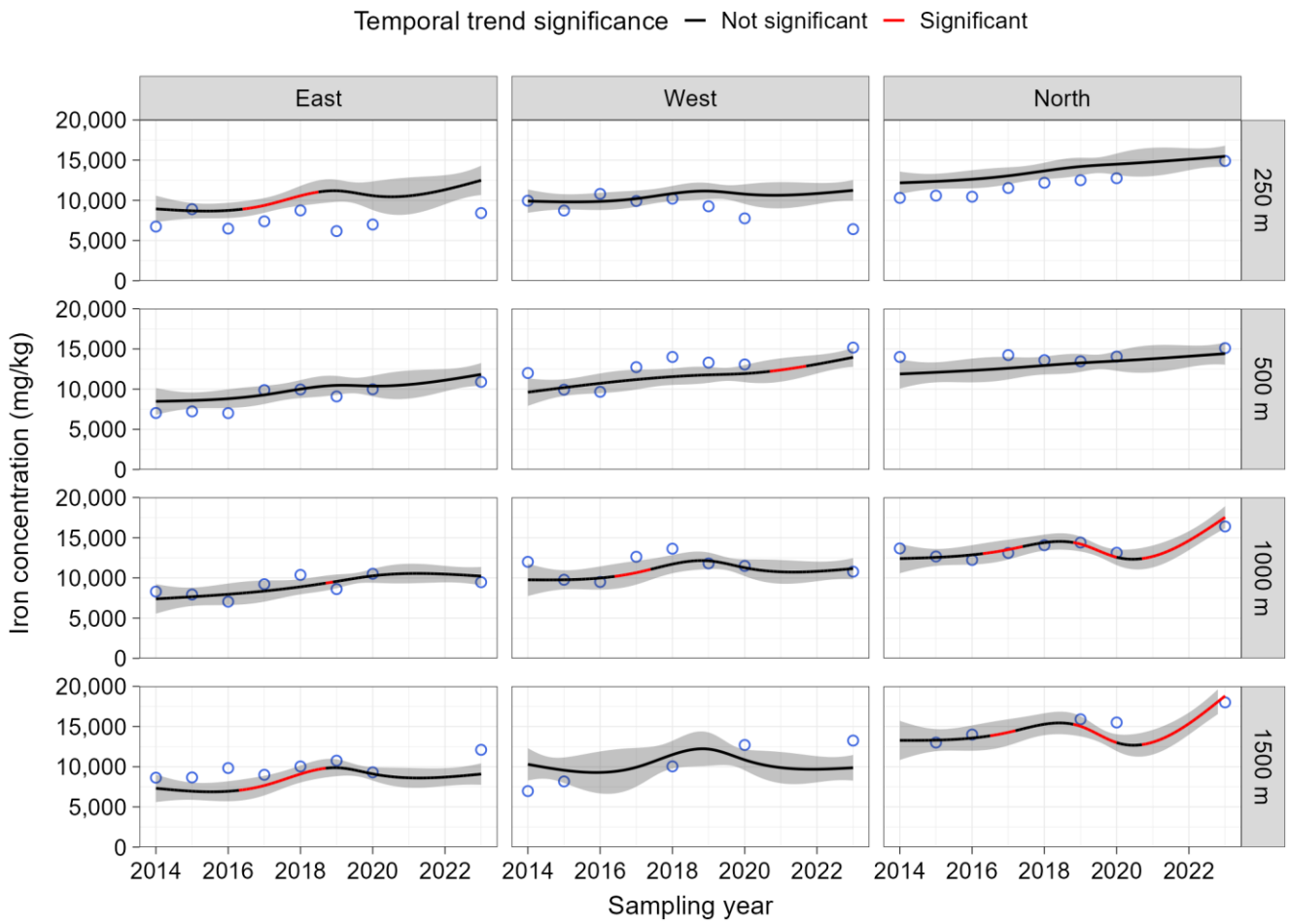
Notes: Grey ribbons are 95% confidence intervals. Red lines indicate slopes significantly different from zero. Predicted values used mean fines content for each transect/year combination, and hence may not align with the observed data points which had individual fines content values.

Figure 3-19: Observed (points) and Estimated (lines) Iron Concentrations (mg/kg) in Sediment Relative to Sampling Distance Along Transects, 2014 to 2020 and 2023.

The results of temporal trends in the assessed transects at distances of 250 m, 500 m, 1,000 m, and 1,500 m from transect origin were as follows:

- **East Transect** – there was an overall increasing temporal trend at the assessed distances, although the trend was only found to be significant between 2017 and 2019 (at 250 m), at 2019 (at 1,000 m) and between 2016 and 2019 (at 1,500 m; Figure 3-20). At proximity to transect origin between 2020 and 2023, the change in fines-adjusted iron concentration ranged from 729 mg/kg per year (500 m) to 1,184 mg/kg per year (250 m).
- **West Transect** – estimated temporal trend at 250 m was stable, with little change over time (Figure 3-20). At 500 m from transect origin, an increasing temporal trend was estimated, with a statistically significant slope in 2021 (however note that no data was collected in that year). At both 1,000 m and 1,500 m, the model estimated a slightly increasing trend between 2014 and 2019, followed by a decrease to values similar to 2014-2015 sampling years (Figure 3-20). At proximity to transect origin between 2020 and 2023, the change in fines-adjusted iron concentration ranged from 397 mg/kg per year (250 m) to 859 mg/kg per year (500 m).
- **North (Northwest) Transect** – temporal trends assessed at 250 m and 500 m were slightly increasing and not statistically significant (Figure 3-20). At 1,000 m, significant increases were estimated in 2017 and between 2020 and 2023 (Figure 3-20). At proximity to transect origin between 2020 and 2023, the change in fines-adjusted iron concentration ranged from 328 mg/kg per year (250 m) to 356 mg/kg per year (500 m).

Statistical power was sufficient to detect a reduction of 35% in fines-adjusted iron concentrations for the North Transect between 1,000 m from transect origin and the first sampling station (Appendix 3G). For the remaining two transects, none of the negative effect sizes had sufficient power. The model had sufficient power to detect increases in iron concentrations in the proximity to transect origins at effect sizes of +110%, +110%, and +35% for the East, West, and North Transects, respectively. Observed effect sizes in 2023 ranged between +3% and +37%, and statistical power to detect them was low. For the temporal effects, the model had sufficient power (>0.8) to detect a 65%, 40%, and 25% decrease in fines-adjusted iron concentrations for the East, West, and North Transects, respectively, as well as a 50%, 35%, and 30% increases for the East, West, and North Transects, respectively (Appendix 3G). Observed effect sizes in 2023 ranged between +8% and +16%, and statistical power to detect them was low.



Notes: Grey ribbons are 95% confidence intervals. Red lines indicate slopes significantly different from zero. Predicted values used mean fines content for each transect, and hence may not align with the observed data points which had individual fines content values. North transect is equivalent to the Northwest Transect.

Figure 3-20: Observed (points) and Estimated (lines) Iron Concentrations (mg/kg) in Sediment Relative to Survey Year at Four Distances Along Each Transect – 250 m, 500 m, 1000 m, and 1500 m from Transect Origin.

3.4.6 Capesize Vessel Existing Conditions Sampling Program

In 2023, eight stations (SW-1 through SW-4, SE18-1, SNW-1, SCV-1 and SCV-2) were sampled as part of the Capesize vessel effects monitoring program to monitor for scouring effects on sediment and benthic infauna for three years after the initial use of large (Baby Cape and Capesize) ore carriers (Figure 3-2). As the initial Capesize ore carrier use in Milne Port was planned to take place in the late ice-free period of 2023 (29 August 2023), sampling for Capesize vessel effects monitoring commenced in August 2023 (August 4-19, 2023) with the intention of documenting existing conditions for sediment quality prior to the use of the larger vessels in fall 2023 (Figure 3-2).

3.4.6.1.1 Particle Size Composition

The physical composition of sediments differed among stations in 2023. Sediments from the Capesize vessel stations are comprised primarily of sand (86% to 94%; 0.063 mm – 2.0 mm) at stations SE18-1, SCV-2, SW-1, SW-2, and SW-3 (Figure 3-21) while stations SCV-1, SNW-1, and SW-4 are dominated by sand with silt (i.e., silt fractions range from 27% at SW-4 to 38% at SCV-1; 0.004 mm – 0.063 mm). All eight stations are located within the nearshore area (<30 m bathymetry line) and the observed variability could be due to a combination of the existing influence of scouring due to propeller wash from the smaller carriers and natural coastal processes and variations in morphology.

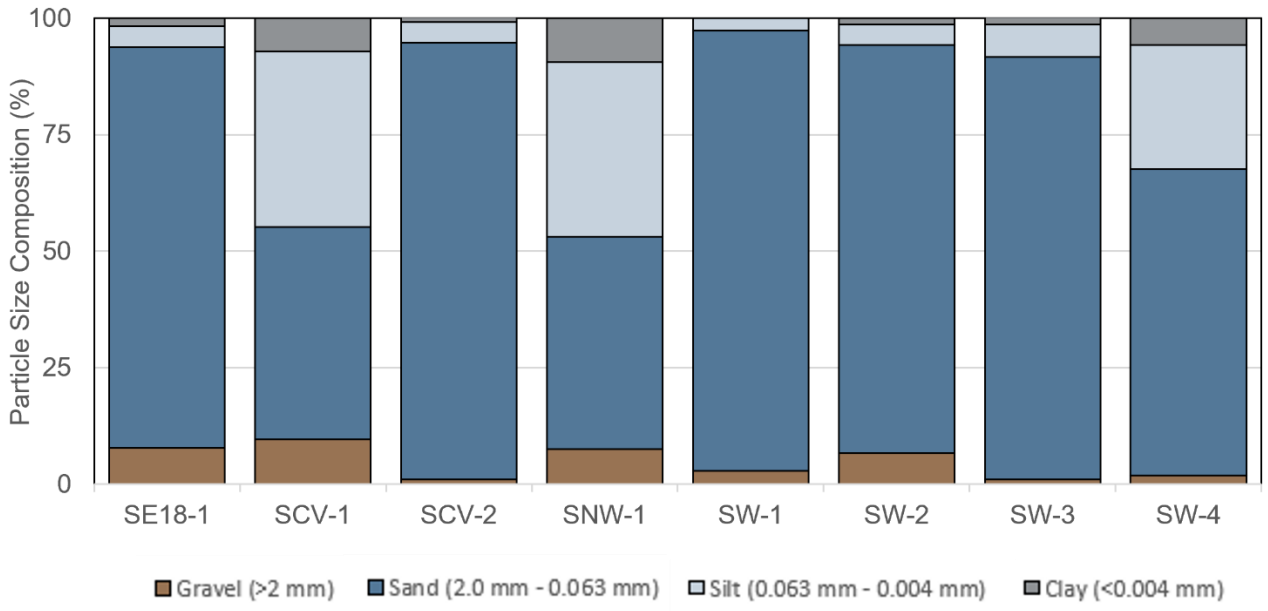


Figure 3-21: Sediment Particle Size Distribution for Capesize Vessel Stations Located in the Vicinity of the Ore Dock Area in Milne Port, 2023.

3.4.6.1.2 Metals

Sediment metal concentrations at the Capesize vessel stations sampled in 2023 were lower than applicable sediment quality guidelines, with the exception of arsenic at single station (SCV-1) which was marginally above the conservatively derived CCME ISQG and the NOAA T_{20} benchmark but was below the CCME PEL. While arsenic concentrations at SNW-1 and SW-4 were below the applicable screening criteria, arsenic concentrations were elevated compared to the other Capesize stations. The elevated concentration at these three stations were likely due to their higher proportion of fines. Exceedance of generic CCME ISQGs for sediment metals in Northern Canada is not uncommon under naturally occurring background conditions, as evident under baseline conditions in Milne Inlet, where arsenic concentrations up to 9.0 mg/kg were measured in sediments collected during the baseline sampling programs.

Therefore, the low magnitude exceedance of the conservatively derived ISQG in the one Capesize vessel station (SCV-1) is likely reflective of background conditions and related to physical sediment properties (i.e., percent fines due to natural coastal sorting processes) and may only be due to the influence of Port activities.

3.4.6.1.3 BTEX and VOCs

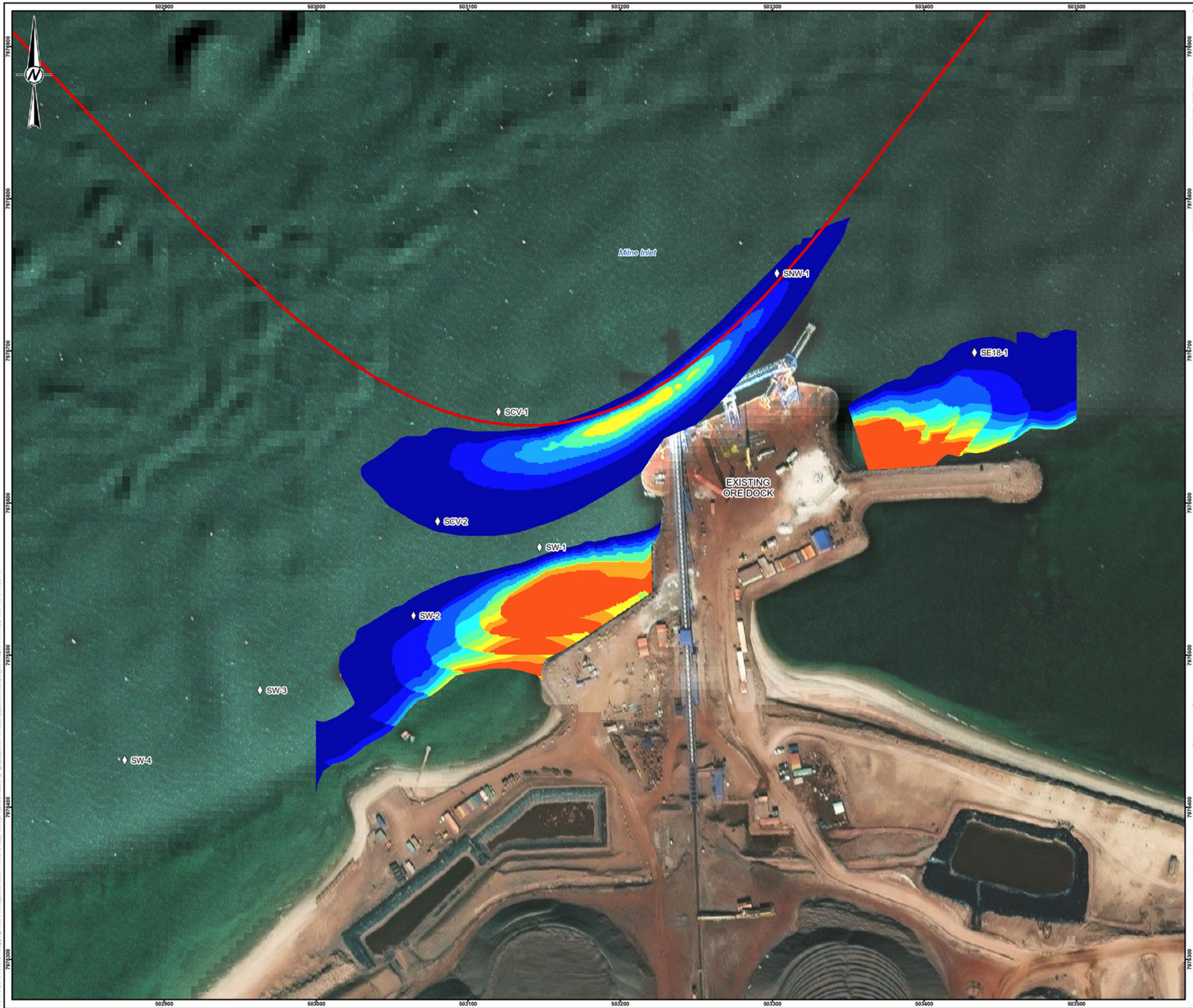
Sediment BTEX, petroleum hydrocarbons, and PAHs were not detected in sediments from the eight stations (Appendix 3D).

3.4.6.1.4 Capesize Vessel Scour Predictions

In 2023, the NIRB and Federal Ministers approved the continued transportation and shipping of 6 million tonnes per annum (Mtpa) of iron ore via the Tote Road and Northern Shipping Route from Milne Port during the ice-free period between 1 July and 31 October. As part of the approval, it was understood that vessel traffic would remain the same as that experienced since 2018 (maximum of 84 ore carriers), and that the introduction of larger vessels (Capesize) may further offset overall ship traffic requirements. To assess potential effects of the Sustaining Operations Proposal (SOP) on the marine environment, WSP conducted a Ship Wake and Propeller Wash Assessment to address possible project effects on the marine physical environment related to shipping activities associated with increased large vessel traffic (WSP 2023).

To develop a baseline condition of the sediment located at the Ore Dock area, eight sediment sampling stations were established to monitor Capesize vessel effects over time (Section 3.2.3). Figure 3-22 shows the location of the eight Capesize vessel sediment sampling stations in relation to maps of predicted scour depth for Capesize vessel operations. Results of the WSP (2023) show that scour was predicted to occur over most of the berthing area for Capesize vessels with localized scour predicted to exceed 0.5 m in depth due to the tug propeller jets on the starboard side of vessels. Scour from the tugs is expected when their propeller is facing the shoreline. Predicted scour effects are greatest in the vicinity of Capesize vessel sediment stations SW-1, SW-2, and SE18-1 (Figure 3-22). As shown in Figure 3-22, most of the Capesize vessel sediment stations are located outside of the maximum predicted scour depths as these stations were established along the 15 m depth contour. The 15 m depth contour is considered to be unaffected by winter ice scour and has been associated with relatively higher species counts and increased species diversity for both marine flora and fauna (SEM 2015).

The effects assessment estimated that propeller-generated wash velocities have the potential to cause scour and turbidity in the berthing area for all vessels, including the Supramax to Capesize. In 2023, Baffinland committed that stations SW-1 through SW-4, SE18-1, SNW-1, and two new sites (SCV-1 and SCV-2) would be monitored for scouring effects on sediment and benthic infauna for three years after the initial use of large (Baby Cape and Capesize) ore carriers. Following this three-year period, Baffinland will consider a reduced frequency in sampling at these locations (once every three years) if sediment and benthic conditions at these sites are shown to be stable and within the limits of impact predictions.



LEGEND

- 2023 SEDIMENT QUALITY SAMPLING STATION
- VESSEL TRACK

SCOUR DEPTH (M)

- 0 - ≤0.05
- >0.05 - ≤0.10
- >0.10 - ≤0.15
- >0.15 - ≤0.20
- >0.20 - ≤0.25
- >0.25 - ≤0.30
- >0.30 - ≤0.35
- >0.035 - ≤0.40
- >0.40 - ≤0.45
- >0.045 - ≤0.50

0 50 100

1:2,500 METRES

REFERENCE(S)

IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
SEDIMENT SAMPLING STATIONS AND ESTIMATED SCOUR DEPTH FOR A CAPESIZE ORE CARRIER TRANSIT ON A REFERENCE SHIP TRACK IN THE BERTH AREA INCLUDING TUG EFFECTS

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	3-22

PATH: I:\2016\166372414\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig3_22_SedimentQuality_EstScourDepth_Rev0.aprx PRINTED ON: AT 5:10:29 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

3.4.7 QA/QC Results

The 2023 sediment quality data were considered valid based on the results of the QA/QC assessment provided in Appendix 3E. Briefly,

- The Relative Percent Difference (RPD) was below the Data Quality Objective (DQO) of 50% in all parent/duplicate pairs except for SNE-13 and DUP-C for gravel (RPD = 131%); however, particle size in sediment is inherently variable and is therefore not unexpected. The QA/QC results suggest there was low variability and high precision between duplicates consistent with sediment quality (Table 1, Appendix 3E).
- Chemical analyses on all sediment samples were completed within the sample hold time requirements (Table 2, Appendix 3E).
- Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment.

Overall, the QA/QC results indicate that the sediment quality data collected during the 2023 sampling program are of acceptable quality to address the objectives stated in Section 3.1.1.

3.4.8 TARP Assessment

Results of the sediment quality assessment above were screened against the TARP criteria (Table 3-2). The ‘Low Risk’ threshold was not triggered in 2023 because the sediment quality indicators present were at concentrations lower than the ISQG. Where isolated ISQG exceedances did occur, sediment concentrations were within expected background concentrations as informed by pre-project baseline studies. Spatial and temporal trend analysis of fines content and sediment iron concentrations did not suggest a pattern indicative of Port-related effects beyond FEIS predictions (Baffinland 2012, 2013).

3.5 Discussion

Over multiple monitoring years since 2014, the MEEMP has characterized sediment quality along both coastal and offshore transects radiating out from the Ore Dock area. Overall, monitoring results have remained within original FEIS predictions and subsequent addenda (Baffinland 2012, 2013). These predictions forecasted no significant residual effects on sediment quality but indicated the potential for minor localized sediment disturbance associated with propeller wash, which is expected to stabilize over time, as well as the potential for minor localized increases in nutrients, metal, or hydrocarbon concentrations. As discussed below, the 2023 MEEMP provided a characterization of sediment quality along two coastal and two offshore transects, as well as sampling of several stations close to the Ore Dock area to provide existing conditions sediment data prior to the use of larger ore carriers (Baby Cape and Capesize) at Milne Port. As found in other monitoring years when the radial design program was implemented, spatial relationships between sediment parameters in 2023 supported a more in-depth statistical analysis of the percent fines and sediment iron data to evaluate spatial patterns and temporal trends over time.

3.5.1 Percent Fines and Substrate Composition

In 2023, both offshore transects showed a pattern of increasing fines with distance from the Ore Dock area, but with higher fines content in sediments from stations located along the Northeast Transect compared to the Northwest Transect. This overall sediment distribution pattern occurs along a depth gradient and is reflective of natural sediment processes by which finer sediments accumulate in offshore deeper waters over time. Though in previous years the fines content along the two offshore transects were more comparable, closer to the Port along the shallower Coastal Transects, the sediment grain size was naturally more variable with both sand and fines present in differing proportions depending on the station location. This to be expected as nearshore sediments are more influenced by coastal processes and morphology, as well as inputs from rivers or streams. To assess the potential for scouring due to Port-activities and given the observed relationship between proportion of fines and sediment metals in Milne Inlet, statistical beta regression modelling analysis was undertaken to assess whether spatial and temporal changes in percent fines along the transects could be Project-related.

Along the West Transect closer to the Ore Dock area, sediment substrates at stations were variable but showed a significant decreasing trend in fines within the vicinity of the Ore Dock area, providing some indication that propeller-generated currents might be causing localized scouring and disturbance of the seabed. Propeller wash effects around the Ore Dock area in Milne Port are consistent with the predictions of the FEIS and subsequent addenda, which forecasted the potential for minor and localized sediment disturbance and overall negligible residual effects on sediment quality in Milne Port (Baffinland 2012, 2013). It is important to note, that regardless of potential propeller wash influence, these stations continued to support diverse benthic invertebrate communities, as discussed in Chapter 4. Sediments sampled further along the coastal West Transect at and close to the mouth of Phillips Creek, have consistently shown influence of the creek, in terms of increased sand content and decreased fines due to the influx of stream water and the downstream transport of sediments via the creek. Statistical analysis confirmed that this was also the case in 2023. As in previous years, the proportion of fines started to increase again further westward along the transect. Sediment grain size was less variable along the coastal Eastern Transect and the percentage of finer sediments along this transect was not significantly different in 2023 compared to baseline conditions (Baffinland 2013; SEM 2014; 2015).

Some variability along the offshore and coastal transects is expected and tends to reflect natural factors that influence sediment dynamics in this area such as waves, currents, coastal topography, ice scour, water depth, and freshwater inputs from Phillips Creek. However, close to the Ore Dock area on the West Transect, the results presented in this assessment (consistent with the 2021 and 2022 targeted studies) suggest the presence of propeller wash effects around the Ore Dock area. The observed effects are consistent with the predictions of the FEIS and subsequent addenda (Baffinland 2012, 2013). While the 2023 MEEMP found that spatial trends in the proportion of sediment fines continued to differ between the four monitored transects, more subtle temporal trends or a lack of trends were evident over time.

3.5.2 Sediment Quality and Iron

The results of the Principal Components Analysis (PCA) confirmed a strong positive relationship between metal sediment concentrations and the proportion of fines, consistent with baseline observations in Milne Inlet (Baffinland 2013; SEM 2014; 2015) and observations made in previous sampling years (2014 to 2020). Given that sediment metal concentrations tended to be higher in areas with finer sediments whose distribution largely followed natural patterns, the PCA did not suggest that sediment metal concentrations were accumulating at elevated levels close to the Ore Dock area relative to other locations sampled within Milne Port.

In 2023, concentrations of metals in sediments sampled along the four transects were below the applicable CCME guidelines (i.e., ISQGs and PELs; CCME 1999) and NOAA sediment benchmarks (Buchman 2008). The only exceptions were arsenic, copper, and nickel, where there were infrequent and minor exceedances of conservatively derived guidelines and benchmarks, as was also observed under baseline conditions (Baffinland 2013; SEM 2014; 2015). Marginal guideline exceedances in sediments from Northern environments is not uncommon, especially in mineralized areas where these exceedances can routinely be reported under naturally occurring background conditions. Arsenic, copper, and nickel are not associated with ore processing at Mary River (Baffinland 2012) and are not present in elevated concentrations close to the Ore Dock area, further supporting the likelihood that the observed concentrations reflect regional background concentrations. As found in previous MEEMP years, PAHs and hydrocarbons were not detected in sediments sampled from Milne Port in 2023, with the exception of a sample where detected concentrations of two hydrocarbons were either below applicable guidelines or were close to the detection limit.

Iron concentrations in Milne Inlet have been flagged by Inuit to be of concern due to the potential for increased deposition of iron ore in the form of dust or in runoff from storage stockpiles. Marine sediment guidelines for iron are not currently available and, as such, the sediment data for iron were also evaluated spatially and temporally along the transects using beta regression modelling. Spatially, iron behaved like the other metals and was strongly associated with finer sediments whose distribution followed natural sediment processes within Milne Inlet and was not significantly affected by the Project. Generally, where sediment distribution and metals concentrations along the Northern Offshore Transects were influenced by increasing water depth with distance from the Ore Dock area, the Coastal transects were influenced by the coastline topography and features, including Phillips Creek.

As observed for the fines content of the sediments, while the 2023 MEEMP found that spatial trends in the sediment iron continued to differ between the four monitored transects, more subtle temporal trends or a lack of trends were evident over time. Results found that in general the iron content of sediments sampled form Milne Inlet in 2023 was not significantly greater than that measured under baseline conditions, thus, indicating sediment iron concentrations have not increased over time in the Milne Inlet study area. Similar to other metals, iron was not present in elevated concentrations close to the Ore Dock area, and concentrations up to 250 m from the Ore Dock area were either stable or exhibited a decrease over time.

3.5.3 Sediment Sampling to Support Assessment of the Use of Capesize Vessels

Eight stations were sampled in 2023 as part of the Capesize vessel effects monitoring program to establish baseline conditions prior to the arrival of Baby Cape and Capesize ore carriers in Milne Inlet. Consistent with the Northern and Coastal Transect stations, the physical composition of sediments differed among stations, with both sand and fines present in differing proportions depending on the station location. Concentrations of metals at these stations were lower than applicable sediment quality guidelines, except for arsenic at station SCV-1 which was present at a concentration reflective of background conditions. Detectable concentrations of BTEX, PHCs and PAHs were not found at any of the Capesize vessel stations. Results for these stations appear to be consistent with overall MEEMP project stations.

3.6 Conclusion and Recommendations

The 2023 sediment sampling program and subsequent comprehensive data analysis indicate that the Project has not significantly impacted Milne Inlet sediment quality in 2023, or years previous. Evidence for this conclusion is validated from the continued measurement of key sediment parameters below applicable guidelines, and/ or are reflective of naturally occurring background conditions. Further, as was demonstrated through statistical analyses, distribution of fine sediment (which is strongly related to sediment metals) in Milne Inlet is largely not influenced by Project activities but, rather by natural coastal processes that differed between the Northern Offshore Transects and the Coastal Transects. The exception is the finding of likely localized scouring effects (associated with propeller wash) in the immediate vicinity of the Ore Dock area on the coastal West Transect, as predicted in the FEIS (Baffinland 2012, 2013). These effects are expected to stabilize over time. Importantly, associated impairment of the benthic community was only documented in 2020 at one station in this area, with performance indicators continuing to rebound in 2023.

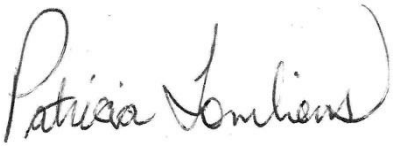
As observed for the fines content of the sediments, while the 2023 MEEMP found that spatial trends in the sediment iron continued to differ between the four monitored transects, more subtle temporal trends or a lack of trends were evident over time. Analysis conducted for the assessment found that sediment iron concentrations have not increased over time in the Milne Inlet study area. Similar to other metals, iron was not present in elevated concentrations close to the Ore Dock area, and concentrations up to 250 m from the Ore Dock area were either stable or exhibited a decrease over time.

Sediment monitoring to date suggests that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not adversely affected marine sediment within the Milne Inlet study area. Given that there will be continued use of larger ore carriers (Baby Cape and Capesize) at Milne Port, Baffinland has committed to a frequency of annual sampling of the newly implemented Capesize monitoring stations, for a minimum of three years (2023 to 2025) to identify Project-related effects due to the change in vessel types.

3.7 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.



Patricia (Trish) Tomliens, BSc, EPt
Marine Biologist



Adrienne Ducharme, MSc, BIT
Environmental Scientist



Sima Usvyatsov, PhD
Biological Scientist

Reviewed by:



Elaine Irving, PhD, RPBio
Senior Environmental Scientist

PT/AD/SU/EI/asd

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499c-r-rev0-70000/1663724-499c-r-rev0-70000-2023 meemp_3.0 marine sediment quality 15mar_24.docx

3.8 References

Baffinland (Baffinland Iron Mines Corporation). 2012. Mary River Project. Final Environmental Impact Statement. Volume 8: Marine Environment. 318 p. + appendices. February 2012.

Baffinland, 2013. Mary River Project – Addendum to the Final Environmental Impact Statement.

Baffinland. 2023. Marine Monitoring Plan (MMP) - Draft. Document #: BAF-PH1-830-P16-0046. NIRB File No. 08MN053. Public Registry Identification No. 344992.

BC MOE (British Columbia Ministry of Environment and Climate Change Strategy). 2021. British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture.

BC MOE. 2023. British Columbia Field Sampling Manual, Part D: Solids. 2023 Edition. Available Online at: https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/bc_field_sampling_manual_part_d.pdf

Brooks ME, Kristensen K, van Benthem KJ, Magnusson A, Berg CW, Nielsen A, Skaug HJ, Maechler M, and Bolker BM. 2017. glmmTMB balances speed and flexibility among packages for zero-inflated generalized linear mixed modeling. The R Journal. 9(2): 378-400.

Buchman MF. 2008. National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 p.

CCME (Canadian Council of Ministers of the Environment). 1999. Canadian Environmental Quality Guidelines. Accessed February 2023. Available online at: https://www.ccme.ca/en/resources/canadian_environmental_quality_guidelines/index.html.

CCME. 2016. Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Risk Assessment.

FCSAP (Federal Contaminated Sites Action Plan). 2021. Federal Contaminated Sites Action Plan Guidance for Assessing and Managing Aquatic Contaminated Sites in Working Harbours, Version 1.1, 59 pgs.

Golder (Golder Associates Ltd.). 2021. 2020 Milne Inlet Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Golder. 2022. 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-349-R-Rev0-44000; 21 October 2022. 1213 p.

Hartig F. 2022. DHARMa: Residual Diagnostics for Hierarchical (Multi-Level / Mixed) Regression Models. R package version 0.4.6. https://CRAN.R-project.org/package=DHARMa.

Horowitz AJ. 1991. A Primer on Sediments-trace Element Chemistry, 2nd Edition. Lewis Publishers, Chelsea, MI.

Jones B, and C. Bowser. 1978. The mineralogy and related chemistry of lake sediments, in Lerman, A., ed., Lakes: chemistry, geology, physics, New York, Springer-Verlag. p. 179-235

Lê S, Josse J, and Husson F. 2008. FactoMineR: An R package for multivariate analysis. Journal of Statistical Software, 25(1), 1-18. https://doi.org/10.18637/jss.v025.i01.

Lenth, R. 2020. emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.4.5.009003. Available online at: https://github.com/rvlenth/emmeans.

Nunavut Impact Review Board (NIRB). 2023. Project Certificate No. 005, Amendment 5. Issues 17 November 2023.

R Core Team. 2023. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. URL www.R-project.org

SEM (Sikumiut Environmental Management Ltd.). 2014. Marine Baseline Studies – Biological and Environmental Baseline Surveys – Marine Surveys of Milne Inlet 2013. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario.

SEM. 2015. Marine Biological and Environmental Baseline Surveys Milne Inlet 2014. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario.

Wentworth CK, 1922. A scale of grade and class terms for clastic sediments. J. Geol. 30(5): 377-392.

WSP (WSP Canada Inc.). 2023. Mary River Project – Sustaining Operations Proposal, Shipe Wake and Propeller Wash Assessment. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. WSP Canada Inc. WSP Report Number 1663724-445-R-Rev0-77000; 03 October 2023. 65 p

APPENDIX 3A

Photo Log



Photo 1: Sediment sampling location SNW-1 looking South.

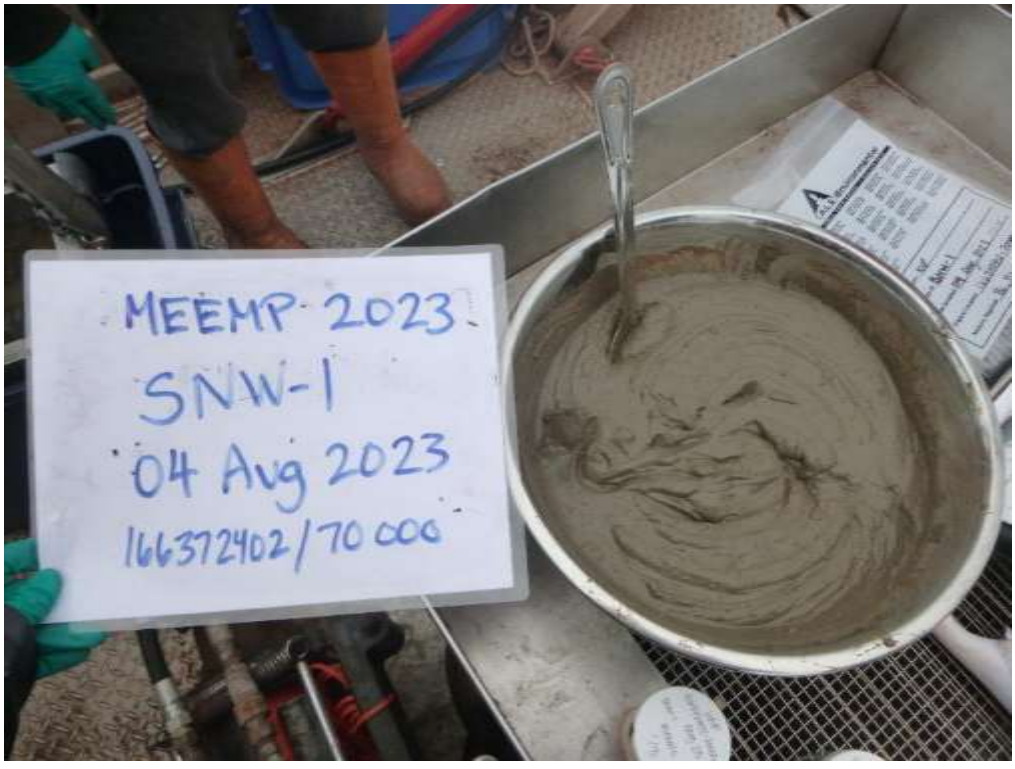


Photo 2: Homogenized sediment sample collected from station SNW-1 on 04 August 2023.

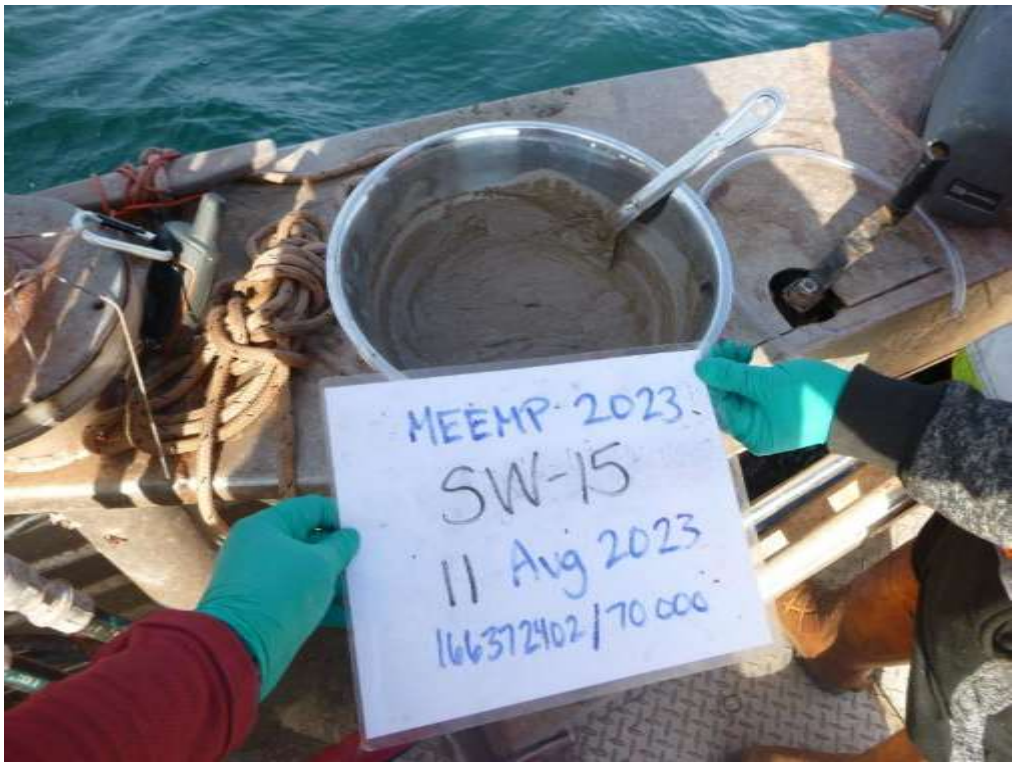


Photo 3: Homogenized sediment sample collected from station SW-15 on 11 August 2023.



Photo 4: Homogenized sediment sample collected from station SW-1 on 07 August 2023.



Photo 5: Sediment sampling location SE-1 looking East.



Photo 6: Homogenized sediment sample collected from station SE-1 on 10 August 2023.

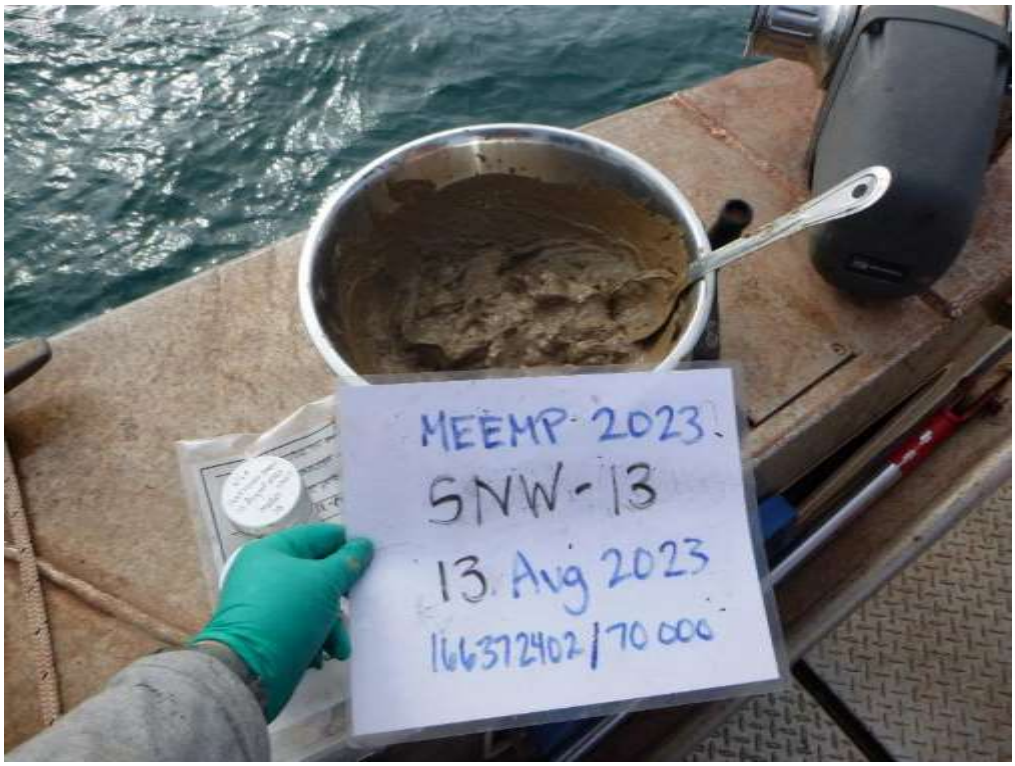


Photo 7: Homogenized sediment sample collected from station SNW-13 on 13 August 2023.

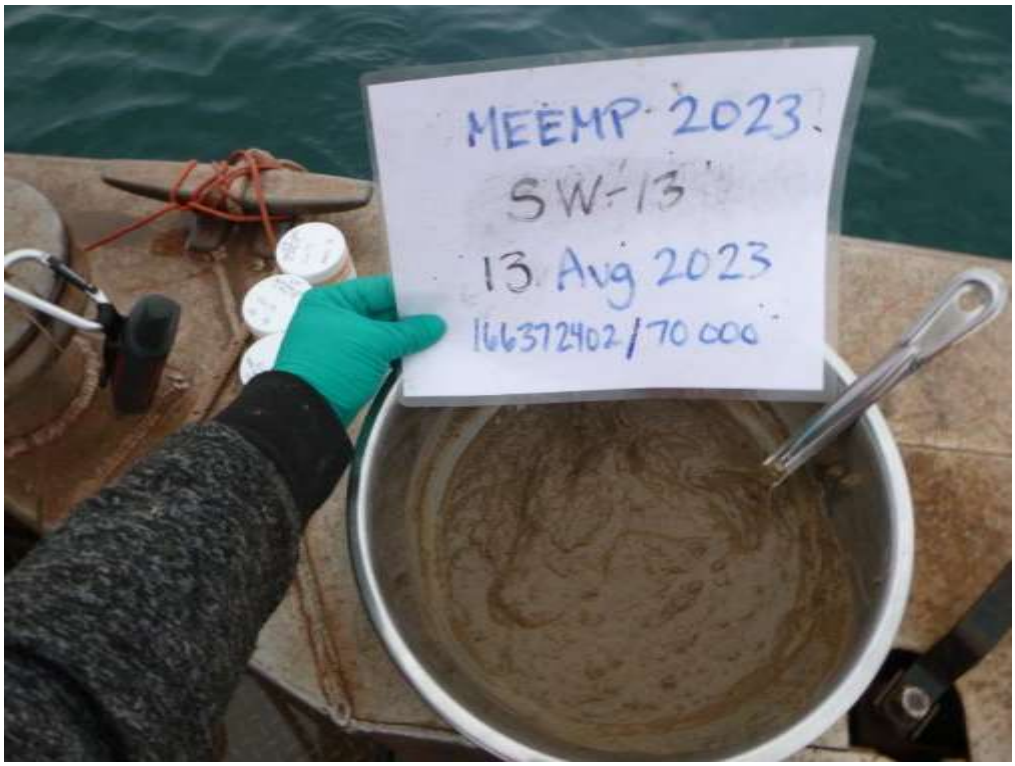


Photo 8: Homogenized sediment sample collected from station SW-13 on 13 August 2023.

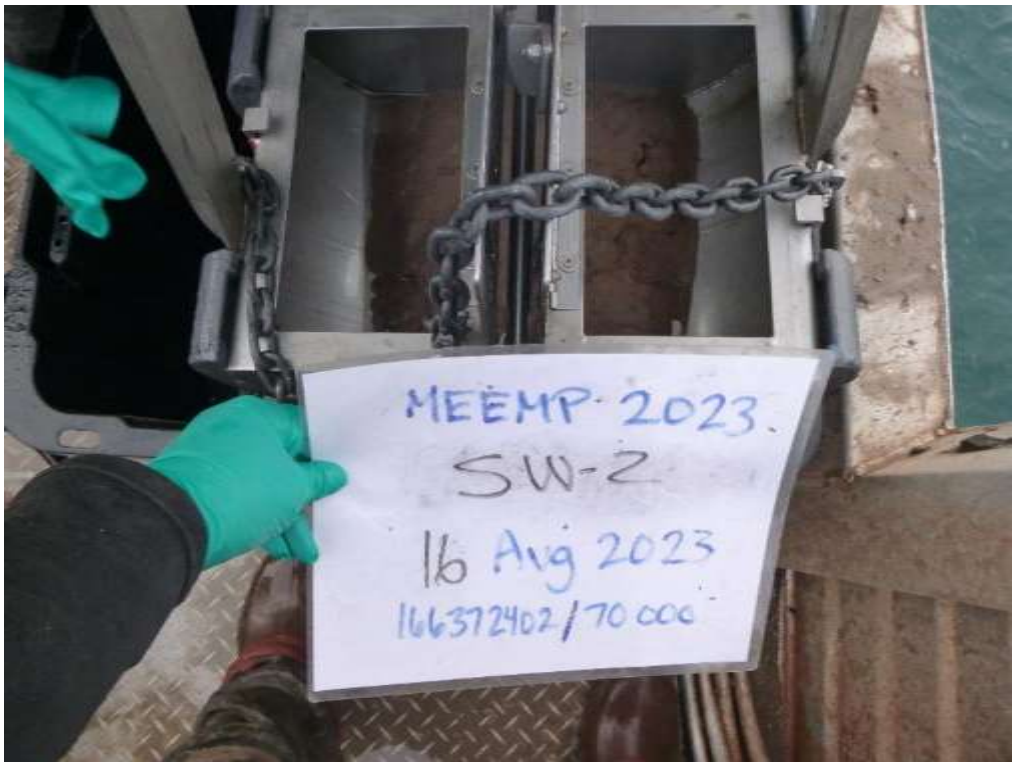


Photo 9: Homogenized sediment sample collected from station SW-2 on 16 August 2023.



Photo 10: Homogenized sediment sample collected from station SNE-3 on 17 August 2023.

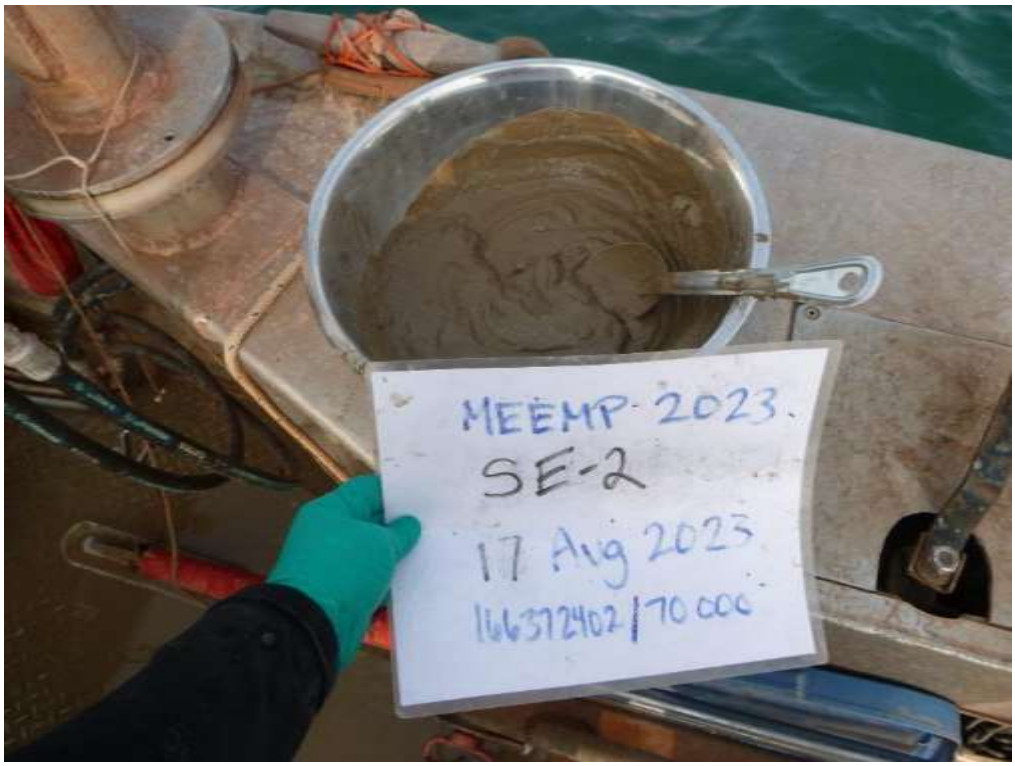


Photo 11: Homogenized sediment sample collected from station SE-2 on 17 August 2023.

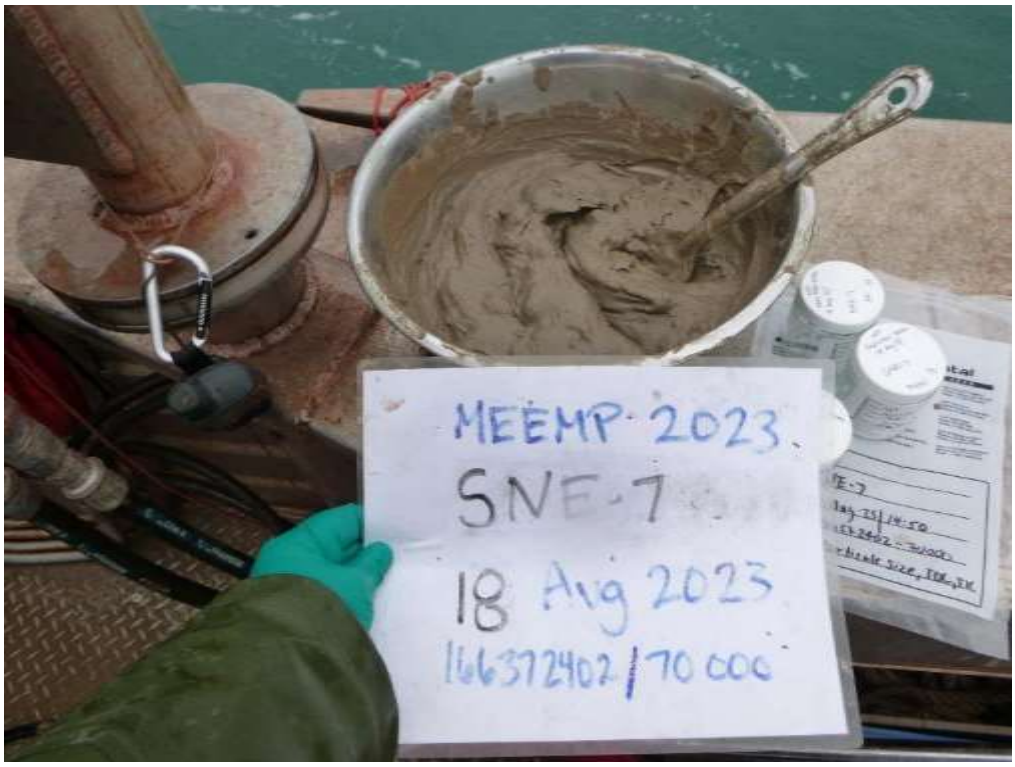


Photo 12: Homogenized sediment sample collected from station SNE-7 on 18 August 2023.



Photo 13: Homogenized sediment sample collected from station SE-13 on 17 August 2023.



Photo 14: Homogenized sediment sample collected from station SNE-4 on 20 August 2023.

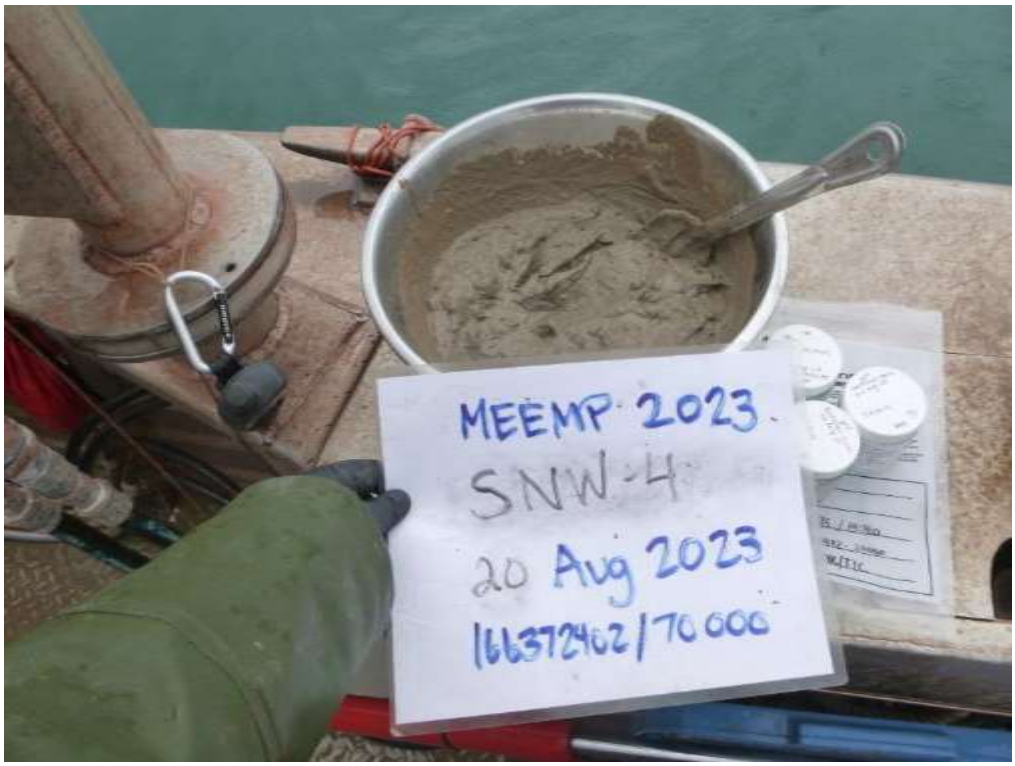


Photo 15: Homogenized sediment sample collected from station SNW-4 on 20 August 2023.

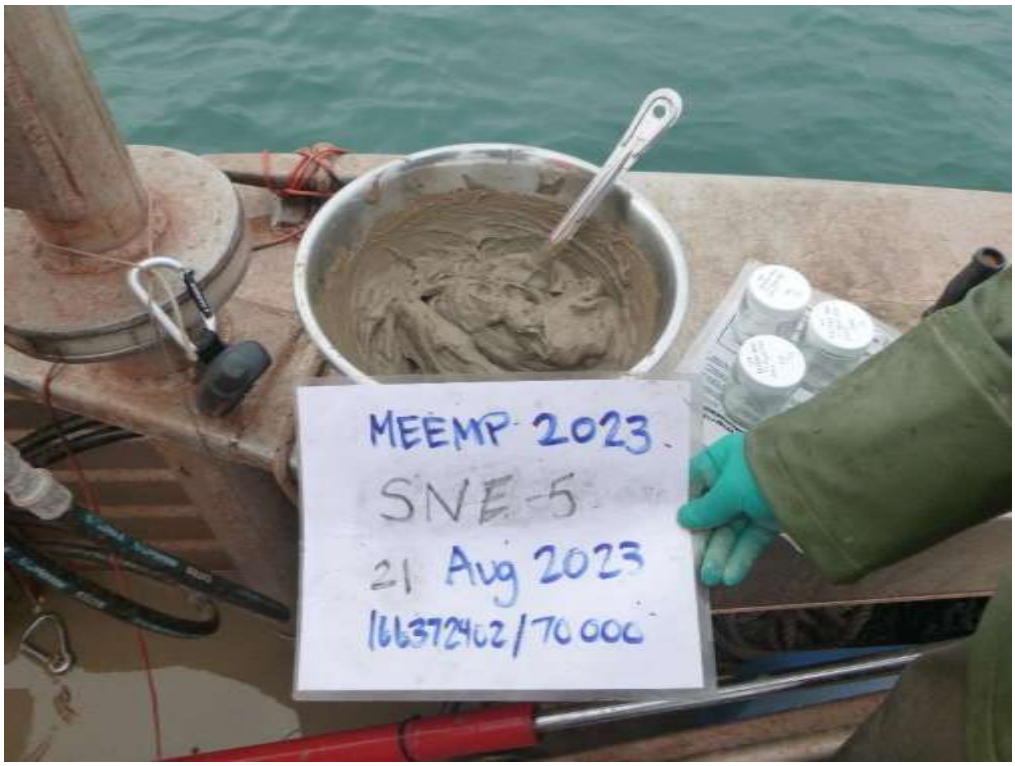


Photo 16: Homogenized sediment sample collected from station SNE-5 on 21 August 2023.



Photo 17: Capesize vessel sediment sampling location SCV-1 looking South.

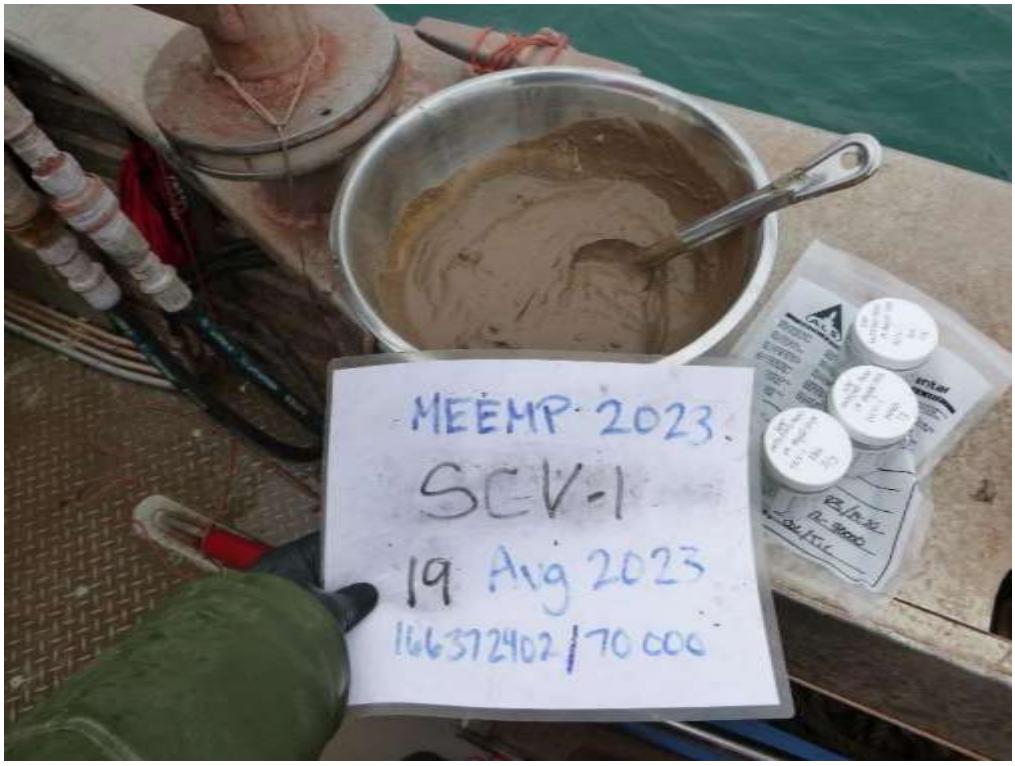


Photo 18: Homogenized sediment sample collected from the Capesize vessel station SCV-1 on 19 August 2023.



Photo 19: Capesize vessel sediment sampling location SCV-2 on 19 August 2023.

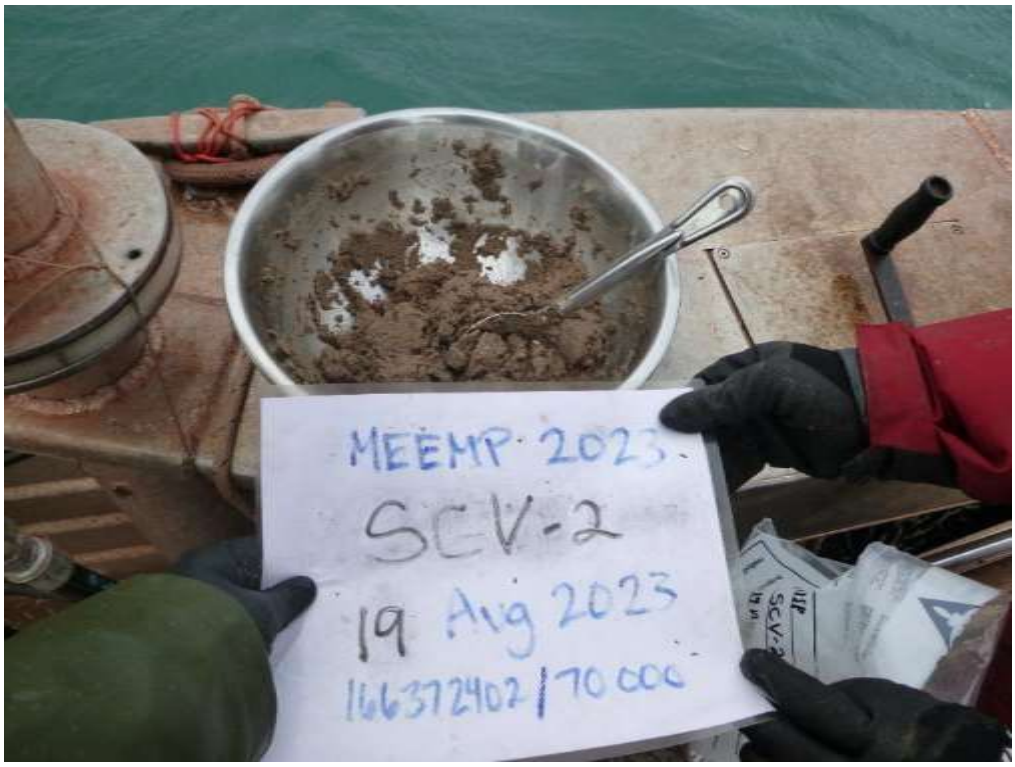


Photo 20: Homogenized sediment sample collected from the Capesize vessel station SCV-2 on 19 August 2023.

APPENDIX 3B

Sediment Field Datasheets

Capesize Vessel Sampling

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-70000 (02)
Project Title: Baffinland MEEMP [redacted] 2023
Date: 19 Aug 23
Inspected by: TT
Station Number (ID): SCV-1
Sampling Method: VV
Weather: Light rain, 8-10 kts SE, 4-6°C
Lat/Longitude: on WP
Sampling Depth: 35.8 m
# of Attempts to Obtain Sample: 1
Time of Collection: 13:35 / 14:20 - sample collin

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab - jaws closed, overlying water, surface intact
0.5 cm sandy silt brown overtop of a grey sand and silt layer
SILT and SAND, moist, soft, brown, 60% fines, 40% f-c sand poorly graded, low plasticity, contains trace gravel (subrounded, subangular), Pectinaria, Macoma, trace shell debris, no odour and no sheen noted

Approx % collected in grab sample 15-20% (5.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Site photos, photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- [x] Full Metals
- [x] PAH
- [ ] TBT
- [x] Grain Size
- [ ] Benthic
- [ ] AVS CEM
- [ ] PCB
- [ ] Dioxins and Furans
- [ ] PFOA/PFOS
- [x] Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted] -70000 (02)
Project Title: Baffinland MEEMP [redacted] 2023
Date: 19 Aug 23
Inspected by: TT
Station Number (ID): SCV-2
Sampling Method: VV
Weather: Light rain, 5-7 kts SE, 4-6°C
Lat/Longitude: WP 233 17W 0503080E 7976588N
8m away from planned
Sampling Depth: ~~27.9m~~ 26.6m
# of Attempts to Obtain Sample: 1111
Time of Collection: 15:06 - / 17:00 (sample collected)

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 4- jaws sealed, overlying water, surface intact
2-3 cm reddish brown sand overtop of a grey sand layer
SAND
SAND, wet, loose, reddish brown, 100% f-sand poorly graded, low plasticity, contains Yoldiella, Astarte, Pectinaria, Cochle, no odour and no sheen noted

Approx % collected in grab sample 4 - 20-25%. (4.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 10 Aug 2023
Inspected by: TT
Station Number (ID): SE-1
Sampling Method: VV
Weather: Clear, 10-12kts NE, 14-16°C
Lat/Longitude: On WP
Sampling Depth: 16.4m
# of Attempts to Obtain Sample: 1
Time of Collection: 16:00 / 16:30 Sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

1-surface intact, overlying water,
1-2 mm fine brown sand overtop of a grey silty sand sediment
SILTY SAND with GRAVEL, moist, loose, greyish brown, 65% f-c sand poorly graded, 20% f-c gravel (subrounded, subangular), 15% fines, low plasticity contains Pectinaria, Astarte, Hiatella, polys, no odour and no sheen noted

15% fines 20% gravel

Approx % collected in grab sample 1 25-30% (5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, sample homogenized

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-70000

Project Title: Baffinland MEEMP [redacted] 2023

Date: 17 Aug 23

Inspected by: TT

Station Number (ID): SE-2

Sampling Method: VV

Weather: Clear, 8-10 kts NE, 12-14°C

Lat/Longitude: on WP

Sampling Depth: 18.6 m

# of Attempts to Obtain Sample: 1

Time of Collection: sample collected 16:40 / 17:00

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- jaws sealed, overlying water, surface intact
1-2 cm sandy silt brow layer overtop of a grey with black patches silt and sand layer

SILT and SAND with GRAVEL, moist, soft, brown, 45% fines, 40% f-c sand, 15% f-c gravel (subrounded, sub angular), low plasticity contains polys, Astarte, filamentous red algae, Hiatella, no odour and no sheen present

Approx % collected in grab sample 1-15-20% (5.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SE-3

SEDIMENT SAMPLING LOG

Project No: 1663724 ~~24000~~ 70000

Project Title: Baffinland MEEMP ~~2018~~ 2023

Date: 05 AUG 2023

Inspected by: TT

Station Number (ID): SE-3

Sampling Method: VV

Weather: Partly overcast W 15 knots

Lat/Longitude: WP 216 0504100; 7976698

Sampling Depth: 16 m.

# of Attempts to Obtain Sample: 1

Time of Collection: 10:43 / 11:15 - COC

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

~~Grab 1 - not enough volume of sediment → benthics~~
~~Grab 2 - not enough volume of sediment → benthics~~.

Grab 1 - good seal, overlying water, surface intact
Silt and sand, loose, moist, low plasticity, contains semilipeda groenlandica
Brown w/ gravel, no odour, no sheen
45% fine to coarse sand
40% fines, 15% gravel subrounded + subangular

Hiatella
urchins
Polychaete tubes
Pectinariids
"Aztec" clam

Approx % collected in grab sample 1-35-40% %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab and homogenized

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☑ PCB
- ☑ Other TOC TIC PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: ~~1663724 240000~~ 1663724021700000

Project Title: Baffinland MEEMP ~~2019~~ 2023

Date: 05 Aug 2023

Inspected by: TT

Station Number (ID): SE-4

Sampling Method: VV

Weather: Overcast, 10-12kts W

Lat/Longitude: on WP

Sampling Depth: 18.3m

# of Attempts to Obtain Sample: 1

Time of Collection: 12:40 - 13:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab - jaws sealed, overlying water, surface intact
1-2mm silty sand brown layer overtop of a grey sand sediment
SILT and SAND, moist, loose, brown, 50% f-c sand, 40% fines, 10% subangular and subrounded gravel, low plasticity, contains brittlestars, amphipods, comb jelly, Pectinaria, H. arctica, semiplectens, poly tubes, Astarte, brittlestars,

Approx % collected in grab sample 1 - 35-40%, 9cm depth %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

photo of sample in grab, photo of homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☑ PCB
- ☑ Other TIC/TOC/PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] 166372402-70000 Project Title: Baffinland MEEMP [redacted] 2023

Date: 06 Aug 23 Inspected by: TT

Station Number (ID): SE-5 Sampling Method: VV

Weather: Overcast, 1-2 kts NE, 11-13°C Lat/Longitude: on WP

Sampling Depth: 14.5m

# of Attempts to Obtain Sample: 1 Time of Collection: 15:30 - 15:55

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - good seal, surface intact, overlying water

2-3 mm sandy silt brown layer over a grey silt and sand sediment

SILT and SAND with GRAVEL, moist, loose, brown, 35% f-c well graded sand, 45% fines, 20% f-c gravel, low plasticity contains amphipods, Hiatella, Pectinaria, polys, Nuculana, no odour and no sheen noted

45%
55%
20%

Approx % collected in grab sample 1-20-25% (5.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of grab in sample, photo of homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

[redacted]

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 22 Aug 23
Inspected by: TT
Station Number (ID): SE-7
Sampling Method: VV
Weather: Fog, 1 kt SW, 5-6°C
Lat/Longitude: on WP
Sampling Depth: 16.6m
# of Attempts to Obtain Sample: 1
Time of Collection: 15:15 / 16:00 sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- overlying water, surface intact
1-2 cm sand and silt brown layer over top of a grey with black patches sand and silt with gravel layer
SAND and SILT with GRAVEL, moist, loose, brown, 45% f-c sand poorly graded 40% fines, 15% f-c gravel (angular, subangular, subrounded) low plasticity cantaire, urchin, brittle stars, Hiatella, Serripes, red bladed algae, shell debris, no odour and no sheen noted

Approx % collected in grab sample 1-35-40% (6cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab and homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-7000 Project Title: Baffinland MEEMP [redacted] 2023

Date: 18 Aug 23 Inspected by: TT

Station Number (ID): SE-11 Sampling Method: VV

Weather: Light rain, 10-12 kts NE, 6-8°C Lat/Longitude: on WP

Sampling Depth: 18.3m

# of Attempts to Obtain Sample: 1 Time of Collection: sample collected 16:05 / 16:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- jaws sealed, overlying water, surface intact

1 cm of brown sandy silt overtop of a clayey sand and silt grey with black striations

CLAYEY SILT and SAND, moist, soft, brown, 70% fines, 30% f-c sand poorly graded, low to med plasticity contains many shell debris, polys, cockle, Hiatella, no odour and no sheen noted

Approx % collected in grab sample 1-70-75% (10cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-70000

Project Title: Baffinland MEEMP [redacted] 2023

Date: 17 Aug 23

Inspected by: TT

Station Number (ID): SE-13

Sampling Method: √√

Weather: Clear, 8-10kts NE, 12-14°C

Lat/Longitude: on WP

Sampling Depth: 16.4m

# of Attempts to Obtain Sample: 1

Time of Collection: 15:10-/15:45

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab - jaws sealed, overlying water, surface intact

1-2 cm sandy silt brown layer overtop of a sand and silt grey with black patches layer

SILT and SAND with GRAVEL, moist, soft, brown, 50% fines, 35% f-c sand poorly graded, 15% f-c gravel (subrounded, sub angular), low plasticity, contains Pectinaria, red filamentous algae, Hiatella, Macoma, no odour and no sheen noted

Approx % collected in grab sample 1-45-50% (7.5 cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-70000

Project Title: Baffinland MEEMP [redacted] 2023

Date: 15 Aug 2023

Inspected by: TT

Station Number (ID): SE-15

Sampling Method: VV

Weather: Light rain 20kts SE, 8-10°C

Lat/Longitude: on WP

Sampling Depth: 18.3 m

# of Attempts to Obtain Sample: 1

Time of Collection: 15:10 / 15:30 sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - jaws closed, good seal, overlaying water, surface 1-2 cm sandy silt brown layer with red filamentous algae, overtop of a grey, with black striations, layer of clayey SILT Clayey SILT moist, firm, brown. 90% fines, 10% fine sand, medium plasticity. contains red filamentous algae, poly tubes, cone worms. No odour, no sheen

Approx % collected in grab sample 45-50 %, 9 cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of grab w/ sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT

Page 1 of 1

~~BENTHIC~~ SAMPLING LOG

Project No: [redacted]-166372402-70000

Project Title: Baffinland ~~Steensby~~ MEEMP 2023

Date: 05 Aug 2023

Inspected by: TT

Station Number (ID): SE18-1

Sampling Method: VV

Weather: Overcast, 7-8 kt SW

Lat/Longitude: on WP

Sampling Depth: 17.3m

# of Attempts to Obtain Sample: 11

Time of Collection: 15:45 - 15:56

16:00 - sample Collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- cobble in jaws

Grab 2- jaws closed w/ overlying water, surface intact

SAND, wet, loose, reddish brown, 100% f-c sand, well graded, low plasticity, contains brittlestar, H. arctica, Macoma, Aborealis, trace gravel subangular, Pectinaria, no odour and no sheen naked

Approx % collected in grab sample 2-20-25%, 5 cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of ~~gr~~ sample in grab, sample homogenized

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☑ PCB
- ☑ Other TOC TIC PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-7000 0 | Project Title: Baffinland MEEMP [redacted] 2023

Date: 06 Aug 2023 | Inspected by: TT / KW

Station Number (ID): SE18-2 | Sampling Method: VV

Weather: 6/8 Overcast 7-8 kts NE, 9-11°C; 9/8 Sunny 12 km. NE 11°C | Lat/Longitude: on WP - failed grabs 5 WP228 (17W 0503639, 7976744)

Sampling Depth: 20.7 m.

# of Attempts to Obtain Sample: II - IIII (6/8) (9/8) | Time of Collection: 16:50 - 16:55 (6/8); 16:00 / 16:40 sample collection (9/8

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - low volume, Grab 2 - rock caught in jaws of grab
Grab 3 - 6: cobble in jaws, no sediment retained
Grab 7 - surface undisturbed, water washed out, 5 cm depth

2 cm of brown sand on top of grey sand w/ black staining
Sand w/ Gravel and trace silt + shell. Sand fine + homogenous
75% sand, 20% gravel, silt + shell < 5%. Wet, loose, some plasticity
green urchin, similipecten greenlandicus, brittle star

Approx % collected in grab sample: Grab 7 - 15-20% %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC/TIC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: | # of Grabs for Analysis:

Other Notes:

SAMPLE NUMBER: _____

[redacted]

SEDIMENT SAMPLING LOG

Project No: 1663724-02/70000
Project Title: Baffinland [redacted] - MEEMP 2023
Date: ~~05~~ 06 Aug 2023
Inspected by: TT
Station Number (ID): SNE-1 / DUP-A-23
Sampling Method: VV
Weather: Some cloud cover, 2-3kts NW ~~Overcast, 8 10kts W~~, 10-12°C
Lat/Longitude: on WP
Sampling Depth: ~~29.3 25.8~~ m 28.1m
# of Attempts to Obtain Sample: 1
Time of Collection: ~~10:22~~ 10:11 / 10:43

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - sealed, overlying water, surface intact

SAND and SILT with GRAVEL, moist, loose, brown, 50% f-c sand, 30% fines, 20% f-c gravel (subangular and subrounded), contains brittlestar, H. arctica, polys, sea spider, no odour and no sheen noted

20%

Approx % collected in grab sample 1 - 35-40% (7cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, photo of sample homogenized

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, ~~THC~~

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars, 1 bag + 2 vials x2 for duplicate
(6) (2) (4)

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-7000 0 02
Project Title: Baffinland MEEMP [redacted] 2023
Date: 10 Aug 2023
Inspected by: TT
Station Number (ID): SNE-2
Sampling Method: VV
Weather: Clear, 7-10 kts NE, 12-14°C
Lat/Longitude: on WP
Sampling Depth: 47m
# of Attempts to Obtain Sample: 1
Time of Collection: 14:00 - 14:10 (sample coll'n)

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

1-2 mm sandy silt layer over top of a grey sandy silt layer SAND, and SILT, moist, soft, brown, 70% fines, 30% f-c sand poorly graded, low to med plasticity contains trace clay, trace gravel (subrounded and subangular), Similipecten, polys, no odour and no sheen noted

Approx % collected in grab sample 1 35-40% (9.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, photo of sample homogenized

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

[redacted]

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-7000 0 (02)
Project Title: Baffinland MEEMP [redacted]

Date: 17 Aug 23
Inspected by: TT

Station Number (ID): SNE23
Sampling Method: VV

Weather: Sgmcldy, lt conv, 8-10 kt SNE, 8-tnth ECC
Lat/Longitude: on WP

Sampling Depth: 55.8 m

# of Attempts to Obtain Sample: 1
Time of Collection: 1035-/11:10 sample coll'n

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- jaws closed, overlying water, surface intact

SAND and SILT, moist, loose, brown, 60% f-c sand poorly graded, 40% fines, low plasticity contains Spionidae, brittlestars, trace shell debris, trace gravel (subangular), no odour and no sheen noted

Approx % collected in grab sample 1-15-20% (5.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-[redacted]-70000 | Project Title: Baffinland MEEMP [redacted] 2023

Date: 20 Aug 2023 | Inspected by: TT

Station Number (ID): SNE-4 | Sampling Method: VV

Weather: Overcast, 8-10kts NE, 4-6°C | Lat/Longitude: on WP

Sampling Depth: 67.5m

# of Attempts to Obtain Sample: 1 | Time of Collection: 11:36-to collect 10:45 -/12:00 (sample collect)

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - jaws sealed, overlying water, surface intact
0.5-1.0cm silt and sand brown layer overtop of a grey silt and sand with black striations layer
SILT and SAND with GRAVEL, moist, soft, brown, 50% fines, 35% f-c sand poorly graded, 15% f-c gravel (subrounded and subangular), low to med plasticity Contains sea cucumber, polys, scaphopod, brittlestars, no odor and no sheen noted

Approx % collected in grab sample 1-55-60% (8cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: | # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02-[redacted]-70000
Project Title: Baffinland MEEMP 2[redacted] 2023
Date: 21 Aug 2023
Inspected by: TT
Station Number (ID): SNE-5
Sampling Method: VV
Weather: Overcast, 6-8 kts SE, 4-6°C
Lat/Longitude: on WP
Sampling Depth: 80.6 m
# of Attempts to Obtain Sample: 1
Time of Collection: 13:55 - 15:15 - sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - surface intact, overlying water, jaws sealed
1-2 cm sandy silt brown sediment overtop of a clayey silt and sand grey with black striations layer
CLAYEY SILT and SAND, moist, firm, greyish brown, 80% fines, 20% f-c sand ~~wet~~ poorly graded, low to medium plasticity, contains trace gravel (angular, subangular, subrounded), Capitellidae, brittlestars, caddisfly poly, no odour and no odour noted

Approx % collected in grab sample 1 - 75-80% (10 cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02-[redacted]-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 18 Aug 23
Inspected by: TT
Station Number (ID): SNE-7
Sampling Method: VV
Weather: Overcast, 10-12 kts NE, 6-8°C
Lat/Longitude: on WP
Sampling Depth: 95.2m
# of Attempts to Obtain Sample: 1
Time of Collection: 13:30 / 14:50 sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - jaws sealed surface intact, overlying water 2-3 cm sandy silt brown layer overtop of a grey clayey silt with black patches CLAYEY SILT with SAND, moist, firm, brown, 80% fines, 20% f-sand poorly graded, medium plasticity. contains polys, trace gravel (subrounded), brittlestars, Macoma, no odour and no sheen noted

Approx % collected in grab sample 1-80-85% (11cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized samples

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☑ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-7000 0 (02)
Project Title: Baffinland MEEMP [redacted] 2023
Date: 22 Aug 23
Inspected by: TT
Station Number (ID): SNE-9
Sampling Method: VV
Weather: Overcast, 2-3kts SW, 4-6°C
Lat/Longitude: on WP
Sampling Depth: 103m
# of Attempts to Obtain Sample: 1
Time of Collection: 12:40 / 14:30 sample coll'n

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - jaws sealed, overlying water, surface intact
0.5-1.0 cm sandy silt brown layer overtop of a grey with black patches clayey silt and sand layer
CLAYEY SILT with SAND, moist, firm, brown 80% fines, 20% f-c sand, poorly graded, medium plasticity containg brittlestars, Caddisfly polys, Capitellidae, trace gravel (rounded, subrounded), poly tubes, no odour and no sheen noted

Approx % collected in grab sample 1-85-90% (12cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab ~~and homogenized sample~~
↳ forgot to take

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: ~~1663724~~ [redacted] 1663724 02-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 06 Aug 23
Inspected by: TT
Station Number (ID): SNE-10
Sampling Method: VV
Weather: Overcast, 2-3kts NW, 10-12°C
Lat/Longitude: on WP
Sampling Depth: 105 m.
# of Attempts to Obtain Sample: 1
Time of Collection: 12:25 / sampled at 14:00

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - overlying water, good seal, surface intact
1-2mm brown sandy silt over top of grey with black striations silty clay layer
SANDY CLAY with GRAVEL, moist, firm, greyish brown, 55% fines, 30% f-c sand, 15% gravel, medium plasticity. contains brittlestars, oweniidae, Macoma, no odour and no sheen noted

55
30
15

Approx % collected in grab sample 1 - 80-85% (10cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, photo of sample homogenized

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☑ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

[redacted]

DUP-C

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-70000 Project Title: Baffinland MEEMP [redacted] 2023

Date: 10 Aug 2023 Inspected by: TT

Station Number (ID): SNE-13 / DUP-C-23 Sampling Method: VV

Weather: Clear, 7-10 Kts NE, 10-12°C Lat/Longitude: on WP

Sampling Depth: 117m

# of Attempts to Obtain Sample: 1 Time of Collection: 10:40 / 11:50 sample collin

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

SANDY CLAY, moist, firm, brown, 80% fines, 20% f-c sand poorly graded, medium plasticity contains trace gravel (subangular, subrounded), brittlestar, caddisfly (Nereidae), Capitellidae, no odour and no sheen noted

Approx % collected in grab sample 1 (75-80% (12cm)) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, photo of homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials x2
(6 jars + 2 bags + 4 vials)

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02-70000 Project Title: Baffinland MEEMP 2023

Date: 17 Aug 23 Inspected by: TT

Station Number (ID): SNE-15 Sampling Method: VV

Weather: Clear skies, 8-10kts NE, 10-12°C Lat/Longitude: on WP

Sampling Depth: 122m

# of Attempts to Obtain Sample: 1 Time of Collection: 12:05-13:45 sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- jaws sealed, overlying water, surface intact

0.5-1.0 cm sandy silt brown layer overtop of a grey with black patches clayey silt layer.

CLAYEY SILT with SAND, moist, firm, brown, 85% fines, 15% f-sand poorly graded medium plasticity contains trace gravel (subrounded, rounded), poly fibres, trace shell debris, caddisfly poly, no odour and no sheen

Approx % collected in grab sample _____ %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: _____ # of Grabs for Analysis: _____

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: ~~20252228~~ - 166372402-70000-

Project Title: Baffinland ~~Steensby~~ MEEMP 2023

Date: 04 Aug 2023

Inspected by: TT

Station Number (ID): SNW-1

Sampling Method: VV

Weather: Overcast, 13-42 kts NE

Lat/Longitude: WP

Sampling Depth: 31.8 m.

# of Attempts to Obtain Sample: 1

Time of Collection: 13:18 / Coll'n 13:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

2-3 mm silty sand brown layer overtop of a grey sediment with black striations

Sandy Silt with CLAY, brownish grey, 80% fines, 20% f-c well graded sand, low to medium plasticity contains ice scallops (Semiplecten), poly chaetes, clams and trace sub angular gravel, no odour, no sheen.

Approx % collected in grab sample 13 cm depth, 60-65% %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of site, sample in grab, and sample in bowl

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:

# of Grabs for Analysis: 5

Other Notes:

3 jars, 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]/70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 11 Aug 23
Inspected by: TT
Station Number (ID): SNW-2
Sampling Method: VV
Weather: Some cloud cover, 10-12 kts NE, 3-5°C
Lat/Longitude: on WP
Sampling Depth: 50.8m
# of Attempts to Obtain Sample: 1
Time of Collection: 12:20 / 13:00 sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - jaws sealed, overlying water, surface intact
1-2 mm sandy silt brown layer overtop of a grey clayey sand and silt layer.
CLAYEY SAND and SILT, moist, soft, brown, 60% fines 40% f-c sand ~~well~~ poorly graded, low to med plasticity, contains polys, brittle star, an egg mass, poly tubes, no sheen and no odour noted

Approx % collected in grab sample 1 - 35-40% (6.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]
Project Title: Baffinland MEEMP [redacted] 2023
Date: 16 Aug 23
Inspected by: TT
Station Number (ID): SNW-3
Sampling Method: VV
Weather: Overcast, 5-7 kts SE, 10-12°C
Lat/Longitude: on WP
Sampling Depth: 61.0m
# of Attempts to Obtain Sample: 1
Time of Collection: 15:25 - 16:40 sample ~~acto~~ collected.

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - good seal, overlying water, surface intact
1-2 cm Sandy SILT brown layer overtop of gray with black patches SAND and SILT
Gravelly SILT and SAND. 50% fines, 35% fine to coarse sand, 15% gravel (subangular to subrounded)
Moist, soft, brown, low to medium plasticity, no odour, no sheen.
Contains brittle stars, "caddis fly polychaete"

Approx % collected in grab sample 1 - 35-40% (8.0cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- [x] Full Metals
- [x] PAH
- [ ] TBT
- [x] Grain Size
- [ ] Benthic
- [ ] AVS CEM
- [ ] PCB
- [ ] Dioxins and Furans
- [ ] PFOA/PFOS
- [x] Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02-[redacted]-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 20 Aug 2023
Inspected by: TT
Station Number (ID): SNW-4
Sampling Method: VV
Weather: Light rain, 10-12kts NE, 4-6°C
Lat/Longitude: on WP
Sampling Depth: 67.0
# of Attempts to Obtain Sample: 1
Time of Collection: 14:16 to collect all
13:20 - /14:40 - Sample coll'n

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grabs - sealed grab, overlying water, surface intact
1-2 cm of brown sand and silt layer overtop of a grey with black patches silt and sand layer
SILT and SAND with GRAVEL, moist, soft greyish brown, 45% fines, 35% f-c sand, 20% f-c gravel (subrounded, rounded and subangular), low to medium plasticity. Contains brittlestars, polys, Macoma, no odour and no sheen noted

Approx % collected in grab sample 1- 75-80%. (9.0cm) 2- 80%. 3- 80-85%. %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-70000 Project Title: Baffinland MEEMP [redacted] 2023

Date: 21 Aug 23 Inspected by: TT

Station Number (ID): SNW-5 Sampling Method: VV

Weather: Overcast, low-lying fog, 4-6 kts NE, 4-5°C Lat/Longitude: on WP

Sampling Depth: 71.2m

# of Attempts to Obtain Sample: 1 Time of Collection: 10:55 - 12:00 - sample collv

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - overlying water, jaws sealed, surface intact

1-2 cm sandy silt brown layer overtop of a silt and sand grey with black striations layer.

SILT and SAND with GRAVEL, moist, soft greyish brown, 50% fines, 35% f-c sand poorly graded, 15% f-c gravel (sub angular, subrounded), low to med plasticity contains caddisfly poly, sea cucumbers, no odour and no sheen noted

Approx % collected in grab sample 1-70-75% (10 cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 22 Aug 23
Inspected by: TT
Station Number (ID): SNW-7
Sampling Method: VV
Weather: Light rain, fog, 2-3 kts SW, 4-6°C
Lat/Longitude: on WP
Sampling Depth: 78.5 m
# of Attempts to Obtain Sample: 1
Time of Collection: 10:10 / 11:30 - sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):
1- jaws sealed, overlying water, surface intact
0.5-1.0 cm of a sandy silt brown layer overtop of a clayey sand a silt overtop of a grey with black patches layer
CLAYEY SILT and SAND with GRAVEL, moist, soft, brown, 50% fines, 35% f-c sand well graded, 15% f-c gravel (subrounded, subangular) low to medium plasticity contains brittlestars, Capitellidae, Caddisfly poly, no odour and no sheen noted

Approx % collected in grab sample 1-75-80% (9.0 cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, and homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02-[redacted]-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 16 th Aug 2023
Inspected by: TT
Station Number (ID): SNW-9
Sampling Method: VV
Weather: Overcast 7-10kts SE, 5.8°C
Lat/Longitude: on WP
Sampling Depth: 88.3 m
# of Attempts to Obtain Sample: 11
Time of Collection: 14:20 - 14:55 Sample Collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab - rock caught in jaws of grab 2- sealed, overlying water 2-3 cm of a brown sandy silt layer over top of a grey with black patches clayey sand and silt layer.

~~GRAVELLY CLAYEY~~ SILT and SAND, moist, soft brownish grey, 50% fines, 35% f-c sand well graded, 15% f-c gravel, low to medium plasticity, contains brittlestar, no odour and no sheen noted

50% 35% 15% gravel

Approx % collected in grab sample 1- 70-75% (11cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- [x] Full Metals
- [x] PAH
- [ ] TBT
- [x] Grain Size
- [ ] Benthic
- [ ] AVS CEM
- [ ] PCB
- [ ] Dioxins and Furans
- [ ] PFOA/PFOS
- [x] Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

DUP-D-23

SEDIMENT SAMPLING LOG

Project No: 1663724-02-7000 0

Project Title: Baffinland MEEMP 2023

Date: 13 Aug 23

Inspected by: TT

Station Number (ID): SNW-11 / DUP-D-23

Sampling Method: VV

Weather: Overcast, 10-12kts NE 6-8°C

Lat/Longitude: on WP

Sampling Depth: 91.6m

# of Attempts to Obtain Sample: 11

Time of Collection: 12:15 - / 14:15 sample collection

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 2 - overlying water, surface intact, jaws sealed

1-2 mm sandy silt brown layer overtop of a sand and silt grey with black striations layer.

SAND and SILT, moist, soft, brown, 70% fines, 30% f-c sand, medium plasticity contains brittlestars, polys, Caddisfly poly (Nereidae) no odour and no sheen noted

Approx % collected in grab sample 1-90% (16 cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

6 jars x 2 bags x 4 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-02[redacted]-70000 Project Title: Baffinland MEEMP[redacted] 2023

Date: 13 Aug 23 Inspected by: TT

Station Number (ID): SNW-13 Sampling Method: VV

Weather: Some cloud cover, 8-10 kts NE, 6-10C Lat/Longitude: on WP

Sampling Depth: 96.2m

# of Attempts to Obtain Sample: 1 Time of Collection: 9:55 - 11:20 Sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab - jaws sealed, overlying water, surface intact

1-2 cm sandy silt brown layer overtop of a brownish grey clayey sand and silt layer

CLAYEY SAND and SILT, moist, soft, brownish grey, 60% fines, 40% f-C sand poorly graded, medium plasticity contains amphipods, brittlestars, polys trace fine gravel (subangular) no odour and no sheen noted

Approx % collected in grab sample 1 (25-30%) - 7cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] 1663724021700O

Project Title: Baffinland MEEMP [redacted] 2023

Date: 07 Aug 2023

Inspected by: TT

Station Number (ID): SNW-15

Sampling Method: VV

Weather: Clear some cloud cover, 7-8 kts, 10-14°C

Lat/Longitude:

Sampling Depth: 98.1m.

# of Attempts to Obtain Sample: 1

Time of Collection: 10:43 / 11:30 - Sample Collin

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - good seal, overlying water, surface intact

CLAYEY SILT and SAND with GRAVEL, moist, firm, brown, 60% fines, 30% f-c sand well graded, 10% gravel (subangular, subrounded) low to med plasticity contains Oweniidae (caddisfly poly), brittle star, red poly, no odour and no sheen noted

Approx % collected in grab sample 1-90% %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, photo of homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] 16637240 2-10000 Project Title: Baffinland MEEMP [redacted] 2023

Date: 07 Aug 2023 Inspected by: TT

Station Number (ID): SW-1 Sampling Method: VV

Weather: Overcast, 5-7 kts NE, 8-10°C Lat/Longitude: on WP

Sampling Depth: ~~+3.3m~~ 15.5m

# of Attempts to Obtain Sample: 1 Time of Collection: 13:20 - 14:08 / 14:10 - sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - good seal, overlying water, surface intact

0.5 cm of reddish brown sand layer overtop of a greyish brown sediment

SAND, wet, loose, brownish grey, 100% f-c sand, poorly graded, low plasticity, contains brittlestar, Astarte, Hiatella, trace shell debris and gravel (rounded, subrounded), Pectinaria, no odour + no sheen

Approx % collected in grab sample 1-45-50% (9.0cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted] - 70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 16 Aug 23
Inspected by: TT
Station Number (ID): SW-2 / DUP-E-23
Sampling Method: VV
Weather: Overcast, 7-8 kts SE, 12-14°C
Lat/Longitude: on WP
Sampling Depth: 15.9 m / 18.7 m. Grab 3
# of Attempts to Obtain Sample: IIII
Time of Collection: 12:17 / 13:30 sample collected.

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):
Grab 1+2 - rocks caught in jaws of grab Grab 3 - sealed, overlying water 1-2 cm brown sand overtop of a grey with black patches sand layer
SAND, with GRAVEL, Wet, loose, brown, 85% f-c sand poorly graded, 15% f-gravel (sub angular) low Plasticity, contains Amphipod, brittlestar, Similipecten, fine organic debris, no odour and no sheen noted

Approx % collected in grab sample 30-35% (6.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: ~~1669724-24000~~ 1663724-02/70000

Project Title: Baffinland MEEMP ~~2019~~ ~~2022~~ 2023

Date: 04 Aug 23

Inspected by: TT

Station Number (ID): SW-3

Sampling Method: VV

Weather: Light rain, 15-20kts SW

Lat/Longitude: on WP 214 0502963; 7976477

Sampling Depth: 19.4 m

# of Attempts to Obtain Sample: III

Time of Collection: 16:04 16:25 sampled / 16:45 - time sampled

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - jaws did not close (cobble)
Grab 2 - jaws did not close (cobble)
Grab 3 - jaws did not close (cobble)
Grab 4 - " "
Grab 5 - good seal, overlying water

0.5 cm reddish brown sediment layer over top of brownish grey wet Sand, Brown, loose, 100% fine sand well graded, low plasticity, ~~moist~~ contains Hiatella, cone worm, glass scallop, Mya truncata, red filamentous algae no odor, no sheen

Approx % collected in grab sample Grab 5 - 6 cm, 15-20% %

Grabbed in jaws.

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars, 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]/70000 Project Title: Baffinland MEEMP[redacted]

Date: 07 Aug 2023 Inspected by: TT

Station Number (ID): SW-4 Sampling Method: VV

Weather: Overcast, 7-8 kts NE, 8-10°C Lat/Longitude: on WP

Sampling Depth: ~~17.3m~~ 16.5m

# of Attempts to Obtain Sample: 111 Time of Collection: 15 45 / 16:05 - sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1+2 - cobble caught in jaws, washout moved position slightly for grab 3 ~6 m NE

Grab 3 - retained.

1-2 mm sandy silt brown layer overtop of brownish grey sediment

SILTY SAND, moist, loose, brown, 85% f sand poorly graded, 15% fines, low plasticity contains trace shell debris, gravel (rounded), brittlestars, Pynogonid, Hiatella, Similipecten

Approx % collected in grab sample 3 - 25-30% (5.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

photo of ~~gr~~ sample in grab, photo of sample homogenized

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 166372[redacted] 70,000 DE
Project Title: Baffinland MEEMP [redacted]
Date: 9 AUG 2023
Inspected by: KW
Station Number (ID): SW-5
Sampling Method: VV
Weather: Sunny, 8-10 km NE
Lat/Longitude: on WP
Sampling Depth: ~16.5m.
# of Attempts to Obtain Sample: 1
Time of Collection: 11:30/sample collected 11:47

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):
overlaying water, good grab (~65 cm)
1 cm light brown soft + silty overlaying brown sand w/ black staining.
Sand with silt + gravel, wet, loose
Homogenous sand (70%), silt (20%), gravel (10%). No shells
low plasticity, no smell, no sheen.

cone worms, polychaetes, no clams.

Approx % collected in grab sample 1 - 40% %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Y -0604 -0609.

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars, 1 bag, +2 vials.

SAMPLE NUMBER: _____

[redacted]

SEDIMENT SAMPLING LOG

Project No: 1663724 [redacted] 02-9000 | Project Title: Baffinland MEEMP [redacted]

Date: 9 AUG 2023 | Inspected by: KW

Station Number (ID): SW-6 | Sampling Method: VV

Weather: Sunny 12 kn. NE | Lat/Longitude: on WP

Sampling Depth: 10.6m (at stern upslope)

# of Attempts to Obtain Sample: 1 | Time of Collection: 14:20 / 14:41 sample collected.

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - 8 cm depth. jaws closed w/ overlaying water
Red filamentous algae on surface
1 cm of loose + silty light brown on surface
SAND w/ SILT + GRAVEL, trace shell
sand subangular and heterogenous (~50%), silt (~40%), gravel (<10%)
low plasticity, loose, wet, no odour, no staining

Coneworm, polychaetes

Approx % collected in grab sample 40-45% %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Y

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TIC/TOC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC: | # of Grabs for Analysis: 1

Other Notes:

3 jars, 1 bag, + 2 vials

SAMPLE NUMBER: _____

[redacted]

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted] 70000
Project Title: Baffinland MEEMP[redacted]
Date: 14 AUG 2023
Inspected by: TT
Station Number (ID): SW-8
Sampling Method: VV
Weather: overcast, periods of rain, 10-12 kts SE 6-8°C
Lat/Longitude: on WP
Sampling Depth: 18.1 m
# of Attempts to Obtain Sample: 1
Time of Collection: 15:00/15:28 sample collection

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1- jaws sealed, overlying water, surface intact 1-2 mm of a silty sand brown layer overtop of a grey sand and silt layer with black striations. Red filamentous algae.
SAND and SILT moist, soft, brown. 60% fines, 40% fine sand low to medium plasticity, contains trace shell fragments no odour no sheen.
Hiatella, poly tubes,

Approx % collected in grab sample 1-35-40% (8.5 cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted] 02 -70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 13 Aug 23
Inspected by: TT
Station Number (ID): SW-10
Sampling Method: VV
Weather: Overcast, 10-12kts NE, 6-8°C
Lat/Longitude: on WP
Sampling Depth: 17.8m
# of Attempts to Obtain Sample: 11
Time of Collection: 16:15 - 16:55 Sample Collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - not on location 2 - jaws sealed, overlying water, surface intact 1-2 mm brown fine sand overtop of a grey with black striations sand layer

SAND, wet, loose, brown, 100% fine sand poorly graded, low plasticity contains trace organic matter, polys, poly tubes, Pectinaria, no odour and no sheen noted

Approx % collected in grab sample 1 - 35-40% (9.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-70000 (02)
Project Title: Baffinland MEEMP[redacted]

Date: 11 Aug 23
Inspected by: TT

Station Number (ID): SW-11
Sampling Method: VV

Weather: Some cloud cover, 18-20kts NE, 5-8°C
Lat/Longitude: on WP

Sampling Depth: 16.1m

# of Attempts to Obtain Sample: 1
Time of Collection: 16:16 / 16:50 sample coll'n

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - sealed, overlying water, surface intact

SAND, wet, loose, brownish grey, 100% f-sand poorly graded, low plasticity, contains polys, Oweniidae, some fine organic matter (leaf debris, filamentous moss), Amphipod, no odour and no sheen noted

Approx % collected in grab sample 1-50-55% (8.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, photo of sample homogenized

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

DUP-E-23

SEDIMENT SAMPLING LOG

Project No: 1663724-02-7000 0 | Project Title: Baffinland MEEMP [redacted] 2023

Date: 20 Aug 23 | Inspected by: TT

Station Number (ID): SW-12 / DUP-E-23 | Sampling Method: VV

Weather: Rain, 7-8 kts NE, 4-5°C | Lat/Longitude: on WP

Sampling Depth: 17.6m

# of Attempts to Obtain Sample: 1 | Time of Collection: 15:45 - 16:30 - sample colln

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

1- jaws sealed, overlying water, surface intact

SAND, wet, firm/dense, brown (patches of reddish brown and black mixed with a grey sand), 100%. mostly fine sand poorly graded, some coarse, low plasticity, Contains polys, abundant fine organic matter, leaf debris, no odour and no sheen noted

Approx % collected in grab sample 1- 35-40% (6cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TIC, TOC, PHC

AEC: | # of Grabs for Analysis:

Other Notes:

6 jars + 2 bags + 4 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724[redacted]-70000 (02)
Project Title: Baffinland MEEMP [redacted] 2023
Date: 13 Aug 2023
Inspected by: TT
Station Number (ID): SW-13
Sampling Method: VV
Weather: Overcast, 5-7kts NE, 6-8°C
Lat/Longitude: on WP
Sampling Depth: 13.0 m
# of Attempts to Obtain Sample: 11
Time of Collection: 15:00-/15:40 sample coll'n

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - rock caught in jaws of grab 2 - jaws sealed, overlying water 1-2mm brown fine sand overtop of a grey with black striations sand layer.

SAND, wet, loose, brown, 100% f-sand, low plasticity contains poly tubes, some organic matter (bryophyte, leaf debris), Serripes (Aztec),

Approx % collected in grab sample 1-15-20% (5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, PHC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: 1663724-[redacted]02-70000
Project Title: Baffinland MEEMP [redacted] 2023
Date: 11 Aug 2023
Inspected by: TT
Station Number (ID): SW-15
Sampling Method: VV
Weather: Some cloud cover, 10-12 kts NE 5-8°C
Lat/Longitude: on WP
Sampling Depth: 15.4m
# of Attempts to Obtain Sample: 1
Time of Collection: sample collin 14:50 / 15:15

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

1-grab sealed, overlying water, surface intact
0.5-1.0 mm sandy silt brown layer over top of a greyish brown layer

SILTY SAND, wet, loose, brown, 85% fine sand poorly graded, 15% fines, low plasticity, contains fine organic debris, poly tubes, brittlestar, Pectinaria, Hiatella, no odour and no sheen noted

Approx % collected in grab sample 1-30-35% (6.5cm) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ Grain Size
- ☐ PCB
- ☑ Other TOC, TIC, PHC
- ☑ PAH
- ☐ Benthic
- ☐ Dioxins and Furans
- ☐ TBT
- ☐ AVS CEM
- ☐ PFOA/PFOS

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

APPENDIX 3C

Sediment Quality Laboratory Data

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B8536**	Page	: 1 of 16
Amendment	: **1**		
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 15-Aug-2023
C-O-C number	: ----	Issue Date	: 18-Jan-2024 13:14
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Xihua Yao	Laboratory Analyst	Sask Soils, Saskatoon, Saskatchewan

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amended COA(1): Additional VOC data is included for VA23B8536 - 6, 7 & 8.

Qualifiers

Qualifier	*Description*
DLHM	*Detection Limit Adjusted: Sample has high moisture content.*

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-3	SE-4	SE-5	SNE-1	SNE-10
					Client sampling date / time	05-Aug-2023 11:15	05-Aug-2023 13:30	06-Aug-2023 03:55	06-Aug-2023 10:43	06-Aug-2023 14:00
						VA23B8536-001	VA23B8536-002	VA23B8536-003	VA23B8536-004	VA23B8536-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		27.8	22.1	28.8	22.8	37.9
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.09	8.29	8.16	8.22	8.19
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		11.1	13.3	17.6	10.9	7.6
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		58.3	68.9	48.2	56.0	17.0
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		23.6	13.8	26.6	24.6	49.8
Clay (<0.004mm)	----	EC184E/SK	1.0	%		7.0	4.0	7.6	8.5	25.6
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		3.09	2.82	3.34	3.28	5.29
Carbon, inorganic [IC]	----	E354/SK	0.050	%		2.10	1.70	2.28	2.31	3.53
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		17.5	14.2	19.0	19.2	29.4
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		0.990	1.12	1.06	0.970	1.76
Organic matter	----	EC356/SK	0.10	%		1.71	1.93	1.83	1.67	3.03
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		3930	2970	4420	4030	10800
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	0.19
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		3.33	2.85	3.30	3.40	7.91
Barium	7440-39-3	E440/VA	0.50	mg/kg		11.0	8.22	11.6	12.6	27.8
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.23	0.18	0.25	0.26	0.64
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		28.5	21.6	31.1	29.5	70.5
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.051	0.025	0.033	0.080	0.107
Calcium	7440-70-2	E440/VA	50	mg/kg		47200	41000	47800	60300	91600
Chromium	7440-47-3	E440/VA	0.50	mg/kg		12.6	9.85	14.6	13.7	29.8
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		2.12	1.68	2.36	2.67	5.44
Copper	7440-50-8	E440/VA	0.50	mg/kg		4.29	3.07	4.50	5.20	12.3
Iron	7439-89-6	E440/VA	50	mg/kg		9400	7380	10000	10000	18200
Lead	7439-92-1	E440/VA	0.50	mg/kg		3.96	2.73	4.16	4.02	9.89
Lithium	7439-93-2	E440/VA	2.0	mg/kg		16.5	12.8	19.0	19.4	47.8

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-3	SE-4	SE-5	SNE-1	SNE-10
					Client sampling date / time	05-Aug-2023 11:15	05-Aug-2023 13:30	06-Aug-2023 03:55	06-Aug-2023 10:43	06-Aug-2023 14:00
						VA23B8536-001	VA23B8536-002	VA23B8536-003	VA23B8536-004	VA23B8536-005
						Result	Result	Result	Result	Result
Metals										
Magnesium	7439-95-4	E440/VA	20	mg/kg		25200	18400	26600	28200	46800
Manganese	7439-96-5	E440/VA	1.0	mg/kg		89.8	69.5	93.0	124	200
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		0.0080	0.0052	0.0088	0.0102	0.0199
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.30	0.25	0.28	0.29	0.49
Nickel	7440-02-0	E440/VA	0.50	mg/kg		6.70	5.12	7.37	7.80	17.0
Phosphorus	7723-14-0	E440/VA	50	mg/kg		363	278	419	355	578
Potassium	7440-09-7	E440/VA	100	mg/kg		1720	1280	1810	1680	4310
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	0.30
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		3530	2700	3820	3270	6390
Strontium	7440-24-6	E440/VA	0.50	mg/kg		29.9	38.0	32.0	49.6	58.9
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.063	0.054	0.069	0.066	0.159
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		182	145	200	173	313
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.594	0.446	0.627	0.638	1.35
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		15.0	11.6	16.2	16.7	40.8
Zinc	7440-66-6	E440/VA	2.0	mg/kg		11.6	8.7	12.3	12.0	30.0
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		3.3	2.7	3.9	3.6	8.0
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-3	SE-4	SE-5	SNE-1	SNE-10
					Client sampling date / time	05-Aug-2023 11:15	05-Aug-2023 13:30	06-Aug-2023 03:55	06-Aug-2023 10:43	06-Aug-2023 14:00
						VA23B8536-001	VA23B8536-002	VA23B8536-003	VA23B8536-004	VA23B8536-005
						Result	Result	Result	Result	Result
Hydrocarbons										
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		88.5	84.9	86.2	85.9	85.8
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		88.8	93.0	95.7	112	102
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		82.1	82.8	87.4	84.2	80.3
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		88.1	92.5	97.4	90.9	88.8
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0041 DLHM	<0.0040	<0.0042 DLHM	<0.0040	<0.0047 DLHM
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-3	SE-4	SE-5	SNE-1	SNE-10
					Client sampling date / time	05-Aug-2023 11:15	05-Aug-2023 13:30	06-Aug-2023 03:55	06-Aug-2023 10:43	06-Aug-2023 14:00
						VA23B8536-001	VA23B8536-002	VA23B8536-003	VA23B8536-004	VA23B8536-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		112	112	113	113	118
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		107	107	106	108	115
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		100	102	102	103	108
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		104	106	106	107	112

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SNW-1	SE18-1	KLK-23	DUP-A-23
					Client sampling date / time	04-Aug-2023 16:45	04-Aug-2023 13:30	05-Aug-2023 16:00	08-Aug-2023 18:16	06-Aug-2023 00:00
						VA23B8536-006	VA23B8536-007	VA23B8536-008	VA23B8536-009	VA23B8536-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		19.9	20.3	19.8	23.8	22.2
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.54	8.40	8.54	8.44	8.34
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		<1.0	7.5	7.8	14.3	14.4
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		90.7	45.6	85.9	69.9	54.8
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		7.0	37.5	4.6	12.0	23.1
Clay (<0.004mm)	----	EC184E/SK	1.0	%		1.7	9.4	1.7	3.8	7.7
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		1.59	4.39	1.28	3.31	3.27
Carbon, inorganic [IC]	----	E354/SK	0.050	%		0.999	2.12	0.875	2.28	2.33
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		8.33	17.7	7.29	19.0	19.4
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		0.591	2.27	0.405	1.03	0.940
Organic matter	----	EC356/SK	0.10	%		1.02	3.91	0.70	1.78	1.62
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		2160	5470	1590	7570	4440
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		1.93	2.92	1.43	3.81	3.04
Barium	7440-39-3	E440/VA	0.50	mg/kg		6.68	13.9	4.22	51.9	11.8
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.13	0.34	0.11	0.38	0.28
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		13.7	38.7	11.7	30.5	32.1
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		<0.020	0.068	0.034	0.042	0.040
Calcium	7440-70-2	E440/VA	50	mg/kg		23900	75600	21500	75700	56300
Chromium	7440-47-3	E440/VA	0.50	mg/kg		7.96	18.4	5.50	18.7	13.5
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		1.50	3.29	1.04	3.48	2.32
Copper	7440-50-8	E440/VA	0.50	mg/kg		2.22	6.61	1.99	5.01	4.74
Iron	7439-89-6	E440/VA	50	mg/kg		6990	14400	8420	12500	9640
Lead	7439-92-1	E440/VA	0.50	mg/kg		1.70	4.64	1.41	6.00	4.09
Lithium	7439-93-2	E440/VA	2.0	mg/kg		9.5	24.0	6.9	18.7	19.7
Magnesium	7439-95-4	E440/VA	20	mg/kg		12700	37800	11400	17800	28500

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SNW-1	SE18-1	KLK-23	DUP-A-23
					Client sampling date / time	04-Aug-2023 16:45	04-Aug-2023 13:30	05-Aug-2023 16:00	08-Aug-2023 18:16	06-Aug-2023 00:00
						VA23B8536-006	VA23B8536-007	VA23B8536-008	VA23B8536-009	VA23B8536-010
						Result	Result	Result	Result	Result
Metals										
Manganese	7439-96-5	E440/VA	1.0	mg/kg		59.5	127	47.3	109	94.6
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		<0.0050	0.0080	<0.0050	0.0077	0.0093
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.18	0.44	0.17	0.19	0.28
Nickel	7440-02-0	E440/VA	0.50	mg/kg		4.58	10.1	3.32	11.3	7.25
Phosphorus	7723-14-0	E440/VA	50	mg/kg		224	344	181	358	305
Potassium	7440-09-7	E440/VA	100	mg/kg		1080	2270	700	2150	1870
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		2550	3000	2210	3100	3190
Strontium	7440-24-6	E440/VA	0.50	mg/kg		15.1	40.7	13.3	61.5	33.3
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.052	0.088	<0.050	0.081	0.073
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		172	247	87.0	138	186
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.296	0.821	0.285	0.648	0.613
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		7.75	19.2	6.11	18.2	16.8
Zinc	7440-66-6	E440/VA	2.0	mg/kg		7.3	14.4	5.2	19.6	11.4
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.0	5.8	1.6	3.1	4.5
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Chloromethane	74-87-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.075	mg/kg		<0.075	<0.075	<0.075	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SNW-1	SE18-1	KLK-23	DUP-A-23
					Client sampling date / time	04-Aug-2023 16:45	04-Aug-2023 13:30	05-Aug-2023 16:00	08-Aug-2023 18:16	06-Aug-2023 00:00
						VA23B8536-006	VA23B8536-007	VA23B8536-008	VA23B8536-009	VA23B8536-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Chloroethane	75-00-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dichloromethane	75-09-2	E611C/VA	0.045	mg/kg		<0.045	<0.045	<0.045	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Trichloroethylene	79-01-6	E611C/VA	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Vinyl chloride	75-01-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		----	----	----	<0.0050	<0.0050
Benzene	71-43-2	E611C/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		----	----	----	<0.015	<0.015
Ethylbenzene	100-41-4	E611C/VA	0.015	mg/kg		<0.015	<0.015	<0.015	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.040	mg/kg		<0.040	<0.040	<0.040	----	----
Styrene	100-42-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Toluene	108-88-3	E611A/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Toluene	108-88-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Xylene, o-	95-47-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		----	----	----	<0.075	<0.075

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SNW-1	SE18-1	KLK-23	DUP-A-23
					Client sampling date / time	04-Aug-2023 16:45	04-Aug-2023 13:30	05-Aug-2023 16:00	08-Aug-2023 18:16	06-Aug-2023 00:00
						VA23B8536-006	VA23B8536-007	VA23B8536-008	VA23B8536-009	VA23B8536-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]										
Xylenes, total	1330-20-7	E611C/VA	0.075	mg/kg		<0.075	<0.075	<0.075	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Bromoform	75-25-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Chloroform	67-66-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		84.5	85.6	85.9	94.1	83.9
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		88.2	95.2	90.0	84.7	95.4
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		----	----	----	82.9	99.0
Bromofluorobenzene, 4-	460-00-4	E611C/VA	0.10	%		87.3	85.7	101	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		----	----	----	95.1	112
Difluorobenzene, 1,4-	540-36-3	E611C/VA	0.10	%		100	97.5	116	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SNW-1	SE18-1	KLK-23	DUP-A-23
					Client sampling date / time	04-Aug-2023 16:45	04-Aug-2023 13:30	05-Aug-2023 16:00	08-Aug-2023 18:16	06-Aug-2023 00:00
						VA23B8536-006	VA23B8536-007	VA23B8536-008	VA23B8536-009	VA23B8536-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		108	116	107	117	113
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		107	112	104	115	106
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		104	109	102	109	102
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		105	111	103	112	104

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)									
				Client sample ID	DUP-B-23	----	----	----	----
				Client sampling date / time	08-Aug-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8536-011	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Moisture	----	E144/VA	0.25	%	25.1	----	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	8.41	----	----	----	----
Particle Size									
Gravel (>2mm)	----	EC184E/SK	1.0	%	8.5	----	----	----	----
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%	75.5	----	----	----	----
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%	11.9	----	----	----	----
Clay (<0.004mm)	----	EC184E/SK	1.0	%	4.1	----	----	----	----
Organic / Inorganic Carbon									
Carbon, total [TC]	----	E351/SK	0.050	%	3.42	----	----	----	----
Carbon, inorganic [IC]	----	E354/SK	0.050	%	2.33	----	----	----	----
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%	19.4	----	----	----	----
Carbon, total organic [TOC]	----	EC356/SK	0.050	%	1.09	----	----	----	----
Organic matter	----	EC356/SK	0.10	%	1.88	----	----	----	----
Metals									
Aluminum	7429-90-5	E440/VA	50	mg/kg	7400	----	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg	<0.10	----	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	3.81	----	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg	47.2	----	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.41	----	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	<0.20	----	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg	29.4	----	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	0.038	----	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg	72700	----	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg	19.1	----	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	3.58	----	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg	4.86	----	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg	12700	----	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg	6.04	----	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg	18.7	----	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg	17200	----	----	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)									
				Client sample ID	DUP-B-23	----	----	----	----
				Client sampling date / time	08-Aug-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8536-011	--------	--------	--------	--------
					Result	----	----	----	----
Metals									
Manganese	7439-96-5	E440/VA	1.0	mg/kg	111	----	----	----	----
Mercury	7439-97-6	E510/VA	0.0050	mg/kg	0.0074	----	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg	0.20	----	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg	11.6	----	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg	388	----	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg	2020	----	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg	<0.20	----	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg	<0.10	----	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg	3210	----	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg	60.7	----	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg	<1000	----	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg	0.078	----	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg	<2.0	----	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg	140	----	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg	<0.50	----	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg	0.544	----	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg	19.4	----	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg	20.1	----	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	3.1	----	----	----	----
Volatile Organic Compounds [Fuels]									
Benzene	71-43-2	E611A/VA	0.0050	mg/kg	<0.0050	----	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg	<0.015	----	----	----	----
Toluene	108-88-3	E611A/VA	0.050	mg/kg	<0.050	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg	<0.050	----	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg	<0.050	----	----	----	----
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg	<0.075	----	----	----	----
Hydrocarbons									
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg	<5.0	----	----	----	----
F1-BTEX	----	EC580/VA	5.0	mg/kg	<5.0	----	----	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)									
				Client sample ID	DUP-B-23	----	----	----	----
				Client sampling date / time	08-Aug-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8536-011	--------	--------	--------	--------
					Result	----	----	----	----
Hydrocarbons									
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg	<30	----	----	----	----
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg	<50	----	----	----	----
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg	<50	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-	Yes	----	----	----	----
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%	85.7	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%	84.8	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%	91.2	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%	105	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg	<0.0050	----	----	----	----
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg	<0.0050	----	----	----	----
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg	<0.0040	----	----	----	----
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg	<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg	<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg	<0.015	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)									
				Client sample ID	DUP-B-23	----	----	----	----
				Client sampling date / time	08-Aug-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8536-011	--------	--------	--------	--------
					Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg	<0.010	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg	<0.020	----	----	----	----
IACR (CCME)	----	E641A-L/VA	0.150	-	<0.150	----	----	----	----
IACR AB (coarse)	----	E641A-L/VA	0.10	-	<0.10	----	----	----	----
IACR AB (fine)	----	E641A-L/VA	0.10	-	<0.10	----	----	----	----
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg	<0.040	----	----	----	----
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg	<0.140	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg	<0.040	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates									
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%	110	----	----	----	----
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%	107	----	----	----	----
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%	102	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%	106	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B8536**	Page	: 1 of 20
Amendment	: **1**		
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Issue Date	: 18-Jan-2024 13:13
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
DUP-B-23	E601.SG	08-Aug-2023	17-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-1	E601.SG	06-Aug-2023	17-Aug-2023	14 days	11 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-10	E601.SG	06-Aug-2023	17-Aug-2023	14 days	11 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
DUP-A-23	E601.SG	06-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE18-1	E601.SG	05-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-3	E601.SG	05-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-4	E601.SG	05-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-5	E601.SG	06-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-1	E601.SG	04-Aug-2023	17-Aug-2023	14 days	13 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-3	E601.SG	04-Aug-2023	17-Aug-2023	14 days	13 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
KLK-23	E601.SG	08-Aug-2023	17-Aug-2023	14 days	9 days	✓	18-Aug-2023	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
DUP-B-23	E581.VH+F1	08-Aug-2023	18-Aug-2023	40 days	10 days	✓	18-Aug-2023	40 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-3	E581.VH+F1	05-Aug-2023	15-Aug-2023	40 days	10 days	✓	15-Aug-2023	40 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-4	E581.VH+F1	05-Aug-2023	15-Aug-2023	40 days	10 days	✓	15-Aug-2023	40 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-5	E581.VH+F1	06-Aug-2023	15-Aug-2023	40 days	10 days	✓	15-Aug-2023	40 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
DUP-A-23	E581.VH+F1	06-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-1	E581.VH+F1	06-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-10	E581.VH+F1	06-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE18-1	E581.VH+F1	05-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	13 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-3	E581.VH+F1	04-Aug-2023	18-Aug-2023	40 days	13 days	✓	18-Aug-2023	40 days	14 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-1	E581.VH+F1	04-Aug-2023	18-Aug-2023	40 days	14 days	✓	18-Aug-2023	40 days	14 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
KLK-23	E581.VH+F1	08-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-B-23	E510	08-Aug-2023	18-Aug-2023	28 days	10 days	✓	18-Aug-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE-5	E510	06-Aug-2023	18-Aug-2023	28 days	12 days	✓	18-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-1	E510	06-Aug-2023	18-Aug-2023	28 days	12 days	✓	18-Aug-2023	28 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-10	E510	06-Aug-2023	18-Aug-2023	28 days	12 days	✓	18-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-A-23	E510	06-Aug-2023	18-Aug-2023	28 days	12 days	✓	18-Aug-2023	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE18-1	E510	05-Aug-2023	18-Aug-2023	28 days	13 days	✓	18-Aug-2023	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE-3	E510	05-Aug-2023	18-Aug-2023	28 days	13 days	✓	18-Aug-2023	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE-4	E510	05-Aug-2023	18-Aug-2023	28 days	13 days	✓	18-Aug-2023	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-3	E510	04-Aug-2023	18-Aug-2023	28 days	13 days	✓	18-Aug-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-1	E510	04-Aug-2023	18-Aug-2023	28 days	14 days	✓	18-Aug-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
KLK-23	E510	08-Aug-2023	18-Aug-2023	28 days	9 days	✓	18-Aug-2023	28 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-B-23	E440	08-Aug-2023	18-Aug-2023	180 days	10 days	✓	19-Aug-2023	180 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-5	E440	06-Aug-2023	18-Aug-2023	180 days	12 days	✓	19-Aug-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-1	E440	06-Aug-2023	18-Aug-2023	180 days	12 days	✓	19-Aug-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-10	E440	06-Aug-2023	18-Aug-2023	180 days	12 days	✓	19-Aug-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-A-23	E440	06-Aug-2023	18-Aug-2023	180 days	12 days	✓	19-Aug-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE18-1	E440	05-Aug-2023	18-Aug-2023	180 days	13 days	✓	19-Aug-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-3	E440	05-Aug-2023	18-Aug-2023	180 days	13 days	✓	19-Aug-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-4	E440	05-Aug-2023	18-Aug-2023	180 days	13 days	✓	19-Aug-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-3	E440	04-Aug-2023	18-Aug-2023	180 days	13 days	✓	19-Aug-2023	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-1	E440	04-Aug-2023	18-Aug-2023	180 days	14 days	✓	19-Aug-2023	180 days	15 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap KLK-23	E440	08-Aug-2023	18-Aug-2023	180 days	9 days	✓	19-Aug-2023	180 days	11 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag DUP-A-23	E351	06-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag DUP-B-23	E351	08-Aug-2023	16-Aug-2023	----	----		16-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag KLK-23	E351	08-Aug-2023	16-Aug-2023	----	----		16-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SE18-1	E351	05-Aug-2023	16-Aug-2023	----	----		16-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SE-3	E351	05-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SE-4	E351	05-Aug-2023	16-Aug-2023	----	----		16-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SE-5	E351	06-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-1	E351	06-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-10	E351	06-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-1	E351	04-Aug-2023	16-Aug-2023	----	----		16-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-3	E351	04-Aug-2023	16-Aug-2023	----	----		16-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag DUP-A-23	E354	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE18-1	E354	05-Aug-2023	----	----	----		16-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-4	E354	05-Aug-2023	----	----	----		16-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-5	E354	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-1	E354	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-10	E354	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-3	E354	05-Aug-2023	----	----	----		17-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-1	E354	04-Aug-2023	----	----	----		16-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-3	E354	04-Aug-2023	----	----	----		16-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag KLK-23	E354	08-Aug-2023	----	----	----		16-Aug-2023	----	8 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag DUP-B-23	E354	08-Aug-2023	----	----	----		16-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap DUP-B-23	E144	08-Aug-2023	----	----	----		17-Aug-2023	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SE-5	E144	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SNE-1	E144	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SNE-10	E144	06-Aug-2023	----	----	----		17-Aug-2023	----	11 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-A-23	E144	06-Aug-2023	----	----	----		17-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE18-1	E144	05-Aug-2023	----	----	----		17-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-3	E144	05-Aug-2023	----	----	----		17-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-4	E144	05-Aug-2023	----	----	----		17-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-1	E144	04-Aug-2023	----	----	----		17-Aug-2023	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-3	E144	04-Aug-2023	----	----	----		17-Aug-2023	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
KLK-23	E144	08-Aug-2023	----	----	----		17-Aug-2023	----	9 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
DUP-B-23	E108	08-Aug-2023	18-Aug-2023	30 days	10 days	✓	18-Aug-2023	30 days	10 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
DUP-A-23	E108	06-Aug-2023	18-Aug-2023	30 days	12 days	✓	18-Aug-2023	30 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-5	E108	06-Aug-2023	18-Aug-2023	30 days	12 days	✓	18-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-1	E108	06-Aug-2023	18-Aug-2023	30 days	12 days	✓	18-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-10	E108	06-Aug-2023	18-Aug-2023	30 days	12 days	✓	18-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE18-1	E108	05-Aug-2023	18-Aug-2023	30 days	13 days	✓	18-Aug-2023	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-3	E108	05-Aug-2023	18-Aug-2023	30 days	13 days	✓	18-Aug-2023	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-4	E108	05-Aug-2023	18-Aug-2023	30 days	13 days	✓	18-Aug-2023	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-3	E108	04-Aug-2023	18-Aug-2023	30 days	13 days	✓	18-Aug-2023	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-1	E108	04-Aug-2023	18-Aug-2023	30 days	14 days	✓	18-Aug-2023	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
KLK-23	E108	08-Aug-2023	18-Aug-2023	30 days	9 days	✓	18-Aug-2023	30 days	10 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP-B-23	E641A-L	08-Aug-2023	17-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-1	E641A-L	06-Aug-2023	17-Aug-2023	14 days	11 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-10	E641A-L	06-Aug-2023	17-Aug-2023	14 days	11 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP-A-23	E641A-L	06-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE18-1	E641A-L	05-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-3	E641A-L	05-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-4	E641A-L	05-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-5	E641A-L	06-Aug-2023	17-Aug-2023	14 days	12 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-1	E641A-L	04-Aug-2023	17-Aug-2023	14 days	13 days	✓	18-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-3	E641A-L	04-Aug-2023	17-Aug-2023	14 days	13 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
KLK-23	E641A-L	08-Aug-2023	17-Aug-2023	14 days	9 days	✓	18-Aug-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
DUP-B-23	E611A	08-Aug-2023	18-Aug-2023	40 days	10 days	✓	18-Aug-2023	40 days	10 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SE-3	E611A	05-Aug-2023	15-Aug-2023	40 days	10 days	✓	15-Aug-2023	40 days	10 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SE-4	E611A	05-Aug-2023	15-Aug-2023	40 days	10 days	✓	15-Aug-2023	40 days	10 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SE-5	E611A	06-Aug-2023	15-Aug-2023	40 days	10 days	✓	15-Aug-2023	40 days	10 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
DUP-A-23	E611A	06-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	12 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNE-1	E611A	06-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	12 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNE-10	E611A	06-Aug-2023	18-Aug-2023	40 days	12 days	✓	18-Aug-2023	40 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial KLK-23	E611A	08-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	10 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SE18-1	E611C	05-Aug-2023	18-Aug-2023	40 days	13 days	✓	18-Aug-2023	40 days	13 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SNW-1	E611C	04-Aug-2023	18-Aug-2023	40 days	14 days	✓	18-Aug-2023	40 days	14 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SW-3	E611C	04-Aug-2023	18-Aug-2023	40 days	14 days	✓	18-Aug-2023	40 days	14 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1085075	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1090275	1	11	9.0	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1090278	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1090279	1	11	9.0	5.0	✓
Moisture Content by Gravimetry	E144	1090282	1	11	9.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1090276	1	11	9.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1090281	1	11	9.0	5.0	✓
Total Carbon by Combustion	E351	1088336	2	33	6.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1088155	2	33	6.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1085076	2	32	6.2	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	0	5	0.0	5.0	×
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1085075	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1090275	1	11	9.0	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1090278	2	11	18.1	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1090279	2	11	18.1	10.0	✓
Moisture Content by Gravimetry	E144	1090282	1	11	9.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1090276	1	11	9.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1090281	1	11	9.0	5.0	✓
Total Carbon by Combustion	E351	1088336	4	33	12.1	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1088155	4	33	12.1	10.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1085076	2	32	6.2	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	1	5	20.0	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1085075	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1090275	1	11	9.0	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1090278	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1090279	1	11	9.0	5.0	✓
Moisture Content by Gravimetry	E144	1090282	1	11	9.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1090276	1	11	9.0	5.0	✓
Total Carbon by Combustion	E351	1088336	2	33	6.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1088155	2	33	6.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1085076	2	32	6.2	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	1	5	20.0	5.0	✓
Matrix Spikes (MS)							

Matrix: **Soil/Solid**

Evaluation: ✗ = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
BTEX by Headspace GC-MS	E611A	1085075	2	35	5.7	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1090275	1	11	9.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1090276	1	11	9.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1085076	2	32	6.2	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	0	5	0.0	5.0	✗

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601.SG ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Vancouver	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
F1-BTEX	EC580 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Vancouver	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Saskatoon	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **VA23B8536**	Page	: 1 of 17
Amendment	: **1**		
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 15-Aug-2023
C-O-C number	: ----	Issue Date	: 18-Jan-2024 13:22
Sampler	: ---- ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Xihua Yao	Laboratory Analyst	Saskatoon Sask Soils, Saskatoon, Saskatchewan

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1090281)											
VA23B8536-001	SE-3	pH (1:2 soil:water)	----	E108	0.10	pH units	8.09	8.02	0.9%	5%	----
Physical Tests (QC Lot: 1090282)											
VA23B8536-001	SE-3	Moisture	----	E144	0.25	%	27.8	26.7	3.76%	20%	----
Organic / Inorganic Carbon (QC Lot: 1088155)											
VA23B8542-003	Anonymous	Carbon, inorganic [IC]	----	E354	0.050	%	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1088336)											
EO2307184-002	Anonymous	Carbon, total [TC]	----	E351	0.050	%	2.38	2.38	0.281%	20%	----
Organic / Inorganic Carbon (QC Lot: 1089418)											
VA23B8536-001	SE-3	Carbon, inorganic [IC]	----	E354	0.050	%	2.10	2.12	0.682%	20%	----
Organic / Inorganic Carbon (QC Lot: 1090223)											
FC2302233-001	Anonymous	Carbon, total [TC]	----	E351	0.050	%	39.0	39.6	1.42%	20%	----
Metals (QC Lot: 1090278)											
VA23B8536-001	SE-3	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0080	0.0088	0.0009	Diff <2x LOR	----
Metals (QC Lot: 1090279)											
VA23B8536-001	SE-3	Aluminum	7429-90-5	E440	50	mg/kg	3930	4020	2.33%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	3.33	3.07	8.07%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	11.0	12.7	14.1%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.23	0.24	0.01	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	28.5	29.0	0.5	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.051	0.051	0.0006	Diff <2x LOR	----
		Calcium	7440-70-2	E440	50	mg/kg	47200	50200	6.18%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	12.6	12.6	0.245%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	2.12	2.15	1.26%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	4.29	4.27	0.419%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	9400	9720	3.35%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	3.96	3.92	1.21%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	16.5	17.5	5.51%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	25200	26400	4.67%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1090279) - continued											
VA23B8536-001	SE-3	Manganese	7439-96-5	E440	1.0	mg/kg	89.8	92.4	2.82%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.30	0.31	0.02	Diff <2x LOR	----
		Nickel	7440-02-0	E440	0.50	mg/kg	6.70	6.92	3.10%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	363	360	0.828%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	1720	1720	0.252%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	3530	3060	14.1%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	29.9	32.3	7.81%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.063	0.067	0.004	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	182	184	1.01%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.594	0.606	1.99%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	15.0	15.2	1.34%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	11.6	12.5	0.8	Diff <2x LOR	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	3.3	3.5	0.2	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1085075)											
VA23B8337-003	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1090849)											
KS2302975-001	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	0.0307	0.0355	14.5%	40%	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	4.48	4.95	10.00%	40%	----
		Toluene	108-88-3	E611A	0.050	mg/kg	3.16	3.44	8.56%	40%	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	13.3	15.0	11.8%	40%	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	7.10	7.96	11.4%	40%	----
Hydrocarbons (QC Lot: 1085076)											
VA23B8337-003	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1090275)											
VA23B8536-001	SE-3	F2 (C10-C16)	----	E601.SG	30	mg/kg	<30	<30	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1090275) - continued											
VA23B8536-001	SE-3	F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1090848)											
KS2302975-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	276	337	19.9%	40%	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1090276)											
VA23B8536-001	SE-3	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0041	mg/kg	<0.0041	<0.0041	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1090282)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1088155)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1088336)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1089418)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1090223)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1090278)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1090279)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1090279) - continued						
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1085075)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1090849)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1305382)						
Benzene	71-43-2	E611C	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611C	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	<0.050	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611C	0.05	mg/kg	<0.050	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1305382) - continued						
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	<0.050	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	<0.050	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	<0.050	----
Hydrocarbons (QCLot: 1085076)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1090275)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1090848)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1090276)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1090281)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 1090282)									
Moisture	----	E144	0.25	%	50 %	101	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1088155)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	96.3	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1088336)									
Carbon, total [TC]	----	E351	0.05	%	48 %	101	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1089418)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	97.2	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1090223)									
Carbon, total [TC]	----	E351	0.05	%	48 %	99.2	90.0	110	----
Metals (QCLot: 1090278)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	98.8	80.0	120	----
Metals (QCLot: 1090279)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	89.0	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	92.2	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	94.3	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	88.6	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	87.5	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	89.2	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	85.6	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	90.9	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	89.4	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	90.0	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	88.2	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	86.2	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	89.4	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	89.9	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	86.7	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	94.2	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	88.8	80.0	120	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1090279) - continued									
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	89.7	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	87.4	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	91.1	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	92.0	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	91.4	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	81.3	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	91.6	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	88.6	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	84.6	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	89.7	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	88.0	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	88.1	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	87.5	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	88.8	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	91.6	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	85.5	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	82.4	80.0	120	----
Volatile Organic Compounds (QCLot: 1085075)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	118	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	115	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	112	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	122	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	116	70.0	130	----
Volatile Organic Compounds (QCLot: 1090849)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	102	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	96.4	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	95.8	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	104	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	99.6	70.0	130	----
Volatile Organic Compounds (QCLot: 1305382)									
Benzene	71-43-2	E611C	0.005	mg/kg	2.5 mg/kg	102	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	2.5 mg/kg	99.6	70.0	130	----
Bromoform	75-25-2	E611C	0.05	mg/kg	2.5 mg/kg	103	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1305382) - continued									
Chloroethane	75-00-3	E611C	0.05	mg/kg	2.5 mg/kg	106	60.0	140	----
Chloroform	67-66-3	E611C	0.05	mg/kg	2.5 mg/kg	99.0	70.0	130	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	2.5 mg/kg	86.6	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	2.5 mg/kg	99.5	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	2.5 mg/kg	107	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	2.5 mg/kg	92.2	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	2.5 mg/kg	102	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	2.5 mg/kg	106	60.0	140	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	2.5 mg/kg	107	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	2.5 mg/kg	87.1	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	2.5 mg/kg	88.5	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	2.5 mg/kg	96.4	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	2.5 mg/kg	111	70.0	130	----
Styrene	100-42-5	E611C	0.05	mg/kg	2.5 mg/kg	92.1	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	2.5 mg/kg	98.4	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Toluene	108-88-3	E611C	0.05	mg/kg	2.5 mg/kg	95.8	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	2.5 mg/kg	94.3	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	2.5 mg/kg	111	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	2.5 mg/kg	113	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	2.5 mg/kg	88.8	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	5 mg/kg	104	70.0	130	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	2.5 mg/kg	99.6	70.0	130	----
Hydrocarbons (QCLot: 1085076)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	93.6 mg/kg	98.4	70.0	130	----
Hydrocarbons (QCLot: 1090275)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	618.75 mg/kg	108	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1242.49 mg/kg	99.6	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Hydrocarbons (QCLot: 1090275) - continued									
F4 (C34-C50)	----	E601.SG	50	mg/kg	993.9 mg/kg	98.9	70.0	130	----
Hydrocarbons (QCLot: 1090848)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	93.6 mg/kg	102	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1090276)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	106	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	104	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	113	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	110	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	108	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	108	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	104	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	100	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	104	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	102	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	113	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	110	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	108	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1085075)										
VA23B8337-004	Anonymous	Benzene	71-43-2	E611A	2.10 mg/kg	3.125 mg/kg	105	60.0	140	----
		Ethylbenzene	100-41-4	E611A	1.98 mg/kg	3.125 mg/kg	98.7	60.0	140	----
		Toluene	108-88-3	E611A	1.96 mg/kg	3.125 mg/kg	97.7	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.17 mg/kg	6.25 mg/kg	104	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.02 mg/kg	3.125 mg/kg	100	60.0	140	----
Volatile Organic Compounds (QCLot: 1090849)										
KS2302975-001	Anonymous	Benzene	71-43-2	E611A	2.25 mg/kg	3.125 mg/kg	97.2	60.0	140	----
		Ethylbenzene	100-41-4	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	----
		Toluene	108-88-3	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	ND mg/kg	6.25 mg/kg	ND	60.0	140	----
		Xylene, o-	95-47-6	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	----
Hydrocarbons (QCLot: 1085076)										
VA23B8337-005	Anonymous	F1 (C6-C10)	----	E581.VH+F1	93.3 mg/kg	187.5 mg/kg	76.5	60.0	140	----
Hydrocarbons (QCLot: 1090275)										
VA23B8536-002	SE-4	F2 (C10-C16)	----	E601.SG	517 mg/kg	618.75 mg/kg	106	60.0	140	----
		F3 (C16-C34)	----	E601.SG	965 mg/kg	1242.49 mg/kg	98.6	60.0	140	----
		F4 (C34-C50)	----	E601.SG	760 mg/kg	993.9 mg/kg	97.0	60.0	140	----
Hydrocarbons (QCLot: 1090848)										
VA23B8536-004	SNE-1	F1 (C6-C10)	----	E581.VH+F1	74.4 mg/kg	187.5 mg/kg	62.8	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1090276)										
VA23B8536-002	SE-4	Acenaphthene	83-32-9	E641A-L	0.410 mg/kg	0.5 mg/kg	104	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.402 mg/kg	0.5 mg/kg	102	50.0	140	----
		Acridine	260-94-6	E641A-L	0.409 mg/kg	0.5 mg/kg	103	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.433 mg/kg	0.5 mg/kg	110	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.428 mg/kg	0.5 mg/kg	108	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.410 mg/kg	0.5 mg/kg	104	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.409 mg/kg	0.5 mg/kg	103	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.417 mg/kg	0.5 mg/kg	105	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.407 mg/kg	0.5 mg/kg	103	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.387 mg/kg	0.5 mg/kg	97.7	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1090276) - continued										
VA23B8536-002	SE-4	Dibenz(a,h)anthracene	53-70-3	E641A-L	0.411 mg/kg	0.5 mg/kg	104	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.401 mg/kg	0.5 mg/kg	101	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.401 mg/kg	0.5 mg/kg	101	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.416 mg/kg	0.5 mg/kg	105	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.411 mg/kg	0.5 mg/kg	104	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.434 mg/kg	0.5 mg/kg	110	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.429 mg/kg	0.5 mg/kg	108	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.418 mg/kg	0.5 mg/kg	106	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.410 mg/kg	0.5 mg/kg	104	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.425 mg/kg	0.5 mg/kg	107	50.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1088155)									
	RM	Carbon, inorganic [IC]	----	E354	0.383 %	96.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1088336)									
	RM	Carbon, total [TC]	----	E351	1.4 %	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1089418)									
	RM	Carbon, inorganic [IC]	----	E354	0.383 %	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1090223)									
	RM	Carbon, total [TC]	----	E351	1.4 %	100	80.0	120	----
Metals (QCLot: 1090278)									
	SCP SS-2	Mercury	7439-97-6	E510	0.059 mg/kg	92.4	70.0	130	----
Metals (QCLot: 1090279)									
	SCP SS-2	Aluminum	7429-90-5	E440	9817 mg/kg	98.8	70.0	130	----
	SCP SS-2	Antimony	7440-36-0	E440	3.99 mg/kg	84.1	70.0	130	----
	SCP SS-2	Arsenic	7440-38-2	E440	3.73 mg/kg	92.2	70.0	130	----
	SCP SS-2	Barium	7440-39-3	E440	105 mg/kg	87.1	70.0	130	----
	SCP SS-2	Beryllium	7440-41-7	E440	0.349 mg/kg	96.3	70.0	130	----
	SCP SS-2	Boron	7440-42-8	E440	8.5 mg/kg	112	40.0	160	----
	SCP SS-2	Cadmium	7440-43-9	E440	0.91 mg/kg	91.7	70.0	130	----
	SCP SS-2	Calcium	7440-70-2	E440	31082 mg/kg	95.5	70.0	130	----
	SCP SS-2	Chromium	7440-47-3	E440	101 mg/kg	100	70.0	130	----
	SCP SS-2	Cobalt	7440-48-4	E440	6.9 mg/kg	89.9	70.0	130	----
	SCP SS-2	Copper	7440-50-8	E440	123 mg/kg	89.1	70.0	130	----
	SCP SS-2	Iron	7439-89-6	E440	23558 mg/kg	91.2	70.0	130	----
	SCP SS-2	Lead	7439-92-1	E440	267 mg/kg	91.6	70.0	130	----
	SCP SS-2	Lithium	7439-93-2	E440	9.5 mg/kg	93.8	70.0	130	----
	SCP SS-2	Magnesium	7439-95-4	E440	5509 mg/kg	97.6	70.0	130	----
	SCP SS-2	Manganese	7439-96-5	E440	269 mg/kg	94.3	70.0	130	----
	SCP SS-2	Molybdenum	7439-98-7	E440	1.03 mg/kg	91.5	70.0	130	----
	SCP SS-2	Nickel	7440-02-0	E440	26.7 mg/kg	90.4	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1090279) - continued									
	SCP SS-2	Phosphorus	7723-14-0	E440	752 mg/kg	89.7	70.0	130	----
	SCP SS-2	Potassium	7440-09-7	E440	1587 mg/kg	99.2	70.0	130	----
	SCP SS-2	Sodium	7440-23-5	E440	797 mg/kg	89.2	70.0	130	----
	SCP SS-2	Strontium	7440-24-6	E440	86.1 mg/kg	89.3	70.0	130	----
	SCP SS-2	Thallium	7440-28-0	E440	0.0786 mg/kg	81.8	40.0	160	----
	SCP SS-2	Tin	7440-31-5	E440	10.6 mg/kg	78.7	70.0	130	----
	SCP SS-2	Titanium	7440-32-6	E440	839 mg/kg	104	70.0	130	----
	SCP SS-2	Uranium	7440-61-1	E440	0.52 mg/kg	90.0	70.0	130	----
	SCP SS-2	Vanadium	7440-62-2	E440	32.7 mg/kg	95.2	70.0	130	----
	SCP SS-2	Zinc	7440-66-6	E440	297 mg/kg	84.0	70.0	130	----
	SCP SS-2	Zirconium	7440-67-7	E440	5.73 mg/kg	79.0	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 21 -

Page 1 of 1

Environmental Division Vancouver
Work Order Reference
VA23B8536

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Adrienne Ducharme
Phone:	1-604-297-2030/1-604-296-2689
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	elaine.irving@wsp.com
Email 2	adrienne.ducharme@wsp.com
Email 3	trish.tomliens@wsp.com

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Additional fees may apply to rush requests on weekends, st...
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	GOLD100-028	Major/Minor Code:	Routing Code:
PO / AFE:	166372402/70000/03	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact: Amber Springer	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Particle Size (S184EA)	Moisture (E1442)	Dry and Grind (EPP442)	TC, TOC, TIC ($351)	Metals + Hg + pH (CA09)	BTEX, F1-F4 ($665A.B)	PAH (E641A-L)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	SE-3	05-AUG-23	11:15	Sediment	6	X	X	X	X	X	X	X			
	SE-4	05-AUG-23	13:30	Sediment	6	X	X	X	X	X	X	X			
	SE-5	06-AUG-23	15:55	Sediment	6	X	X	X	X	X	X	X			
	SWE-1	06-AUG-23	10:45	Sediment	6	X	X	X	X	X	X	X			
	SWE-10	06-AUG-23	14:00	Sediment	6	X	X	X	X	X	X	X			
	SW-3	04-AUG-23	16:45	Sediment	6	X	X	X	X	X	X	X			
	SWW-1	04-AUG-23	18:30	Sediment	6	X	X	X	X	X	X	X			
	SEIS-1	05-AUG-23	16:00	Sediment	6	X	X	X	X	X	X	X			
	[redacted] KLK-23	08-AUG-23	18:16	Sediment	6	X	X	X	X	X	X	X			
	DUPA-23	06-AUG-23	NA	Sediment	6	X	X	X	X	X	X	X			
	DUP-B-23	08-AUG-23	NA	Sediment	6	X	X	X	X	X	X	X			
				Sediment											

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Refer to quote
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11.1	6.1	1.2	1.2

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
[signature]	9 AUG 2023	9:15				[signature]	8/11/2023	11AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B8538**	Page	: 1 of 8
Amendment	: **1**		
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 15-Aug-2023
C-O-C number	: ----	Issue Date	: 18-Jan-2024 13:15
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Organics, Burnaby, British Columbia
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Xihua Yao	Laboratory Analyst	Sask Soils, Saskatoon, Saskatchewan

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.
Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Accreditation

Accreditation	*Description*	*Laboratory*	*Address*
A	CALA ISO/IEC 17025:2017	SK ALS Environmental - Saskatoon	819 58 Street East, Saskatoon, SK
B	CALA ISO/IEC 17025:2017	VA ALS Environmental - Vancouver	8081 Lougheed Highway, Burnaby, BC

Applicable accreditations are indicated in the Method/Lab column as superscripts.

Workorder Comments

Amended COA(1): VOC data is included for VA23B8538-1 & 2.

Qualifiers

Qualifier	*Description*
DLHM	*Detection Limit Adjusted: Sample has high moisture content.*

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: SW-4	SW-1	SNW-15	----	----
Client sampling date / time						07-Aug-2023 16:05	07-Aug-2023 14:10	07-Aug-2023 11:30	----	----
						VA23B8538-001	VA23B8538-002	VA23B8538-003	--------	--------
						Result	Result	Result	----	----
Physical Tests										
Moisture	----	E144/VA	B	0.25	%	23.4	15.8	29.8	----	----
pH (1:2 soil:water)	----	E108/VA	B	0.10	pH units	8.36	8.80	8.29	----	----
Particle Size										
Gravel (>2mm)	----	EC184E/SK		1.0	%	1.9	2.9	18.9	----	----
Sand (2.0mm - 0.063mm)	----	EC184E/SK		1.0	%	65.7	94.4	34.2	----	----
Silt (0.063mm - 0.004mm)	----	EC184E/SK		1.0	%	26.6	2.7	31.8	----	----
Clay (<0.004mm)	----	EC184E/SK		1.0	%	5.8	<1.0	15.1	----	----
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	A	0.050	%	3.75	1.08	4.40	----	----
Carbon, inorganic [IC]	----	E354/SK	A	0.050	%	2.25	0.926	3.17	----	----
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	A	0.40	%	18.8	7.72	26.4	----	----
Carbon, total organic [TOC]	----	EC356/SK		0.050	%	1.50	<0.164	1.23	----	----
Organic matter	----	EC356/SK		0.10	%	2.59	<0.16	2.12	----	----
Metals										
Aluminum	7429-90-5	E440/VA	B	50	mg/kg	3860	1060	8720	----	----
Antimony	7440-36-0	E440/VA	B	0.10	mg/kg	<0.10	<0.10	0.13	----	----
Arsenic	7440-38-2	E440/VA	B	0.10	mg/kg	3.50	0.71	6.42	----	----
Barium	7440-39-3	E440/VA	B	0.50	mg/kg	11.4	2.49	21.5	----	----
Beryllium	7440-41-7	E440/VA	B	0.10	mg/kg	0.26	<0.10	0.53	----	----
Bismuth	7440-69-9	E440/VA	B	0.20	mg/kg	<0.20	<0.20	<0.20	----	----
Boron	7440-42-8	E440/VA	B	5.0	mg/kg	27.6	8.8	60.0	----	----
Cadmium	7440-43-9	E440/VA	B	0.020	mg/kg	0.027	<0.020	0.091	----	----
Calcium	7440-70-2	E440/VA	B	50	mg/kg	55200	17500	86400	----	----
Chromium	7440-47-3	E440/VA	B	0.50	mg/kg	14.3	3.76	23.7	----	----
Cobalt	7440-48-4	E440/VA	B	0.10	mg/kg	2.51	0.68	4.28	----	----
Copper	7440-50-8	E440/VA	B	0.50	mg/kg	4.11	1.06	8.90	----	----
Iron	7439-89-6	E440/VA	B	50	mg/kg	14400	5660	14400	----	----
Lead	7439-92-1	E440/VA	B	0.50	mg/kg	3.25	0.98	7.32	----	----
Lithium	7439-93-2	E440/VA	B	2.0	mg/kg	18.0	4.8	37.7	----	----

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	SW-4	SW-1	SNW-15	----	----
						Client sampling date / time	07-Aug-2023 16:05	07-Aug-2023 14:10	07-Aug-2023 11:30	----	----
							VA23B8538-001	VA23B8538-002	VA23B8538-003	--------	--------
							Result	Result	Result	----	----
Metals											
Magnesium	7439-95-4	E440/VA	B	20	mg/kg		28500	9480	40700	----	----
Manganese	7439-96-5	E440/VA	B	1.0	mg/kg		110	34.0	166	----	----
Mercury	7439-97-6	E510/VA	B	0.0050	mg/kg		0.0082	<0.0050	0.0165	----	----
Molybdenum	7439-98-7	E440/VA	B	0.10	mg/kg		0.32	0.11	0.38	----	----
Nickel	7440-02-0	E440/VA	B	0.50	mg/kg		7.68	1.97	13.1	----	----
Phosphorus	7723-14-0	E440/VA	B	50	mg/kg		359	128	474	----	----
Potassium	7440-09-7	E440/VA	B	100	mg/kg		1640	460	3400	----	----
Selenium	7782-49-2	E440/VA	B	0.20	mg/kg		<0.20	<0.20	0.21	----	----
Silver	7440-22-4	E440/VA	B	0.10	mg/kg		<0.10	<0.10	<0.10	----	----
Sodium	7440-23-5	E440/VA	B	50	mg/kg		2820	1040	4660	----	----
Strontium	7440-24-6	E440/VA	B	0.50	mg/kg		33.2	9.99	56.7	----	----
Sulfur	7704-34-9	E440/VA	B	1000	mg/kg		<1000	<1000	<1000	----	----
Thallium	7440-28-0	E440/VA	B	0.050	mg/kg		0.076	<0.050	0.122	----	----
Tin	7440-31-5	E440/VA	B	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
Titanium	7440-32-6	E440/VA	B	1.0	mg/kg		229	60.1	297	----	----
Tungsten	7440-33-7	E440/VA	B	0.50	mg/kg		<0.50	<0.50	<0.50	----	----
Uranium	7440-61-1	E440/VA	B	0.050	mg/kg		0.552	0.190	0.949	----	----
Vanadium	7440-62-2	E440/VA	B	0.20	mg/kg		14.3	4.10	31.9	----	----
Zinc	7440-66-6	E440/VA	B	2.0	mg/kg		11.8	4.5	21.6	----	----
Zirconium	7440-67-7	E440/VA	B	1.0	mg/kg		3.8	1.3	7.5	----	----
Volatile Organic Compounds											
Chlorobenzene	108-90-7	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Chloromethane	74-87-3	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA		0.075	mg/kg		<0.075	<0.075	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	B	0.050	mg/kg		<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID: SW-4	SW-1	SNW-15	----	----
						Client sampling date / time: 07-Aug-2023 16:05	07-Aug-2023 14:10	07-Aug-2023 11:30	----	----
						VA23B8538-001	VA23B8538-002	VA23B8538-003	--------	--------
						Result	Result	Result	----	----
Volatile Organic Compounds										
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Chloroethane	75-00-3	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dichloromethane	75-09-2	E611C/VA	B	0.045	mg/kg	<0.045	<0.045	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Trichloroethylene	79-01-6	E611C/VA	B	0.010	mg/kg	<0.010	<0.010	----	----	----
Vinyl chloride	75-01-4	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	B	0.0050	mg/kg	----	----	<0.0050	----	----
Benzene	71-43-2	E611C/VA	B	0.0050	mg/kg	<0.0050	<0.0050	----	----	----
Ethylbenzene	100-41-4	E611A/VA	B	0.015	mg/kg	----	----	<0.015	----	----
Ethylbenzene	100-41-4	E611C/VA	B	0.015	mg/kg	<0.015	<0.015	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	B	0.040	mg/kg	<0.040	<0.040	----	----	----
Styrene	100-42-5	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Toluene	108-88-3	E611A/VA	B	0.050	mg/kg	----	----	<0.050	----	----
Toluene	108-88-3	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	B	0.050	mg/kg	----	----	<0.050	----	----
Xylene, m+p-	179601-23-1	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Xylene, o-	95-47-6	E611A/VA	B	0.050	mg/kg	----	----	<0.050	----	----
Xylene, o-	95-47-6	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)					Client sample ID	SW-4	SW-1	SNW-15	----	----
					Client sampling date / time	07-Aug-2023 16:05	07-Aug-2023 14:10	07-Aug-2023 11:30	----	----
Analyte	CAS Number	Method/Lab		LOR	Unit	VA23B8538-001	VA23B8538-002	VA23B8538-003	--------	--------
						Result	Result	Result	----	----
Volatile Organic Compounds [Fuels]										
Xylenes, total	1330-20-7	E611A/VA		0.075	mg/kg	----	----	<0.075	----	----
Xylenes, total	1330-20-7	E611C/VA		0.075	mg/kg	<0.075	<0.075	----	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Bromoform	75-25-2	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Chloroform	67-66-3	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	B	0.050	mg/kg	<0.050	<0.050	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	B	5.0	mg/kg	<5.0	<5.0	<5.0	----	----
F1-BTEX	----	EC580/VA		5.0	mg/kg	<5.0	<5.0	<5.0	----	----
F2 (C10-C16)	----	E601.SG/VA	B	30	mg/kg	<30	<30	<30	----	----
F3 (C16-C34)	----	E601.SG/VA	B	50	mg/kg	<50	<50	<50	----	----
F4 (C34-C50)	----	E601.SG/VA	B	50	mg/kg	<50	<50	<50	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/VA		-	-	Yes	Yes	Yes	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA		1.0	%	82.1	82.3	76.9	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA		1.0	%	108	76.0	92.1	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA		0.10	%	----	----	89.0	----	----
Bromofluorobenzene, 4-	460-00-4	E611C/VA		0.10	%	97.8	85.2	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA		0.10	%	----	----	99.7	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA		0.10	%	107	98.7	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	B	0.0050	mg/kg	<0.0050	<0.0050	<0.0050	----	----
Acenaphthylene	208-96-8	E641A-L/VA	B	0.0050	mg/kg	<0.0050	<0.0050	<0.0050	----	----
Acridine	260-94-6	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Anthracene	120-12-7	E641A-L/VA	B	0.0040	mg/kg	<0.0040	<0.0040	<0.0044 DLHM	----	----
Benz(a)anthracene	56-55-3	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)										
					Client sample ID	SW-4	SW-1	SNW-15	----	----
					Client sampling date / time	07-Aug-2023 16:05	07-Aug-2023 14:10	07-Aug-2023 11:30	----	----
Analyte	CAS Number	Method/Lab		LOR	Unit	VA23B8538-001	VA23B8538-002	VA23B8538-003	--------	--------
						Result	Result	Result	----	----
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene	50-32-8	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA		0.015	mg/kg	<0.015	<0.015	<0.015	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Chrysene	218-01-9	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	B	0.0050	mg/kg	<0.0050	<0.0050	<0.0050	----	----
Fluoranthene	206-44-0	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Fluorene	86-73-7	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1+2-	----	E641A-L/VA		0.015	mg/kg	<0.015	<0.015	<0.015	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Naphthalene	91-20-3	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Phenanthrene	85-01-8	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Pyrene	129-00-0	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
Quinoline	91-22-5	E641A-L/VA	B	0.010	mg/kg	<0.010	<0.010	<0.010	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA		0.020	mg/kg	<0.020	<0.020	<0.020	----	----
IACR (CCME)	----	E641A-L/VA		0.150	-	<0.150	<0.150	<0.150	----	----
IACR AB (coarse)	----	E641A-L/VA		0.10	-	<0.10	<0.10	<0.10	----	----
IACR AB (fine)	----	E641A-L/VA		0.10	-	<0.10	<0.10	<0.10	----	----
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA		0.040	mg/kg	<0.040	<0.040	<0.040	----	----
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA		0.140	mg/kg	<0.140	<0.140	<0.140	----	----
PAHs, total (EPA 16)	n/a	E641A-L/VA		0.040	mg/kg	<0.040	<0.040	<0.040	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	B	0.1	%	114	113	112	----	----
Chrysene-d12	1719-03-5	E641A-L/VA		0.1	%	109	108	108	----	----
Naphthalene-d8	1146-65-2	E641A-L/VA		0.1	%	100	100.0	101	----	----
Phenanthrene-d10	1517-22-2	E641A-L/VA		0.1	%	110	106	108	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B8538**	Page	: 1 of 12
Amendment	: 1		
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Issue Date	: 18-Jan-2024 13:25
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	Anonymous	Anonymous	Antimony	7440-36-0	E440	31.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Copper	7440-50-8	E440	174 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Silver	7440-22-4	E440	0.26 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Metals	Anonymous	Anonymous	Titanium	7440-32-6	E440	63.0 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Zinc	7440-66-6	E440	113 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Mercury	7439-97-6	E510	188 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(a)pyrene	50-32-8	E641A-L	75.2 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(b+j)fluoranthene	n/a	E641A-L	61.7 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Dibenz(a,h)anthracene	53-70-3	E641A-L	52.2 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Pyrene	129-00-0	E641A-L	60.2 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-1	E601.SG	07-Aug-2023	18-Aug-2023	14 days	10 days	✓	20-Aug-2023	40 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-4	E601.SG	07-Aug-2023	18-Aug-2023	14 days	10 days	✓	20-Aug-2023	40 days	3 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-15	E601.SG	07-Aug-2023	18-Aug-2023	14 days	11 days	✓	20-Aug-2023	40 days	3 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-1	E581.VH+F1	07-Aug-2023	18-Aug-2023	40 days	10 days	✓	18-Aug-2023	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-4	E581.VH+F1	07-Aug-2023	18-Aug-2023	40 days	10 days	✓	18-Aug-2023	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-15	E581.VH+F1	07-Aug-2023	18-Aug-2023	40 days	11 days	✓	18-Aug-2023	40 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-1	E510	07-Aug-2023	18-Aug-2023	28 days	11 days	✓	19-Aug-2023	28 days	11 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-4	E510	07-Aug-2023	18-Aug-2023	28 days	11 days	✓	19-Aug-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-15	E510	07-Aug-2023	18-Aug-2023	28 days	11 days	✓	19-Aug-2023	28 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-15	E440	07-Aug-2023	18-Aug-2023	180 days	11 days	✓	19-Aug-2023	180 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-1	E440	07-Aug-2023	18-Aug-2023	180 days	11 days	✓	19-Aug-2023	180 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-4	E440	07-Aug-2023	18-Aug-2023	180 days	11 days	✓	19-Aug-2023	180 days	12 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNW-15	E351	07-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SW-1	E351	07-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SW-4	E351	07-Aug-2023	17-Aug-2023	----	----		17-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
SNW-15	E354	07-Aug-2023	----	----	----		17-Aug-2023	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
SW-1	E354	07-Aug-2023	----	----	----		17-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
SW-4	E354	07-Aug-2023	----	----	----		17-Aug-2023	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-15	E144	07-Aug-2023	----	----	----		17-Aug-2023	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-1	E144	07-Aug-2023	----	----	----		17-Aug-2023	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-4	E144	07-Aug-2023	----	----	----		17-Aug-2023	----	10 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-15	E108	07-Aug-2023	18-Aug-2023	30 days	11 days	✓	18-Aug-2023	30 days	11 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-1	E108	07-Aug-2023	18-Aug-2023	30 days	11 days	✓	18-Aug-2023	30 days	11 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-4	E108	07-Aug-2023	18-Aug-2023	30 days	11 days	✓	18-Aug-2023	30 days	11 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-1	E641A-L	07-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-4	E641A-L	07-Aug-2023	18-Aug-2023	14 days	10 days	✓	18-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-15	E641A-L	07-Aug-2023	18-Aug-2023	14 days	11 days	✓	18-Aug-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNW-15	E611A	07-Aug-2023	18-Aug-2023	40 days	11 days	✓	18-Aug-2023	40 days	11 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
SW-1	E611C	07-Aug-2023	18-Aug-2023	40 days	11 days	✓	18-Aug-2023	40 days	11 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
SW-4	E611C	07-Aug-2023	18-Aug-2023	40 days	11 days	✓	18-Aug-2023	40 days	11 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1090849	1	15	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091160	1	3	33.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1091156	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1091157	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	1091161	1	14	7.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091159	1	15	6.6	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1091155	1	12	8.3	5.0	✓
Total Carbon by Combustion	E351	1090223	1	13	7.6	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1089418	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1090848	1	12	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	0	5	0.0	5.0	×
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1090849	1	15	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091160	1	3	33.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1091156	2	12	16.6	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1091157	2	12	16.6	10.0	✓
Moisture Content by Gravimetry	E144	1091161	1	14	7.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091159	1	15	6.6	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1091155	1	12	8.3	5.0	✓
Total Carbon by Combustion	E351	1090223	2	13	15.3	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1089418	2	14	14.2	10.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1090848	1	12	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	1	5	20.0	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1090849	1	15	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091160	1	3	33.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1091156	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1091157	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	1091161	1	14	7.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091159	1	15	6.6	5.0	✓
Total Carbon by Combustion	E351	1090223	1	13	7.6	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1089418	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1090848	1	12	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	1	5	20.0	5.0	✓
Matrix Spikes (MS)							

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
BTEX by Headspace GC-MS	E611A	1090849	1	15	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091160	1	3	33.3	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091159	1	15	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1090848	1	12	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305382	0	5	0.0	5.0	×

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601.SG ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Vancouver	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
F1-BTEX	EC580 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Vancouver	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Saskatoon	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **VA23B8538**	Page	: 1 of 17
Amendment	: **1**		
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 11-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 15-Aug-2023
C-O-C number	: ----	Issue Date	: 18-Jan-2024 13:16
Sampler	: ---- ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Vancouver Organics, Burnaby, British Columbia
Hedy Lai	Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Xihua Yao	Laboratory Analyst	Saskatoon Sask Soils, Saskatoon, Saskatchewan

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1091155)											
FJ2301986-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.06	6.74	4.6%	5%	----
Physical Tests (QC Lot: 1091161)											
FJ2301986-001	Anonymous	Moisture	----	E144	0.25	%	16.0	15.2	5.35%	20%	----
Organic / Inorganic Carbon (QC Lot: 1089418)											
VA23B8536-001	Anonymous	Carbon, inorganic [IC]	----	E354	0.050	%	2.10	2.12	0.682%	20%	----
Organic / Inorganic Carbon (QC Lot: 1090223)											
FC2302233-001	Anonymous	Carbon, total [TC]	----	E351	0.050	%	39.0	39.6	1.42%	20%	----
Metals (QC Lot: 1091156)											
FJ2301986-001	Anonymous	Mercury	7439-97-6	E510	0.0740	mg/kg	0.619	19.7	188%	40%	DUP-H
Metals (QC Lot: 1091157)											
FJ2301986-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	17600	17400	0.747%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	1.91	2.64	31.7%	30%	DUP-H
		Arsenic	7440-38-2	E440	0.10	mg/kg	15.1	14.6	3.34%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	420	445	5.90%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.60	0.50	0.10	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	0.32	0.30	0.02	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	10.0	9.5	0.6	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.896	0.873	2.70%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	4820	6270	26.1%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	98.8	101	2.20%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	11.7	12.7	8.62%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	69.5	1000	174%	30%	DUP-H
		Iron	7439-89-6	E440	50	mg/kg	36000	40600	12.0%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	84.9	104	20.7%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	13.8	12.5	1.3	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	3640	4440	20.0%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	405	380	6.21%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	9.79	8.99	8.52%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	59.9	64.0	6.61%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	707	664	6.39%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1091157) - continued											
FJ2301986-001	Anonymous	Potassium	7440-09-7	E440	100	mg/kg	1730	1640	5.42%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	1.20	0.99	0.21	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.18	# 0.44	0.26	Diff <2x LOR	DUP-H
		Sodium	7440-23-5	E440	50	mg/kg	314	404	25.0%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	45.6	46.9	2.79%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	1200	1800	700	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.218	0.194	0.024	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	2.4	3.2	0.8	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	127	244	63.0%	40%	DUP-H
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.820	0.721	12.9%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	72.9	70.7	3.06%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	150	536	113%	30%	DUP-H
		Zirconium	7440-67-7	E440	1.0	mg/kg	2.5	2.5	0.02	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1090849)											
KS2302975-001	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	0.0307	0.0355	14.5%	40%	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	4.48	4.95	10.00%	40%	----
		Toluene	108-88-3	E611A	0.050	mg/kg	3.16	3.44	8.56%	40%	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	13.3	15.0	11.8%	40%	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	7.10	7.96	11.4%	40%	----
Hydrocarbons (QC Lot: 1090848)											
KS2302975-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	276	337	19.9%	40%	----
Hydrocarbons (QC Lot: 1091160)											
VA23B8538-001	SW-4	F2 (C10-C16)	----	E601.SG	30	mg/kg	<30	<30	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1091159)											
FJ2301986-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.0600	mg/kg	<0.0385	<0.0600	0.0215	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0368	mg/kg	<0.0385	<0.0368	0.0017	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.040	mg/kg	<0.050	<0.040	0.010	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0368	mg/kg	0.0631	0.0899	0.0268	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.150	mg/kg	<0.090	<0.150	0.060	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.037	mg/kg	0.278	0.613	75.2%	50%	DUP-H
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.037	mg/kg	0.225	0.425	61.7%	50%	DUP-H

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1091159) - continued											
FJ2301986-001	Anonymous	Benzo(g,h,i)perylene	191-24-2	E641A-L	0.037	mg/kg	2.02	2.87	34.5%	50%	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.080	mg/kg	<0.050	<0.080	0.030	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.160	mg/kg	<0.080	<0.160	0.080	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0368	mg/kg	0.258	0.440	52.2%	50%	DUP-H
		Fluoranthene	206-44-0	E641A-L	0.080	mg/kg	<0.038	<0.080	0.041	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.040	mg/kg	<0.038	<0.040	0.001	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.037	mg/kg	0.234	0.379	47.4%	50%	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.037	mg/kg	0.164	0.239	37.0%	50%	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.037	mg/kg	0.178	0.287	47.2%	50%	----
		Naphthalene	91-20-3	E641A-L	0.037	mg/kg	0.060	0.076	0.016	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.037	mg/kg	0.300	0.399	28.1%	50%	----
		Pyrene	129-00-0	E641A-L	0.037	mg/kg	0.254	0.474	60.2%	50%	DUP-H
		Quinoline	91-22-5	E641A-L	0.037	mg/kg	<0.038	<0.037	0.038	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1091161)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1089418)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1090223)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1091156)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1091157)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1091157) - continued						
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1090849)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1305382)						
Benzene	71-43-2	E611C	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611C	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	<0.050	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611C	0.05	mg/kg	<0.050	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1305382) - continued						
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	<0.050	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	<0.050	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	<0.050	----
Hydrocarbons (QCLot: 1090848)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1091160)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091159)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091159) - continued						
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1091155)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	101	95.0	105	----
Physical Tests (QCLot: 1091161)									
Moisture	----	E144	0.25	%	50 %	100.0	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1089418)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	97.2	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1090223)									
Carbon, total [TC]	----	E351	0.05	%	48 %	99.2	90.0	110	----
Metals (QCLot: 1091156)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	104	80.0	120	----
Metals (QCLot: 1091157)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	97.9	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	97.6	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	101	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	95.8	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	97.9	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	93.6	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	94.3	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	94.6	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	96.5	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	95.6	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	94.8	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	104	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	96.4	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	98.3	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	102	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	99.5	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	96.6	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	95.3	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	104	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	97.7	80.0	120	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1091157) - continued									
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	97.6	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	87.9	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	98.2	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	93.5	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	100	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	94.7	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	93.9	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	96.2	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	92.8	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	94.0	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	98.5	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	93.9	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	90.2	80.0	120	----
Volatile Organic Compounds (QCLot: 1090849)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	102	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	96.4	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	95.8	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	104	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	99.6	70.0	130	----
Volatile Organic Compounds (QCLot: 1305382)									
Benzene	71-43-2	E611C	0.005	mg/kg	2.5 mg/kg	102	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	2.5 mg/kg	99.6	70.0	130	----
Bromoform	75-25-2	E611C	0.05	mg/kg	2.5 mg/kg	103	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	2.5 mg/kg	106	60.0	140	----
Chloroform	67-66-3	E611C	0.05	mg/kg	2.5 mg/kg	99.0	70.0	130	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	2.5 mg/kg	86.6	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	2.5 mg/kg	99.5	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	2.5 mg/kg	107	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	2.5 mg/kg	92.2	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1305382) - continued									
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	2.5 mg/kg	102	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	2.5 mg/kg	106	60.0	140	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	2.5 mg/kg	107	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	2.5 mg/kg	87.1	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	2.5 mg/kg	88.5	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	2.5 mg/kg	96.4	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	2.5 mg/kg	111	70.0	130	----
Styrene	100-42-5	E611C	0.05	mg/kg	2.5 mg/kg	92.1	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	2.5 mg/kg	98.4	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Toluene	108-88-3	E611C	0.05	mg/kg	2.5 mg/kg	95.8	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	2.5 mg/kg	94.3	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	2.5 mg/kg	111	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	2.5 mg/kg	113	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	2.5 mg/kg	88.8	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	5 mg/kg	104	70.0	130	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	2.5 mg/kg	99.6	70.0	130	----
Hydrocarbons (QCLot: 1090848)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	93.6 mg/kg	102	70.0	130	----
Hydrocarbons (QCLot: 1091160)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	618.75 mg/kg	106	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1242.49 mg/kg	97.4	70.0	130	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	993.9 mg/kg	99.6	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091159)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	105	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	101	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	102	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	110	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091159) - continued									
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	99.2	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	104	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	108	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	105	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	104	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1090849)										
KS2302975-001	Anonymous	Benzene	71-43-2	E611A	2.25 mg/kg	3.125 mg/kg	97.2	60.0	140	----
		Ethylbenzene	100-41-4	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	----
		Toluene	108-88-3	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	ND mg/kg	6.25 mg/kg	ND	60.0	140	----
		Xylene, o-	95-47-6	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	----
Hydrocarbons (QCLot: 1090848)										
VA23B8536-004	Anonymous	F1 (C6-C10)	----	E581.VH+F1	74.4 mg/kg	187.5 mg/kg	62.8	60.0	140	----
Hydrocarbons (QCLot: 1091160)										
VA23B8538-002	SW-1	F2 (C10-C16)	----	E601.SG	468 mg/kg	618.75 mg/kg	96.4	60.0	140	----
		F3 (C16-C34)	----	E601.SG	874 mg/kg	1242.49 mg/kg	89.7	60.0	140	----
		F4 (C34-C50)	----	E601.SG	690 mg/kg	993.9 mg/kg	88.5	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091159)										
FJ2301986-002	Anonymous	Acenaphthene	83-32-9	E641A-L	0.376 mg/kg	0.5 mg/kg	103	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.361 mg/kg	0.5 mg/kg	98.5	50.0	140	----
		Acridine	260-94-6	E641A-L	0.363 mg/kg	0.5 mg/kg	99.1	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.398 mg/kg	0.5 mg/kg	109	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.407 mg/kg	0.5 mg/kg	111	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.351 mg/kg	0.5 mg/kg	96.0	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.370 mg/kg	0.5 mg/kg	101	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	ND mg/kg	0.5 mg/kg	ND	50.0	140	E
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.352 mg/kg	0.5 mg/kg	96.1	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.500 mg/kg	0.5 mg/kg	136	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.339 mg/kg	0.5 mg/kg	92.5	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.361 mg/kg	0.5 mg/kg	98.5	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.372 mg/kg	0.5 mg/kg	102	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.362 mg/kg	0.5 mg/kg	98.9	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.373 mg/kg	0.5 mg/kg	102	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.406 mg/kg	0.5 mg/kg	111	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.379 mg/kg	0.5 mg/kg	103	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.372 mg/kg	0.5 mg/kg	101	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091159) - continued										
FJ2301986-002	Anonymous	Pyrene	129-00-0	E641A-L	0.373 mg/kg	0.5 mg/kg	102	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.370 mg/kg	0.5 mg/kg	101	50.0	140	----

Qualifiers

Qualifier	Description
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1089418)									
	RM	Carbon, inorganic [IC]	----	E354	0.383 %	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1090223)									
	RM	Carbon, total [TC]	----	E351	1.4 %	100	80.0	120	----
Metals (QCLot: 1091156)									
	SCP SS-2	Mercury	7439-97-6	E510	0.059 mg/kg	105	70.0	130	----
Metals (QCLot: 1091157)									
	SCP SS-2	Aluminum	7429-90-5	E440	9817 mg/kg	107	70.0	130	----
	SCP SS-2	Antimony	7440-36-0	E440	3.99 mg/kg	90.6	70.0	130	----
	SCP SS-2	Arsenic	7440-38-2	E440	3.73 mg/kg	98.5	70.0	130	----
	SCP SS-2	Barium	7440-39-3	E440	105 mg/kg	95.2	70.0	130	----
	SCP SS-2	Beryllium	7440-41-7	E440	0.349 mg/kg	103	70.0	130	----
	SCP SS-2	Boron	7440-42-8	E440	8.5 mg/kg	116	40.0	160	----
	SCP SS-2	Cadmium	7440-43-9	E440	0.91 mg/kg	97.3	70.0	130	----
	SCP SS-2	Calcium	7440-70-2	E440	31082 mg/kg	100	70.0	130	----
	SCP SS-2	Chromium	7440-47-3	E440	101 mg/kg	106	70.0	130	----
	SCP SS-2	Cobalt	7440-48-4	E440	6.9 mg/kg	97.9	70.0	130	----
	SCP SS-2	Copper	7440-50-8	E440	123 mg/kg	97.4	70.0	130	----
	SCP SS-2	Iron	7439-89-6	E440	23558 mg/kg	99.7	70.0	130	----
	SCP SS-2	Lead	7439-92-1	E440	267 mg/kg	94.3	70.0	130	----
	SCP SS-2	Lithium	7439-93-2	E440	9.5 mg/kg	102	70.0	130	----
	SCP SS-2	Magnesium	7439-95-4	E440	5509 mg/kg	107	70.0	130	----
	SCP SS-2	Manganese	7439-96-5	E440	269 mg/kg	104	70.0	130	----
	SCP SS-2	Molybdenum	7439-98-7	E440	1.03 mg/kg	93.0	70.0	130	----
	SCP SS-2	Nickel	7440-02-0	E440	26.7 mg/kg	97.0	70.0	130	----
	SCP SS-2	Phosphorus	7723-14-0	E440	752 mg/kg	95.4	70.0	130	----
	SCP SS-2	Potassium	7440-09-7	E440	1587 mg/kg	104	70.0	130	----
	SCP SS-2	Sodium	7440-23-5	E440	797 mg/kg	95.4	70.0	130	----
	SCP SS-2	Strontium	7440-24-6	E440	86.1 mg/kg	90.9	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1091157) - continued									
	SCP SS-2	Thallium	7440-28-0	E440	0.0786 mg/kg	88.4	40.0	160	----
	SCP SS-2	Tin	7440-31-5	E440	10.6 mg/kg	87.6	70.0	130	----
	SCP SS-2	Titanium	7440-32-6	E440	839 mg/kg	113	70.0	130	----
	SCP SS-2	Uranium	7440-61-1	E440	0.52 mg/kg	95.9	70.0	130	----
	SCP SS-2	Vanadium	7440-62-2	E440	32.7 mg/kg	101	70.0	130	----
	SCP SS-2	Zinc	7440-66-6	E440	297 mg/kg	93.1	70.0	130	----
	SCP SS-2	Zirconium	7440-67-7	E440	5.73 mg/kg	80.7	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Vancouver

Work Order Reference

VA23B8538

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Adrienne Ducharme
Phone:	1-604-297-2030/1-604-296-2689
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	elaine.irving@wsp.com
Email 2	adrienne.ducharme@wsp.com
Email 3	trish.tomliens@wsp.com
Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Additional fees may apply to rush requests on weekends, st...
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	GOLD100-028	Major/Minor Code:	Routing Code:
PO / AFE:	166372402/70000/03	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	8538	ALS Contact: Amber Springer	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Particle Size (S184EA)	Moisture (E1442)	Dry and Grind (EPP442)	TC, TOC, TIC (S351)	Metals + Hg + pH (CA09)	BTEX,F1-F4 (S665A-B)	PAH (E641A-L)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	EW-4	07-Aug-23	16:05	Sediment	6	X	X	X	X	X	X	X			
	SW-1	07-Aug-23	14:10	Sediment	6	X	X	X	X	X	X	X			
	SNW-15	07-Aug-23	11:30	Sediment	6	X	X	X	X	X	X	X			
				Sediment											
				Sediment											
				Sediment											
				Sediment											
				Sediment											
				Sediment											
				Sediment											
				Sediment											
				Sediment											

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	Refer to quote

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C	
				11.6	12.2

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	09 AUG 2023	9:15				RB	8/11/2023	11AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B9385**	Page	: 1 of 10
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 18-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 23-Aug-2023
C-O-C number	: ----	Issue Date	: 28-Aug-2023 10:03
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Colby Bingham	Laboratory Supervisor	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLHM	*Detection Limit Adjusted: Sample has high moisture content.*

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-8	SW-10	SW-13	SNW-13	SNW-11
					Client sampling date / time	14-Aug-2023 15:28	13-Aug-2023 16:55	13-Aug-2023 15:40	13-Aug-2023 11:20	13-Aug-2023 14:15
						VA23B9385-001	VA23B9385-002	VA23B9385-003	VA23B9385-004	VA23B9385-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		27.3	20.3	25.6	26.3	32.5
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.35	8.48	8.82	8.31	8.33
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		2.5	<1.0	1.8	10.0	7.5
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		39.1	76.5	51.5	22.8	27.8
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		48.8	19.2	41.3	43.7	43.0
Clay (<0.004mm)	----	EC184E/SK	1.0	%		9.6	3.8	5.4	23.5	21.7
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		5.35	2.92	5.29	5.40	5.04
Carbon, inorganic [IC]	----	E354/SK	0.050	%		2.38	1.23	2.29	3.08	3.05
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		19.8	10.3	19.1	25.7	25.4
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		2.97	1.69	3.00	2.32	1.99
Organic matter	----	EC356/SK	0.10	%		5.12	2.91	5.17	4.00	3.43
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		6930	3320	5120	13000	11600
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	0.20	0.18
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		5.13	2.52	2.53	4.96	6.29
Barium	7440-39-3	E440/VA	0.50	mg/kg		19.3	9.94	14.0	27.3	25.2
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.42	0.21	0.31	0.67	0.58
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		45.5	22.4	36.4	72.2	69.0
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.052	<0.020	0.028	0.141	0.146
Calcium	7440-70-2	E440/VA	50	mg/kg		100000	55200	95800	113000	103000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		23.2	13.5	16.9	31.8	28.6
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		4.03	2.30	3.41	5.69	5.03
Copper	7440-50-8	E440/VA	0.50	mg/kg		8.41	4.20	6.43	12.9	11.1
Iron	7439-89-6	E440/VA	50	mg/kg		16600	10600	13600	18000	16200
Lead	7439-92-1	E440/VA	0.50	mg/kg		5.65	2.80	4.25	10.1	8.97
Lithium	7439-93-2	E440/VA	2.0	mg/kg		30.0	16.2	27.4	49.9	44.7

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-8	SW-10	SW-13	SNW-13	SNW-11
					Client sampling date / time	14-Aug-2023 15:28	13-Aug-2023 16:55	13-Aug-2023 15:40	13-Aug-2023 11:20	13-Aug-2023 14:15
						VA23B9385-001	VA23B9385-002	VA23B9385-003	VA23B9385-004	VA23B9385-005
						Result	Result	Result	Result	Result
Metals										
Magnesium	7439-95-4	E440/VA	20	mg/kg		53600	27900	51600	53000	48600
Manganese	7439-96-5	E440/VA	1.0	mg/kg		170	95.3	165	182	169
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		0.0120	0.0050	0.0089	0.0172	0.0166
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.48	0.32	0.46	0.49	0.42
Nickel	7440-02-0	E440/VA	0.50	mg/kg		12.3	6.79	9.12	17.9	15.6
Phosphorus	7723-14-0	E440/VA	50	mg/kg		549	404	365	485	485
Potassium	7440-09-7	E440/VA	100	mg/kg		2680	1370	2020	4660	4320
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	0.28	0.27
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		4370	3230	4320	6400	6340
Strontium	7440-24-6	E440/VA	0.50	mg/kg		55.3	30.6	47.3	71.8	66.2
Sulfur	7704-34-9	E440/VA	1000	mg/kg		1000	<1000	1200	1100	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.114	0.064	0.090	0.183	0.160
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		337	198	273	343	325
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.899	0.555	0.802	1.54	1.29
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		25.8	11.8	16.3	40.2	37.2
Zinc	7440-66-6	E440/VA	2.0	mg/kg		18.0	9.6	13.8	30.3	26.1
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		6.3	3.9	5.5	10.0	8.8
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		<0.015	<0.015	<0.015	0.032	<0.015
Toluene	108-88-3	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	0.060	<0.050
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-8	SW-10	SW-13	SNW-13	SNW-11
					Client sampling date / time	14-Aug-2023 15:28	13-Aug-2023 16:55	13-Aug-2023 15:40	13-Aug-2023 11:20	13-Aug-2023 14:15
						VA23B9385-001	VA23B9385-002	VA23B9385-003	VA23B9385-004	VA23B9385-005
						Result	Result	Result	Result	Result
Hydrocarbons										
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		77.1	83.1	80.5	77.7	78.9
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		99.3	102	106	81.6	107
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		81.0	88.1	94.0	70.4	88.0
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		91.3	95.2	104	77.5	98.3
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0040	<0.0040	<0.0040	<0.0040	<0.0043 DLHM
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-8	SW-10	SW-13	SNW-13	SNW-11
					Client sampling date / time	14-Aug-2023 15:28	13-Aug-2023 16:55	13-Aug-2023 15:40	13-Aug-2023 11:20	13-Aug-2023 14:15
						VA23B9385-001	VA23B9385-002	VA23B9385-003	VA23B9385-004	VA23B9385-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		96.9	110	97.0	104	102
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		96.4	110	96.4	105	102
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		91.6	107	93.6	103	99.9
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		97.2	111	98.1	105	103

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	DUP-D-23	SE-15	----	----	----
					Client sampling date / time	13-Aug-2023 00:00	15-Aug-2023 15:30	----	----	----
						VA23B9385-006	VA23B9385-007	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		30.7	32.8	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.29	8.25	----	----	----
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		9.6	2.0	----	----	----
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		24.9	26.1	----	----	----
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		43.3	53.2	----	----	----
Clay (<0.004mm)	----	EC184E/SK	1.0	%		22.2	18.7	----	----	----
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		5.03	4.94	----	----	----
Carbon, inorganic [IC]	----	E354/SK	0.050	%		3.04	2.59	----	----	----
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		25.3	21.6	----	----	----
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		1.99	2.35	----	----	----
Organic matter	----	EC356/SK	0.10	%		3.43	4.05	----	----	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		12000	11000	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		0.18	0.16	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		6.38	4.14	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		26.2	21.4	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.64	0.56	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		72.8	66.3	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.135	0.081	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg		107000	90000	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		29.7	30.2	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		5.22	4.69	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		11.4	9.86	----	----	----
Iron	7439-89-6	E440/VA	50	mg/kg		16700	14600	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		9.36	8.92	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		46.7	41.5	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		50300	54600	----	----	----

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	DUP-D-23	SE-15	----	----	----
					Client sampling date / time	13-Aug-2023 00:00	15-Aug-2023 15:30	----	----	----
						VA23B9385-006	VA23B9385-007	--------	--------	--------
						Result	Result	----	----	----
Metals										
Manganese	7439-96-5	E440/VA	1.0	mg/kg		172	159	----	----	----
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		0.0174	0.0153	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.48	1.08	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		16.3	15.7	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		515	520	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg		4520	4190	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.28	0.30	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		8340	7770	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		70.0	56.2	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		1200	1400	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.170	0.160	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		342	380	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.35	1.34	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		38.1	33.5	----	----	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		27.7	23.5	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		10.1	9.8	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		<0.0050	<0.0050	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		<0.015	<0.015	----	----	----
Toluene	108-88-3	E611A/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		<0.075	<0.075	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	----	----	----
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	----	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)					Client sample ID	DUP-D-23	SE-15	----	----	----
					Client sampling date / time	13-Aug-2023 00:00	15-Aug-2023 15:30	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA23B9385-006	VA23B9385-007	--------	--------	--------
						Result	Result	----	----	----
Hydrocarbons										
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	----	----	----
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	----	----	----
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		66.2	74.6	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		70.8	94.7	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		82.9	88.8	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		94.0	101	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	----	----	----
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	----	----	----
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0042 DLHM	<0.0043 DLHM	----	----	----
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----

Analytical Results

Sub-Matrix: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	DUP-D-23	SE-15	----	----	----
					Client sampling date / time	13-Aug-2023 00:00	15-Aug-2023 15:30	----	----	----
						VA23B9385-006	VA23B9385-007	--------	--------	--------
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons										
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	----	----	----
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	----	----	----
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	----	----	----
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	----	----	----
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	----	----	----
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	----	----	----
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		89.4	100	----	----	----
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		89.6	102	----	----	----
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		86.1	100.0	----	----	----
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		89.3	101	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B9385**	Page	: 1 of 17
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 18-Aug-2023 11:00
PO	: 166372402/70000/03	Issue Date	: 28-Aug-2023 10:03
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	Anonymous	Anonymous	Antimony	7440-36-0	E440	42.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	Lead	7439-92-1	E440	78.6 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Pyrene	129-00-0	E641A-L	57.9 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-8	E601.SG	14-Aug-2023	24-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-11	E601.SG	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-13	E601.SG	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-10	E601.SG	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-13	E601.SG	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
DUP-D-23	E601.SG	13-Aug-2023	24-Aug-2023	14 days	12 days	✓	25-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-15	E601.SG	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial SW-8	E581.VH+F1	14-Aug-2023	24-Aug-2023	40 days	10 days	✓	24-Aug-2023	40 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial SNW-11	E581.VH+F1	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial SNW-13	E581.VH+F1	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial SW-10	E581.VH+F1	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial SW-13	E581.VH+F1	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial DUP-D-23	E581.VH+F1	13-Aug-2023	24-Aug-2023	40 days	12 days	✓	24-Aug-2023	40 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial SE-15	E581.VH+F1	15-Aug-2023	24-Aug-2023	40 days	9 days	✓	24-Aug-2023	40 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SE-15	E510	15-Aug-2023	25-Aug-2023	28 days	10 days	✓	25-Aug-2023	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SW-8	E510	14-Aug-2023	25-Aug-2023	28 days	11 days	✓	25-Aug-2023	28 days	11 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-11	E510	13-Aug-2023	25-Aug-2023	28 days	12 days	✓	25-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-13	E510	13-Aug-2023	25-Aug-2023	28 days	12 days	✓	25-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-10	E510	13-Aug-2023	25-Aug-2023	28 days	12 days	✓	25-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-13	E510	13-Aug-2023	25-Aug-2023	28 days	12 days	✓	25-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-D-23	E510	13-Aug-2023	25-Aug-2023	28 days	12 days	✓	25-Aug-2023	28 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-15	E440	15-Aug-2023	25-Aug-2023	180 days	10 days	✓	26-Aug-2023	180 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-8	E440	14-Aug-2023	25-Aug-2023	180 days	11 days	✓	26-Aug-2023	180 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-D-23	E440	13-Aug-2023	25-Aug-2023	180 days	12 days	✓	26-Aug-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-11	E440	13-Aug-2023	25-Aug-2023	180 days	12 days	✓	26-Aug-2023	180 days	13 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-13	E440	13-Aug-2023	25-Aug-2023	180 days	12 days	✓	26-Aug-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-10	E440	13-Aug-2023	25-Aug-2023	180 days	12 days	✓	26-Aug-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-13	E440	13-Aug-2023	25-Aug-2023	180 days	12 days	✓	26-Aug-2023	180 days	13 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
DUP-D-23	E351	13-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE-15	E351	15-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNW-11	E351	13-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNW-13	E351	13-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SW-10	E351	13-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SW-13	E351	13-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-8	E351	14-Aug-2023	24-Aug-2023	----	----		24-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-11	E354	13-Aug-2023	----	----	----		23-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-13	E354	13-Aug-2023	----	----	----		23-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-10	E354	13-Aug-2023	----	----	----		23-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-13	E354	13-Aug-2023	----	----	----		23-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag DUP-D-23	E354	13-Aug-2023	----	----	----		23-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-15	E354	15-Aug-2023	----	----	----		23-Aug-2023	----	8 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-8	E354	14-Aug-2023	----	----	----		23-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SW-8	E144	14-Aug-2023	----	----	----		24-Aug-2023	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-D-23	E144	13-Aug-2023	----	----	----		24-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-11	E144	13-Aug-2023	----	----	----		24-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-13	E144	13-Aug-2023	----	----	----		24-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-10	E144	13-Aug-2023	----	----	----		24-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-13	E144	13-Aug-2023	----	----	----		24-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-15	E144	15-Aug-2023	----	----	----		24-Aug-2023	----	9 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-15	E108	15-Aug-2023	25-Aug-2023	30 days	10 days	✓	25-Aug-2023	30 days	10 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-8	E108	14-Aug-2023	25-Aug-2023	30 days	11 days	✓	25-Aug-2023	30 days	11 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-11	E108	13-Aug-2023	25-Aug-2023	30 days	12 days	✓	25-Aug-2023	30 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-13	E108	13-Aug-2023	25-Aug-2023	30 days	12 days	✓	25-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-10	E108	13-Aug-2023	25-Aug-2023	30 days	12 days	✓	25-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-13	E108	13-Aug-2023	25-Aug-2023	30 days	12 days	✓	25-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
DUP-D-23	E108	13-Aug-2023	25-Aug-2023	30 days	12 days	✓	25-Aug-2023	30 days	13 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-8	E641A-L	14-Aug-2023	24-Aug-2023	14 days	10 days	✓	25-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-11	E641A-L	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-13	E641A-L	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-10	E641A-L	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-13	E641A-L	13-Aug-2023	24-Aug-2023	14 days	11 days	✓	25-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP-D-23	E641A-L	13-Aug-2023	24-Aug-2023	14 days	12 days	✓	25-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-15	E641A-L	15-Aug-2023	24-Aug-2023	14 days	9 days	✓	25-Aug-2023	40 days	1 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-8	E611A	14-Aug-2023	24-Aug-2023	40 days	10 days	✓	24-Aug-2023	40 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNW-11	E611A	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNW-13	E611A	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-10	E611A	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-13	E611A	13-Aug-2023	24-Aug-2023	40 days	11 days	✓	24-Aug-2023	40 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
DUP-D-23	E611A	13-Aug-2023	24-Aug-2023	40 days	12 days	✓	24-Aug-2023	40 days	12 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SE-15	E611A	15-Aug-2023	24-Aug-2023	40 days	9 days	✓	24-Aug-2023	40 days	9 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1101512	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1101491	1	7	14.2	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1101487	1	13	7.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1101486	1	16	6.2	5.0	✓
Moisture Content by Gravimetry	E144	1101492	1	12	8.3	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1101489	1	10	10.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1101488	1	13	7.6	5.0	✓
Total Carbon by Combustion	E351	1102037	1	20	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1099763	1	18	5.5	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101511	1	13	7.6	5.0	✓
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1101512	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1101491	1	7	14.2	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1101487	2	13	15.3	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1101486	2	16	12.5	10.0	✓
Moisture Content by Gravimetry	E144	1101492	1	12	8.3	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1101489	1	10	10.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1101488	1	13	7.6	5.0	✓
Total Carbon by Combustion	E351	1102037	2	20	10.0	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1099763	2	18	11.1	10.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101511	1	13	7.6	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1101512	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1101491	1	7	14.2	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1101487	1	13	7.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1101486	1	16	6.2	5.0	✓
Moisture Content by Gravimetry	E144	1101492	1	12	8.3	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1101489	1	10	10.0	5.0	✓
Total Carbon by Combustion	E351	1102037	1	20	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1099763	1	18	5.5	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101511	1	13	7.6	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1101512	1	13	7.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1101491	1	7	14.2	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1101489	1	10	10.0	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	1101511	1	13	7.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601.SG ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Vancouver	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
F1-BTEX	EC580 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Vancouver	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Saskatoon	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **VA23B9385**	Page	: 1 of 15
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 166372402/70000/03	Date Samples Received	: 18-Aug-2023 11:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 23-Aug-2023
C-O-C number	: ----	Issue Date	: 28-Aug-2023 10:03
Sampler	: ---- ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Colby Bingham	Laboratory Supervisor	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1101488)											
VA23B9112-007	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.21	7.23	0.3%	5%	----
Physical Tests (QC Lot: 1101492)											
VA23B9271-001	Anonymous	Moisture	----	E144	0.25	%	68.8	74.0	7.29%	20%	----
Organic / Inorganic Carbon (QC Lot: 1099763)											
VA23B9346-041	Anonymous	Carbon, inorganic [IC]	----	E354	0.050	%	0.883	0.887	0.419%	20%	----
Organic / Inorganic Carbon (QC Lot: 1102037)											
WP2319589-001	Anonymous	Carbon, total [TC]	----	E351	0.050	%	3.25	3.20	1.51%	20%	----
Metals (QC Lot: 1101486)											
CG2311458-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	45000	43900	2.42%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	13.6	8.79	42.9%	30%	DUP-H
		Arsenic	7440-38-2	E440	0.10	mg/kg	2.83	2.66	6.44%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	624	584	6.54%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.61	0.64	0.03	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	425	410	3.66%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.219	0.198	10.0%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	265000	260000	1.79%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	82.4	78.5	4.78%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	10.2	9.80	4.58%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	165	167	0.933%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	16400	15400	6.22%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	55.8	24.3	78.6%	40%	DUP-H
		Lithium	7439-93-2	E440	2.0	mg/kg	16.8	16.2	3.35%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	21600	20900	3.20%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	1780	1910	7.33%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	8.55	7.45	13.7%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	45.9	44.5	3.10%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	10100	9840	2.48%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	30400	31000	2.10%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1101486) - continued											
CG2311458-001	Anonymous	Silver	7440-22-4	E440	0.10	mg/kg	0.80	0.73	8.44%	40%	----
		Sodium	7440-23-5	E440	50	mg/kg	28000	27400	2.18%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	371	373	0.530%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	4900	5100	200	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	16.0	15.1	5.82%	40%	----
		Titanium	7440-32-6	E440	1.0	mg/kg	196	204	4.12%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	4.24	4.07	4.22%	30%	----
		Uranium	7440-61-1	E440	0.050	mg/kg	1.30	1.23	5.07%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	25.6	24.4	4.80%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	315	259	19.6%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	2.3	2.6	0.3	Diff <2x LOR	----
Metals (QC Lot: 1101487)											
VA23B9112-007	Anonymous	Mercury	7439-97-6	E510	0.0500	mg/kg	0.151	0.155	0.0037	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1101512)											
VA23B9389-001	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1101491)											
VA23B9385-001	SW-8	F2 (C10-C16)	----	E601.SG	30	mg/kg	<30	<30	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1101511)											
VA23B9389-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1101489)											
VA23B9271-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.0350	mg/kg	<0.0450	<0.0350	0.0100	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0650	mg/kg	<0.120	<0.0650	0.0550	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.057	mg/kg	<0.066	<0.057	0.009	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0540	mg/kg	<0.0840	<0.0540	0.0300	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.017	mg/kg	<0.044	<0.017	0.027	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.019	mg/kg	<0.024	<0.019	0.005	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.026	mg/kg	<0.032	<0.026	0.006	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1101489) - continued											
VA23B9271-001	Anonymous	Benzo(g,h,i)perylene	191-24-2	E641A-L	0.030	mg/kg	<0.039	<0.030	0.009	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.167	mg/kg	<0.258	<0.167	0.091	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0092	mg/kg	<0.0087	<0.0092	0.0005	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	0.136	0.153	11.7%	50%	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.016	mg/kg	<0.022	<0.016	0.006	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	0.042	0.030	0.012	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	0.040	0.028	0.012	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.017	mg/kg	<0.024	<0.017	0.007	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.054	mg/kg	<0.085	<0.054	0.031	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	0.461	0.254	57.9%	50%	DUP-H
		Quinoline	91-22-5	E641A-L	0.024	mg/kg	<0.018	<0.024	0.006	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1101492)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1099763)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1102037)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1101486)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1101486) - continued						
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Metals (QCLot: 1101487)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Volatile Organic Compounds (QCLot: 1101512)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1101491)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1101511)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1101489)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1101489) - continued						
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1101488)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	100	95.0	105	----
Physical Tests (QCLot: 1101492)									
Moisture	----	E144	0.25	%	50 %	99.2	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1099763)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	99.9	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1102037)									
Carbon, total [TC]	----	E351	0.05	%	48 %	97.7	90.0	110	----
Metals (QCLot: 1101486)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	104	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	110	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	99.6	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	99.6	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	97.1	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	101	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	99.6	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	97.0	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	98.6	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	100	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	95.6	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	112	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	101	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	99.2	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	110	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	105	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	104	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	89.2	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1101486) - continued									
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	115	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	108	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	103	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	98.8	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	101	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	99.6	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	95.1	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	104	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	99.4	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	99.0	80.0	120	----
Metals (QCLot: 1101487)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	108	80.0	120	----
Volatile Organic Compounds (QCLot: 1101512)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	104	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	101	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	102	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	111	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	102	70.0	130	----
Hydrocarbons (QCLot: 1101491)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	618.75 mg/kg	112	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1242.49 mg/kg	102	70.0	130	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	993.9 mg/kg	101	70.0	130	----
Hydrocarbons (QCLot: 1101511)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	93.6 mg/kg	84.0	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1101489)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	108	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	107	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	108	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	105	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	104	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1101489) - continued									
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	119	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	102	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	104	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	105	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	108	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	109	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	115	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	109	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	108	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	102	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1101512)										
VA23B9389-005	Anonymous	Benzene	71-43-2	E611A	2.55 mg/kg	3.125 mg/kg	109	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.46 mg/kg	3.125 mg/kg	105	60.0	140	----
		Toluene	108-88-3	E611A	2.45 mg/kg	3.125 mg/kg	105	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	5.19 mg/kg	6.25 mg/kg	111	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.46 mg/kg	3.125 mg/kg	105	60.0	140	----
Hydrocarbons (QCLot: 1101491)										
VA23B9385-002	SW-10	F2 (C10-C16)	----	E601.SG	482 mg/kg	618.75 mg/kg	105	60.0	140	----
		F3 (C16-C34)	----	E601.SG	864 mg/kg	1242.49 mg/kg	93.5	60.0	140	----
		F4 (C34-C50)	----	E601.SG	682 mg/kg	993.9 mg/kg	92.2	60.0	140	----
Hydrocarbons (QCLot: 1101511)										
VA23B9389-009	Anonymous	F1 (C6-C10)	----	E581.VH+F1	104 mg/kg	187.5 mg/kg	73.4	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1101489)										
VA23B9271-002	Anonymous	Acenaphthene	83-32-9	E641A-L	0.396 mg/kg	0.5 mg/kg	101	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.387 mg/kg	0.5 mg/kg	98.9	50.0	140	----
		Acridine	260-94-6	E641A-L	0.310 mg/kg	0.5 mg/kg	79.3	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.399 mg/kg	0.5 mg/kg	102	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.416 mg/kg	0.5 mg/kg	106	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.371 mg/kg	0.5 mg/kg	94.8	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.366 mg/kg	0.5 mg/kg	93.6	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.345 mg/kg	0.5 mg/kg	88.1	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.358 mg/kg	0.5 mg/kg	91.5	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.355 mg/kg	0.5 mg/kg	90.7	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.366 mg/kg	0.5 mg/kg	93.4	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.401 mg/kg	0.5 mg/kg	102	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.408 mg/kg	0.5 mg/kg	104	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.344 mg/kg	0.5 mg/kg	88.0	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.394 mg/kg	0.5 mg/kg	100	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.431 mg/kg	0.5 mg/kg	110	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.408 mg/kg	0.5 mg/kg	104	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.403 mg/kg	0.5 mg/kg	103	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1101489) - continued										
VA23B9271-002	Anonymous	Pyrene	129-00-0	E641A-L	0.401 mg/kg	0.5 mg/kg	102	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.369 mg/kg	0.5 mg/kg	94.3	50.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1099763)									
	RM	Carbon, inorganic [IC]	----	E354	0.383 %	104	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1102037)									
	RM	Carbon, total [TC]	----	E351	1.4 %	98.7	80.0	120	----
Metals (QCLot: 1101486)									
	SCP SS-2	Aluminum	7429-90-5	E440	9817 mg/kg	127	70.0	130	----
	SCP SS-2	Antimony	7440-36-0	E440	3.99 mg/kg	103	70.0	130	----
	SCP SS-2	Arsenic	7440-38-2	E440	3.73 mg/kg	112	70.0	130	----
	SCP SS-2	Barium	7440-39-3	E440	105 mg/kg	120	70.0	130	----
	SCP SS-2	Beryllium	7440-41-7	E440	0.349 mg/kg	122	70.0	130	----
	SCP SS-2	Boron	7440-42-8	E440	8.5 mg/kg	137	40.0	160	----
	SCP SS-2	Cadmium	7440-43-9	E440	0.91 mg/kg	106	70.0	130	----
	SCP SS-2	Calcium	7440-70-2	E440	31082 mg/kg	112	70.0	130	----
	SCP SS-2	Chromium	7440-47-3	E440	101 mg/kg	123	70.0	130	----
	SCP SS-2	Cobalt	7440-48-4	E440	6.9 mg/kg	107	70.0	130	----
	SCP SS-2	Copper	7440-50-8	E440	123 mg/kg	103	70.0	130	----
	SCP SS-2	Iron	7439-89-6	E440	23558 mg/kg	110	70.0	130	----
	SCP SS-2	Lead	7439-92-1	E440	267 mg/kg	106	70.0	130	----
	SCP SS-2	Lithium	7439-93-2	E440	9.5 mg/kg	109	70.0	130	----
	SCP SS-2	Magnesium	7439-95-4	E440	5509 mg/kg	120	70.0	130	----
	SCP SS-2	Manganese	7439-96-5	E440	269 mg/kg	116	70.0	130	----
	SCP SS-2	Molybdenum	7439-98-7	E440	1.03 mg/kg	109	70.0	130	----
	SCP SS-2	Nickel	7440-02-0	E440	26.7 mg/kg	108	70.0	130	----
	SCP SS-2	Phosphorus	7723-14-0	E440	752 mg/kg	108	70.0	130	----
	SCP SS-2	Potassium	7440-09-7	E440	1587 mg/kg	121	70.0	130	----
	SCP SS-2	Sodium	7440-23-5	E440	797 mg/kg	110	70.0	130	----
	SCP SS-2	Strontium	7440-24-6	E440	86.1 mg/kg	105	70.0	130	----
	SCP SS-2	Thallium	7440-28-0	E440	0.0786 mg/kg	106	40.0	160	----
	SCP SS-2	Tin	7440-31-5	E440	10.6 mg/kg	103	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1101486) - continued									
	SCP SS-2	Titanium	7440-32-6	E440	839 mg/kg	129	70.0	130	----
	SCP SS-2	Uranium	7440-61-1	E440	0.52 mg/kg	109	70.0	130	----
	SCP SS-2	Vanadium	7440-62-2	E440	32.7 mg/kg	114	70.0	130	----
	SCP SS-2	Zinc	7440-66-6	E440	297 mg/kg	104	70.0	130	----
	SCP SS-2	Zirconium	7440-67-7	E440	5.73 mg/kg	101	70.0	130	----
Metals (QCLot: 1101487)									
	SCP SS-2	Mercury	7439-97-6	E510	0.059 mg/kg	105	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 1

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Vancouver
Work Order Reference
VA23B9385

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Adrienne Ducharme
Phone:	1-604-297-2030/1-604-296-2689
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	elaine.irving@wsp.com
Email 2	adrienne.ducharme@wsp.com
Email 3	trish.tomliens@wsp.com
Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharg
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharg
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharg
☐ Same day [E2] if received by 10am M-S - 200% rush s
Additional fees may apply to rush requests on w
Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	GOLD100-028	Major/Minor Code:	Routing Code:
PO / AFE:	166372402/70000/03	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact: Amber Springer	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Particle Size (S184EA)	Moisture (E1442)	Dry and Grind (EPP442)	TC, TOC, TIC (S351)	Metals + Hg + pH (CA09)	BTEX,F1-F4 (S665A.B)	PAH (E641A-L)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	SW-8	14-AUG-23	15:28	Sediment	6	X	X	X	X	X	X	X			
	SW-10	13-AUG-23	16:55	Sediment	6	X	X	X	X	X	X	X			
	SW-13	13-AUG-23	15:40	Sediment	6	X	X	X	X	X	X	X			
	SNW-13	13-AUG-23	11:20	Sediment	6	X	X	X	X	X	X	X			
	SNW-11	13-AUG-23	14:15	Sediment	6	X	X	X	X	X	X	X			
	DUP-D-23	13-AUG-23		Sediment	6	X	X	X	X	X	X	X			
	SE-15	15-Aug-23	15:30	Sediment	6	X	X	X	X	X	X	X			
				Sediment											
				Sediment											
				Sediment											
				Sediment											
				Sediment											

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Refer to quote
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	15 11

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
N. O'Brien	16 AUG 2023	1525					8/18/23	7 AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23C0015**	Page	: 1 of 23
Amendment	: **1**		
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372302/700000/03	Date Samples Received	: 26-Aug-2023 13:40
PO	: ----	Date Analysis Commenced	: 29-Aug-2023
C-O-C number	: ----	Issue Date	: 18-Jan-2024 12:26
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 20		
No. of samples analysed	: 20		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Organics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

All Samples: Methanol vials not received at laboratory, but requested BTEX on Chain of Custody. The requested analysis is put on hold.

Amended COA(1): VOC data is included for VA23C0015 - 1, 10 & 11.

Samples SNW-5 and SNE-5 : Low methanol volume found on submitted VOC soil sample (all available vials). Sub sample might be taken from the jars and data qualified. Samples SNW-4, SW-12,SNW-3,DUP-E-23 ,SNE-9- only 1 vial has correct methanol level, second vial can't be used for the analysis.

Sample Comments

Sample	Client Id	*Comment*
VA23C0015-014	SW-12	Sample(014 & 018) : Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).

Qualifiers

Qualifier	*Description*

DLCI	*Detection Limit Raised: Chromatographic interference due to co-elution.*
DLHM	*Detection Limit Adjusted: Sample has high moisture content.*
DLIS	*Detection Limit Adjusted due to insufficient sample.*
FR4	*As per applicable reference method(s), soil:water ratio for Fixed Ratio Leach was modified to 1:4 due to high soil organic content.*

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-2	SNW-3	SNE-3	SNE-15	SE-13
					Client sampling date / time	16-Aug-2023 13:30	16-Aug-2023 16:40	17-Aug-2023 11:10	17-Aug-2023 13:45	17-Aug-2023 15:45
						VA23C0015-001	VA23C0015-003	VA23C0015-004	VA23C0015-005	VA23C0015-006
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		15.8	35.4	17.3	37.7	23.4
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		7.78	7.71	8.48	8.27	7.90
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		6.7	5.2	8.6	4.7	13.2
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		87.5	28.1	51.9	12.1	42.9
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		4.5	50.6	32.0	56.5	34.6
Clay (<0.004mm)	----	EC184E/SK	1.0	%		1.3	16.1	7.5	26.7	9.3
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		1.38	5.02	3.14	5.48	3.44
Carbon, inorganic [IC]	----	E354/SK	0.050	%		1.03	2.99	1.96	3.20	2.20
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		8.57	25.0	16.3	26.6	18.3
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		0.350	2.03	1.18	2.28	1.24
Organic matter	----	EC356/SK	0.10	%		0.60	3.50	2.03	3.93	2.14
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		1820	9450	5360	15700	6930
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	0.13	0.10	0.29	<0.10
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		1.19	4.90	2.90	9.33	4.04
Barium	7440-39-3	E440/VA	0.50	mg/kg		5.45	20.9	13.1	39.4	15.0
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		<0.10	0.51	0.32	0.88	0.36
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		11.8	59.5	34.7	95.4	41.2
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		<0.020	0.081	0.052	0.147	0.040
Calcium	7440-70-2	E440/VA	50	mg/kg		25000	89700	72500	119000	59200
Chromium	7440-47-3	E440/VA	0.50	mg/kg		5.86	25.0	15.4	41.5	20.6
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		1.12	4.36	2.83	7.54	3.26
Copper	7440-50-8	E440/VA	0.50	mg/kg		1.80	9.56	5.73	17.6	6.54
Iron	7439-89-6	E440/VA	50	mg/kg		6590	15000	10300	24400	11200
Lead	7439-92-1	E440/VA	0.50	mg/kg		1.35	7.20	4.81	13.3	5.67
Lithium	7439-93-2	E440/VA	2.0	mg/kg		7.2	37.2	21.4	62.9	26.4

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-2	SNW-3	SNE-3	SNE-15	SE-13
					Client sampling date / time	16-Aug-2023 13:30	16-Aug-2023 16:40	17-Aug-2023 11:10	17-Aug-2023 13:45	17-Aug-2023 15:45
						VA23C0015-001	VA23C0015-003	VA23C0015-004	VA23C0015-005	VA23C0015-006
						Result	Result	Result	Result	Result
Metals										
Magnesium	7439-95-4	E440/VA	20	mg/kg		11500	46000	37600	61100	38600
Manganese	7439-96-5	E440/VA	1.0	mg/kg		48.8	161	126	269	121
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		<0.0050	0.0149	0.0094	0.0230	0.0114
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.15	0.46	0.28	0.81	0.44
Nickel	7440-02-0	E440/VA	0.50	mg/kg		3.43	13.9	8.87	24.3	11.0
Phosphorus	7723-14-0	E440/VA	50	mg/kg		206	503	429	820	463
Potassium	7440-09-7	E440/VA	100	mg/kg		810	3660	2030	5910	2750
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	0.25	<0.20	0.37	<0.20
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		1510	5040	2790	9060	3690
Strontium	7440-24-6	E440/VA	0.50	mg/kg		18.3	58.0	48.4	86.3	42.2
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	1200	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	0.133	0.088	0.234	0.102
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		104	305	193	420	262
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.247	1.08	0.722	1.94	0.822
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		5.90	29.6	18.1	56.0	23.8
Zinc	7440-66-6	E440/VA	2.0	mg/kg		5.6	22.0	13.4	43.2	16.5
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.0	8.4	5.0	13.0	7.2
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Chloromethane	74-87-3	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.075	mg/kg		<0.075	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-2	SNW-3	SNE-3	SNE-15	SE-13
					Client sampling date / time	16-Aug-2023 13:30	16-Aug-2023 16:40	17-Aug-2023 11:10	17-Aug-2023 13:45	17-Aug-2023 15:45
						VA23C0015-001	VA23C0015-003	VA23C0015-004	VA23C0015-005	VA23C0015-006
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Chloroethane	75-00-3	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dichloromethane	75-09-2	E611C/VA	0.045	mg/kg		<0.045	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.010	mg/kg		<0.010	----	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		----	<0.0050	<0.0050	<0.0050	<0.0050
Benzene	71-43-2	E611C/VA	0.0050	mg/kg		<0.0050	----	----	----	----
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		----	<0.015	<0.015	<0.015	<0.015
Ethylbenzene	100-41-4	E611C/VA	0.015	mg/kg		<0.015	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.040	mg/kg		<0.040	----	----	----	----
Styrene	100-42-5	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Toluene	108-88-3	E611A/VA	0.050	mg/kg		----	<0.050	<0.050	<0.050	<0.050
Toluene	108-88-3	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		----	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		----	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-2	SNW-3	SNE-3	SNE-15	SE-13
					Client sampling date / time	16-Aug-2023 13:30	16-Aug-2023 16:40	17-Aug-2023 11:10	17-Aug-2023 13:45	17-Aug-2023 15:45
						VA23C0015-001	VA23C0015-003	VA23C0015-004	VA23C0015-005	VA23C0015-006
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]										
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		----	<0.075	<0.075	<0.075	<0.075
Xylenes, total	1330-20-7	E611C/VA	0.075	mg/kg		<0.075	----	----	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Bromoform	75-25-2	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Chloroform	67-66-3	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.050	mg/kg		<0.050	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		90.3	88.8	93.2	91.5	87.6
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		97.6	92.4	99.4	90.2	91.9
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		----	76.4	87.7	78.8	88.3
Bromofluorobenzene, 4-	460-00-4	E611C/VA	0.10	%		83.4	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		----	89.7	101	91.2	106
Difluorobenzene, 1,4-	540-36-3	E611C/VA	0.10	%		92.9	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0052 DLHM	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0052 DLHM	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0040	<0.0044 DLHM	<0.0040	<0.0052 DLHM	<0.0041 DLHM
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-2	SNW-3	SNE-3	SNE-15	SE-13
					Client sampling date / time	16-Aug-2023 13:30	16-Aug-2023 16:40	17-Aug-2023 11:10	17-Aug-2023 13:45	17-Aug-2023 15:45
						VA23C0015-001	VA23C0015-003	VA23C0015-004	VA23C0015-005	VA23C0015-006
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0052 DLHM	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	0.141	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		86.7	109	112	103	107
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		86.6	112	113	106	107
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		90.7	113	114	107	107
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		90.5	114	115	108	108

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-2	SNE-7	SE-11	SCV-1	SCV-2
					Client sampling date / time	17-Aug-2023 17:00	18-Aug-2023 14:50	18-Aug-2023 16:30	19-Aug-2023 14:20	19-Aug-2023 17:00
						VA23C0015-007	VA23C0015-008	VA23C0015-009	VA23C0015-010	VA23C0015-011
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		25.4	38.7	32.7	29.5	16.4
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.38	6.55 FR4	6.70	7.18	8.03
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		12.3	2.8	7.1	9.6	<1.0
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		52.5	18.6	40.3	45.6	93.7
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		28.4	52.3	41.0	37.7	4.5
Clay (<0.004mm)	----	EC184E/SK	1.0	%		6.8	26.3	11.6	7.1	1.1
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		3.54	5.06	4.34	4.31	1.34
Carbon, inorganic [IC]	----	E354/SK	0.050	%		2.06	2.90	2.36	2.24	0.941
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		17.2	24.2	19.7	18.6	7.84
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		1.48	2.16	1.98	2.07	0.399
Organic matter	----	EC356/SK	0.10	%		2.55	3.72	3.41	3.57	0.69
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		5390	14000	8560	7040	2220
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	0.22	0.14	0.11	<0.10
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		3.72	7.24	4.70	7.91	1.17
Barium	7440-39-3	E440/VA	0.50	mg/kg		14.4	32.8	19.4	18.4	6.31
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.33	0.68	0.47	0.40	0.12
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		35.1	79.2	56.6	46.1	12.8
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.052	0.123	0.057	0.054	<0.020
Calcium	7440-70-2	E440/VA	50	mg/kg		62300	95800	75300	86500	24100
Chromium	7440-47-3	E440/VA	0.50	mg/kg		15.6	35.6	24.8	22.5	8.57
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		2.75	6.20	3.79	3.68	1.41
Copper	7440-50-8	E440/VA	0.50	mg/kg		5.43	14.0	8.04	8.31	1.75
Iron	7439-89-6	E440/VA	50	mg/kg		12500	20400	13000	19000	5870
Lead	7439-92-1	E440/VA	0.50	mg/kg		4.89	10.9	6.92	5.24	1.59
Lithium	7439-93-2	E440/VA	2.0	mg/kg		21.1	47.3	31.5	27.2	8.1
Magnesium	7439-95-4	E440/VA	20	mg/kg		32100	52000	41000	45800	12600

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-2	SNE-7	SE-11	SCV-1	SCV-2
					Client sampling date / time	17-Aug-2023 17:00	18-Aug-2023 14:50	18-Aug-2023 16:30	19-Aug-2023 14:20	19-Aug-2023 17:00
						VA23C0015-007	VA23C0015-008	VA23C0015-009	VA23C0015-010	VA23C0015-011
						Result	Result	Result	Result	Result
Metals										
Manganese	7439-96-5	E440/VA	1.0	mg/kg		119	206	142	167	57.2
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		0.0086	0.0198	0.0159	0.0116	<0.0050
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.43	0.58	0.63	0.44	0.15
Nickel	7440-02-0	E440/VA	0.50	mg/kg		8.52	20.1	13.2	12.2	4.60
Phosphorus	7723-14-0	E440/VA	50	mg/kg		461	608	544	642	177
Potassium	7440-09-7	E440/VA	100	mg/kg		2140	5360	3300	2810	1040
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	0.40	0.29	<0.20	<0.20
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		3340	7390	5730	4270	1560
Strontium	7440-24-6	E440/VA	0.50	mg/kg		56.8	78.2	54.0	54.3	16.5
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	1000	<1000	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.088	0.201	0.118	0.105	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		215	412	313	302	162
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.912	1.59	1.12	0.864	0.304
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		18.5	47.5	28.2	24.2	7.20
Zinc	7440-66-6	E440/VA	2.0	mg/kg		15.4	33.9	21.4	19.0	7.4
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		5.4	12.0	7.9	6.8	2.5
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Chloromethane	74-87-3	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.075	mg/kg		----	----	----	<0.075	<0.075
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-2	SNE-7	SE-11	SCV-1	SCV-2
					Client sampling date / time	17-Aug-2023 17:00	18-Aug-2023 14:50	18-Aug-2023 16:30	19-Aug-2023 14:20	19-Aug-2023 17:00
						VA23C0015-007	VA23C0015-008	VA23C0015-009	VA23C0015-010	VA23C0015-011
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Trichlorofluoromethane	75-69-4	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Chloroethane	75-00-3	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.050	mg/kg		----	----	----	<0.065 DLCI	<0.125 DLCI
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dichloromethane	75-09-2	E611C/VA	0.045	mg/kg		----	----	----	<0.045	<0.045
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Tetrachloroethylene	127-18-4	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Trichloroethylene	79-01-6	E611C/VA	0.010	mg/kg		----	----	----	<0.010	<0.010
Vinyl chloride	75-01-4	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Benzene	71-43-2	E611C/VA	0.0050	mg/kg		----	----	----	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		<0.015	<0.015	<0.015	----	----
Ethylbenzene	100-41-4	E611C/VA	0.015	mg/kg		----	----	----	<0.015	<0.015
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.040	mg/kg		----	----	----	<0.040	<0.040
Styrene	100-42-5	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Toluene	108-88-3	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Toluene	108-88-3	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Xylene, m+p-	179601-23-1	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Xylene, o-	95-47-6	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		<0.075	<0.075	<0.075	----	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-2	SNE-7	SE-11	SCV-1	SCV-2
					Client sampling date / time	17-Aug-2023 17:00	18-Aug-2023 14:50	18-Aug-2023 16:30	19-Aug-2023 14:20	19-Aug-2023 17:00
						VA23C0015-007	VA23C0015-008	VA23C0015-009	VA23C0015-010	VA23C0015-011
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]										
Xylenes, total	1330-20-7	E611C/VA	0.075	mg/kg		----	----	----	<0.075	<0.075
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Bromoform	75-25-2	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Chloroform	67-66-3	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Dibromochloromethane	124-48-1	E611C/VA	0.050	mg/kg		----	----	----	<0.050	<0.050
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		89.9	88.6	91.4	96.6	89.5
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		98.3	89.2	84.6	95.0	97.8
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		84.7	89.5	90.0	----	----
Bromofluorobenzene, 4-	460-00-4	E611C/VA	0.10	%		----	----	----	86.6	97.4
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		98.5	107	109	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	0.10	%		----	----	----	100	118
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0040	<0.0049 DLHM	<0.0048 DLHM	<0.0046 DLHM	<0.0040
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE-2	SNE-7	SE-11	SCV-1	SCV-2
					Client sampling date / time	17-Aug-2023 17:00	18-Aug-2023 14:50	18-Aug-2023 16:30	19-Aug-2023 14:20	19-Aug-2023 17:00
						VA23C0015-007	VA23C0015-008	VA23C0015-009	VA23C0015-010	VA23C0015-011
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		111	110	107	110	107
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		114	113	108	112	109
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		112	109	106	111	109
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		115	113	108	113	109

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-4	SNW-4	SW-12	DUP-E-23	SNW-5
					Client sampling date / time	20-Aug-2023 12:00	20-Aug-2023 14:40	20-Aug-2023 16:30	20-Aug-2023 16:30	21-Aug-2023 12:00
						VA23C0015-012	VA23C0015-013	VA23C0015-014	VA23C0015-015	VA23C0015-016
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		30.1	28.8	27.8	18.7	33.1
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.37	8.41	8.11	8.28	7.95
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		8.8	9.2	1.3	3.3	6.1
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		34.2	38.3	76.1	74.9	24.7
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		42.3	39.5	20.4	19.7	49.9
Clay (<0.004mm)	----	EC184E/SK	1.0	%		14.7	13.0	2.2	2.1	19.3
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		4.59	4.47	3.39	3.36	5.18
Carbon, inorganic [IC]	----	E354/SK	0.050	%		2.77	2.45	1.88	1.76	2.73
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		23.1	20.4	15.7	14.7	22.7
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		1.82	2.02	1.51	1.60	2.45
Organic matter	----	EC356/SK	0.10	%		3.14	3.48	2.60	2.76	4.22
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		10400	8590	3730	3480	10900
Antimony	7440-36-0	E440/VA	0.10	mg/kg		0.16	0.16	<0.10	<0.10	0.16
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		5.93	5.71	1.52	1.31	6.32
Barium	7440-39-3	E440/VA	0.50	mg/kg		23.8	20.0	10.2	9.53	24.1
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.55	0.47	0.21	0.21	0.58
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		63.5	53.6	23.9	23.1	68.7
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.075	0.090	<0.020	<0.020	0.103
Calcium	7440-70-2	E440/VA	50	mg/kg		89500	89400	60900	57800	102000
Chromium	7440-47-3	E440/VA	0.50	mg/kg		27.8	24.4	14.0	11.9	29.2
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		4.74	4.36	2.67	2.41	5.10
Copper	7440-50-8	E440/VA	0.50	mg/kg		10.4	9.71	5.89	4.27	11.3
Iron	7439-89-6	E440/VA	50	mg/kg		15900	15200	9950	9240	16900
Lead	7439-92-1	E440/VA	0.50	mg/kg		8.48	7.39	2.88	2.73	8.52
Lithium	7439-93-2	E440/VA	2.0	mg/kg		36.1	33.2	17.8	16.5	41.1
Magnesium	7439-95-4	E440/VA	20	mg/kg		47100	45800	31800	27700	50400

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-4	SNW-4	SW-12	DUP-E-23	SNW-5
					Client sampling date / time	20-Aug-2023 12:00	20-Aug-2023 14:40	20-Aug-2023 16:30	20-Aug-2023 16:30	21-Aug-2023 12:00
						VA23C0015-012	VA23C0015-013	VA23C0015-014	VA23C0015-015	VA23C0015-016
						Result	Result	Result	Result	Result
Metals										
Manganese	7439-96-5	E440/VA	1.0	mg/kg		180	155	106	97.8	180
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		0.0166	0.0150	0.0052	<0.0050	0.0154
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.42	0.43	0.28	0.29	0.48
Nickel	7440-02-0	E440/VA	0.50	mg/kg		15.2	14.0	8.05	6.76	16.6
Phosphorus	7723-14-0	E440/VA	50	mg/kg		565	478	312	241	524
Potassium	7440-09-7	E440/VA	100	mg/kg		4020	3300	1530	1450	4290
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.23	0.21	<0.20	<0.20	0.31
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		5780	4380	2870	2080	6560
Strontium	7440-24-6	E440/VA	0.50	mg/kg		67.8	59.6	33.7	34.8	72.3
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.151	0.126	0.070	0.067	0.154
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		333	281	234	220	335
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.17	1.18	0.560	0.536	1.28
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		36.2	32.2	12.3	11.2	37.6
Zinc	7440-66-6	E440/VA	2.0	mg/kg		24.6	22.1	11.7	9.9	26.2
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		9.5	8.4	4.6	4.8	10.0
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-4	SNW-4	SW-12	DUP-E-23	SNW-5
					Client sampling date / time	20-Aug-2023 12:00	20-Aug-2023 14:40	20-Aug-2023 16:30	20-Aug-2023 16:30	21-Aug-2023 12:00
						VA23C0015-012	VA23C0015-013	VA23C0015-014	VA23C0015-015	VA23C0015-016
						Result	Result	Result	Result	Result
Hydrocarbons										
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		91.4	94.4	89.3	92.2	89.8
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		90.0	88.3	106	93.8	84.5
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		77.2	79.4	86.2	85.8	73.9
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		92.2	95.8	95.2	105	86.6
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0046 DLHM	<0.0040	<0.0040	<0.0040	<0.0043 DLHM
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-4	SNW-4	SW-12	DUP-E-23	SNW-5
					Client sampling date / time	20-Aug-2023 12:00	20-Aug-2023 14:40	20-Aug-2023 16:30	20-Aug-2023 16:30	21-Aug-2023 12:00
						VA23C0015-012	VA23C0015-013	VA23C0015-014	VA23C0015-015	VA23C0015-016
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		106	86.7	106	112	112
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		107	94.9	106	113	114
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		106	102	106	112	111
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		108	101	108	114	115

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-5	SNW-7	SNE-9	SE-7	SNW-9
					Client sampling date / time	21-Aug-2023 15:15	22-Aug-2023 11:30	22-Aug-2023 14:30	22-Aug-2023 16:00	16-Aug-2023 14:55
						VA23C0015-017	VA23C0015-018	VA23C0015-019	VA23C0015-020	VA23C0015-021
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		36.0	29.7	38.5	28.2	32.0
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.16	7.98	7.09 FR4	8.33	6.64
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		8.5	10.8	8.8	26.2	31.3
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		23.7	39.5	18.3	46.3	26.2
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		48.1	35.9	50.7	21.7	30.3
Clay (<0.004mm)	----	EC184E/SK	1.0	%		19.7	13.8	22.2	5.8	12.2
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		5.02	4.55	5.32	3.24	4.82
Carbon, inorganic [IC]	----	E354/SK	0.050	%		2.71	2.62	2.96	1.86	2.87
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		22.6	21.9	24.7	15.5	23.9
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		2.31	1.93	2.36	1.38	1.95
Organic matter	----	EC356/SK	0.10	%		3.98	3.33	4.07	2.38	3.36
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		11200	9890	14600	5860	10100
Antimony	7440-36-0	E440/VA	0.10	mg/kg		0.19	0.16	0.23	<0.10	0.18
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		8.11	8.82	10.6	3.78	8.52
Barium	7440-39-3	E440/VA	0.50	mg/kg		26.8	22.8	38.0	13.7	25.0
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.63	0.50	0.72	0.36	0.52
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		75.1	65.3	86.0	40.1	63.4
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.121	0.103	0.106	0.044	0.112
Calcium	7440-70-2	E440/VA	50	mg/kg		94300	91200	98900	57000	99600
Chromium	7440-47-3	E440/VA	0.50	mg/kg		30.2	26.2	35.9	16.4	28.5
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		5.36	4.69	6.54	2.72	5.20
Copper	7440-50-8	E440/VA	0.50	mg/kg		12.1	10.1	22.1	5.59	10.9
Iron	7439-89-6	E440/VA	50	mg/kg		18200	16400	21400	11100	18000
Lead	7439-92-1	E440/VA	0.50	mg/kg		9.10	7.94	10.9	5.05	8.53
Lithium	7439-93-2	E440/VA	2.0	mg/kg		44.6	37.9	50.7	21.9	38.2
Magnesium	7439-95-4	E440/VA	20	mg/kg		46300	45000	53200	28400	49300

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-5	SNW-7	SNE-9	SE-7	SNW-9
					Client sampling date / time	21-Aug-2023 15:15	22-Aug-2023 11:30	22-Aug-2023 14:30	22-Aug-2023 16:00	16-Aug-2023 14:55
						VA23C0015-017	VA23C0015-018	VA23C0015-019	VA23C0015-020	VA23C0015-021
						Result	Result	Result	Result	Result
Metals										
Manganese	7439-96-5	E440/VA	1.0	mg/kg		190	188	233	104	191
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		0.0186	0.0155	0.0230	0.0102	0.0157
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.54	0.46	0.76	0.46	0.47
Nickel	7440-02-0	E440/VA	0.50	mg/kg		17.2	14.8	20.5	9.00	16.4
Phosphorus	7723-14-0	E440/VA	50	mg/kg		578	564	721	389	525
Potassium	7440-09-7	E440/VA	100	mg/kg		4360	3850	5350	2230	3980
Selenium	7782-49-2	E440/VA	0.20	mg/kg		0.32	0.25	0.50	<0.20	0.27
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		6640	5310	6650	3660	6690
Strontium	7440-24-6	E440/VA	0.50	mg/kg		65.0	67.7	77.6	42.4	79.9
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.162	0.137	0.195	0.084	0.144
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		341	325	414	226	294
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		1.34	1.18	1.50	0.781	1.14
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		40.7	36.2	49.3	20.9	38.8
Zinc	7440-66-6	E440/VA	2.0	mg/kg		28.5	23.6	36.0	15.3	26.5
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		9.6	8.6	11.1	6.0	7.5
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0061 DLIS	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611A/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611A/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-5	SNW-7	SNE-9	SE-7	SNW-9
					Client sampling date / time	21-Aug-2023 15:15	22-Aug-2023 11:30	22-Aug-2023 14:30	22-Aug-2023 16:00	16-Aug-2023 14:55
						VA23C0015-017	VA23C0015-018	VA23C0015-019	VA23C0015-020	VA23C0015-021
						Result	Result	Result	Result	Result
Hydrocarbons										
F2 (C10-C16)	----	E601.SG/VA	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		98.1	87.7	91.7	93.0	94.5
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		93.8	104	94.5	101	91.5
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	0.10	%		80.8	81.5	84.0	84.8	78.2
Difluorobenzene, 1,4-	540-36-3	E611A/VA	0.10	%		96.1	94.0	99.6	99.8	93.5
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0043 DLHM	<0.0042 DLHM	<0.0047 DLHM	<0.0042 DLHM	<0.0041 DLHM
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SNE-5	SNW-7	SNE-9	SE-7	SNW-9
					Client sampling date / time	21-Aug-2023 15:15	22-Aug-2023 11:30	22-Aug-2023 14:30	22-Aug-2023 16:00	16-Aug-2023 14:55
						VA23C0015-017	VA23C0015-018	VA23C0015-019	VA23C0015-020	VA23C0015-021
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/VA	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/VA	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		117	101	114	111	112
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		118	103	117	112	114
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		117	102	116	109	113
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		120	103	118	113	116

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23C0015**	Page	: 1 of 31
Amendment	: 1		
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 166372302/700000/03	Date Samples Received	: 26-Aug-2023 13:40
PO	: ----	Issue Date	: 18-Jan-2024 12:26
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 20		
No. of samples analysed	: 20		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-1109243 002	----	Antimony	7440-36-0	E440	123 % MES	80.0-120%	Recovery greater than upper control limit
Metals	QC-MRG2-1109243 002	----	Strontium	7440-24-6	E440	123 % MES	80.0-120%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SCV-1	E601.SG	19-Aug-2023	29-Aug-2023	14 days	10 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SCV-2	E601.SG	19-Aug-2023	29-Aug-2023	14 days	10 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-11	E601.SG	18-Aug-2023	29-Aug-2023	14 days	11 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-7	E601.SG	18-Aug-2023	29-Aug-2023	14 days	11 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-13	E601.SG	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-2	E601.SG	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-15	E601.SG	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	05-Sep-2023	40 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-3	E601.SG	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-3	E601.SG	16-Aug-2023	29-Aug-2023	14 days	13 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-9	E601.SG	16-Aug-2023	29-Aug-2023	14 days	13 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-2	E601.SG	16-Aug-2023	29-Aug-2023	14 days	13 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-7	E601.SG	22-Aug-2023	29-Aug-2023	14 days	7 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-9	E601.SG	22-Aug-2023	29-Aug-2023	14 days	7 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-7	E601.SG	22-Aug-2023	29-Aug-2023	14 days	7 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-5	E601.SG	21-Aug-2023	29-Aug-2023	14 days	8 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-5	E601.SG	21-Aug-2023	29-Aug-2023	14 days	8 days	✓	05-Sep-2023	40 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
DUP-E-23	E601.SG	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-4	E601.SG	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-4	E601.SG	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-12	E601.SG	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	05-Sep-2023	40 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-7	E581.VH+F1	22-Aug-2023	09-Sep-2023	40 days	18 days	✓	09-Sep-2023	40 days	18 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-9	E581.VH+F1	22-Aug-2023	09-Sep-2023	40 days	18 days	✓	09-Sep-2023	40 days	18 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-5	E581.VH+F1	21-Aug-2023	09-Sep-2023	40 days	19 days	✓	09-Sep-2023	40 days	19 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-5	E581.VH+F1	21-Aug-2023	09-Sep-2023	40 days	19 days	✓	09-Sep-2023	40 days	19 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-7	E581.VH+F1	22-Aug-2023	10-Sep-2023	40 days	19 days	✓	11-Sep-2023	40 days	20 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
DUP-E-23	E581.VH+F1	20-Aug-2023	09-Sep-2023	40 days	20 days	✓	09-Sep-2023	40 days	20 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-4	E581.VH+F1	20-Aug-2023	09-Sep-2023	40 days	20 days	✓	09-Sep-2023	40 days	20 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-4	E581.VH+F1	20-Aug-2023	09-Sep-2023	40 days	20 days	✓	09-Sep-2023	40 days	20 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SCV-1	E581.VH+F1	19-Aug-2023	09-Sep-2023	40 days	21 days	✓	09-Sep-2023	40 days	21 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SCV-2	E581.VH+F1	19-Aug-2023	09-Sep-2023	40 days	21 days	✓	09-Sep-2023	40 days	21 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-12	E581.VH+F1	20-Aug-2023	10-Sep-2023	40 days	21 days	✓	11-Sep-2023	40 days	22 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-11	E581.VH+F1	18-Aug-2023	09-Sep-2023	40 days	22 days	✓	09-Sep-2023	40 days	22 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-7	E581.VH+F1	18-Aug-2023	09-Sep-2023	40 days	22 days	✓	09-Sep-2023	40 days	22 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-13	E581.VH+F1	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-2	E581.VH+F1	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-15	E581.VH+F1	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-3	E581.VH+F1	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-3	E581.VH+F1	16-Aug-2023	09-Sep-2023	40 days	24 days	✓	09-Sep-2023	40 days	24 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-9	E581.VH+F1	16-Aug-2023	09-Sep-2023	40 days	24 days	✓	09-Sep-2023	40 days	24 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-2	E581.VH+F1	16-Aug-2023	09-Sep-2023	40 days	24 days	✓	09-Sep-2023	40 days	24 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-E-23	E510	20-Aug-2023	30-Aug-2023	28 days	10 days	✓	31-Aug-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-4	E510	20-Aug-2023	30-Aug-2023	28 days	10 days	✓	31-Aug-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-4	E510	20-Aug-2023	30-Aug-2023	28 days	10 days	✓	31-Aug-2023	28 days	11 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SW-12	E510	20-Aug-2023	30-Aug-2023	28 days	10 days	✓	31-Aug-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SCV-1	E510	19-Aug-2023	30-Aug-2023	28 days	11 days	✓	31-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SCV-2	E510	19-Aug-2023	30-Aug-2023	28 days	11 days	✓	31-Aug-2023	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SE-11	E510	18-Aug-2023	30-Aug-2023	28 days	12 days	✓	31-Aug-2023	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SNE-7	E510	18-Aug-2023	30-Aug-2023	28 days	12 days	✓	31-Aug-2023	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SE-13	E510	17-Aug-2023	30-Aug-2023	28 days	13 days	✓	31-Aug-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SE-2	E510	17-Aug-2023	30-Aug-2023	28 days	13 days	✓	31-Aug-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SNE-15	E510	17-Aug-2023	30-Aug-2023	28 days	13 days	✓	31-Aug-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap SNE-3	E510	17-Aug-2023	30-Aug-2023	28 days	13 days	✓	31-Aug-2023	28 days	15 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-3	E510	16-Aug-2023	30-Aug-2023	28 days	14 days	✓	31-Aug-2023	28 days	15 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-9	E510	16-Aug-2023	30-Aug-2023	28 days	14 days	✓	31-Aug-2023	28 days	15 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-2	E510	16-Aug-2023	30-Aug-2023	28 days	14 days	✓	31-Aug-2023	28 days	15 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-7	E510	22-Aug-2023	30-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE-7	E510	22-Aug-2023	30-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-9	E510	22-Aug-2023	30-Aug-2023	28 days	8 days	✓	31-Aug-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-5	E510	21-Aug-2023	30-Aug-2023	28 days	9 days	✓	31-Aug-2023	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-5	E510	21-Aug-2023	30-Aug-2023	28 days	9 days	✓	31-Aug-2023	28 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-E-23	E440	20-Aug-2023	30-Aug-2023	180 days	10 days	✓	01-Sep-2023	180 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-4	E440	20-Aug-2023	30-Aug-2023	180 days	10 days	✓	01-Sep-2023	180 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-4	E440	20-Aug-2023	30-Aug-2023	180 days	10 days	✓	01-Sep-2023	180 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-12	E440	20-Aug-2023	30-Aug-2023	180 days	10 days	✓	01-Sep-2023	180 days	12 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SCV-1	E440	19-Aug-2023	30-Aug-2023	180 days	11 days	✓	01-Sep-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SCV-2	E440	19-Aug-2023	30-Aug-2023	180 days	11 days	✓	01-Sep-2023	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-11	E440	18-Aug-2023	30-Aug-2023	180 days	12 days	✓	01-Sep-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-7	E440	18-Aug-2023	30-Aug-2023	180 days	12 days	✓	01-Sep-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-13	E440	17-Aug-2023	30-Aug-2023	180 days	13 days	✓	01-Sep-2023	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-2	E440	17-Aug-2023	30-Aug-2023	180 days	13 days	✓	01-Sep-2023	180 days	15 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-15	E440	17-Aug-2023	30-Aug-2023	180 days	13 days	✓	01-Sep-2023	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-3	E440	17-Aug-2023	30-Aug-2023	180 days	13 days	✓	01-Sep-2023	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-3	E440	16-Aug-2023	30-Aug-2023	180 days	14 days	✓	01-Sep-2023	180 days	16 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-9	E440	16-Aug-2023	30-Aug-2023	180 days	14 days	✓	01-Sep-2023	180 days	16 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-2	E440	16-Aug-2023	30-Aug-2023	180 days	14 days	✓	01-Sep-2023	180 days	16 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-7	E440	22-Aug-2023	30-Aug-2023	180 days	8 days	✓	01-Sep-2023	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-9	E440	22-Aug-2023	30-Aug-2023	180 days	8 days	✓	01-Sep-2023	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-7	E440	22-Aug-2023	30-Aug-2023	180 days	8 days	✓	01-Sep-2023	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-5	E440	21-Aug-2023	30-Aug-2023	180 days	9 days	✓	01-Sep-2023	180 days	11 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-5	E440	21-Aug-2023	30-Aug-2023	180 days	9 days	✓	01-Sep-2023	180 days	11 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
DUP-E-23	E351	20-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SCV-1	E351	19-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SCV-2	E351	19-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE-11	E351	18-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE-13	E351	17-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE-2	E351	17-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE-7	E351	22-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNE-15	E351	17-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-3	E351	17-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-4	E351	20-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-5	E351	21-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-7	E351	18-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNE-9	E351	22-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-3	E351	16-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-4	E351	20-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-5	E351	21-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-7	E351	22-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-9	E351	16-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-12	E351	20-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-2	E351	16-Aug-2023	31-Aug-2023	----	----		31-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag DUP-E-23	E354	20-Aug-2023	----	----	----		30-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-4	E354	20-Aug-2023	----	----	----		30-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-4	E354	20-Aug-2023	----	----	----		30-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-12	E354	20-Aug-2023	----	----	----		30-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SCV-1	E354	19-Aug-2023	----	----	----		30-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SCV-2	E354	19-Aug-2023	----	----	----		30-Aug-2023	----	11 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-11	E354	18-Aug-2023	----	----	----		30-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-7	E354	18-Aug-2023	----	----	----		30-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-13	E354	17-Aug-2023	----	----	----		30-Aug-2023	----	13 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-2	E354	17-Aug-2023	----	----	----		30-Aug-2023	----	13 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-15	E354	17-Aug-2023	----	----	----		30-Aug-2023	----	13 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-3	E354	17-Aug-2023	----	----	----		30-Aug-2023	----	13 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-3	E354	16-Aug-2023	----	----	----		30-Aug-2023	----	14 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-9	E354	16-Aug-2023	----	----	----		30-Aug-2023	----	14 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-2	E354	16-Aug-2023	----	----	----		30-Aug-2023	----	14 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-7	E354	22-Aug-2023	----	----	----		30-Aug-2023	----	8 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-9	E354	22-Aug-2023	----	----	----		30-Aug-2023	----	8 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-7	E354	22-Aug-2023	----	----	----		30-Aug-2023	----	8 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-5	E354	21-Aug-2023	----	----	----		30-Aug-2023	----	9 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-5	E354	21-Aug-2023	----	----	----		30-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SCV-1	E144	19-Aug-2023	----	----	----		29-Aug-2023	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SCV-2	E144	19-Aug-2023	----	----	----		29-Aug-2023	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SE-11	E144	18-Aug-2023	----	----	----		29-Aug-2023	----	11 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SNE-7	E144	18-Aug-2023	----	----	----		29-Aug-2023	----	11 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-13	E144	17-Aug-2023	----	----	----		29-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-2	E144	17-Aug-2023	----	----	----		29-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-15	E144	17-Aug-2023	----	----	----		29-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-3	E144	17-Aug-2023	----	----	----		29-Aug-2023	----	12 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-3	E144	16-Aug-2023	----	----	----		29-Aug-2023	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-9	E144	16-Aug-2023	----	----	----		29-Aug-2023	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-2	E144	16-Aug-2023	----	----	----		29-Aug-2023	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-7	E144	22-Aug-2023	----	----	----		29-Aug-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-9	E144	22-Aug-2023	----	----	----		29-Aug-2023	----	7 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-7	E144	22-Aug-2023	----	----	----		29-Aug-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-5	E144	21-Aug-2023	----	----	----		29-Aug-2023	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-5	E144	21-Aug-2023	----	----	----		29-Aug-2023	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-E-23	E144	20-Aug-2023	----	----	----		29-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-4	E144	20-Aug-2023	----	----	----		29-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-4	E144	20-Aug-2023	----	----	----		29-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-12	E144	20-Aug-2023	----	----	----		29-Aug-2023	----	9 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
DUP-E-23	E108	20-Aug-2023	30-Aug-2023	30 days	10 days	✓	31-Aug-2023	30 days	10 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-4	E108	20-Aug-2023	30-Aug-2023	30 days	10 days	✓	31-Aug-2023	30 days	10 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-12	E108	20-Aug-2023	30-Aug-2023	30 days	10 days	✓	31-Aug-2023	30 days	10 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-4	E108	20-Aug-2023	30-Aug-2023	30 days	10 days	✓	31-Aug-2023	30 days	11 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SCV-1	E108	19-Aug-2023	30-Aug-2023	30 days	11 days	✓	31-Aug-2023	30 days	11 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SCV-2	E108	19-Aug-2023	30-Aug-2023	30 days	11 days	✓	31-Aug-2023	30 days	11 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-11	E108	18-Aug-2023	30-Aug-2023	30 days	12 days	✓	31-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-7	E108	18-Aug-2023	30-Aug-2023	30 days	12 days	✓	31-Aug-2023	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-13	E108	17-Aug-2023	30-Aug-2023	30 days	13 days	✓	31-Aug-2023	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-2	E108	17-Aug-2023	30-Aug-2023	30 days	13 days	✓	31-Aug-2023	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-15	E108	17-Aug-2023	30-Aug-2023	30 days	13 days	✓	31-Aug-2023	30 days	13 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-3	E108	17-Aug-2023	30-Aug-2023	30 days	13 days	✓	31-Aug-2023	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-3	E108	16-Aug-2023	30-Aug-2023	30 days	14 days	✓	31-Aug-2023	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-9	E108	16-Aug-2023	30-Aug-2023	30 days	14 days	✓	31-Aug-2023	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-2	E108	16-Aug-2023	30-Aug-2023	30 days	14 days	✓	31-Aug-2023	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-7	E108	22-Aug-2023	30-Aug-2023	30 days	8 days	✓	31-Aug-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-9	E108	22-Aug-2023	30-Aug-2023	30 days	8 days	✓	31-Aug-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-7	E108	22-Aug-2023	30-Aug-2023	30 days	8 days	✓	31-Aug-2023	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-5	E108	21-Aug-2023	30-Aug-2023	30 days	9 days	✓	31-Aug-2023	30 days	10 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-5	E108	21-Aug-2023	30-Aug-2023	30 days	9 days	✓	31-Aug-2023	30 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SCV-1	E641A-L	19-Aug-2023	29-Aug-2023	14 days	10 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SCV-2	E641A-L	19-Aug-2023	29-Aug-2023	14 days	10 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-11	E641A-L	18-Aug-2023	29-Aug-2023	14 days	11 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-7	E641A-L	18-Aug-2023	29-Aug-2023	14 days	11 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-13	E641A-L	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-2	E641A-L	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-15	E641A-L	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-3	E641A-L	17-Aug-2023	29-Aug-2023	14 days	12 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-3	E641A-L	16-Aug-2023	29-Aug-2023	14 days	13 days	✓	02-Sep-2023	40 days	4 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-9	E641A-L	16-Aug-2023	29-Aug-2023	14 days	13 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-2	E641A-L	16-Aug-2023	29-Aug-2023	14 days	13 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-7	E641A-L	22-Aug-2023	29-Aug-2023	14 days	7 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-9	E641A-L	22-Aug-2023	29-Aug-2023	14 days	7 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-7	E641A-L	22-Aug-2023	29-Aug-2023	14 days	7 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-5	E641A-L	21-Aug-2023	29-Aug-2023	14 days	8 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-5	E641A-L	21-Aug-2023	29-Aug-2023	14 days	8 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP-E-23	E641A-L	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-4	E641A-L	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	02-Sep-2023	40 days	4 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap SNW-4	E641A-L	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	02-Sep-2023	40 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap SW-12	E641A-L	20-Aug-2023	29-Aug-2023	14 days	9 days	✓	02-Sep-2023	40 days	4 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SE-7	E611A	22-Aug-2023	09-Sep-2023	40 days	18 days	✓	09-Sep-2023	40 days	18 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNE-9	E611A	22-Aug-2023	09-Sep-2023	40 days	18 days	✓	09-Sep-2023	40 days	18 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNE-5	E611A	21-Aug-2023	09-Sep-2023	40 days	19 days	✓	09-Sep-2023	40 days	19 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNW-5	E611A	21-Aug-2023	09-Sep-2023	40 days	19 days	✓	09-Sep-2023	40 days	19 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNW-7	E611A	22-Aug-2023	10-Sep-2023	40 days	19 days	✓	11-Sep-2023	40 days	20 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial DUP-E-23	E611A	20-Aug-2023	09-Sep-2023	40 days	20 days	✓	09-Sep-2023	40 days	20 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNE-4	E611A	20-Aug-2023	09-Sep-2023	40 days	20 days	✓	09-Sep-2023	40 days	20 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNW-4	E611A	20-Aug-2023	09-Sep-2023	40 days	20 days	✓	09-Sep-2023	40 days	20 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SW-12	E611A	20-Aug-2023	10-Sep-2023	40 days	21 days	✓	11-Sep-2023	40 days	22 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SE-11	E611A	18-Aug-2023	09-Sep-2023	40 days	22 days	✓	09-Sep-2023	40 days	22 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNE-7	E611A	18-Aug-2023	09-Sep-2023	40 days	22 days	✓	09-Sep-2023	40 days	22 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SE-13	E611A	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SE-2	E611A	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNE-15	E611A	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNE-3	E611A	17-Aug-2023	09-Sep-2023	40 days	23 days	✓	09-Sep-2023	40 days	23 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SNW-3	E611A	16-Aug-2023	09-Sep-2023	40 days	24 days	✓	09-Sep-2023	40 days	24 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNW-9	E611A	16-Aug-2023	09-Sep-2023	40 days	24 days	✓	09-Sep-2023	40 days	24 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
SCV-1	E611C	19-Aug-2023	09-Sep-2023	40 days	21 days	✓	09-Sep-2023	40 days	21 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
SCV-2	E611C	19-Aug-2023	09-Sep-2023	40 days	21 days	✓	09-Sep-2023	40 days	21 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
SW-2	E611C	16-Aug-2023	09-Sep-2023	40 days	24 days	✓	09-Sep-2023	40 days	24 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1126945	2	28	7.1	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1109241	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1109243	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1109244	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1109246	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1109242	1	20	5.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1109245	1	20	5.0	5.0	✓
Total Carbon by Combustion	E351	1111124	1	20	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1110815	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1126946	2	31	6.4	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305389	1	3	33.3	5.0	✓
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1126945	2	28	7.1	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1109241	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1109243	2	20	10.0	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1109244	2	20	10.0	10.0	✓
Moisture Content by Gravimetry	E144	1109246	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1109242	1	20	5.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1109245	1	20	5.0	5.0	✓
Total Carbon by Combustion	E351	1111124	2	20	10.0	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1110815	2	20	10.0	10.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1126946	2	31	6.4	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305389	2	3	66.6	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1126945	2	28	7.1	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1109241	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1109243	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1109244	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1109246	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1109242	1	20	5.0	5.0	✓
Total Carbon by Combustion	E351	1111124	1	20	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1110815	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1126946	2	31	6.4	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305389	2	3	66.6	5.0	✓
Matrix Spikes (MS)							

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
BTEX by Headspace GC-MS	E611A	1126945	2	28	7.1	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1109241	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1109242	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1126946	2	31	6.4	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1305389	0	3	0.0	5.0	×

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601.SG ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Vancouver	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Vancouver	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
F1-BTEX	EC580 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Vancouver	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Saskatoon	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **VA23C0015**	Page	: 1 of 20
Amendment	: **1**		
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 166372302/700000/03	Date Samples Received	: 26-Aug-2023 13:40
PO	: ----	Date Analysis Commenced	: 29-Aug-2023
C-O-C number	: ----	Issue Date	: 18-Jan-2024 12:26
Sampler	: ---- ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 20		
No. of samples analysed	: 20		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Organics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1109245)											
VA23C0015-001	SW-2	pH (1:2 soil:water)	----	E108	0.10	pH units	7.78	8.05	3.4%	5%	----
Physical Tests (QC Lot: 1109246)											
VA23C0015-001	SW-2	Moisture	----	E144	0.25	%	15.8	15.6	1.25%	20%	----
Organic / Inorganic Carbon (QC Lot: 1110815)											
VA23C0015-001	SW-2	Carbon, inorganic [IC]	----	E354	0.050	%	1.03	1.09	6.01%	20%	----
Organic / Inorganic Carbon (QC Lot: 1111124)											
VA23C0015-008	SNE-7	Carbon, total [TC]	----	E351	0.050	%	5.06	5.07	0.232%	20%	----
Metals (QC Lot: 1109243)											
VA23C0015-001	SW-2	Mercury	7439-97-6	E510	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
Metals (QC Lot: 1109244)											
VA23C0015-001	SW-2	Aluminum	7429-90-5	E440	50	mg/kg	1820	1820	0.137%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	1.19	1.29	7.77%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	5.45	4.65	15.8%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	11.8	11.5	0.3	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Calcium	7440-70-2	E440	50	mg/kg	25000	21300	16.2%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	5.86	5.21	11.8%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	1.12	1.11	0.996%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	1.80	1.50	0.29	Diff <2x LOR	----
		Iron	7439-89-6	E440	50	mg/kg	6590	6210	5.92%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	1.35	1.35	0.007	Diff <2x LOR	----
		Lithium	7439-93-2	E440	2.0	mg/kg	7.2	7.0	0.2	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	11500	11200	2.83%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	48.8	45.7	6.61%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.15	0.15	0.004	Diff <2x LOR	----
		Nickel	7440-02-0	E440	0.50	mg/kg	3.43	3.09	0.34	Diff <2x LOR	----
		Phosphorus	7723-14-0	E440	50	mg/kg	206	180	25	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1109244) - continued											
VA23C0015-001	SW-2	Potassium	7440-09-7	E440	100	mg/kg	810	800	1.17%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	1510	1730	13.6%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	18.3	15.5	16.7%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	104	103	1.06%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.247	0.248	0.002	Diff <2x LOR	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	5.90	5.69	3.58%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	5.6	5.5	0.2	Diff <2x LOR	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	2.0	2.2	0.2	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1117678)											
VA23C0015-001	SW-2	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1126945)											
VA23C0015-014	SW-12	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1305389)											
VA23C0015-001	SW-2	Benzene	71-43-2	E611C	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1305389) - continued											
VA23C0015-001	SW-2	Chloromethane	74-87-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611C	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1109241)											
VA23C0015-001	SW-2	F2 (C10-C16)	----	E601.SG	30	mg/kg	<30	<30	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1117677)											
VA23C0015-001	SW-2	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1126946)											
VA23C0015-014	SW-12	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1109242)											
VA23C0015-001	SW-2	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0040	mg/kg	<0.0040	<0.0040	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1109246)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1110815)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1111124)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1109243)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1109244)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1109244) - continued						
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1117678)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1126945)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1303679)						
Benzene	71-43-2	E611C	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611C	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	<0.050	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611C	0.05	mg/kg	<0.050	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1303679) - continued						
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	<0.050	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	<0.050	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	<0.050	----
Volatile Organic Compounds (QCLot: 1305389)						
Benzene	71-43-2	E611C	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611C	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	<0.050	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611C	0.05	mg/kg	<0.050	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1305389) - continued						
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	<0.050	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	<0.050	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	<0.050	----
Hydrocarbons (QCLot: 1109241)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1117677)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1126946)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1109242)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1109242) - continued						
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1109245)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	97.3	95.0	105	----
Physical Tests (QCLot: 1109246)									
Moisture	----	E144	0.25	%	50 %	99.7	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1110815)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	100	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1111124)									
Carbon, total [TC]	----	E351	0.05	%	48 %	99.7	90.0	110	----
Metals (QCLot: 1109243)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	103	80.0	120	----
Metals (QCLot: 1109244)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	114	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	# 123	80.0	120	MES
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	116	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	103	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	114	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	101	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	109	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	106	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	107	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	116	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	116	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	101	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	115	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	109	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	115	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	110	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	119	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	109	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1109244) - continued									
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	114	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	101	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	117	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	# 123	80.0	120	MES
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	108	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	117	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	108	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	107	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	106	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	111	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	111	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	107	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	110	80.0	120	----
Volatile Organic Compounds (QCLot: 1117678)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	101	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	105	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	113	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	106	70.0	130	----
Volatile Organic Compounds (QCLot: 1126945)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	102	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	98.2	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	103	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	120	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	101	70.0	130	----
Volatile Organic Compounds (QCLot: 1303679)									
Benzene	71-43-2	E611C	0.005	mg/kg	2.5 mg/kg	101	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	2.5 mg/kg	92.0	70.0	130	----
Bromoform	75-25-2	E611C	0.05	mg/kg	2.5 mg/kg	99.8	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	2.5 mg/kg	92.5	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	2.5 mg/kg	101	60.0	140	----
Chloroform	67-66-3	E611C	0.05	mg/kg	2.5 mg/kg	92.7	70.0	130	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	2.5 mg/kg	88.7	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	2.5 mg/kg	94.0	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1303679) - continued									
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	2.5 mg/kg	118	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	2.5 mg/kg	118	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	2.5 mg/kg	98.3	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	2.5 mg/kg	82.7	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	2.5 mg/kg	94.7	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	2.5 mg/kg	95.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	2.5 mg/kg	98.0	60.0	140	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	2.5 mg/kg	101	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	2.5 mg/kg	99.7	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	2.5 mg/kg	105	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	2.5 mg/kg	109	70.0	130	----
Styrene	100-42-5	E611C	0.05	mg/kg	2.5 mg/kg	99.5	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	2.5 mg/kg	100	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	2.5 mg/kg	97.6	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	2.5 mg/kg	109	70.0	130	----
Toluene	108-88-3	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	2.5 mg/kg	93.9	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	2.5 mg/kg	97.3	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	2.5 mg/kg	106	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	2.5 mg/kg	90.7	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	5 mg/kg	113	70.0	130	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Volatile Organic Compounds (QCLot: 1305389)									
Benzene	71-43-2	E611C	0.005	mg/kg	2.5 mg/kg	101	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	2.5 mg/kg	92.0	70.0	130	----
Bromoform	75-25-2	E611C	0.05	mg/kg	2.5 mg/kg	99.8	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	2.5 mg/kg	92.5	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	2.5 mg/kg	101	60.0	140	----
Chloroform	67-66-3	E611C	0.05	mg/kg	2.5 mg/kg	92.7	70.0	130	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	2.5 mg/kg	88.7	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	2.5 mg/kg	94.0	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1305389) - continued									
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	2.5 mg/kg	118	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	2.5 mg/kg	118	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	2.5 mg/kg	98.3	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	2.5 mg/kg	82.7	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	2.5 mg/kg	94.7	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	2.5 mg/kg	95.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	2.5 mg/kg	98.0	60.0	140	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	2.5 mg/kg	101	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	2.5 mg/kg	99.7	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	2.5 mg/kg	105	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	2.5 mg/kg	109	70.0	130	----
Styrene	100-42-5	E611C	0.05	mg/kg	2.5 mg/kg	99.5	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	2.5 mg/kg	100	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	2.5 mg/kg	97.6	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	2.5 mg/kg	109	70.0	130	----
Toluene	108-88-3	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	2.5 mg/kg	93.9	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	2.5 mg/kg	97.3	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	2.5 mg/kg	106	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	2.5 mg/kg	90.7	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	5 mg/kg	113	70.0	130	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	2.5 mg/kg	106	70.0	130	----
Hydrocarbons (QCLot: 1109241)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	618.75 mg/kg	117	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1242.49 mg/kg	104	70.0	130	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	993.9 mg/kg	104	70.0	130	----
Hydrocarbons (QCLot: 1117677)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	93.6 mg/kg	88.9	70.0	130	----
Hydrocarbons (QCLot: 1126946)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	93.6 mg/kg	111	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1109242)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	102	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	98.2	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	104	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	103	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	97.2	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	96.2	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	95.6	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	97.7	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	103	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	97.1	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	99.3	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	94.7	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	97.5	60.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1117678)										
VA23C0015-003	SNW-3	Benzene	71-43-2	E611A	2.15 mg/kg	3.125 mg/kg	88.3	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.10 mg/kg	3.125 mg/kg	86.4	60.0	140	----
		Toluene	108-88-3	E611A	2.16 mg/kg	3.125 mg/kg	89.0	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.47 mg/kg	6.25 mg/kg	91.9	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.23 mg/kg	3.125 mg/kg	91.7	60.0	140	----
Volatile Organic Compounds (QCLot: 1126945)										
VA23C0015-014	SW-12	Benzene	71-43-2	E611A	2.34 mg/kg	3.125 mg/kg	102	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.35 mg/kg	3.125 mg/kg	103	60.0	140	----
		Toluene	108-88-3	E611A	2.39 mg/kg	3.125 mg/kg	105	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	5.20 mg/kg	6.25 mg/kg	114	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.37 mg/kg	3.125 mg/kg	104	60.0	140	----
Hydrocarbons (QCLot: 1109241)										
VA23C0015-003	SNW-3	F2 (C10-C16)	----	E601.SG	530 mg/kg	618.75 mg/kg	112	60.0	140	----
		F3 (C16-C34)	----	E601.SG	956 mg/kg	1242.49 mg/kg	101	60.0	140	----
		F4 (C34-C50)	----	E601.SG	733 mg/kg	993.9 mg/kg	96.7	60.0	140	----
Hydrocarbons (QCLot: 1117677)										
VA23C0015-004	SNE-3	F1 (C6-C10)	----	E581.VH+F1	132 mg/kg	281.25 mg/kg	78.1	60.0	140	----
Hydrocarbons (QCLot: 1126946)										
VA23C0015-018	SNW-7	F1 (C6-C10)	----	E581.VH+F1	123 mg/kg	187.5 mg/kg	89.6	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1109242)										
VA23C0015-003	SNW-3	Acenaphthene	83-32-9	E641A-L	0.409 mg/kg	0.5 mg/kg	109	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.406 mg/kg	0.5 mg/kg	109	50.0	140	----
		Acridine	260-94-6	E641A-L	0.429 mg/kg	0.5 mg/kg	115	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.420 mg/kg	0.5 mg/kg	112	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.404 mg/kg	0.5 mg/kg	108	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.398 mg/kg	0.5 mg/kg	107	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.406 mg/kg	0.5 mg/kg	108	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.411 mg/kg	0.5 mg/kg	110	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.395 mg/kg	0.5 mg/kg	106	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.399 mg/kg	0.5 mg/kg	107	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1109242) - continued										
VA23C0015-003	SNW-3	Dibenz(a,h)anthracene	53-70-3	E641A-L	0.408 mg/kg	0.5 mg/kg	109	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.410 mg/kg	0.5 mg/kg	110	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.416 mg/kg	0.5 mg/kg	111	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.399 mg/kg	0.5 mg/kg	107	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.395 mg/kg	0.5 mg/kg	106	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.405 mg/kg	0.5 mg/kg	108	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.389 mg/kg	0.5 mg/kg	104	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.414 mg/kg	0.5 mg/kg	111	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.410 mg/kg	0.5 mg/kg	110	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.393 mg/kg	0.5 mg/kg	105	50.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1110815)									
	RM	Carbon, inorganic [IC]	----	E354	0.383 %	100	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1111124)									
	RM	Carbon, total [TC]	----	E351	1.4 %	106	80.0	120	----
Metals (QCLot: 1109243)									
	SCP SS-2	Mercury	7439-97-6	E510	0.059 mg/kg	118	70.0	130	----
Metals (QCLot: 1109244)									
	SCP SS-2	Aluminum	7429-90-5	E440	9817 mg/kg	120	70.0	130	----
	SCP SS-2	Antimony	7440-36-0	E440	3.99 mg/kg	98.8	70.0	130	----
	SCP SS-2	Arsenic	7440-38-2	E440	3.73 mg/kg	110	70.0	130	----
	SCP SS-2	Barium	7440-39-3	E440	105 mg/kg	115	70.0	130	----
	SCP SS-2	Beryllium	7440-41-7	E440	0.349 mg/kg	106	70.0	130	----
	SCP SS-2	Boron	7440-42-8	E440	8.5 mg/kg	131	40.0	160	----
	SCP SS-2	Cadmium	7440-43-9	E440	0.91 mg/kg	106	70.0	130	----
	SCP SS-2	Calcium	7440-70-2	E440	31082 mg/kg	110	70.0	130	----
	SCP SS-2	Chromium	7440-47-3	E440	101 mg/kg	124	70.0	130	----
	SCP SS-2	Cobalt	7440-48-4	E440	6.9 mg/kg	109	70.0	130	----
	SCP SS-2	Copper	7440-50-8	E440	123 mg/kg	109	70.0	130	----
	SCP SS-2	Iron	7439-89-6	E440	23558 mg/kg	110	70.0	130	----
	SCP SS-2	Lead	7439-92-1	E440	267 mg/kg	113	70.0	130	----
	SCP SS-2	Lithium	7439-93-2	E440	9.5 mg/kg	105	70.0	130	----
	SCP SS-2	Magnesium	7439-95-4	E440	5509 mg/kg	119	70.0	130	----
	SCP SS-2	Manganese	7439-96-5	E440	269 mg/kg	117	70.0	130	----
	SCP SS-2	Molybdenum	7439-98-7	E440	1.03 mg/kg	109	70.0	130	----
	SCP SS-2	Nickel	7440-02-0	E440	26.7 mg/kg	111	70.0	130	----
	SCP SS-2	Phosphorus	7723-14-0	E440	752 mg/kg	113	70.0	130	----
	SCP SS-2	Potassium	7440-09-7	E440	1587 mg/kg	122	70.0	130	----
	SCP SS-2	Sodium	7440-23-5	E440	797 mg/kg	112	70.0	130	----
	SCP SS-2	Strontium	7440-24-6	E440	86.1 mg/kg	110	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1109244) - continued									
	SCP SS-2	Thallium	7440-28-0	E440	0.0786 mg/kg	100	40.0	160	----
	SCP SS-2	Tin	7440-31-5	E440	10.6 mg/kg	99.6	70.0	130	----
	SCP SS-2	Titanium	7440-32-6	E440	839 mg/kg	127	70.0	130	----
	SCP SS-2	Uranium	7440-61-1	E440	0.52 mg/kg	118	70.0	130	----
	SCP SS-2	Vanadium	7440-62-2	E440	32.7 mg/kg	115	70.0	130	----
	SCP SS-2	Zinc	7440-66-6	E440	297 mg/kg	106	70.0	130	----
	SCP SS-2	Zirconium	7440-67-7	E440	5.73 mg/kg	111	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 2

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division
Vancouver
Work Order Reference
VA23C0015

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report	Reports / Recipients		Turnaround Time (TAT) Requested
Company:	WSP Canada Inc.	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Elaine Irving/Adrienne Ducharme	Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	1-604-297-2030/1-604-296-2689	☐ Compare Results to Criteria on Report - provide details below if box checked		☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	840 Howe Street, 10th Floor	Email 1 or Fax	elaine.irving@wsp.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Vancouver, BC	Email 2	adrienne.ducharme@wsp.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	V6Z 2M1	Email 3	trish.tomliens@wsp.com	Additional fees may apply to rush requests on weekends, st
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients		Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please contac
Company:		Email 1 or Fax		
Contact:		Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	GOLD100-028	Major/Minor Code:	Routing Code:
PO / AFE:	166372402/70000/03	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact: Amber Springer	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Particle Size (S184EA)	Moisture (E1442)	Dry and Grind (EPP442)	TC, TOC, TiC (S351)	Metals + Hg + pH (CA09)	BTEX,F1-F4 (S665A,B)	PAH (E641A-L)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	SW-2	16-Aug-23	13:30	Sediment	6	X	X	X	X	X	X	X			
	Dup-E-23	16-Aug-23	13:30	Sediment	6	X	X	X	X	X	X	X			
	SNW-3	16-Aug-23	16:40	Sediment	6	X	X	X	X	X	X	X			
	SNE-3	17-Aug-23	11:10	Sediment	6	X	X	X	X	X	X	X			
	SNE-15	17-Aug-23	13:45	Sediment	6	X	X	X	X	X	X	X			
	SE-13	17-Aug-23	15:45	Sediment	6	X	X	X	X	X	X	X			
	SE-2	17-Aug-23	17:00	Sediment	6	X	X	X	X	X	X	X			
	SNE-7	18-Aug-23	14:50	Sediment	6	X	X	X	X	X	X	X			
	SE-11	18 Aug 23	16:30	Sediment	6	X	X	X	X	X	X	X			
	SCV-1	19 Aug 23	14:20	Sediment	6	X	X	X	X	X	X	X			
	SCV-2	19 Aug 23	17:00	Sediment	6	X	X	X	X	X	X	X			
	SNE-4	20 Aug 23	12:00	Sediment	6	X	X	X	X	X	X	X			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Refer to quote
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C		
				14	17	17

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: JC	Date: AUG 2 6 2023	Time: 1340

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 2 of 2

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Adrienne Ducharme
Phone:	1-604-297-2030/1-604-296-2689
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Project Information	
ALS Account # / Quote #:	
Job #:	GOLD100-028
PO / AFE:	166372402/70000/03
LSD:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	elaine.irving@wsp.com
Email 2	adrienne.ducharme@wsp.com
Email 3	trish.tomliens@wsp.com

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Particle Size (S184EA)	Moisture (E1442)	Dry and Grind (EPP442)	TC, TOC, TIC (S351)	Metals + Hg + pH (CA09)	BTEX,F1-F4 (S665A-B)	PAH (E641A-L)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
X	SNW-4	20 Aug 23	14:40	Sediment	6	X	X	X	X	X	X	X			
X	SW-12	20 Aug 23	16:30	Sediment	6	X	X	X	X	X	X	X			
X	DUP-E-23	20 Aug 23	16:30	Sediment	6	X	X	X	X	X	X	X			
X	SNW-5	21 Aug 23	12:00	Sediment	6	X	X	X	X	X	X	X			
X	SNE-5	21 Aug 23	15:15	Sediment	6	X	X	X	X	X	X	X			
X	SNW-7	22 Aug 23	11:30	Sediment	6	X	X	X	X	X	X	X			
X	SNE-9	22 Aug 23	14:30	Sediment	6	X	X	X	X	X	X	X			
X	SE-7	22 Aug 23	16:00	Sediment	6	X	X	X	X	X	X	X			
X	SNW-9	16 Aug 23	14:55	Sediment	6	X	X	X	X	X	X	X			
				Sediment											
				Sediment											
				Sediment											

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	Refer to quote

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				14	17	17	

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)		
Received by: JC	Date: AUG 26 2023	Time: 1348

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2301043**	Page	: 1 of 14
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: GOLD100-028	Date Samples Received	: 14-Aug-2023 10:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 17-Aug-2023
C-O-C number	: ----	Issue Date	: 21-Aug-2023 16:53
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Adrian Canito		Inorganics, Calgary, Alberta
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Joshua Stessun	Laboratory Analyst	Organics, Calgary, Alberta
Kelsey Schaefer	Lab Analyst	Organics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Metals, Calgary, Alberta
Maqsood UlHassan	Laboratory Analyst	Organics, Calgary, Alberta

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLHM	*Detection Limit Adjusted: Sample has high moisture content.*
DLR	*Detection Limit Raised due to required dilution, limited sample amount, and/or high moisture content (soil samples).*

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TGT-23	SE-1	SNE-2	SNE-13	SW-5
					Client sampling date / time	12-Aug-2023 15:20	10-Aug-2023 10:30	10-Aug-2023 14:10	10-Aug-2023 11:50	09-Aug-2023 11:47
						YL2301043-001	YL2301043-002	YL2301043-003	YL2301043-004	YL2301043-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/CG	0.25	%		53.6	20.0	28.4	35.1	26.1
pH (1:2 soil:water)	----	E108/CG	0.10	pH units		7.95	8.31	8.24	8.23	8.32
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		17.7	10.5	24.9	1.6	10.1
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		51.9	65.9	41.1	15.8	59.1
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		22.3	17.9	24.9	51.5	24.2
Clay (<0.004mm)	----	EC184E/SK	1.0	%		8.1	5.7	9.1	31.1	6.6
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		2.71	2.91	4.32	5.73	3.66
Carbon, inorganic [IC]	----	E354/SK	0.050	%		0.290	1.57	2.22	2.71	1.72
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		2.42	13.0	18.5	22.6	14.4
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		2.42	1.34	2.10	3.02	1.94
Organic matter	----	EC356/SK	0.10	%		4.17	2.31	3.62	5.21	3.34
Metals										
Aluminum	7429-90-5	E440/CG	50	mg/kg		7050	3820	5990	10500	4200
Antimony	7440-36-0	E440/CG	0.10	mg/kg		<0.10	<0.10	0.10	0.20	<0.10
Arsenic	7440-38-2	E440/CG	0.10	mg/kg		3.16	3.25	3.94	7.14	4.85
Barium	7440-39-3	E440/CG	0.50	mg/kg		30.2	11.7	16.5	28.7	12.9
Beryllium	7440-41-7	E440/CG	0.10	mg/kg		0.64	0.25	0.38	0.67	0.27
Bismuth	7440-69-9	E440/CG	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/CG	5.0	mg/kg		26.1	27.4	41.2	69.6	30.3
Cadmium	7440-43-9	E440/CG	0.020	mg/kg		0.037	0.028	0.058	0.113	0.030
Calcium	7440-70-2	E440/CG	50	mg/kg		8000	46000	65800	82100	59500
Chromium	7440-47-3	E440/CG	0.50	mg/kg		15.0	13.4	19.2	30.3	16.3
Cobalt	7440-48-4	E440/CG	0.10	mg/kg		3.82	2.31	3.41	5.67	2.94
Copper	7440-50-8	E440/CG	0.50	mg/kg		7.81	4.61	7.16	12.6	5.01
Iron	7439-89-6	E440/CG	50	mg/kg		14200	11400	12200	18100	14800
Lead	7439-92-1	E440/CG	0.50	mg/kg		6.20	3.85	5.91	10.3	3.88
Lithium	7439-93-2	E440/CG	2.0	mg/kg		15.0	16.4	24.8	41.2	18.5

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TGT-23	SE-1	SNE-2	SNE-13	SW-5
					Client sampling date / time	12-Aug-2023 15:20	10-Aug-2023 10:30	10-Aug-2023 14:10	10-Aug-2023 11:50	09-Aug-2023 11:47
						YL2301043-001	YL2301043-002	YL2301043-003	YL2301043-004	YL2301043-005
						Result	Result	Result	Result	Result
Metals										
Magnesium	7439-95-4	E440/CG	20	mg/kg		9210	25300	37000	43300	32700
Manganese	7439-96-5	E440/CG	1.0	mg/kg		105	101	141	199	126
Mercury	7439-97-6	E510/CG	0.0050	mg/kg		0.0068	0.0057	0.0100	0.0170	0.0064
Molybdenum	7439-98-7	E440/CG	0.10	mg/kg		0.58	0.37	0.32	0.56	0.35
Nickel	7440-02-0	E440/CG	0.50	mg/kg		9.12	7.29	10.4	17.1	9.01
Phosphorus	7723-14-0	E440/CG	50	mg/kg		667	386	440	588	530
Potassium	7440-09-7	E440/CG	100	mg/kg		1640	1680	2540	4350	1870
Selenium	7782-49-2	E440/CG	0.20	mg/kg		<0.20	<0.20	<0.20	0.26	<0.20
Silver	7440-22-4	E440/CG	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/CG	50	mg/kg		5970	3650	4670	8820	3720
Strontium	7440-24-6	E440/CG	0.50	mg/kg		20.5	33.6	44.9	61.8	39.1
Sulfur	7704-34-9	E440/CG	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/CG	0.050	mg/kg		0.094	0.077	0.108	0.182	0.090
Tin	7440-31-5	E440/CG	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/CG	1.0	mg/kg		243	169	216	275	212
Tungsten	7440-33-7	E440/CG	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/CG	0.050	mg/kg		3.73	0.754	0.809	1.41	0.641
Vanadium	7440-62-2	E440/CG	0.20	mg/kg		21.7	14.0	22.0	40.6	16.8
Zinc	7440-66-6	E440/CG	2.0	mg/kg		24.0	13.3	18.0	31.8	14.6
Zirconium	7440-67-7	E440/CG	1.0	mg/kg		8.2	3.5	6.1	9.3	3.8
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/CG	0.0050	mg/kg		<0.0072 DLR	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/CG	0.015	mg/kg		<0.018 DLR	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611A/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611A/CG	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/CG	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TGT-23	SE-1	SNE-2	SNE-13	SW-5
					Client sampling date / time	12-Aug-2023 15:20	10-Aug-2023 10:30	10-Aug-2023 14:10	10-Aug-2023 11:50	09-Aug-2023 11:47
						YL2301043-001	YL2301043-002	YL2301043-003	YL2301043-004	YL2301043-005
						Result	Result	Result	Result	Result
Hydrocarbons										
F1-BTEX	----	EC580/CG	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/CG	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/CG	50	mg/kg		145	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/CG	50	mg/kg		88	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/CG	-	-		YES	YES	YES	YES	YES
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/CG	1.0	%		86.5	90.2	82.8	87.5	96.3
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/CG	1.0	%		83.1	78.3	82.8	80.6	79.4
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/CG	0.10	%		72.8	74.3	73.5	75.9	78.4
Difluorobenzene, 1,4-	540-36-3	E611A/CG	0.10	%		78.6	80.8	79.4	83.4	85.8
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/CG	0.0050	mg/kg		<0.0060 DLHM	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/CG	0.0050	mg/kg		<0.0060 DLHM	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/CG	0.0040	mg/kg		<0.0060 DLHM	<0.0040	<0.0041 DLHM	<0.0043 DLHM	<0.0040
Benz(a)anthracene	56-55-3	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/CG	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/CG	0.0050	mg/kg		<0.0060 DLHM	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/CG	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TGT-23	SE-1	SNE-2	SNE-13	SW-5
					Client sampling date / time	12-Aug-2023 15:20	10-Aug-2023 10:30	10-Aug-2023 14:10	10-Aug-2023 11:50	09-Aug-2023 11:47
						YL2301043-001	YL2301043-002	YL2301043-003	YL2301043-004	YL2301043-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 2-	91-57-6	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/CG	0.010	mg/kg		0.013	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/CG	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/CG	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/CG	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/CG	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/CG	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/CG	0.140	mg/kg		0.147	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/CG	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/CG	0.1	%		85.0	90.2	82.7	84.4	81.4
Chrysene-d12	1719-03-5	E641A-L/CG	0.1	%		105	106	108	103	100
Naphthalene-d8	1146-65-2	E641A-L/CG	0.1	%		76.6	77.7	79.2	78.8	75.8
Phenanthrene-d10	1517-22-2	E641A-L/CG	0.1	%		87.1	85.6	87.8	85.3	81.4

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-6	SW-11	SW-15	SNW-2	DUP-C
					Client sampling date / time	09-Aug-2023 14:41	11-Aug-2023 16:50	11-Aug-2023 15:15	11-Aug-2023 13:00	10-Aug-2023 00:00
						YL2301043-006	YL2301043-007	YL2301043-008	YL2301043-009	YL2301043-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/CG	0.25	%		29.8	24.5	26.2	29.9	36.8
pH (1:2 soil:water)	----	E108/CG	0.10	pH units		8.22	8.74	8.29	8.24	8.25
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		5.6	<1.0	2.1	19.9	7.7
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		53.0	87.1	47.3	35.0	17.2
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		32.5	11.0	44.4	34.4	47.5
Clay (<0.004mm)	----	EC184E/SK	1.0	%		8.9	1.9	6.2	10.7	27.6
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		4.28	2.54	6.37	4.71	5.26
Carbon, inorganic [IC]	----	E354/SK	0.050	%		1.92	1.46	1.73	2.33	2.39
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		16.0	12.2	14.4	19.4	19.9
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		2.36	1.08	4.64	2.38	2.87
Organic matter	----	EC356/SK	0.10	%		4.07	1.86	8.00	4.10	4.95
Metals										
Aluminum	7429-90-5	E440/CG	50	mg/kg		4610	1870	4800	6830	10200
Antimony	7440-36-0	E440/CG	0.10	mg/kg		<0.10	<0.10	<0.10	0.12	0.20
Arsenic	7440-38-2	E440/CG	0.10	mg/kg		6.23	0.84	2.79	9.03	7.39
Barium	7440-39-3	E440/CG	0.50	mg/kg		15.2	5.80	13.0	20.1	29.1
Beryllium	7440-41-7	E440/CG	0.10	mg/kg		0.31	0.13	0.31	0.41	0.61
Bismuth	7440-69-9	E440/CG	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/CG	5.0	mg/kg		33.3	12.7	36.6	45.9	63.5
Cadmium	7440-43-9	E440/CG	0.020	mg/kg		0.032	<0.020	<0.020	0.075	0.099
Calcium	7440-70-2	E440/CG	50	mg/kg		65200	36000	100000	77500	77500
Chromium	7440-47-3	E440/CG	0.50	mg/kg		17.2	7.80	17.2	22.4	29.2
Cobalt	7440-48-4	E440/CG	0.10	mg/kg		3.20	1.47	3.39	4.14	5.51
Copper	7440-50-8	E440/CG	0.50	mg/kg		5.44	2.33	7.83	8.46	12.2
Iron	7439-89-6	E440/CG	50	mg/kg		16300	5140	12900	15400	17800
Lead	7439-92-1	E440/CG	0.50	mg/kg		4.14	1.91	4.06	6.30	9.61
Lithium	7439-93-2	E440/CG	2.0	mg/kg		19.9	9.4	27.8	27.3	38.4
Magnesium	7439-95-4	E440/CG	20	mg/kg		36400	18700	55200	43600	42400

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-6	SW-11	SW-15	SNW-2	DUP-C
					Client sampling date / time	09-Aug-2023 14:41	11-Aug-2023 16:50	11-Aug-2023 15:15	11-Aug-2023 13:00	10-Aug-2023 00:00
						YL2301043-006	YL2301043-007	YL2301043-008	YL2301043-009	YL2301043-010
						Result	Result	Result	Result	Result
Metals										
Manganese	7439-96-5	E440/CG	1.0	mg/kg		146	64.9	166	174	199
Mercury	7439-97-6	E510/CG	0.0050	mg/kg		0.0069	<0.0050	0.0064	0.0112	0.0142
Molybdenum	7439-98-7	E440/CG	0.10	mg/kg		0.38	0.13	0.41	0.41	0.55
Nickel	7440-02-0	E440/CG	0.50	mg/kg		9.51	4.22	9.20	12.3	16.7
Phosphorus	7723-14-0	E440/CG	50	mg/kg		656	209	436	645	588
Potassium	7440-09-7	E440/CG	100	mg/kg		2060	810	2120	2880	4200
Selenium	7782-49-2	E440/CG	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	0.28
Silver	7440-22-4	E440/CG	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/CG	50	mg/kg		3980	1110	3420	5560	8800
Strontium	7440-24-6	E440/CG	0.50	mg/kg		45.5	20.4	51.2	53.2	60.6
Sulfur	7704-34-9	E440/CG	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/CG	0.050	mg/kg		0.091	<0.050	0.090	0.121	0.173
Tin	7440-31-5	E440/CG	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/CG	1.0	mg/kg		219	114	226	244	246
Tungsten	7440-33-7	E440/CG	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/CG	0.050	mg/kg		0.732	0.378	0.747	0.921	1.27
Vanadium	7440-62-2	E440/CG	0.20	mg/kg		18.2	6.75	16.0	26.5	39.0
Zinc	7440-66-6	E440/CG	2.0	mg/kg		14.4	5.7	13.3	19.2	31.5
Zirconium	7440-67-7	E440/CG	1.0	mg/kg		4.2	3.2	5.8	6.3	8.4
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/CG	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/CG	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611A/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611A/CG	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/CG	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	----	EC580/CG	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-6	SW-11	SW-15	SNW-2	DUP-C
					Client sampling date / time	09-Aug-2023 14:41	11-Aug-2023 16:50	11-Aug-2023 15:15	11-Aug-2023 13:00	10-Aug-2023 00:00
						YL2301043-006	YL2301043-007	YL2301043-008	YL2301043-009	YL2301043-010
						Result	Result	Result	Result	Result
Hydrocarbons										
F2 (C10-C16)	----	E601.SG/CG	30	mg/kg		<30	<30	<30	<30	<30
F3 (C16-C34)	----	E601.SG/CG	50	mg/kg		<50	<50	<50	<50	<50
F4 (C34-C50)	----	E601.SG/CG	50	mg/kg		<50	<50	<50	<50	<50
Chromatogram to baseline at nC50	n/a	E601.SG/CG	-	-		YES	YES	YES	YES	YES
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/CG	1.0	%		90.8	85.7	82.7	81.3	93.6
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/CG	1.0	%		90.5	71.4	83.6	77.6	76.3
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/CG	0.10	%		86.3	80.5	90.2	72.4	72.4
Difluorobenzene, 1,4-	540-36-3	E611A/CG	0.10	%		90.8	87.4	94.9	74.8	80.8
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/CG	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/CG	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/CG	0.0040	mg/kg		<0.0041 DLHM	<0.0040	<0.0040	<0.0040	<0.0044 DLHM
Benz(a)anthracene	56-55-3	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/CG	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/CG	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/CG	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-6	SW-11	SW-15	SNW-2	DUP-C
					Client sampling date / time	09-Aug-2023 14:41	11-Aug-2023 16:50	11-Aug-2023 15:15	11-Aug-2023 13:00	10-Aug-2023 00:00
						YL2301043-006	YL2301043-007	YL2301043-008	YL2301043-009	YL2301043-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Naphthalene	91-20-3	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/CG	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/CG	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/CG	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	----	E641A-L/CG	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	----	E641A-L/CG	0.10	-		<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	n/a	E641A-L/CG	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/CG	0.140	mg/kg		<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	n/a	E641A-L/CG	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/CG	0.1	%		86.9	87.8	91.9	82.9	85.2
Chrysene-d12	1719-03-5	E641A-L/CG	0.1	%		104	106	106	101	104
Naphthalene-d8	1146-65-2	E641A-L/CG	0.1	%		83.4	84.5	83.7	79.2	80.8
Phenanthrene-d10	1517-22-2	E641A-L/CG	0.1	%		88.0	88.7	89.2	86.2	87.2

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-2	----	----	----	----
					Client sampling date / time	09-Aug-2023 16:40	----	----	----	----
					YL2301043-011	--------	--------	--------	--------	
					Result	----	----	----	----	
Physical Tests										
Moisture	----	E144/CG	0.25	%		20.2	----	----	----	----
pH (1:2 soil:water)	----	E108/CG	0.10	pH units		8.58	----	----	----	----
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		8.0	----	----	----	----
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		76.3	----	----	----	----
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		11.4	----	----	----	----
Clay (<0.004mm)	----	EC184E/SK	1.0	%		4.3	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		2.13	----	----	----	----
Carbon, inorganic [IC]	----	E354/SK	0.050	%		1.37	----	----	----	----
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		11.4	----	----	----	----
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		0.760	----	----	----	----
Organic matter	----	EC356/SK	0.10	%		1.31	----	----	----	----
Metals										
Aluminum	7429-90-5	E440/CG	50	mg/kg		2740	----	----	----	----
Antimony	7440-36-0	E440/CG	0.10	mg/kg		<0.10	----	----	----	----
Arsenic	7440-38-2	E440/CG	0.10	mg/kg		2.71	----	----	----	----
Barium	7440-39-3	E440/CG	0.50	mg/kg		9.19	----	----	----	----
Beryllium	7440-41-7	E440/CG	0.10	mg/kg		0.19	----	----	----	----
Bismuth	7440-69-9	E440/CG	0.20	mg/kg		<0.20	----	----	----	----
Boron	7440-42-8	E440/CG	5.0	mg/kg		20.7	----	----	----	----
Cadmium	7440-43-9	E440/CG	0.020	mg/kg		0.024	----	----	----	----
Calcium	7440-70-2	E440/CG	50	mg/kg		45400	----	----	----	----
Chromium	7440-47-3	E440/CG	0.50	mg/kg		10.3	----	----	----	----
Cobalt	7440-48-4	E440/CG	0.10	mg/kg		1.91	----	----	----	----
Copper	7440-50-8	E440/CG	0.50	mg/kg		3.76	----	----	----	----
Iron	7439-89-6	E440/CG	50	mg/kg		10900	----	----	----	----
Lead	7439-92-1	E440/CG	0.50	mg/kg		2.73	----	----	----	----
Lithium	7439-93-2	E440/CG	2.0	mg/kg		11.2	----	----	----	----
Magnesium	7439-95-4	E440/CG	20	mg/kg		22400	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	SE18-2	----	----	----	----
					Client sampling date / time	09-Aug-2023 16:40	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301043-011	--------	--------	--------	--------
						Result	----	----	----	----
Metals										
Manganese	7439-96-5	E440/CG	1.0	mg/kg		86.1	----	----	----	----
Mercury	7439-97-6	E510/CG	0.0050	mg/kg		<0.0050	----	----	----	----
Molybdenum	7439-98-7	E440/CG	0.10	mg/kg		0.27	----	----	----	----
Nickel	7440-02-0	E440/CG	0.50	mg/kg		5.66	----	----	----	----
Phosphorus	7723-14-0	E440/CG	50	mg/kg		339	----	----	----	----
Potassium	7440-09-7	E440/CG	100	mg/kg		1210	----	----	----	----
Selenium	7782-49-2	E440/CG	0.20	mg/kg		<0.20	----	----	----	----
Silver	7440-22-4	E440/CG	0.10	mg/kg		<0.10	----	----	----	----
Sodium	7440-23-5	E440/CG	50	mg/kg		2400	----	----	----	----
Strontium	7440-24-6	E440/CG	0.50	mg/kg		29.2	----	----	----	----
Sulfur	7704-34-9	E440/CG	1000	mg/kg		<1000	----	----	----	----
Thallium	7440-28-0	E440/CG	0.050	mg/kg		0.056	----	----	----	----
Tin	7440-31-5	E440/CG	2.0	mg/kg		<2.0	----	----	----	----
Titanium	7440-32-6	E440/CG	1.0	mg/kg		134	----	----	----	----
Tungsten	7440-33-7	E440/CG	0.50	mg/kg		<0.50	----	----	----	----
Uranium	7440-61-1	E440/CG	0.050	mg/kg		0.450	----	----	----	----
Vanadium	7440-62-2	E440/CG	0.20	mg/kg		11.0	----	----	----	----
Zinc	7440-66-6	E440/CG	2.0	mg/kg		9.5	----	----	----	----
Zirconium	7440-67-7	E440/CG	1.0	mg/kg		3.2	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611A/CG	0.0050	mg/kg		<0.0050	----	----	----	----
Ethylbenzene	100-41-4	E611A/CG	0.015	mg/kg		<0.015	----	----	----	----
Toluene	108-88-3	E611A/CG	0.050	mg/kg		<0.050	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/CG	0.050	mg/kg		<0.050	----	----	----	----
Xylene, o-	95-47-6	E611A/CG	0.050	mg/kg		<0.050	----	----	----	----
Xylenes, total	1330-20-7	E611A/CG	0.075	mg/kg		<0.075	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/CG	5.0	mg/kg		<5.0	----	----	----	----
F1-BTEX	----	EC580/CG	5.0	mg/kg		<5.0	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	SE18-2	----	----	----	----
					Client sampling date / time	09-Aug-2023 16:40	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301043-011	--------	--------	--------	--------
						Result	----	----	----	----
Hydrocarbons										
F2 (C10-C16)	----	E601.SG/CG	30	mg/kg		<30	----	----	----	----
F3 (C16-C34)	----	E601.SG/CG	50	mg/kg		<50	----	----	----	----
F4 (C34-C50)	----	E601.SG/CG	50	mg/kg		<50	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/CG	-	-		YES	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/CG	1.0	%		96.6	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/CG	1.0	%		83.7	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/CG	0.10	%		77.9	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/CG	0.10	%		84.0	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/CG	0.0050	mg/kg		<0.0050	----	----	----	----
Acenaphthylene	208-96-8	E641A-L/CG	0.0050	mg/kg		<0.0050	----	----	----	----
Acridine	260-94-6	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Anthracene	120-12-7	E641A-L/CG	0.0040	mg/kg		<0.0040	----	----	----	----
Benz(a)anthracene	56-55-3	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/CG	0.015	mg/kg		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Chrysene	218-01-9	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/CG	0.0050	mg/kg		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Fluorene	86-73-7	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A-L/CG	0.015	mg/kg		<0.015	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/CG	0.010	mg/kg		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)									
				Client sample ID	SE18-2	----	----	----	----
				Client sampling date / time	09-Aug-2023 16:40	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2301043-011	--------	--------	--------	--------
					Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Naphthalene	91-20-3	E641A-L/CG	0.010	mg/kg	<0.010	----	----	----	----
Phenanthrene	85-01-8	E641A-L/CG	0.010	mg/kg	<0.010	----	----	----	----
Pyrene	129-00-0	E641A-L/CG	0.010	mg/kg	<0.010	----	----	----	----
Quinoline	91-22-5	E641A-L/CG	0.010	mg/kg	<0.010	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/CG	0.020	mg/kg	<0.020	----	----	----	----
IACR (CCME)	----	E641A-L/CG	0.150	-	<0.150	----	----	----	----
IACR AB (coarse)	----	E641A-L/CG	0.10	-	<0.10	----	----	----	----
IACR AB (fine)	----	E641A-L/CG	0.10	-	<0.10	----	----	----	----
PAHs, total (BC Sched 3.4)	n/a	E641A-L/CG	0.040	mg/kg	<0.040	----	----	----	----
PAHs, total (EPA 16 - DAS)	n/a	E641A-L/CG	0.140	mg/kg	<0.140	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A-L/CG	0.040	mg/kg	<0.040	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates									
Acridine-d9	34749-75-2	E641A-L/CG	0.1	%	80.6	----	----	----	----
Chrysene-d12	1719-03-5	E641A-L/CG	0.1	%	101	----	----	----	----
Naphthalene-d8	1146-65-2	E641A-L/CG	0.1	%	82.1	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A-L/CG	0.1	%	85.3	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2301043**	Page	: 1 of 20
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: GOLD100-028	Date Samples Received	: 14-Aug-2023 10:00
PO	: 166372402/70000/03	Issue Date	: 21-Aug-2023 16:53
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-1091495 002	----	Boron	7440-42-8	E440	79.2 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
TGT-23	E601.SG	12-Aug-2023	18-Aug-2023	14 days	6 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-2	E601.SG	11-Aug-2023	18-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-11	E601.SG	11-Aug-2023	18-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-15	E601.SG	11-Aug-2023	18-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE-1	E601.SG	10-Aug-2023	18-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-13	E601.SG	10-Aug-2023	18-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNE-2	E601.SG	10-Aug-2023	18-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
DUP-C	E601.SG	10-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE18-2	E601.SG	09-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-5	E601.SG	09-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-6	E601.SG	09-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
TGT-23	E581.VH+F1	12-Aug-2023	18-Aug-2023	40 days	6 days	✓	18-Aug-2023	40 days	6 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-2	E581.VH+F1	11-Aug-2023	18-Aug-2023	40 days	7 days	✓	18-Aug-2023	40 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-11	E581.VH+F1	11-Aug-2023	18-Aug-2023	40 days	7 days	✓	18-Aug-2023	40 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-15	E581.VH+F1	11-Aug-2023	18-Aug-2023	40 days	7 days	✓	18-Aug-2023	40 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
DUP-C	E581.VH+F1	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE-1	E581.VH+F1	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-13	E581.VH+F1	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNE-2	E581.VH+F1	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE18-2	E581.VH+F1	09-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	9 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-5	E581.VH+F1	09-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	9 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-6	E581.VH+F1	09-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
TGT-23	E510	12-Aug-2023	18-Aug-2023	28 days	6 days	✓	18-Aug-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-2	E510	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-11	E510	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-15	E510	11-Aug-2023	18-Aug-2023	28 days	7 days	✓	18-Aug-2023	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE-1	E510	10-Aug-2023	18-Aug-2023	28 days	8 days	✓	18-Aug-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-13	E510	10-Aug-2023	18-Aug-2023	28 days	8 days	✓	18-Aug-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNE-2	E510	10-Aug-2023	18-Aug-2023	28 days	8 days	✓	18-Aug-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-C	E510	10-Aug-2023	18-Aug-2023	28 days	8 days	✓	18-Aug-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE18-2	E510	09-Aug-2023	18-Aug-2023	28 days	9 days	✓	18-Aug-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-5	E510	09-Aug-2023	18-Aug-2023	28 days	9 days	✓	18-Aug-2023	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-6	E510	09-Aug-2023	18-Aug-2023	28 days	9 days	✓	18-Aug-2023	28 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
TGT-23	E440	12-Aug-2023	18-Aug-2023	180 days	6 days	✓	18-Aug-2023	180 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-2	E440	11-Aug-2023	18-Aug-2023	180 days	7 days	✓	18-Aug-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-11	E440	11-Aug-2023	18-Aug-2023	180 days	7 days	✓	18-Aug-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-15	E440	11-Aug-2023	18-Aug-2023	180 days	7 days	✓	18-Aug-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE-1	E440	10-Aug-2023	18-Aug-2023	180 days	8 days	✓	18-Aug-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-13	E440	10-Aug-2023	18-Aug-2023	180 days	8 days	✓	18-Aug-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNE-2	E440	10-Aug-2023	18-Aug-2023	180 days	8 days	✓	18-Aug-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-C	E440	10-Aug-2023	18-Aug-2023	180 days	8 days	✓	18-Aug-2023	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE18-2	E440	09-Aug-2023	18-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-5	E440	09-Aug-2023	18-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-6	E440	09-Aug-2023	18-Aug-2023	180 days	9 days	✓	18-Aug-2023	180 days	9 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
DUP-C	E351	10-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE-1	E351	10-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE18-2	E351	09-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNE-13	E351	10-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNE-2	E351	10-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SNW-2	E351	11-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SW-11	E351	11-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SW-15	E351	11-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-5	E351	09-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-6	E351	09-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag TGT-23	E351	12-Aug-2023	19-Aug-2023	----	----		19-Aug-2023	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-2	E354	11-Aug-2023	----	----	----		21-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-11	E354	11-Aug-2023	----	----	----		21-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-15	E354	11-Aug-2023	----	----	----		21-Aug-2023	----	10 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag DUP-C	E354	10-Aug-2023	----	----	----		21-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE-1	E354	10-Aug-2023	----	----	----		21-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-13	E354	10-Aug-2023	----	----	----		21-Aug-2023	----	11 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNE-2	E354	10-Aug-2023	----	----	----		21-Aug-2023	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE18-2	E354	09-Aug-2023	----	----	----		21-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-5	E354	09-Aug-2023	----	----	----		21-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-6	E354	09-Aug-2023	----	----	----		21-Aug-2023	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag TGT-23	E354	12-Aug-2023	----	----	----		21-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap TGT-23	E144	12-Aug-2023	----	----	----		18-Aug-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SNW-2	E144	11-Aug-2023	----	----	----		18-Aug-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SW-11	E144	11-Aug-2023	----	----	----		18-Aug-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SW-15	E144	11-Aug-2023	----	----	----		18-Aug-2023	----	7 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-C	E144	10-Aug-2023	----	----	----		18-Aug-2023	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE-1	E144	10-Aug-2023	----	----	----		18-Aug-2023	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-13	E144	10-Aug-2023	----	----	----		18-Aug-2023	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNE-2	E144	10-Aug-2023	----	----	----		18-Aug-2023	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE18-2	E144	09-Aug-2023	----	----	----		18-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-5	E144	09-Aug-2023	----	----	----		18-Aug-2023	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-6	E144	09-Aug-2023	----	----	----		18-Aug-2023	----	9 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
TGT-23	E108	12-Aug-2023	18-Aug-2023	30 days	6 days	✓	18-Aug-2023	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-2	E108	11-Aug-2023	18-Aug-2023	30 days	7 days	✓	18-Aug-2023	30 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-11	E108	11-Aug-2023	18-Aug-2023	30 days	7 days	✓	18-Aug-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-15	E108	11-Aug-2023	18-Aug-2023	30 days	7 days	✓	18-Aug-2023	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE-1	E108	10-Aug-2023	18-Aug-2023	30 days	8 days	✓	18-Aug-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-13	E108	10-Aug-2023	18-Aug-2023	30 days	8 days	✓	18-Aug-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNE-2	E108	10-Aug-2023	18-Aug-2023	30 days	8 days	✓	18-Aug-2023	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
DUP-C	E108	10-Aug-2023	18-Aug-2023	30 days	9 days	✓	18-Aug-2023	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE18-2	E108	09-Aug-2023	18-Aug-2023	30 days	9 days	✓	18-Aug-2023	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-5	E108	09-Aug-2023	18-Aug-2023	30 days	9 days	✓	18-Aug-2023	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-6	E108	09-Aug-2023	18-Aug-2023	30 days	9 days	✓	18-Aug-2023	30 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
TGT-23	E641A-L	12-Aug-2023	18-Aug-2023	14 days	6 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-2	E641A-L	11-Aug-2023	18-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-11	E641A-L	11-Aug-2023	18-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-15	E641A-L	11-Aug-2023	18-Aug-2023	14 days	7 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE-1	E641A-L	10-Aug-2023	18-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-13	E641A-L	10-Aug-2023	18-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNE-2	E641A-L	10-Aug-2023	18-Aug-2023	14 days	8 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP-C	E641A-L	10-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE18-2	E641A-L	09-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-5	E641A-L	09-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-6	E641A-L	09-Aug-2023	18-Aug-2023	14 days	9 days	✓	19-Aug-2023	40 days	1 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
TGT-23	E611A	12-Aug-2023	18-Aug-2023	40 days	6 days	✓	18-Aug-2023	40 days	6 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNW-2	E611A	11-Aug-2023	18-Aug-2023	40 days	7 days	✓	18-Aug-2023	40 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-11	E611A	11-Aug-2023	18-Aug-2023	40 days	7 days	✓	18-Aug-2023	40 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-15	E611A	11-Aug-2023	18-Aug-2023	40 days	7 days	✓	18-Aug-2023	40 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
DUP-C	E611A	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SE-1	E611A	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNE-13	E611A	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SNE-2	E611A	10-Aug-2023	18-Aug-2023	40 days	8 days	✓	18-Aug-2023	40 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SE18-2	E611A	09-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	9 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-5	E611A	09-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	9 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass soil methanol vial										
SW-6	E611A	09-Aug-2023	18-Aug-2023	40 days	9 days	✓	18-Aug-2023	40 days	9 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1091536	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091530	1	16	6.2	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1091495	1	17	5.8	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1091496	1	19	5.2	5.0	✓
Moisture Content by Gravimetry	E144	1091534	1	16	6.2	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091529	1	14	7.1	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1091961	1	11	9.0	5.0	✓
Total Carbon by Combustion	E351	1093913	1	11	9.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1094957	1	12	8.3	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1091537	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1091536	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091530	1	16	6.2	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1091495	2	17	11.7	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1091496	2	19	10.5	10.0	✓
Moisture Content by Gravimetry	E144	1091534	1	16	6.2	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091529	1	14	7.1	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1091961	2	11	18.1	10.0	✓
Total Carbon by Combustion	E351	1093913	2	11	18.1	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1094957	2	12	16.6	10.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1091537	1	12	8.3	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1091536	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091530	1	16	6.2	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1091495	1	17	5.8	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1091496	1	19	5.2	5.0	✓
Moisture Content by Gravimetry	E144	1091534	1	16	6.2	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091529	1	14	7.1	5.0	✓
Total Carbon by Combustion	E351	1093913	1	11	9.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1094957	1	12	8.3	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1091537	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1091536	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1091530	1	16	6.2	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1091529	1	14	7.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Calgary	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Calgary	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Calgary	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Calgary	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Calgary	Soil/Solid	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601.SG ALS Environmental - Calgary	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Calgary	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Calgary	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
F1-BTEX	EC580 ALS Environmental - Calgary	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Calgary	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Calgary	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Calgary	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Calgary	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Calgary	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **YL2301043**	Page	: 1 of 14
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: E Irving	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: +1 867 873 5593
Project	: GOLD100-028	Date Samples Received	: 14-Aug-2023 10:00
PO	: 166372402/70000/03	Date Analysis Commenced	: 17-Aug-2023
C-O-C number	: ----	Issue Date	: 21-Aug-2023 16:53
Sampler	: ---- ----		
Site	: ----		
Quote number	: VA22-GOLD100-028		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Adrian Canito		Calgary Inorganics, Calgary, Alberta
Hedy Lai	Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Joshua Stessun	Laboratory Analyst	Calgary Organics, Calgary, Alberta
Kelsey Schaefer	Lab Analyst	Calgary Organics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Calgary Metals, Calgary, Alberta
Maqsood UlHassan	Laboratory Analyst	Calgary Organics, Calgary, Alberta

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1091534)											
CG2311272-001	Anonymous	Moisture	----	E144	0.25	%	13.2	12.2	7.39%	20%	----
Physical Tests (QC Lot: 1091961)											
YL2301043-001	TGT-23	pH (1:2 soil:water)	----	E108	0.10	pH units	7.95	7.97	0.251%	5%	----
Organic / Inorganic Carbon (QC Lot: 1093913)											
YL2301043-001	TGT-23	Carbon, total [TC]	----	E351	0.050	%	2.71	2.74	1.08%	20%	----
Organic / Inorganic Carbon (QC Lot: 1094957)											
YL2301043-006	SW-6	Carbon, inorganic [IC]	----	E354	0.050	%	1.92	1.90	1.05%	20%	----
Metals (QC Lot: 1091495)											
CG2310841-002	Anonymous	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0452	0.0436	3.64%	40%	----
Metals (QC Lot: 1091496)											
CG2310841-002	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	14200	15400	8.32%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.50	0.51	0.01	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	8.72	8.84	1.32%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	211	224	5.97%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.74	0.73	1.13%	30%	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.435	0.458	5.14%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	5360	5420	1.04%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	17.0	17.7	4.25%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	7.62	7.82	2.59%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	23.4	25.5	8.23%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	21200	21300	0.708%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	19.3	22.2	13.7%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	12.0	11.4	0.6	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	3060	3140	2.86%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	292	304	4.02%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	1.11	1.09	2.04%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	23.3	23.7	1.72%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	703	688	2.18%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1091496) - continued											
CG2310841-002	Anonymous	Potassium	7440-09-7	E440	100	mg/kg	1590	1730	8.52%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.49	0.49	0.003	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.13	0.13	0.0004	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	<50	52	2	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	13.7	15.6	13.3%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.158	0.164	0.006	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	27.9	31.9	13.4%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.524	0.525	0.195%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	33.0	34.9	5.83%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	98.0	100	2.64%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	4.4	4.0	0.4	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1091530)											
CG2311272-001	Anonymous	F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	<25	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1091529)											
CG2311272-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0040	mg/kg	<0.0040	<0.0040	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	0.012	<0.010	0.002	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1091529) - continued											
CG2311272-001	Anonymous	Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1091534)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1093913)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1094957)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Metals (QCLot: 1091495)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1091496)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1091496) - continued						
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1091536)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1091530)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1091537)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091529)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091529) - continued						
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1091534)									
Moisture	----	E144	0.25	%	50 %	96.5	90.0	110	----
Physical Tests (QCLot: 1091961)									
pH (1:2 soil:water)	----	E108	----	pH units	7 pH units	100	97.0	103	----
Organic / Inorganic Carbon (QCLot: 1093913)									
Carbon, total [TC]	----	E351	0.05	%	48 %	99.1	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1094957)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	96.2	90.0	110	----
Metals (QCLot: 1091495)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	89.0	80.0	120	----
Metals (QCLot: 1091496)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	99.2	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	98.7	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	98.1	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	96.2	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	99.7	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	93.8	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	# 79.2	80.0	120	MES
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	96.2	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	99.3	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	99.5	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	98.0	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	94.8	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	113	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	99.1	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	91.4	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	97.7	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	100	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	97.4	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	96.4	80.0	120	----
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	98.3	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	102	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1091496) - continued									
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	92.6	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	91.0	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	102	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	92.8	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	96.0	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	97.1	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	81.3	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	94.5	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	100	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	97.9	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	101	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	97.5	80.0	120	----
Volatile Organic Compounds (QCLot: 1091536)									
Benzene	71-43-2	E611A	0.005	mg/kg	2.5 mg/kg	97.6	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	2.5 mg/kg	97.1	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	2.5 mg/kg	93.5	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	5 mg/kg	96.0	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	2.5 mg/kg	96.5	70.0	130	----
Hydrocarbons (QCLot: 1091530)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	638.8834 mg/kg	102	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1234.989 mg/kg	93.0	70.0	130	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	1024.127 mg/kg	85.1	70.0	130	----
Hydrocarbons (QCLot: 1091537)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	75.3255 mg/kg	83.5	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091529)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	96.1	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	86.5	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	81.4	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	89.6	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	83.1	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	81.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	84.2	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1091529) - continued									
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	82.6	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	85.3	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	91.6	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	82.5	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	87.9	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	88.6	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	84.6	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	96.7	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	92.1	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	94.4	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	91.4	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	89.7	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	84.6	60.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1091536)										
CG2311250-001	Anonymous	Benzene	71-43-2	E611A		----		60.0	140	----
		Ethylbenzene	100-41-4	E611A		----		60.0	140	----
		Toluene	108-88-3	E611A		----		60.0	140	----
		Xylene, m+p-	179601-23-1	E611A		----		60.0	140	----
		Xylene, o-	95-47-6	E611A		----		60.0	140	----
Hydrocarbons (QCLot: 1091530)										
CG2311272-001	Anonymous	F2 (C10-C16)	----	E601.SG	472 mg/kg	638.8834 mg/kg	92.4	60.0	140	----
		F3 (C16-C34)	----	E601.SG	852 mg/kg	1234.989 mg/kg	86.3	60.0	140	----
		F4 (C34-C50)	----	E601.SG	652 mg/kg	1024.127 mg/kg	79.7	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1091529)										
CG2311272-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.395 mg/kg	0.5 mg/kg	104	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.348 mg/kg	0.5 mg/kg	91.6	50.0	140	----
		Acridine	260-94-6	E641A-L	0.315 mg/kg	0.5 mg/kg	83.0	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.349 mg/kg	0.5 mg/kg	92.0	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.358 mg/kg	0.5 mg/kg	94.5	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.344 mg/kg	0.5 mg/kg	90.8	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.362 mg/kg	0.5 mg/kg	95.5	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.308 mg/kg	0.5 mg/kg	81.3	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.360 mg/kg	0.5 mg/kg	95.0	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.358 mg/kg	0.5 mg/kg	94.5	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.314 mg/kg	0.5 mg/kg	82.8	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.347 mg/kg	0.5 mg/kg	91.5	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.344 mg/kg	0.5 mg/kg	90.8	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.333 mg/kg	0.5 mg/kg	87.7	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.387 mg/kg	0.5 mg/kg	102	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.395 mg/kg	0.5 mg/kg	104	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.390 mg/kg	0.5 mg/kg	103	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.352 mg/kg	0.5 mg/kg	92.9	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.354 mg/kg	0.5 mg/kg	93.3	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.251 mg/kg	0.5 mg/kg	66.2	50.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1091961)									
	RM	pH (1:2 soil:water)	----	E108	8.06 pH units	97.8	96.0	104	----
Organic / Inorganic Carbon (QCLot: 1093913)									
	RM	Carbon, total [TC]	----	E351	1.4 %	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1094957)									
	RM	Carbon, inorganic [IC]	----	E354	0.383 %	108	80.0	120	----
Metals (QCLot: 1091495)									
	RM	Mercury	7439-97-6	E510	0.062 mg/kg	71.0	70.0	130	----
Metals (QCLot: 1091496)									
	RM	Aluminum	7429-90-5	E440	9817 mg/kg	94.3	70.0	130	----
	RM	Antimony	7440-36-0	E440	3.99 mg/kg	99.4	70.0	130	----
	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	96.6	70.0	130	----
	RM	Barium	7440-39-3	E440	105 mg/kg	93.6	70.0	130	----
	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	95.4	70.0	130	----
	RM	Boron	7440-42-8	E440	8.5 mg/kg	81.8	40.0	160	----
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	88.4	70.0	130	----
	RM	Calcium	7440-70-2	E440	31082 mg/kg	89.4	70.0	130	----
	RM	Chromium	7440-47-3	E440	101 mg/kg	94.5	70.0	130	----
	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	99.3	70.0	130	----
	RM	Copper	7440-50-8	E440	123 mg/kg	94.6	70.0	130	----
	RM	Iron	7439-89-6	E440	23558 mg/kg	94.8	70.0	130	----
	RM	Lead	7439-92-1	E440	267 mg/kg	92.6	70.0	130	----
	RM	Lithium	7439-93-2	E440	9.5 mg/kg	91.4	70.0	130	----
	RM	Magnesium	7439-95-4	E440	5509 mg/kg	95.8	70.0	130	----
	RM	Manganese	7439-96-5	E440	269 mg/kg	97.8	70.0	130	----
	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	98.2	70.0	130	----
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	97.3	70.0	130	----
	RM	Phosphorus	7723-14-0	E440	752 mg/kg	96.5	70.0	130	----
	RM	Potassium	7440-09-7	E440	1587 mg/kg	97.0	70.0	130	----

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Metals (QCLot: 1091496) - continued									
	RM	Silver	7440-22-4	E440	4.06 mg/kg	89.5	70.0	130	----
	RM	Sodium	7440-23-5	E440	797 mg/kg	94.6	70.0	130	----
	RM	Strontium	7440-24-6	E440	86.1 mg/kg	93.4	70.0	130	----
	RM	Thallium	7440-28-0	E440	0.0786 mg/kg	96.8	40.0	160	----
	RM	Tin	7440-31-5	E440	10.6 mg/kg	89.7	70.0	130	----
	RM	Titanium	7440-32-6	E440	839 mg/kg	82.1	70.0	130	----
	RM	Uranium	7440-61-1	E440	0.52 mg/kg	102	70.0	130	----
	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	92.1	70.0	130	----
	RM	Zinc	7440-66-6	E440	297 mg/kg	99.1	70.0	130	----
	RM	Zirconium	7440-67-7	E440	5.73 mg/kg	90.1	70.0	130	----

08

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Adrienne Ducharme
Phone:	1-604-297-2030/1-604-296-2689
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: elaine.irving@wsp.com

Email 2: adrienne.ducharme@wsp.com

Email 3: trish.tomliens@wsp.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	
Job #:	GOLD100-028
PO / AFE:	166372402/70000/03
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amber Springer Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Particle Size (S184EA)	Moisture (E1442)	Dry and Grind (EPP442)	TC, TOC, TIC (S351)	Metals + Hg + pH (CA09)	BTEX,F1-F4 (S665A.B)	PAH (E641A-L)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TGT-23	12-AUG-23	15:20	Sediment	6	X	X	X	X	X	X	X			
	SE-1	10-AUG-23	16:30	Sediment	6	X	X	X	X	X	X	X			
	SNE-2	10-AUG-23	14:10	Sediment	6	X	X	X	X	X	X	X			
	SNE-13	10-AUG-23	11:50	Sediment	6	X	X	X	X	X	X	X			
	SW-5	09-AUG-23	11:47	Sediment	6	X	X	X	X	X	X	X			
	SW-6	09-AUG-23	14:41	Sediment	6	X	X	X	X	X	X	X			
	SW-11	11-AUG-23	16:50	Sediment	6	X	X	X	X	X	X	X			
	SW-15	11-AUG-23	15:15	Sediment	6	X	X	X	X	X	X	X			
	SNW-2	11-AUG-23	13:00	Sediment	6	X	X	X	X	X	X	X			
	DUP-C	10-AUG-23	NA	Sediment	6	X	X	X	X	X	X	X			
	SE18-2	9-AUG-23	16:40	Sediment	6	X	X	X	X	X	X	X			
				Sediment											

Environmental Division
Yellowknife
Work Order Reference
YL2301043

Telephone : +1 867 873 5593

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Refer to quote

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments Identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
2.9							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				AUG 14/23	10:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX 3D

Sediment Analytical Results

Appendix 3D - Table 1: Sediment Quality Screening
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqP(@1% TOC)	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15
Date Sampled													10-Aug-2023	17-Aug-2023	05-Aug-2023	05-Aug-2023	06-Aug-2023	22-Aug-2023	18-Aug-2023	17-Aug-2023	15-Aug-2023
Time Sampled													10:30	17:00	11:15	13:30	03:55	16:00	16:30	15:45	15:30
Laboratory Sample ID													YL2301043-002	VA23C0015-007	VA23B8536-001	VA23B8536-002	VA23B8536-003	VA23C0015-020	VA23C0015-009	VA23C0015-006	VA23B9385-007
QA/QC																					
Physical Parameters																					
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	20	25.4	27.8	22.1	28.8	28.2	32.7	23.4	32.8
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.31	8.38	8.09	8.29	8.16	8.33	6.7	7.9	8.25
Particle Size																					
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	5.7	6.8	7	4	7.6	5.8	11.6	9.3	18.7
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	17.9	28.4	23.6	13.8	26.6	21.7	41	34.6	53.2
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	65.9	52.5	58.3	68.9	48.2	46.3	40.3	42.9	26.1
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	10.5	12.3	11.1	13.3	17.6	26.2	7.1	13.2	2
Organic / Inorganic Carbon																					
Inorganic Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	1.57	2.06	2.1	1.7	2.28	1.86	2.36	2.2	2.59
Total Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	2.91	3.54	3.09	2.82	3.34	3.24	4.34	3.44	4.94
Total Organic Carbon	0.164	%	-	-	-	-	-	-	-	-	-	-	1.34	1.48	0.99	1.12	1.06	1.38	1.98	1.24	2.35
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	13	17.2	17.5	14.2	19	15.5	19.7	18.3	21.6
Organic Matter	0.16	%	-	-	-	-	-	-	-	-	-	-	2.31	2.55	1.71	1.93	1.83	2.38	3.41	2.14	4.05
Metals																					
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	3820	5390	3930	2970	4420	5860	8560	6930	11000
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	0.16
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	3.25	3.72	3.33	2.85	3.3	3.78	4.7	4.04	4.14
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	11.7	14.4	11	8.22	11.6	13.7	19.4	15	21.4
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.25	0.33	0.23	0.18	0.25	0.36	0.47	0.36	0.56
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	27.4	35.1	28.5	21.6	31.1	40.1	56.6	41.2	66.3
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	0.028	0.052	0.051	0.025	0.033	0.044	0.057	0.04	0.081
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	46000	62300	47200	41000	47800	57000	75300	59200	90000
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	13.4	15.6	12.6	9.85	14.6	16.4	24.8	20.6	30.2
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	2.31	2.75	2.12	1.68	2.36	2.72	3.79	3.26	4.69
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	4.61	5.43	4.29	3.07	4.5	5.59	8.04	6.54	9.86
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	11400	12500	9400	7380	10000	11100	13000	11200	14600
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	3.85	4.89	3.96	2.73	4.16	5.05	6.92	5.67	8.92
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	16.4	21.1	16.5	12.8	19	21.9	31.5	26.4	41.5
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	25300	32100	25200	18400	26600	28400	41000	38600	54600
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	101	119	89.8	69.5	93	104	142	121	159
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	0.0057	0.0086	0.008	0.0052	0.0088	0.0102	0.0159	0.0114	0.0153
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.37	0.43	0.3	0.25	0.28	0.46	0.63	0.44	1.08
Nickel	0.5	mg/kg	30[a]	50[a]	15	15.9	20.9	47	42.8	51.6	110	-	7.29	8.52	6.7	5.12	7.37	9	13.2	11	**15.7**
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	386	461	363	278	419	389	544	463	520
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	1680	2140	1720	1280	1810	2230	3300	2750	4190
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.29	<0.20	0.3
Silver	0.1	mg/kg	1[a]	2.2[a]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	3650	3340	3530	2700	3820	3660	5730	3690	7770
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	33.6	56.8	29.9	38	32	42.4	54	42.2	58.2
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	<1000	<1000	1000	<1000	1400
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.077	0.088	0.063	0.054	0.069	0.084	0.118	0.102	0.16
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	169	215	182	145	200	226	313	262	380
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.754	0.912	0.594	0.446	0.627	0.781	1.12	0.822	1.34
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	14	18.5	15	11.6	16.2	20.9	28.2	23.8	33.5
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	13.3	15.4	11.6	8.7	12.3	15.3	21.4	16.5	23.5
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	3.5	5.4	3.3	2.7	3.9	6	7.9	7.2	9.8
VOCs																					
Benzene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	0.057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons																					
F1 (C6-C10)	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	30	mg/kg	-	-	-	-	-	-	-	-	-	-	<30	<30	<30	<30	<30	<30	<30	<30	<30
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50
Polycyclinc Aromatic Hydrocarbons																					
Acenaphthene	0.005	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	0.004	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0040	<0.0041	<0.0040	<0.0042	<0.0042	<0.0048	<0.0041	<0.0043
Benz(a)anthracene	0.01	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	0.01	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	0.01	mg/kg	0.31[a]	0.78[a]	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	mg/kg	2.3[a]	4.5[a]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	0.01	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	0.005	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.01	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	0.01	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	0.34[a]	0.88[a]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 1-	0.01	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	0.01	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.01	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.01	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.01	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	0.02	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	0.15	-	-	-	-	-	-	-	-	-	-	-	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	0.14	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidleines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[2] Buchman, MF. 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

[a] CCME Guideline values substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; $CaCO_3$ = calcium carbonate; CCME = Canadian Council of Ministers of the Environment; ISQG = interim sediment quality guidelines; mg/kg = miligram per kilogram; mm= millimetre; NOAA = National Oceanic and Atmospheric Administration; PEL = probable effects levels; REL = Effect Range Low; SWQG = working sediment quality guidelines; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; T50 = Concentrations corresponding to 50% probably of observing toxicity; PEL = Probable Effect Levels; pH = scale of acidity; % - percentage; "-" = no value or no result available

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
Value	Greater than NOAA sediment Benchmarks ERM guideline
Value	Greater than NOAA sediment Benchmarks AET guideline

Appendix 3D - Table 1: Sediment Quality Screening
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqP(@1% TOC)	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled													06-Aug-2023	10-Aug-2023	17-Aug-2023	20-Aug-2023	21-Aug-2023	18-Aug-2023	22-Aug-2023	06-Aug-2023	10-Aug-2023	17-Aug-2023
Time Sampled													10:43	14:10	11:10	12:00	15:15	14:50	14:30	14:00	11:50	13:45
Laboratory Sample ID													VA23B8536-004	YL2301043-003	VA23C0015-004	VA23C0015-012	VA23C0015-017	VA23C0015-008	VA23C0015-019	VA23B8536-005	YL2301043-004	VA23C0015-005
QA/QC													FDA								FDA	
Physical Parameters																						
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	22.8	28.4	17.3	30.1	36	38.7	38.5	37.9	35.1	37.7
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.22	8.24	8.48	8.37	8.16	6.55	7.09	8.19	8.23	8.27
Particle Size																						
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	8.5	9.1	7.5	14.7	19.7	26.3	22.2	25.6	31.1	26.7
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	24.6	24.9	32	42.3	48.1	52.3	50.7	49.8	51.5	56.5
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	56	41.1	51.9	34.2	23.7	18.6	18.3	17	15.8	12.1
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	10.9	24.9	8.6	8.8	8.5	2.8	8.8	7.6	1.6	4.7
Organic / Inorganic Carbon																						
Inorganic Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	2.31	2.22	1.96	2.77	2.71	2.9	2.96	3.53	2.71	3.2
Total Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	3.28	4.32	3.14	4.59	5.02	5.06	5.32	5.29	5.73	5.48
Total Organic Carbon	0.164	%	-	-	-	-	-	-	-	-	-	-	0.97	2.1	1.18	1.82	2.31	2.16	2.36	1.76	3.02	2.28
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	19.2	18.5	16.3	23.1	22.6	24.2	24.7	29.4	22.6	26.6
Organic Matter	0.16	%	-	-	-	-	-	-	-	-	-	-	1.67	3.62	2.03	3.14	3.98	3.72	4.07	3.03	5.21	3.93
Metals																						
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	4030	5990	5360	10400	11200	14000	14600	10800	10500	15700
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	0.1	0.1	0.16	0.19	0.22	0.23	0.19	0.2	0.29
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	3.4	3.94	2.9	5.93	8.11	7.24	10.6	7.91	7.14	9.33
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	12.6	16.5	13.1	23.8	26.8	32.8	38	27.8	28.7	39.4
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.26	0.38	0.32	0.55	0.63	0.68	0.72	0.64	0.67	0.88
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	29.5	41.2	34.7	63.5	75.1	79.2	86	70.5	69.6	95.4
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	0.08	0.058	0.052	0.075	0.121	0.123	0.106	0.107	0.113	0.147
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	60300	65800	72500	89500	94300	95800	98900	91600	82100	119000
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	13.7	19.2	15.4	27.8	30.2	35.6	35.9	29.8	30.3	41.5
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	2.67	3.41	2.83	4.74	5.36	6.2	6.54	5.44	5.67	7.54
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	5.2	7.16	5.73	10.4	12.1	14	22.1	12.3	12.6	17.6
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	10000	12200	10300	15900	18200	20400	21400	18200	18100	24400
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	4.02	5.91	4.81	8.48	9.1	10.9	10.9	9.89	10.3	13.3
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	19.4	24.8	21.4	36.1	44.6	47.3	50.7	47.8	41.2	62.9
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	28200	37000	37600	47100	46300	52000	53200	46800	43300	61100
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	124	141	126	180	190	206	233	200	199	269
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	0.0102	0.01	0.0094	0.0166	0.0186	0.0198	0.023	0.0199	0.017	0.023
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.29	0.32	0.28	0.42	0.54	0.58	0.76	0.49	0.56	0.81
Nickel	0.5	mg/kg	30[a]	50[a]	15	15.9	20.9	47	42.8	51.6	110	-	7.8	10.4	8.87	**15.2**	17.2	20.1	20.5	17	17.1	24.3
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	355	440	429	565	578	608	721	578	588	820
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	1680	2540	2030	4020	4360	5360	5350	4310	4350	5910
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	<0.20	0.23	0.32	0.4	0.5	0.3	0.26	0.37
Silver	0.1	mg/kg	1[a]	2.2[a]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	3270	4670	2790	5780	6640	7390	6650	6390	8820	9060
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	49.6	44.9	48.4	67.8	65	78.2	77.6	58.9	61.8	86.3
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1200
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.066	0.108	0.088	0.151	0.162	0.201	0.195	0.159	0.182	0.234
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	173	216	193	333	341	412	414	313	275	420
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.638	0.809	0.722	1.17	1.34	1.59	1.5	1.35	1.41	1.94
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	16.7	22	18.1	36.2	40.7	47.5	49.3	40.8	40.6	56
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	12	18	13.4	24.6	28.5	33.9	36	30	31.8	43.2
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	3.6	6.1	5	9.5	9.6	12	11.1	8	9.3	13
VOCs																						
Benzene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	0.057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0061	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons																						
F1 (C6-C10)	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	30	mg/kg	-	-	-	-	-	-	-	-	-	-	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Polycyclinc Aromatic Hydrocarbons																						
Acenaphthene	0.005	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0052
Acenaphthylene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0052
Acridine	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	0.004	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0041	<0.0040	<0.0046	<0.0043	<0.0049	<0.0047	<0.0047	<0.0043	<0.0052
Benz(a)anthracene	0.01	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	0.01	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	0.01	mg/kg	0.31[a]	0.78[a]	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	mg/kg	2.3[a]	4.5[a]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	0.01	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	0.005	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0052
Fluoranthene	0.01	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	0.01	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	0.34[a]	0.88[a]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 1-	0.01	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	0.01	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.01	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.01	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.01	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	0.02	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	0.15	-	-	-	-	-	-	-	-	-	-	-	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	0.14	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	0.141
PAHs, total (EPA 16)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidleines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[2] Buchman, MF. 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

[a] CCME Guideline values substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; $CaCO_3$ = calcium carbonate; CCME = Canadian Council of Ministers of the Environment; ISQG = interim sediment quality guidelines; mg/kg = milligram per kilogram; mm= millimetre; NOAA = National Oceanic and Atmospheric Administration; PEL = probable effects levels; REL = Effect Range Low; SWQG = working sediment quality guidelines; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; T50 = Concentrations corresponding to 50% probably of observing toxicity; PEL = Probable Effect Levels; pH = scale of acidity; % - percentage; "-" = no value or no result available

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
Value	Greater than NOAA sediment Benchmarks ERM guideline
Value	Greater than NOAA sediment Benchmarks AET guideline

Appendix 3D - Table 1: Sediment Quality Screening
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqP(@1% TOC)	SNW-1	SNW-2	SNW-3	SNW-4	SNW-5	SNW-7	SNW-9	SNW-11	SNW-13	SNW-15
Date Sampled													04-Aug-2023	11-Aug-2023	16-Aug-2023	20-Aug-2023	21-Aug-2023	22-Aug-2023	16-Aug-2023	13-Aug-2023	13-Aug-2023	07-Aug-2023
Time Sampled													13:30	13:00	16:40	14:40	12:00	11:30	14:55	14:15	11:20	11:30
Laboratory Sample ID													VA23B8536-007	YL2301043-009	VA23C0015-003	VA23C0015-013	VA23C0015-016	VA23C0015-018	VA23C0015-021	VA23B9385-005 FDA	VA23B9385-004	VA23B8538-003
QA/QC																						
Physical Parameters																						
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	20.3	29.9	35.4	28.8	33.1	29.7	32	32.5	26.3	29.8
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.4	8.24	7.71	8.41	7.95	7.98	6.64	8.33	8.31	8.29
Particle Size																						
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	9.4	10.7	16.1	13	19.3	13.8	12.2	21.7	23.5	15.1
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	37.5	34.4	50.6	39.5	49.9	35.9	30.3	43	43.7	31.8
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	45.6	35	28.1	38.3	24.7	39.5	26.2	27.8	22.8	34.2
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	7.5	19.9	5.2	9.2	6.1	10.8	31.3	7.5	10	18.9
Organic / Inorganic Carbon																						
Inorganic Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	2.12	2.33	2.99	2.45	2.73	2.62	2.87	3.05	3.08	3.17
Total Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	4.39	4.71	5.02	4.47	5.18	4.55	4.82	5.04	5.4	4.4
Total Organic Carbon	0.164	%	-	-	-	-	-	-	-	-	-	-	2.27	2.38	2.03	2.02	2.45	1.93	1.95	1.99	2.32	1.23
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	17.7	19.4	25	20.4	22.7	21.9	23.9	25.4	25.7	26.4
Organic Matter	0.16	%	-	-	-	-	-	-	-	-	-	-	3.91	4.1	3.5	3.48	4.22	3.33	3.36	3.43	4	2.12
Metals																						
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	5470	6830	9450	8590	10900	9890	10100	11600	13000	8720
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	0.12	0.13	0.16	0.16	0.16	0.18	0.18	0.2	0.13
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	2.92	9.03	4.9	5.71	6.32	8.82	8.52	6.29	4.96	6.42
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	13.9	20.1	20.9	20	24.1	22.8	25	25.2	27.3	21.5
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.34	0.41	0.51	0.47	0.58	0.5	0.52	0.58	0.67	0.53
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	38.7	45.9	59.5	53.6	66.7	65.3	63.4	69	72.2	60
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	0.068	0.075	0.081	0.09	0.103	0.103	0.112	0.146	0.141	0.091
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	75600	77500	89700	89400	102000	91200	99600	103000	113000	86400
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	18.4	22.4	25	24.4	29.2	26.2	28.5	28.6	31.8	23.7
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	3.29	4.14	4.36	4.36	5.1	4.69	5.2	5.03	5.69	4.28
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	6.61	8.46	9.56	9.71	11.3	10.1	10.9	11.1	12.9	8.9
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	14400	15400	15000	15200	16900	16400	18000	16200	18000	14400
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	4.64	6.3	7.2	7.39	8.52	7.94	8.53	8.97	10.1	7.32
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	24	27.3	37.2	33.2	41.1	37.9	38.2	44.7	49.9	37.7
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	37800	43600	46000	45800	50400	45000	49300	48600	53000	40700
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	127	174	161	155	180	188	191	169	182	166
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	0.008	0.0112	0.0149	0.015	0.0154	0.0155	0.0157	0.0166	0.0172	0.0165
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.44	0.41	0.46	0.43	0.48	0.46	0.47	0.42	0.49	0.38
Nickel	0.5	mg/kg	30[a]	50[a]	15	15.9	20.9	47	42.8	51.6	110	-	10.1	12.3	13.9	14	16.6	14.8	16.4	**15.6**	17.9	13.1
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	344	645	503	478	524	564	525	485	485	474
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	2270	2880	3660	3300	4290	3850	3980	4320	4660	3400
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	0.25	0.21	0.31	0.25	0.27	0.27	0.28	0.21
Silver	0.1	mg/kg	1[a]	2.2[a]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	3000	5560	5040	4380	6560	5310	6690	6340	6400	4660
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	40.7	53.2	58	59.6	72.3	67.7	79.9	66.2	71.8	56.7
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	1000	<1000	<1000	<1000	1100	<1000
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.088	0.121	0.133	0.126	0.154	0.137	0.144	0.16	0.183	0.122
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	247	244	305	281	335	325	294	325	343	297
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.821	0.921	1.08	1.18	1.28	1.18	1.14	1.29	1.54	0.949
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	19.2	26.5	29.6	32.2	37.6	36.2	38.8	37.2	40.2	31.9
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	14.4	19.2	22	22.1	26.2	23.6	26.5	26.1	30.3	21.6
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	5.8	6.3	8.4	8.4	10	8.6	7.5	8.8	10	7.5
VOCs																						
Benzene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	0.057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	*0.032*	<0.015
Toluene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06	<0.050
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons																						
F1 (C6-C10)	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	30	mg/kg	-	-	-	-	-	-	-	-	-	-	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Polycyclinc Aromatic Hydrocarbons																						
Acenaphthene	0.005	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	0.004	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0040	<0.0044	<0.0040	<0.0043	<0.0042	<0.0041	<0.0043	<0.0040	<0.0044
Benz(a)anthracene	0.01	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	0.01	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	0.01	mg/kg	0.31[a]	0.78[a]	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	mg/kg	2.3[a]	4.5[a]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	0.01	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	0.005	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.01	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	0.01	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	0.34[a]	0.88[a]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 1-	0.01	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	0.01	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.01	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.01	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.01	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	0.02	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	0.15	-	-	-	-	-	-	-	-	-	-	-	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	0.14	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidleines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[2] Buchman, MF. 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

[a] CCME Guideline values substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; $CaCO_3$ = calcium carbonate; CCME = Canadian Council of Ministers of the Environment; ISQG = interim sediment quality guidelines; mg/kg = milligram per kilogram; mm= millimetre; NOAA = National Oceanic and Atmospheric Administration; PEL = probable effects levels; REL = Effect Range Low; SWQG = working sediment quality guidelines; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; T50 = Concentrations corresponding to 50% probably of observing toxicity; PEL = Probable Effect Levels; pH = scale of acidity; % - percentage; "-" = no value or no result available

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
Value	Greater than NOAA sediment Benchmarks ERM guideline
Value	Greater than NOAA sediment Benchmarks AET guideline

Appendix 3D - Table 1: Sediment Quality Screening
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqPl(@1% TOC)	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-8	SW-10	SW-11	SW-12	SW-13	SW-15
Date Sampled													07-Aug-2023	16-Aug-2023	04-Aug-2023	07-Aug-2023	09-Aug-2023	09-Aug-2023	14-Aug-2023	13-Aug-2023	11-Aug-2023	20-Aug-2023	13-Aug-2023	11-Aug-2023
Time Sampled													14:10	13:30	16:45	16:05	11:47	14:41	15:28	16:56	16:50	16:30	15:40	15:15
Laboratory Sample ID													VA23B8538-002	VA23C0015-001	VA23B8536-006	VA23B8538-001	YL2301043-005	YL2301043-006	VA23B9385-001	VA23B9385-002	YL2301043-007	VA23C0015-014	VA23B9385-003	YL2301043-008
QA/QC			ISQG	PEL	T_{20}	TEL	ERL	T_{50}	PEL	ERM	AET											FDA		
Physical Parameters																								
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	15.8	15.8	19.9	23.4	26.1	29.8	27.3	20.3	24.5	27.8	25.6	26.2
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.8	7.78	8.54	8.36	8.32	8.22	8.35	8.48	8.74	8.11	8.82	8.29
Particle Size																								
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	<1.0	1.3	1.7	5.8	6.6	8.9	9.6	3.8	1.9	2.2	5.4	6.2
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	2.7	4.5	7	26.6	24.2	32.5	48.8	19.2	11	20.4	41.3	44.4
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	94.4	87.5	90.7	65.7	59.1	53	39.1	76.5	87.1	76.1	51.5	47.3
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	2.9	6.7	<1.0	1.9	10.1	5.6	2.5	<1.0	<1.0	1.3	1.8	2.1
Organic / Inorganic Carbon																								
Inorganic Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	0.926	1.03	0.999	2.25	1.72	1.92	2.38	1.23	1.46	1.88	2.29	1.73
Total Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	1.08	1.38	1.59	3.75	3.66	4.28	5.35	2.92	2.54	3.39	5.29	6.37
Total Organic Carbon	0.164	%	-	-	-	-	-	-	-	-	-	-	<0.164	0.35	0.591	1.5	1.94	2.36	2.97	1.69	1.08	1.51	3	4.64
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	7.72	8.57	8.33	18.8	14.4	16	19.8	10.3	12.2	15.7	19.1	14.4
Organic Matter	0.16	%	-	-	-	-	-	-	-	-	-	-	<0.16	0.6	1.02	2.59	3.34	4.07	5.12	2.91	1.86	2.6	5.17	8
Metals																								
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	1060	1820	2160	3860	4200	4610	6930	3320	1870	3730	5120	4800
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	0.71	1.19	1.93	3.5	4.85	6.23	5.13	2.52	0.84	1.52	2.53	2.79
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	2.49	5.45	6.68	11.4	12.9	15.2	19.3	9.94	5.8	10.2	14	13
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	0.13	0.26	0.27	0.31	0.42	0.21	0.13	0.21	0.31	0.31
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	8.8	11.8	13.7	27.6	30.3	33.3	45.5	22.4	12.7	23.9	36.4	36.6
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	<0.020	<0.020	<0.020	0.027	0.03	0.032	0.052	<0.020	<0.020	<0.020	0.028	<0.020
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	17500	25000	23900	55200	59500	65200	100000	55200	36000	60900	95800	100000
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	3.76	5.86	7.96	14.3	16.3	17.2	23.2	13.5	7.8	14	16.9	17.2
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	0.68	1.12	1.5	2.51	2.94	3.2	4.03	2.3	1.47	2.67	3.41	3.39
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	1.06	1.8	2.22	4.11	5.01	5.44	8.41	4.2	2.33	5.89	6.43	7.83
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	5660	6590	6990	14400	14800	16300	16600	10600	5140	9950	13600	12900
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	0.98	1.35	1.7	3.25	3.88	4.14	5.65	2.8	1.91	2.88	4.25	4.06
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	4.8	7.2	9.5	18	18.5	19.9	30	16.2	9.4	17.8	27.4	27.8
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	9480	11500	12700	28500	32700	36400	53600	27900	18700	31800	51600	55200
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	34	48.8	59.5	110	126	146	170	95.3	64.9	106	165	166
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	<0.0050	<0.0050	<0.0050	0.0082	0.0064	0.0069	0.012	0.005	<0.0050	0.0052	0.0089	0.0064
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.11	0.15	0.18	0.32	0.35	0.38	0.48	0.32	0.13	0.28	0.46	0.41
Nickel	0.5	mg/kg	30[a]	50[a]	15	15.9	20.9	47	42.8	51.6	110	-	1.97	3.43	4.58	7.68	9.01	9.51	12.3	6.79	4.22	8.05	9.12	9.2
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	128	206	224	359	530	656	549	404	209	312	365	436
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	460	810	1080	1640	1870	2060	2680	1370	810	1530	2020	2120
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	0.1	mg/kg	1[a]	2.2[a]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	1040	1510	2550	2820	3720	3980	4370	3230	1110	2870	4320	3420
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	9.99	18.3	15.1	33.2	39.1	45.5	55.3	30.6	20.4	33.7	47.3	51.2
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	<1000	1000	1000	<1000	<1000	<1000	1200	<1000
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	0.052	0.076	0.09	0.091	0.114	0.064	<0.050	0.07	0.09	0.09
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	60.1	104	172	229	212	219	337	198	114	234	273	226
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.19	0.247	0.296	0.552	0.641	0.732	0.899	0.555	0.378	0.56	0.802	0.747
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	4.1	5.9	7.75	14.3	16.8	18.2	25.8	11.8	6.75	12.3	16.3	16
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	4.5	5.6	7.3	11.8	14.6	14.4	18	9.6	5.7	11.7	13.8	13.3
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	1.3	2	2	3.8	3.8	4.2	6.3	3.9	3.2	4.6	5.5	5.8
VOCs																								
Benzene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	0.057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons																								
F1 (C6-C10)	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	30	mg/kg	-	-	-	-	-	-	-	-	-	-	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Polycyclinc Aromatic Hydrocarbons																								
Acenaphthene	0.005	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	0.004	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0041	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	0.01	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	0.01	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	0.01	mg/kg	0.31[a]	0.78[a]	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	mg/kg	2.3[a]	4.5[a]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	0.01	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	0.005	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.01	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	0.01	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	0.34[a]	0.88[a]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 1-	0.01	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	0.01	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.01	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.01	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.01	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	0.02	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	0.15	-	-	-	-	-	-	-	-	-	-	-	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	0.14	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[2] Buchman, MF. 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

[a] CCME Guideline values substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; $CaCO_3$ = calcium carbonate; CCME = Canadian Council of Ministers of the Environment; ISQG = interim sediment quality guidelines; mg/kg = miligram per kilogram; mm= millimetre; NOAA = National Oceanic and Atmospheric Administration; PEL = probable effects levels; REL = Effect Range Low; SWQG = working sediment quality guidelines; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; T50 = Concentrations corresponding to 50% probably of observing toxicity; PEL = Probable Effect Levels; pH = scale of acidity; % - percentage; "-" = no value or no result available

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
Value	Greater than NOAA sediment Benchmarks ERM guideline
Value	Greater than NOAA sediment Benchmarks AET guideline

Appendix 3D - Table 2: Capesize Stations Sediment Quality Screening
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks							Eco Tox EqP(@1% TOC)	SE18-1	SCV-1	SCV-2	SNW-1	SW-1	SW-2	SW-3	SW-4
Date Sampled Time Sampled Laboratory Sample ID QA/QC Parent Sample ID			ISQG	PEL	T_{20}	TEL	ERL	T_{50}	PEL	ERM	AET		05-Aug-2023 16:00 VA23B8536-008	19-Aug-2023 14:20 VA23C0015-010	19-Aug-2023 17:00 VA23C0015-011	04-Aug-2023 13:30 VA23B8536-007	07-Aug-2023 14:10 VA23B8538-002	16-Aug-2023 13:30 VA23C0015-001	04-Aug-2023 16:45 VA23B8536-006	07-Aug-2023 16:05 VA23B8538-001
Physical Parameters																				
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	19.8	29.5	16.4	20.3	15.8	15.8	19.9	23.4
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.54	7.18	8.03	8.4	8.8	7.78	8.54	8.36
Particle Size																				
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	1.7	7.1	1.1	9.4	<1.0	1.3	1.7	5.8
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	4.6	37.7	4.5	37.5	2.7	4.5	7	26.6
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	85.9	45.6	93.7	45.6	94.4	87.5	90.7	65.7
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	7.8	9.6	<1.0	7.5	2.9	6.7	<1.0	1.9
Organic / Inorganic Carbon																				
Inorganic Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	0.875	2.24	0.941	2.12	0.926	1.03	0.999	2.25
Total Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	1.28	4.31	1.34	4.39	1.08	1.38	1.59	3.75
Total Organic Carbon	0.164	%	-	-	-	-	-	-	-	-	-	-	0.405	2.07	0.399	2.27	<0.164	0.35	0.591	1.5
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	7.29	18.6	7.84	17.7	7.72	8.57	8.33	18.8
Organic Matter	0.16	%	-	-	-	-	-	-	-	-	-	-	0.7	3.57	0.69	3.91	<0.16	0.6	1.02	2.59
Metals																				
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	1590	7040	2220	5470	1060	1820	2160	3860
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	1.43	7.91	1.17	2.92	0.71	1.19	1.93	3.5
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	4.22	18.4	6.31	13.9	2.49	5.45	6.68	11.4
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.11	0.4	0.12	0.34	<0.10	<0.10	0.13	0.26
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	11.7	46.1	12.8	38.7	8.8	11.8	13.7	27.6
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	0.034	0.054	<0.020	0.068	<0.020	<0.020	<0.020	0.027
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	21500	86500	24100	75600	17500	25000	23900	55200
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	5.5	22.5	8.57	18.4	3.76	5.86	7.96	14.3
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	1.04	3.68	1.41	3.29	0.68	1.12	1.5	2.51
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	1.99	8.31	1.75	6.61	1.06	1.8	2.22	4.11
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	8420	19000	5870	14400	5660	6590	6990	14400
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	1.41	5.24	1.59	4.64	0.98	1.35	1.7	3.25
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	6.9	27.2	8.1	24	4.8	7.2	9.5	18
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	11400	45800	12600	37800	9480	11500	12700	28500
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	47.3	167	57.2	127	34	48.8	59.5	110
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	<0.0050	0.0116	<0.0050	0.008	<0.0050	<0.0050	<0.0050	0.0082
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.17	0.44	0.15	0.44	0.11	0.15	0.18	0.32
Nickel	0.5	mg/kg	30[(a)]	50[(a)]	15	15.9	20.9	47	42.8	51.6	110	-	3.32	12.2	4.6	10.1	1.97	3.43	4.58	7.68
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	181	642	177	344	128	206	224	359
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	700	2810	1040	2270	460	810	1080	1640
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	0.1	mg/kg	1[(a)]	2.2[(a)]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	2210	4270	1560	3000	1040	1510	2550	2820
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	13.3	54.3	16.5	40.7	9.99	18.3	15.1	33.2
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	0.105	<0.050	0.088	<0.050	<0.050	0.052	0.076
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	87	302	162	247	60.1	104	172	229
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.285	0.864	0.304	0.821	0.19	0.247	0.296	0.552
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	6.11	24.2	7.2	19.2	4.1	5.9	7.75	14.3
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	5.2	19	7.4	14.4	4.5	5.6	7.3	11.8
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	1.6	6.8	2.5	5.8	1.3	2	2	3.8
BTEX																				
Benzene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	0.06	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Volatile Organic Compounds																				
Chlorobenzene	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,3-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,4-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropane, 1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, cis+trans-1,3-	0.075	mg/kg	-	-	-	-	-	-	-	-	-		<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Dichloropropylene, cis-1,3-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Appendix 3D - Table 2: Capesize Stations Sediment Quality Screening
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks							Eco Tox EqP(@1% TOC)	SE18-1	SCV-1	SCV-2	SNW-1	SW-1	SW-2	SW-3	SW-4
Date Sampled Time Sampled Laboratory Sample ID QA/QC Parent Sample ID			ISQG	PEL	T_{20}	TEL	ERL	T_{50}	PEL	ERM	AET		05-Aug-2023 16:00 VA23B8536-008	19-Aug-2023 14:20 VA23C0015-010	19-Aug-2023 17:00 VA23C0015-011	04-Aug-2023 13:30 VA23B8536-007	07-Aug-2023 14:10 VA23B8538-002	16-Aug-2023 13:30 VA23C0015-001	04-Aug-2023 16:45 VA23B8536-006	07-Aug-2023 16:05 VA23B8538-001
Volatile Organic Compounds [Drycleaning]																				
Carbon tetrachloride	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,1-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,1-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.065	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, cis-1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, trans-1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloromethane	0.045	mg/kg	-	-	-	-	-	-	-	-	-		<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045
Dichloropropylene, trans-1,3-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,1-	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.01	mg/kg	-	-	-	-	-	-	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Volatile Organic Compounds [THMs]																				
Bromodichloromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hydrocarbons																				
F1 (C6-C10)	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	30	mg/kg	-	-	-	-	-	-	-	-	-	-	<30	<30	<30	<30	<30	<30	<30	<30
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50
Polycyclinc Aromatic Hydrocarbons																				
Acenaphthene	0.005	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	0.004	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0046	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	0.01	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	0.01	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	0.01	mg/kg	0.31[(a)]	0.78[(a)]	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	mg/kg	2.3[(a)]	4.5[(a)]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	0.01	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	0.005	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.01	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	0.01	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	0.34[(a)]	0.88[(a)]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Methylnaphthalene, 1-	0.01	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	0.01	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.01	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.01	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.01	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	0.02	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	0.15	-	-	-	-	-	-	-	-	-	-	-	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
IACR AB (coarse)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
IACR AB (fine)	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
PAHs, total (BC Sched 3.4)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
PAHs, total (EPA 16 - DAS)	0.14	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140	<0.140
PAHs, total (EPA 16)	0.04	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidleines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[(a)CCME] Guideline values substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; CCME = Canadian Council of Miniters of the Environment; ISQG = interim sediment quality guidelines; mg/kg = miligram per kilogram; NOAA = National Oceanic and Atmospheric Administration; PEL = probable effects levels; REL = Effect Range Low; SWQG = working sediment quality guidelines; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; T50 = Concentrations corresponding to 50% probably of observing toxicity; PEL = Probable Effect Levels; pH = scale of acidity; % - percentage; "-" = no value or no result available

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
Value	Greater than NOAA sediment Benchmarks ERM guideline
Value	Greater than NOAA sediment Benchmarks AET guideline

APPENDIX 3E

Sediment QA/QC Results

Sample ID			SE-1	DUP-A-23		SNE-13	DUP-C		SNW-11	DUP-D-23		SW-12	DUP-E-23	
Date Sampled		Lowest	10-Aug-2023	06-Aug-2023	Calculated RPD	10-Aug-2023	10-Aug-2023	Calculated RPD	13-Aug-2023	13-Aug-2023	Calculated RPD	20-Aug-2023	20-Aug-2023	Calculated RPD
Time Sampled		Detection	10:30	00:00	(%)	11:50	00:00	(%)	14:15	00:00	(%)	16:30	16:30	(%)
Laboratory Sample ID	Units	Limits	YL2301043-002	VA23B8536-010		YL2301043-004	YL2301043-010		VA23B9385-005	VA23B9385-006		VA23C0015-014	VA23C0015-015	
QA/QC			FDA	FD		FDA	FD		FDA	FD		FDA	FD	
Physical Parameters														
Moisture	%	0.25	20.0	22.2	10%	35.1	36.8	5%	32.5	30.7	6%	27.8	18.7	39%
pH (1:2 soil:water)	pH Units	0.1	8.31	8.34	0%	8.23	8.25	0%	8.33	8.29	0%	8.11	8.28	2%
Particle Size														
Clay (<0.004mm)	%	1	5.7	7.7	30%	31.1	27.6	12%	21.7	22.2	2%	2.2	2.1	NA
Silt (0.063mm - 0.004mm)	%	1	17.9	23.1	25%	51.5	47.5	8%	43	43.3	1%	20.4	19.7	3%
Sand (2.0mm - 0.063mm)	%	1	65.9	54.8	18%	15.8	17.2	8%	27.8	24.9	11%	76.1	74.9	2%
Gravel (>2mm)	%	1	10.5	14.4	31%	1.6	7.7	**131%**	7.5	9.6	25%	1.3	3.3	NA
Organic / Inorganic Carbon														
Carbon, inorganic	%	0.05	1.570	2.330	39%	2.71	2.39	13%	3.05	3.04	0%	1.88	1.76	7%
Carbon, total	%	0.05	2.91	3.27	12%	5.73	5.26	9%	5.04	5.03	0%	3.39	3.36	1%
Carbon, total organic	%	0.16	1.340	0.940	35%	3.02	2.87	5%	1.99	1.99	0%	1.51	1.6	6%
Carbon, inorganic (as CaCO3 equivalent)	%	0.4	13.00	19.40	40%	22.6	19.9	13%	25.4	25.3	0%	15.7	14.7	7%
Organic matter	%	0.2	2.31	1.62	35%	5.21	4.95	5%	3.43	3.43	0%	2.6	2.76	6%
Metals														
Aluminum	mg/kg	50	3820	4440	15%	10500	10200	3%	11600	12000	3%	3730	3480	7%
Antimony	mg/kg	0.1	<0.10	<0.10	NA	0.2	0.2	NA	0.18	0.18	NA	<0.10	<0.10	NA
Arsenic	mg/kg	0.1	3.25	3.04	7%	7.14	7.39	3%	6.29	6.38	1%	1.52	1.31	15%
Barium	mg/kg	0.5	11.7	11.80	1%	28.7	29.1	1%	25.2	26.2	4%	10.2	9.53	7%
Beryllium	mg/kg	0.1	0.25	0.28	NA	0.67	0.61	9%	0.58	0.64	10%	0.21	0.21	NA
Bismuth	mg/kg	0.2	<0.20	<0.20	NA	<0.20	<0.20	NA	<0.20	<0.20	NA	<0.20	<0.20	NA
Boron	mg/kg	5	27.4	32.1	16%	69.6	63.5	9%	69	72.8	5%	23.9	23.1	NA
Cadmium	mg/kg	0.02	0.028	0.04	NA	0.113	0.099	13%	0.146	0.135	8%	<0.020	<0.020	NA
Calcium	mg/kg	50	46000	56300	20%	82100	77500	6%	103000	107000	4%	60900	57800	5%
Chromium	mg/kg	0.5	13.4	13.50	1%	30.3	29.2	4%	28.6	29.7	4%	14	11.9	16%
Cobalt	mg/kg	0.1	2.31	2.32	0%	5.67	5.51	3%	5.03	5.22	4%	2.67	2.41	10%
Copper	mg/kg	0.5	4.61	4.74	3%	12.6	12.2	3%	11.1	11.4	3%	5.89	4.27	32%
Iron	mg/kg	50	11400	9640	17%	18100	17800	2%	16200	16700	3%	9950	9240	7%
Lead	mg/kg	0.5	3.85	4.09	6%	10.3	9.61	7%	8.97	9.36	4%	2.88	2.73	5%
Lithium	mg/kg	2	16.4	19.7	18%	41.2	38.4	7%	44.7	46.7	4%	17.8	16.5	8%
Magnesium	mg/kg	20	25300	28500	12%	43300	42400	2%	48600	50300	3%	31800	27700	14%
Manganese	mg/kg	1	101.0	94.6	7%	199	199	0%	169	172	2%	106	97.8	8%
Mercury	mg/kg	0.005	0.01	0.01	NA	0.017	0.0142	NA	0.0166	0.0174	NA	0.0052	<0.0050	NA
Molybdenum	mg/kg	0.1	0.37	0.28	NA	0.56	0.55	2%	0.42	0.48	NA	0.28	0.29	NA
Nickel	mg/kg	0.5	7.3	7.25	1%	17.1	16.7	2%	15.6	16.3	4%	8.05	6.76	17%
Phosphorus	mg/kg	50	386	305	23%	588	588	0%	485	515	6%	312	241	26%
Potassium	mg/kg	100	1680	1870	11%	4350	4200	4%	4320	4520	5%	1530	1450	5%
Selenium	mg/kg	0.2	<0.20	<0.20	NA	0.26	0.28	NA	0.27	0.28	NA	<0.20	<0.20	NA
Silver	mg/kg	0.1	<0.10	<0.10	NA	<0.10	<0.10	NA	<0.10	<0.10	NA	<0.10	<0.10	NA
Sodium	mg/kg	50	3650	3190	13%	8820	8800	0%	6340	8340	27%	2870	2080	32%
Strontium	mg/kg	0.5	33.6	33.3	1%	61.8	60.6	2%	66.2	70	6%	33.7	34.8	3%
Sulfur	mg/kg	1000	<1000	<1000	NA	<1000	<1000	NA	<1000	1200	NA	<1000	<1000	NA
Thallium	mg/kg	0.05	0.077	0.07	NA	0.182	0.173	NA	0.16	0.17	NA	0.07	0.067	NA
Tin	mg/kg	2	<2.0	<2.0	NA	<2.0	<2.0	NA	<2.0	<2.0	NA	<2.0	<2.0	NA
Titanium	mg/kg	1	169	186	10%	275	246	11%	325	342	5%	234	220	6%
Tungsten	mg/kg	0.5	<0.50	<0.50	NA	<0.50	<0.50	NA	<0.50	<0.50	NA	<0.50	<0.50	NA
Uranium	mg/kg	0.05	0.75	0.613	21%	1.41	1.27	10%	1.29	1.35	5%	0.56	0.536	4%
Vanadium	mg/kg	0.2	14.0	16.80	18%	40.6	39	4%	37.2	38.1	2%	12.3	11.2	9%
Zinc	mg/kg	2	13.3	11.4	15%	31.8	31.5	1%	26.1	27.7	6%	11.7	9.9	17%
Zirconium	mg/kg	1	3.5	4.5	NA	9.3	8.4	10%	8.8	10.1	14%	4.6	4.8	NA
VOCs														
Benzene	mg/kg	0.0050	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA
Ethylbenzene	mg/kg	0.015	<0.015	<0.015	NA	<0.015	<0.015	NA	<0.015	<0.015	NA	<0.015	<0.015	NA
Toluene	mg/kg	0.050	<0.050	<0.050	NA	<0.050	<0.050	NA	<0.050	<0.050	NA	<0.050	<0.050	NA
Xylene, m+p-	mg/kg	0.050	<0.050	<0.050	NA	<0.050	<0.050	NA	<0.050	<0.050	NA	<0.050	<0.050	NA
Xylene, o-	mg/kg	0.050	<0.050	<0.050	NA	<0.050	<0.050	NA	<0.050	<0.050	NA	<0.050	<0.050	NA
Xylenes, total	mg/kg	0.075	<0.075	<0.075	NA	<0.075	<0.075	NA	<0.075	<0.075	NA	<0.075	<0.075	NA
Petroleum Hydrocarbons														
F1 (C6-C10)	mg/kg	5.0	<5.0	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0	NA
F1-BTEX	mg/kg	5.0	<5.0	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0	NA	<5.0	<5.0	NA
F2 (C10-C16)	mg/kg	30	<30	<30	NA	<30	<30	NA	<30	<30	NA	<30	<30	NA
F3 (C16-C34)	mg/kg	50	<50	<50	NA	<50	<50	NA	<50	<50	NA	<50	<50	NA
F4 (C34-C50)	mg/kg	50	<50	<50	NA	<50	<50	NA	<50	<50	NA	<50	<50	NA
Polycyclic Aromatic Hydrcarbons														
Acenaphthene	mg/kg	0.0050	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA
Acenaphthylene	mg/kg	0.0050	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA
Acridine	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Anthracene	mg/kg	0.0040	<0.0040	<0.0040	NA	<0.0043	<0.0044	NA	<0.0043	<0.0042	NA	<0.0040	<0.0040	NA
Benz(a)anthracene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Benzo(a)pyrene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Benzo(b+j)fluoranthene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Benzo(b+j+k)fluoranthene	mg/kg	0.015	<0.015	<0.015	NA	<0.015	<0.015	NA	<0.015	<0.015	NA	<0.015	<0.015	NA
Benzo(g,h,i)perylene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Benzo(k)fluoranthene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Chrysene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Dibenz(a,h)anthracene	mg/kg	0.0050	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA	<0.0050	<0.0050	NA
Fluoranthene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Fluorene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Indeno(1,2,3-c,d)pyrene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Methylnaphthalene, 1+2-	mg/kg	0.015	<0.015	<0.015	NA	<0.015	<0.015	NA	<0.015	<0.015	NA	<0.015	<0.015	NA
Methylnaphthalene, 1-	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Methylnaphthalene, 2-	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Naphthalene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Phenanthrene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Pyrene	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
Quinoline	mg/kg	0.010	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA	<0.010	<0.010	NA
B(a)P total potency equivalents [B(a)P TPE]	mg/kg	0.020	<0.020	<0.020	NA	<0.020	<0.020	NA	<0.020	<0.020	NA	<0.020	<0.020	NA
IACR (CCME)	-	0.150	<0.150	<0.150	NA	<0.150	<0.150	NA	<0.150	<0.150	NA	<0.150	<0.150	NA
IACR AB (coarse)	-	0.10	<0.10	<0.10	NA	<0.10	<0.10	NA	<0.10	<0.10	NA	<0.10	<0.10	NA
IACR AB (fine)	mg/kg	0.10	<0.10	<0.10	NA	<0.10	<0.10	NA	<0.10	<0.10	NA	<0.10	<0.10	NA
PAHs, total (BC Sched 3.4)	mg/kg	0.040	<0.040	<0.040	NA	<0.040	<0.040	NA	<0.040	<0.040	NA	<0.040	<0.040	NA
PAHs, total (EPA 16 - DAS)	mg/kg	0.140	<0.140	<0.140	NA	<0.140	<0.140	NA	<0.140	<0.140	NA	<0.140	<0.140	NA
PAHs, total (EPA 16)	mg/kg	0.040	<0.040	<0.040	NA	<0.040	<0.040	NA	<0.040	<0.040	NA	<0.040	<0.040	NA

Notes

$CaCO_3$ = calcium carbonate, CCME = Canadian Council of Miniters of the Environment; DAS = Disposal at Sea; FDA = field duplicate available; IACR = index of additive cancer risk; ID = identification; mg/kg = miligram per kilogram; mm = millimetre; NA = not applicable; PAH = Polycyclic Aromatic Hydrocarbons; QA/QC = quality assurance / quality control; RPD = Relative Percent Difference; % = percent, < = below detection limit; > = greater than; - = no data

Bold values indicate an exceedance of the acceptable RPD of 50%.

Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavet, 2023

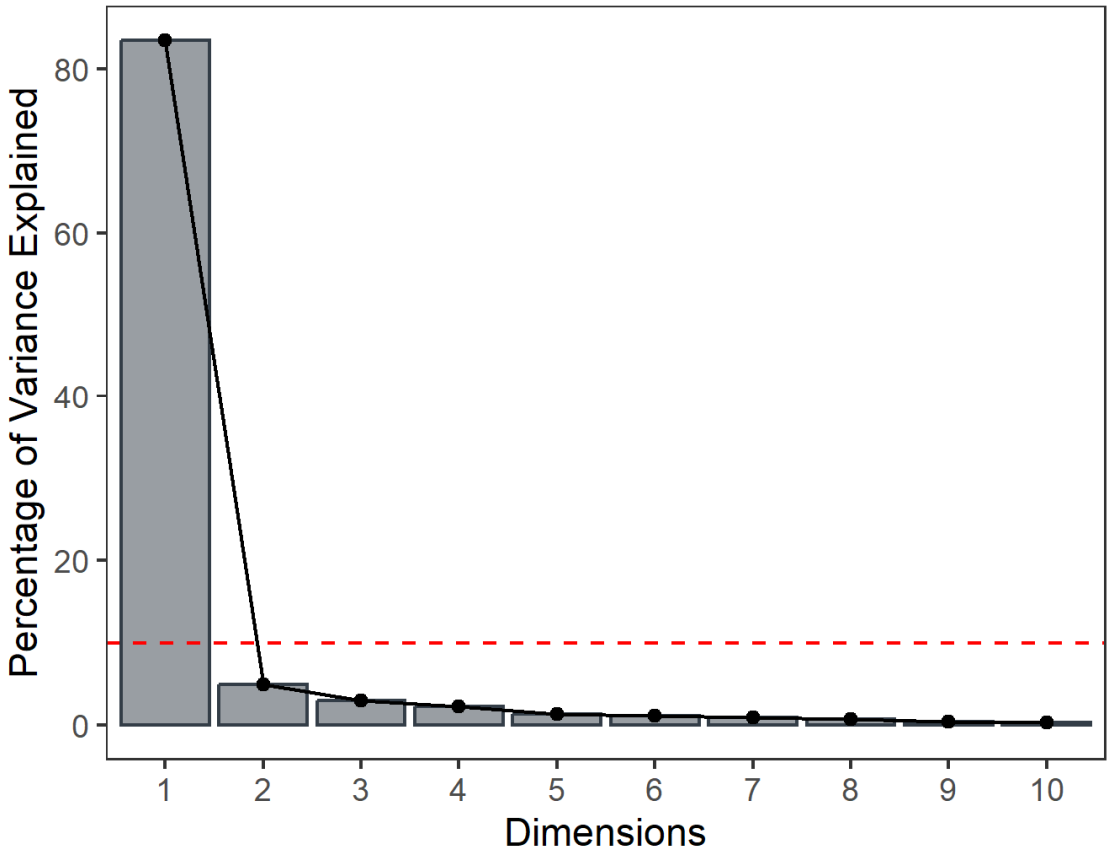
Analysis	Hold Times - Extraction	Actual (Range)	Hold Times - Analysis	Actual (Range)	Hold Times Exceedances
pH	30 days	6 days - 14 days	30 days	6 days - 14 days	None
Moisture Content	n/a	n/a	0 days	7 days - 13 days	None
Organic/Inorganic Carbon	n/a	n/a	0 days	0 days - 14 days	None
Mercury in Soil/Sediment	28 days	6 days - 14 days	28 days	6 days - 15 days	None
Metals in Soil/Sediment	180 days	6 days - 14 days	180 days	6 days - 16 days	None
Hydrocarbons: PHC F2-F4	14 days	6 days - 13 days	40 days	1 days - 11 days	None
Hydrocarbons: VH and F1	40 days	6 days to 24 days	40 days	6 days to 24 days	None
Polycyclic Aromatic Hydrocarbons	14 days	6 days - 13 days	40 days	1 days - 4 days	None
Volatile Organic Compounds: BTEX	40 days	6 days to 24 days	40 days	6 days to 24 days	None

APPENDIX 3F

Sediment PCA Results

Appendix 3F – Sediment Quality Principal Component Analysis

Screen Plot



Appendix 3F – Sediment Quality Principal Component Analysis

Eigenvalues

Principal Component	Eigenvalue	Percentage of Total Variance Explained	Cumulative Percentage of Variance
Component 1	30.14	83.49	83.5
Component 2	1.77	4.91	88.4
Component 3	1.09	3.01	91.4
Component 4	0.80	2.21	93.6
Component 5	0.50	1.38	95.0
Component 6	0.42	1.16	96.2
Component 7	0.35	0.97	97.1
Component 8	0.26	0.72	97.9
Component 9	0.16	0.45	98.3
Component 10	0.11	0.30	98.6
Component 11	0.11	0.29	98.9
Component 12	0.085	0.24	99.1
Component 13	0.067	0.18	99.3
Component 14	0.056	0.15	99.5
Component 15	0.036	0.10	99.6
Component 16	0.032	0.089	99.7
Component 17	0.024	0.067	99.7
Component 18	0.021	0.059	99.8
Component 19	0.017	0.047	99.8
Component 20	0.013	0.037	99.9
Component 21	0.011	0.031	99.9
Component 22	0.0088	0.024	99.9
Component 23	0.0079	0.022	100
Component 24	0.0048	0.013	100
Component 25	0.0033	0.0093	100
Component 26	0.0027	0.0074	100
Component 27	0.0017	0.0046	100
Component 28	0.0014	0.0039	100
Component 29	0.00084	0.0023	100
Component 30	0.00066	0.0018	100
Component 31	0.00025	0.00069	100
Component 32	0.00023	0.00064	100
Component 33	0.00018	0.00049	100
Component 34	0.00016	0.00045	100
Component 35	0.000084	0.00023	100
Component 36	0.0000054	0.000015	100
Component 37	0.000000054	0.00000015	100

Appendix 3F – Sediment Quality Principal Component Analysis

Correlations between variables and principal components

Variable	PC1		PC2	
	Correlation (R)	*P*-value	Correlation (R)	*P*-value
pH	-0.44	**0.004**	0.41	**0.008**
Moisture (%)	0.87	**<0.001**	-0.063	0.694
Clay (%)	0.93	**<0.001**	-0.081	0.615
Silt (%)	0.91	**<0.001**	0.33	**0.038**
Sand (%)	-0.96	**<0.001**	0.0088	0.957
Gravel (%)	0.06	0.696	-0.59	**<0.001**
Total Carbon	0.86	**<0.001**	0.42	**0.007**
Inorganic Carbon	0.90	**<0.001**	-0.10	0.550
Total Organic Carbon (TOC)	0.59	**<0.001**	0.70	**<0.001**
Aluminum	0.98	**<0.001**	-0.11	0.491
Arsenic	0.86	**<0.001**	-0.22	0.175
Barium	0.98	**<0.001**	-0.10	0.545
Beryllium	0.99	**<0.001**	-0.063	0.694
Boron	0.99	**<0.001**	-0.083	0.605
Cadmium	0.89	**<0.001**	-0.24	0.124
Calcium	0.91	**<0.001**	0.28	0.073
Chromium	1.00	**<0.001**	-0.023	0.887
Cobalt	0.99	**<0.001**	0.0057	0.972
Copper	0.96	**<0.001**	-0.036	0.822
Iron	0.94	**<0.001**	0.086	0.591
Lead	0.98	**<0.001**	-0.12	0.456
Lithium	0.99	**<0.001**	0.00083	0.996
Magnesium	0.90	**<0.001**	0.35	**0.025**
Manganese	0.96	**<0.001**	0.13	0.409
Mercury	0.95	**<0.001**	-0.21	0.193
Molybdenum	0.81	**<0.001**	0.16	0.321
Nickel	0.99	**<0.001**	-0.048	0.768
Phosphorus	0.88	**<0.001**	0.043	0.787
Potassium	0.99	**<0.001**	-0.10	0.534
Sodium	0.94	**<0.001**	-0.039	0.808
Strontium	0.95	**<0.001**	-0.023	0.886
Thallium	0.98	**<0.001**	-0.051	0.751
Titantium	0.95	**<0.001**	0.092	0.569
Uranium	0.98	**<0.001**	-0.020	0.903
Vanadium	0.98	**<0.001**	-0.15	0.361
Zinc	0.98	**<0.001**	-0.11	0.476
Zirconium	0.97	**<0.001**	-0.0038	0.981

APPENDIX 3G

Power Analysis

POWER ANALYSIS - METHODS

A Type I error is concluding there is a significant effect when none exists (i.e., a false positive). Alpha (α) is the probability of committing a Type I error. A Type II error is the probability of concluding there is no significant effect when there is a real effect of some specified magnitude (i.e., a false negative). Beta (β) is the probability of committing a Type II error. The power of a statistical test (1 - β) is the probability of detecting a real effect. In this analysis, the Type I error-rate (α), also referred to as the significance level, was set to 0.05. The desired minimum statistical power was 80%, which corresponds to a type II error-rate of 0.2. Power analyses were conducted to assess the power of statistical tests under multiple effect sizes. For each model, a set of effect sizes was created, based on preliminary power analyses, so that power >80% was achieved at the largest absolute values of effect sizes, but also so that power is assessed at a range of effect sizes. Both negative and positive effect sizes were used, to assess the power of detecting either a reduction or an increase in values of the response variables. Since the analysis focused on assessment of changes to statistical power at different effect sizes, the power analysis used the observed samples sizes from the collected data.

Data Simulation following Effect Size Application

The power to detect statistically significant effects was estimated using residual bootstrapping in R v. 4.3.2 (R 2023), following the approach of Fox and Weisberg (2018). The general approach was to simulate data based on the model selected for interpretation, the observed sample size, and the residuals, and re-run the models that were used for the original analysis using the simulated data. The data simulation and analysis were repeated 5,000 times, and the proportion of repetitions where the *P*-values of interest were significant ($P<0.05$) was interpreted as the statistical power of the test.

To produce simulated data, the original model was used to predict values of the response variable. The predicted values were then adjusted according to the effect size, depending on the analysis (see below for details). The simulated data were then analyzed using the same model structure as the original analysis. Effect sizes and statistical tests were applied differently to different models, as detailed below.

Effect Sizes

In this power analysis, the question of interest was the models' power to detect between-year differences at various distances within transect, as well as the power to detect a significant trend over time along each transect.

To assess the power to detect spatial trends, the effect size was applied linearly, where the first sampling station in each transect had the full effect size, whereas the last sampling station along the transect had an effect size of zero. This simulated the expected distribution, where disturbance was highest in close proximity to the ore dock. The effect sizes were calculated relative to the observed values at maximum distance along each transect, since it was assumed that at the end of each transect, disturbance was minimal. The effect size was only applied to 2023 data, whereas all data collected previously only had an effect size of zero. This allowed assessing what effect size, relative to the values in low-disturbance portion of each transect, the model would be able to identify. The effect size was applied up to a distance of 1,000 m from transect origin, such that at the beginning of the transect, the effect size was applied fully, decreasing linearly with distance until reaching 0% effect size at a distance of 1,000 m. This distance was selected as a previous assessment of ship wake and propeller wash indicated that sediment scouring and deposition would be limited to less than 1,000 m from the dock (Golder 2018). An example

of the effect size application to the Post-2018 Dataset (i.e., 2019, 2020, and 2023) for fines content is provided in Figure 3G-1.

To assess the power to detect between-year differences, the effect size was applied differently than for the effect of distance. Specifically, the effect size was also applied linearly relative to distance from transect origin, and it was also only applied to 2023 data. However, the effect size was calculated relative to the values observed in the previous sampling year (i.e., 2020). This allowed assessing what effect size, relative to the previous sampling year, the model would be able to identify.

The simulated data based on effect sizes applied to values of the response variable from 2023 were combined with simulated data from previous years (with an effect size of zero). This combined dataset was analyzed using the models from the original analysis in the main report.

To estimate the power to detect a spatial effect, the significance of the spatial trend in 2023 was assessed at 500 m and 700 m from transect origin (for Northeast Transect) and at 250 m and 500 m from transect origin (for all other transects) using the package emmeans (Lenth 2019), and the minimum *P*-values for the trend across both distances were retained. The use of two distances per transect allowed the estimation of power to detect at least one significant spatial trend per transect. The proportion of repetitions with *P*-values less than 0.05 was interpreted as the statistical power to detect a spatial effect.

Power to detect a temporal effect differed between analyses that used year as a continuous variable and those that used year as a categorical variable. For analyses that used year as a continuous variable (fines content and iron concentrations from the Entire Dataset [2014-2020, and 2023]), the significance of the trend at a value of 2022.5 (i.e., half a year prior to the 2023 sampling) was assessed at 500 m from transect origin using the package emmeans (Lenth 2019), and the *P*-values for the trend at each distance were retained. This time was selected to represent the period between the previous and current sampling years. The proportion of repetitions with *P*-values less than 0.05 was interpreted as the statistical power to detect a temporal effect. For analyses that used year as a categorical variable (fines content and iron concentrations from the Post-2018 Dataset), the significance of the difference between 2023 and 2022 was assessed at 500 m from transect origin, and the *P*-value for the comparison was retained. For each effect size, the proportion of repetitions with *P*-values less than 0.05 at each transect was interpreted as the statistical power to detect a year effect. This analysis assessed how much higher or lower the 2023 values would have to be to detect a significant difference relative to the previous sampling year.

Power Analysis – Reporting of Results

Power curves were produced, showing statistical power as a function of effect size in percentages. Horizontal lines were added to visualize statistical power values of 0.8 (hereafter sufficient power) and 0.9 (hereafter high power), and a vertical line was added to visualize the magnitude of difference (or the slope value, for continuous predictor variables) that was observed in the original analysis.

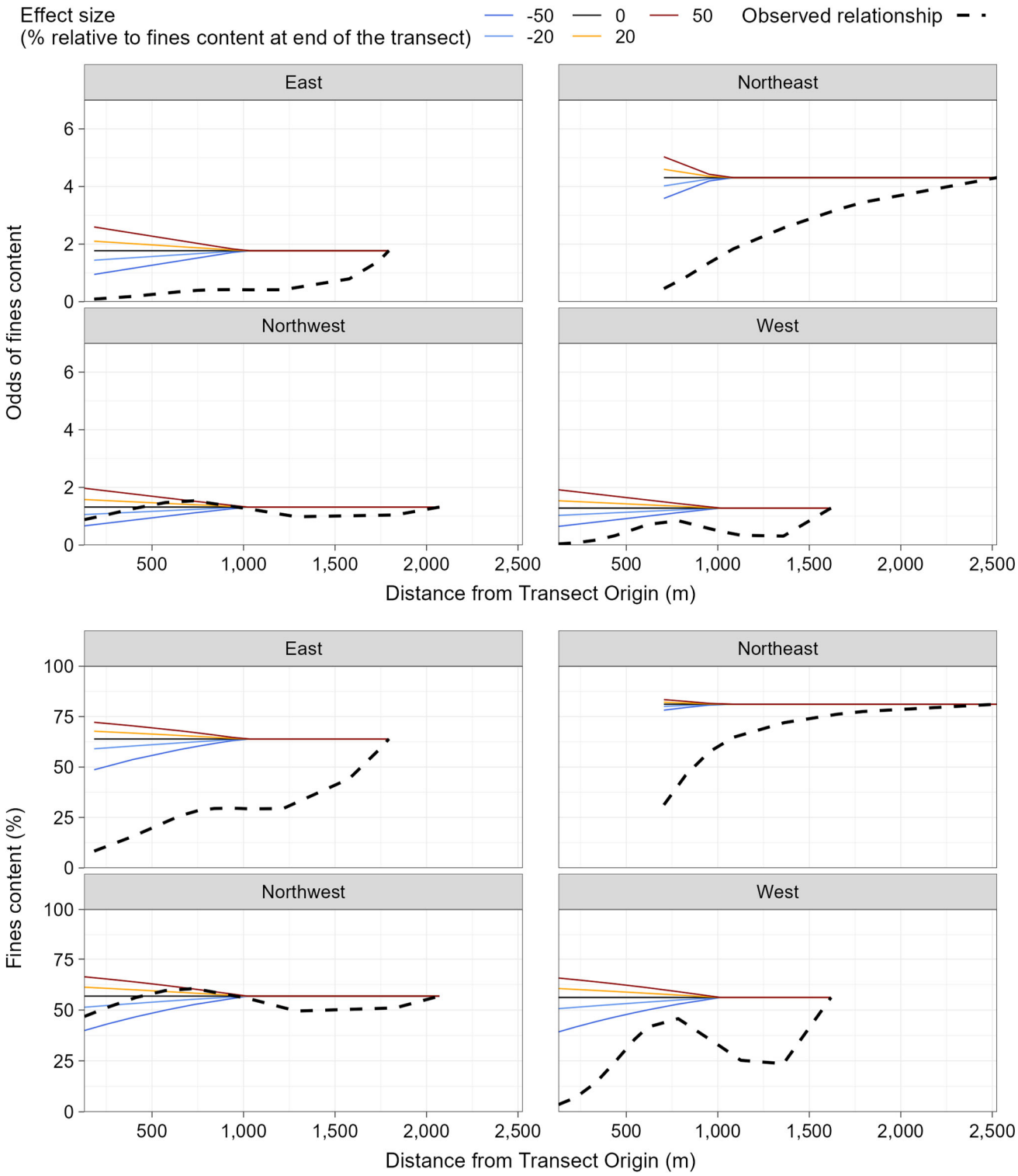


Figure 3G-1: Application of effect sizes to examine effect of distance in fines (2019-2023 percent fines model), illustrating how effect sizes applied on the odds scale (top) are affected by the bounding of fines content by 0% and 100% once effect sizes are expressed on the percent scale (bottom).

POWER ANALYSIS – RESULTS

Sediment Quality – Percent Fines in Post-2018 Dataset

The power analysis indicated that the analysis of percent fines data collected in the Post-2018 Dataset had sufficient power (>0.8) to detect a spatial effect of scouring (i.e., decrease in fines content) at effect sizes of -65%, -70%, -70%, and -65% for the East, Northeast, Northwest, and West transects, respectively (Figure 3G-2). Most observed effect sizes in 2023 ranged from -94% (East Transect) to -90% (Northeast Transect), with the exception of the Northwest Transect, where observed effect size was -21%. Since most observed effect sizes were larger than the effect sizes required for sufficient power, the model had high power (>0.9) to detect the observed effect sizes for all transects except the Northwest Transect. This is consistent with the finding of a significant two-way interaction between distance and transect in the original analysis of percent fines (P<0.001; Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]). The model had low power to detect increases in fines in the proximity to transect origins. Since all transects had lower fines content close to transect origins when compared to the end of the transects (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]), the statistical power to detect scouring, rather than deposition, was considered to be more relevant.

For the temporal effects, the model had sufficient power (>0.8) to detect a temporal effect of scouring at effect sizes ranging between -85% (East Transect) and -55% (Northeast Transect) and an increase in fines content ranging between 100% (Northwest and West transects) and 150% (East, Northeast transects; Figure 3G-2). That is, the model had higher power to detect a decrease in fines content between 2020 and 2023. Power was higher for the analysis to detect an increase in fines over time compared to a spatial increase in fines. Observed effect sizes ranged from -36% (West Transect) to +27% (Northwest Transect). Statistical power to detect observed effect sizes was low, which is consistent with lack of significance of all year effect terms in the original analysis of percent fines (P>0.1 for all; Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]).

Overall, power to detect observed spatial trends was high, whereas power to detect observed temporal trends was low, which is consistent with the absolute values of observed temporal effects being smaller than those of the spatial effects.

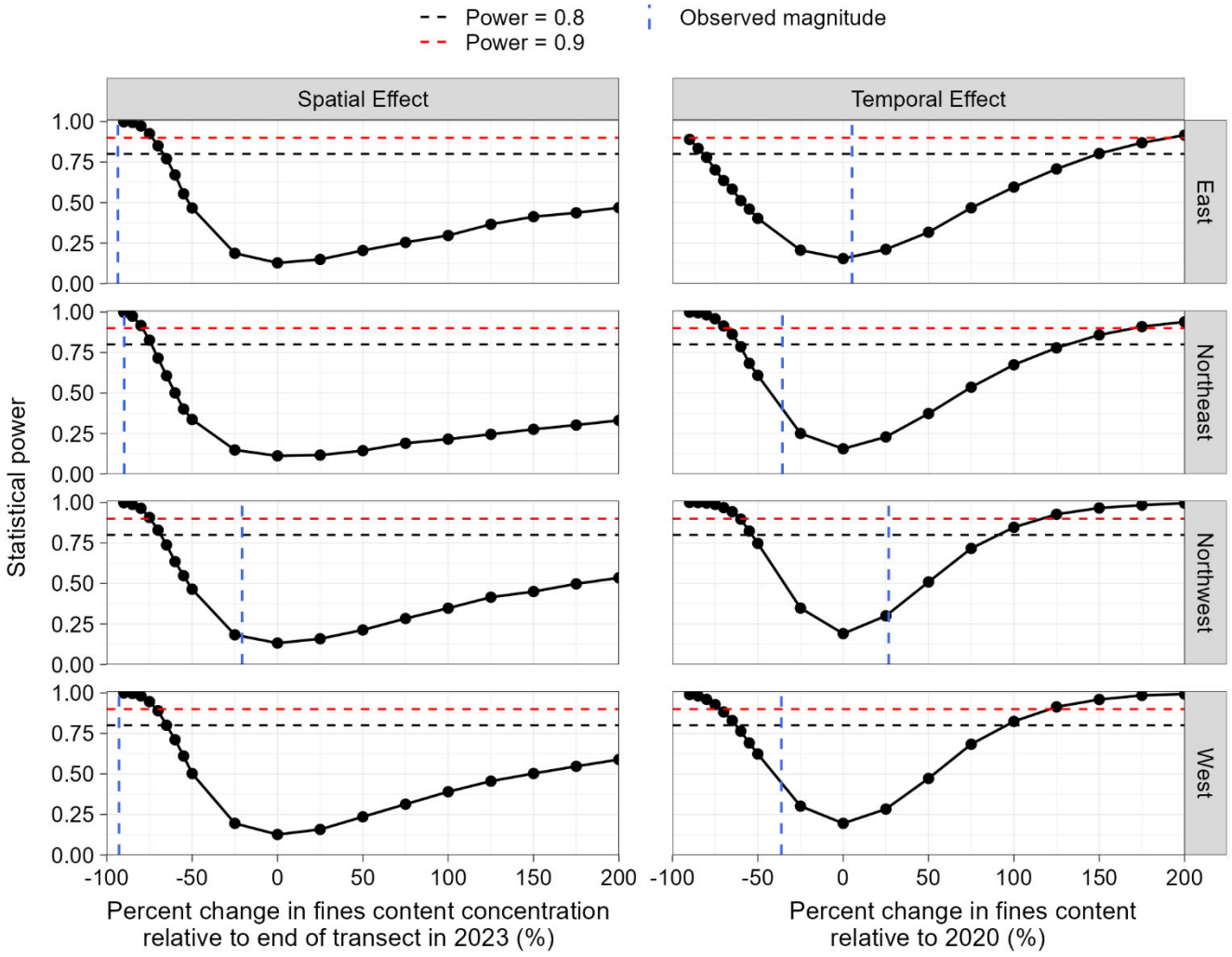


Figure 3G-2: Statistical power of the 2019-2023 percent fines model to detect a significant spatial trend (left) and a significant difference between 2020 and 2023 (right). Both spatial and temporal effects were tested at 500 m and 700 m from transect origin (for northwest transect) and 250 m and 500 m from transect origin (for all other transects).

Sediment Quality – Percent Fines in 2014-2023

The power analysis indicated that the analysis of percent fines in the Entire Dataset had sufficient power (>0.8) to detect spatial effect of scouring (i.e., decrease in fines content) at effect sizes of -70%, -65%, and -70% for the East, West, and North transects, respectively (Figure 3G-3). Observed effect sizes in 2023 were -94%, -93%, and -20% for the East, West, and North transects, respectively. The model had high power (>0.9) to detect the observed effect size for the East and West transects, but low power (<0.5) to detect the effect size observed at the North Transect. This is consistent with the finding of a significant increasing trend near the transect origin for East and West transects, but not for the North transect (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]). The model had low power to detect increases in fines in the proximity to transect origins, especially for East and North transects. Since transects had lower fines content close to transect origins when compared to the end of the transects for most of the sampling years (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]), the statistical power to detect scouring, rather than deposition, was considered to be more relevant.

For the temporal effects, the model had sufficient power (>0.8) to detect a 70% and 80% decrease in fines content ranging for the East and North transects, respectively, but not for any of the examined negative effect sizes for the West Transect (Figure 3G-3). The lack of power to detect a decrease in fines between 2020 and 2023 close to the West Transect origin was due to the already low values of fines in 2020 (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]). The model had sufficient power (>0.8) to detect increases in fines content that were 500%, 125%, and 175% higher in 2023 compared to 2020 for the East, West, and North transects, respectively. That is, the model generally had higher power to detect a decrease in fines content between 2020 and 2023 but had higher power to detect an increase in fines over time than a spatial increase in fines. Observed effect sizes were -25%, -27%, and +39% for the West, East, and North transects, respectively. Statistical power to detect observed effect sizes was low, which is consistent with lack of significant temporal trends between 2020 and 2023 at 500 m from transect origin for West and North transects (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]).

Overall, power to detect observed spatial trends was high, whereas power to detect observed temporal trends was low, which is consistent with the absolute values of observed temporal effects being smaller than those of the spatial effects.

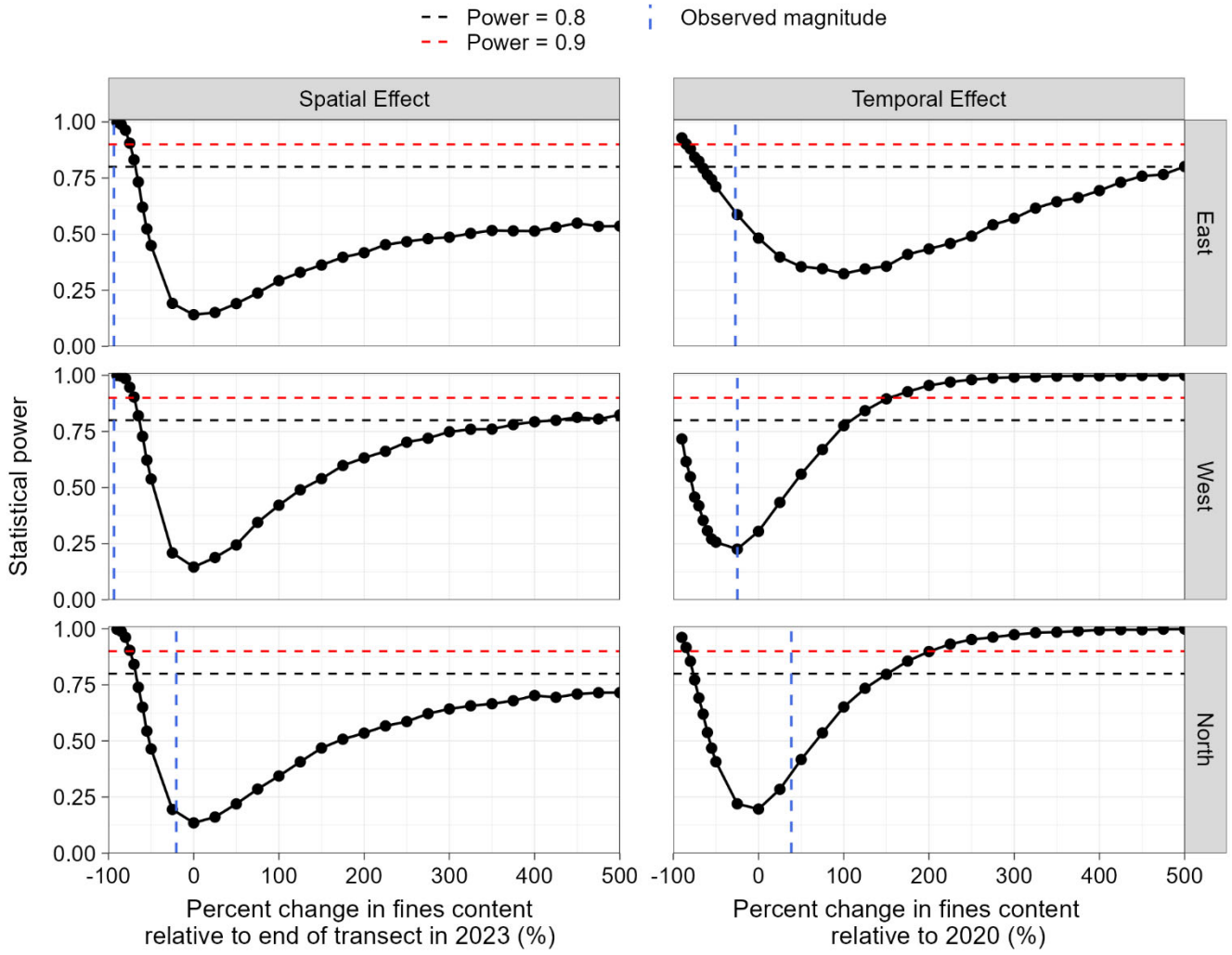


Figure 3G-3: Statistical power of the 2014-2023 percent fines model to detect a significant spatial trend (left) and a significant temporal trend in 2023 (right). Both spatial and temporal effects were tested at 250 m and 500 m from transect origin.

Sediment Quality – Iron Concentrations in Post-2018 Dataset

The power analysis indicated that the analysis of iron concentration data collected in the Post-2018 Dataset had sufficient power (>0.8) to detect spatial decreases in fines-adjusted iron concentrations at effect sizes of -35% for both Northwest and Northeast transects, but not at any of the negative effect sizes for East and West transects (Figure 3G-4). The low power to detect decreasing iron concentrations at the East and West transects was due to the low fines content in proximity to the transect origins. Since low fines would be associated with low iron concentrations, the simulated decreases in iron had little effect, resulting in low statistical power. The model had sufficient power to detect increases in iron concentrations in the proximity to transect origins at effect sizes of +120%, +30%, +35%, and +140% for the East, Northeast, Northwest, and West transects, respectively (Figure 3G-4). Observed effect sizes in 2023 were +38%, +5%, +6%, and -31% for the East, Northwest, Northeast, and West transects, respectively. The model had sufficient power to detect the observed effect size for the Northeast Transects, but low power to detect the effect size observed at the other transects. This is consistent with the finding of a significant increasing trend near the transect origin for Northeast Transect in 2023 but not for the other transects transect (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]).

For the temporal effects, the model had sufficient power (>0.8) to detect a 35%, 35%, 15%, and 25% decreases or increases in iron concentrations for the East, Northeast, Northwest, and West transects, respectively (Figure 3G-4). That is, the model had higher power to detect a change in iron concentrations over time than a spatial increase in concentrations. Observed effect sizes were +11%, +20%, +7%, and +3% for the East, Northeast, Northwest, and West transects, respectively. Statistical power to detect observed effect sizes was low (<0.5). While the multiple comparisons between years in the original analysis found a significant difference between 2020 and 2023 for the Northwest Transect (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]), it is important to note that this comparison was calculated across all distances from transect origin, while the power analysis estimates were calculated for specific distances along the transect.

Overall, power to detect spatial effects was higher for the Northeast and Northwest transects than for the East and West transects, while power to detect temporal effects was highest for the Northwest and West transects. Power to detect observed spatial and temporal trends was low for seven of the eight effects, however only three of the either observed effects had an absolute value larger than 15% (spatial effects for the East and Northeast transects, and temporal effect for the Northeast Transect).

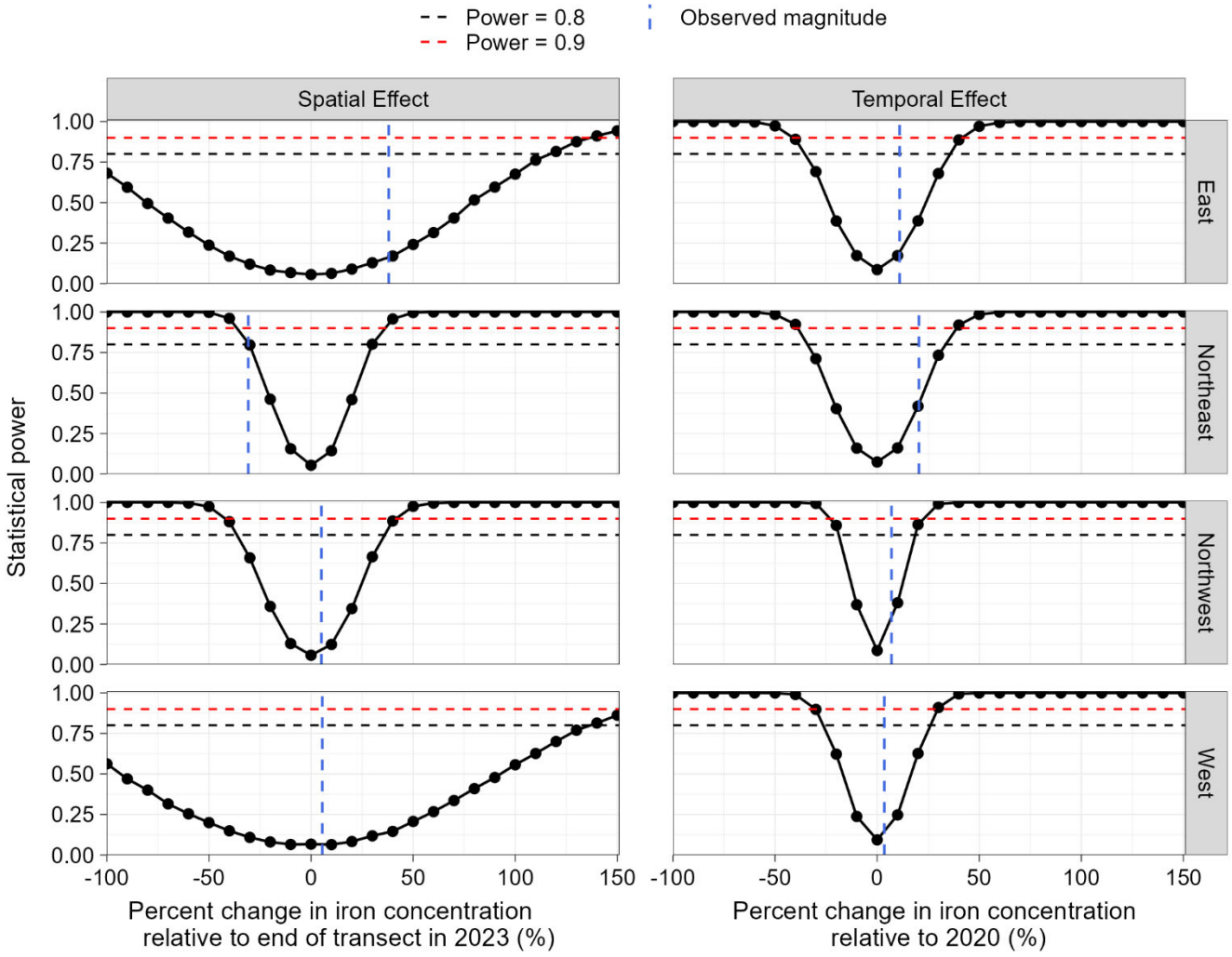


Figure 3G-4: Statistical power of the 2019-2023 iron concentration model to detect a significant spatial trend (left) and a significant difference between 2020 and 2023 (right). Both spatial and temporal effects were tested at 500 m and 700 m from transect origin (for northwest transect) and 250 m and 500 m from transect origin (for all other transects).

Sediment Quality – Iron Concentrations in 2014-2023

The power analysis indicated that the analysis of iron concentration data collected in 2014-2023 had sufficient power (>0.8) to detect spatial decreases in fines-adjusted iron concentrations only at effect size of -35% for the North Transect, and not for any of the negative effects at the remaining two transects (Figure 3G-5). The model had sufficient power to detect increases in iron concentrations in the proximity to transect origins at effect sizes of +110%, +110%, and +35% for the East, West, and North transects, respectively. Observed effect sizes in 2023 were +37%, +6%, and +3% for the East, West, and North transects, respectively. The model had low power (<0.5) to detect the observed effect sizes at all three transects.

For the temporal effects, the model had sufficient power (>0.8) to detect a 65%, 40%, and 25% decrease in fines-adjusted iron concentrations for the East, West, and North transects, respectively, as well as a 50%, 35%, and 30% increases for the East, West, and North transects, respectively (Figure 3G-5). Observed effect sizes were +12%, +16%, and +8% for the East, West, and North transects, respectively. Statistical power to detect observed effect sizes was low, which is consistent with lack of significant temporal trends between 2020 and 2023 at 500 m from transect origin for three transects (Section 3.4.5.1 in the 2023 MEEMP main report [WSP 2024]).

Overall, power to detect observed trends was low for observed temporal and spatial effect sizes at all three transects. However, only two of the either observed effects had an absolute value larger than 15% (spatial effect for the East Transects and temporal effect for the West Transect).

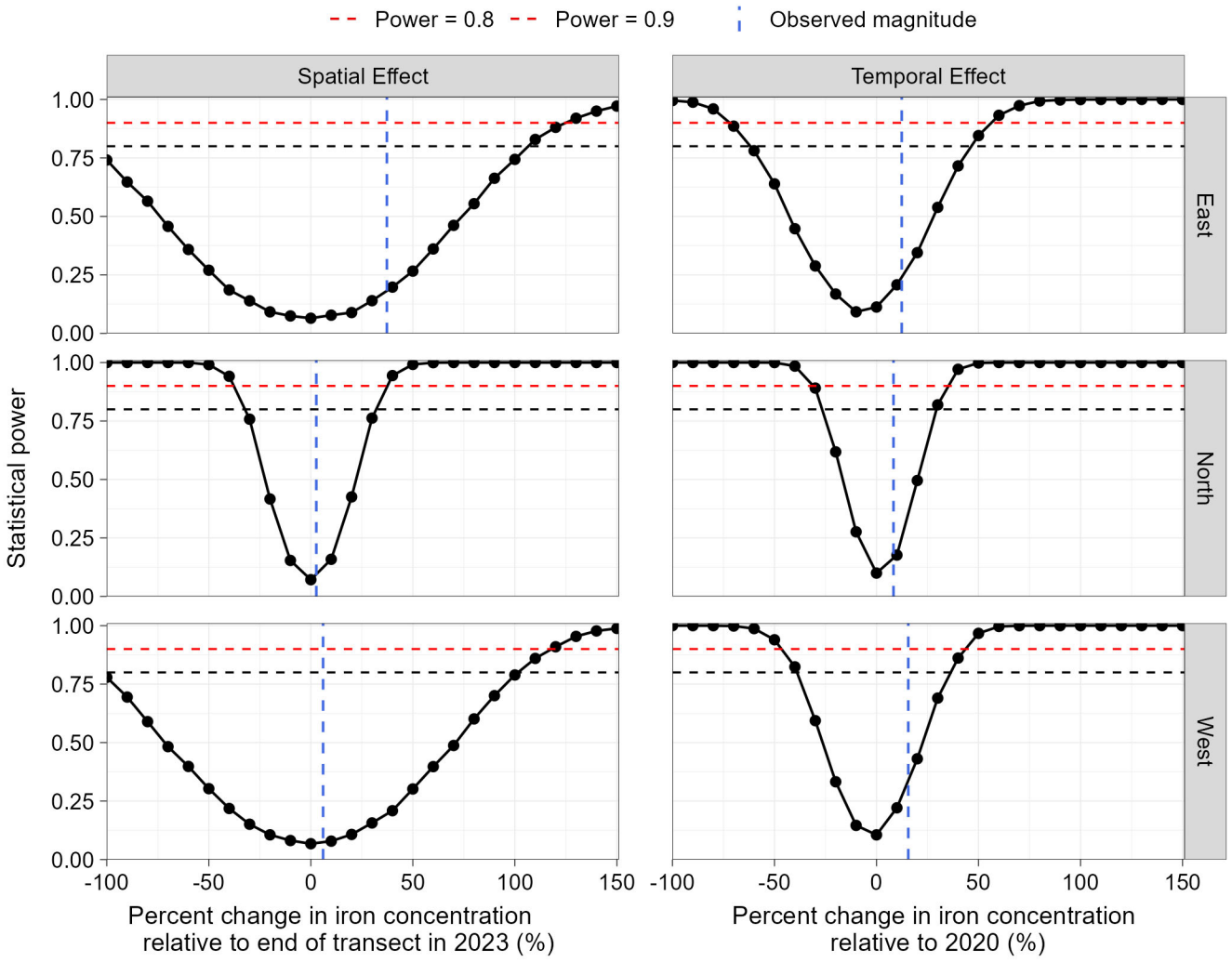


Figure 3G-5: Statistical power of the 2014-2023 iron concentration model to detect a significant spatial trend (left) and a significant difference between 2020 and 2023 (right). Both spatial and temporal effects were tested at 250 m and 500 m from transect origin.

POWER ANALYSIS – SUMMARY

Summary of Findings

- Percent fines, Post-2018 Dataset (i.e., 2019, 2020, and 2023)
  - Spatial effects: sufficient power to detect a spatial effect of scouring (i.e., decrease in fines content) at effect sizes ranging between -70% and -65%. Not sufficient power to detect increases up to +200% for all transects
  - Temporal effects: sufficient power to detect a temporal effect of scouring at effect sizes ranging between -85% and -55% and an increase in fines content ranging between 100% and 150%
- Percent fines, Entire Dataset (i.e., 2014-2020, and 2023)
  - Spatial effects: sufficient power to detect a spatial effect of scouring (i.e., decrease in fines content) at effect sizes ranging between -70% and -65%, and sufficient power to detect increases of +400% at the West Transect, but not the other two transects
  - Temporal effects: sufficient power to detect a temporal effect of scouring at effect sizes between -80% and -70% for the East and North transects, respectively, but not at any negative effect sizes for the West Transect, and sufficient power to detect an increase in fines content ranging between 125% and 500%
- Iron concentrations, Post-2018 Dataset (i.e., 2019, 2020, and 2023)
  - Spatial effects: sufficient power to detect spatial decreases in fines-adjusted iron concentrations at effect sizes of -35% for both Northwest and Northeast transects, but not at any of the negative effect sizes for East and West transects. Also, sufficient power to detect increases in iron concentrations at effect sizes ranging between +30% and +140%
  - Temporal effects: sufficient power to detect temporal decreases or increases at effect sizes between ±15% and ±35%
- Iron concentrations, Entire Dataset (i.e., 2014-2020, and 2023)
  - Spatial effects: sufficient power to detect spatial decreases in fines-adjusted iron concentrations only at effect size of -35% for the North Transect, and not for any of the negative effects at the remaining two transects. Also, sufficient power to detect increases in iron concentrations at effect sizes ranging between +35% and +110%
  - Temporal effects: sufficient power to detect temporal decreases at effect sizes between -65% and -25%, as well as temporal increases at effect sizes between +30% and +50%

Implications of Power Analysis Results

- Overall, the results of the power analysis presented here indicate that analyses of sediment fines had higher statistical power to detect scouring effects than deposition effects. However, large effect sizes were still required to achieve sufficient power, with reductions of 55% or more, depending on the analysis. Analyses of iron concentrations had sufficient statistical power to detect effect sizes of ±35% along the two north transects, but not the East or West transects, due to the low content of fines, a confounding variable.
- Given the low statistical power to detect effect sizes that may be of biological relevance, going forward, it is recommended that conclusions are not made based on strict adherence to statistical significance. Instead, effect size, uncertainty, and statistical significance and power should be considered together before ruling out spatial and temporal changes in percent fines and iron concentrations.

References

Fox, J. and Weisberg, S. 2018. Bootstrapping Regression Models in R. An Appendix to An R Companion to Applied Regression – 3rd Edition. https://socialsciences.mcmaster.ca/jfox/Books/Companion/appendices/Appendix-Bootstrapping.pdf.

Golder. 2018. Baffinland Iron Mines Corporation, Mary River Project – Phase 2 Proposal. TSD #22: Ship Wake and Propeller Wash Assessment. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-030-R-Rev3; 13 July 2019. 33 pp + appendices.

Golder. 2021. 2020 Milne Inlet Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Lenth R.2019. emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.4. https://CRAN.R-project.org/package=emmeans

R Core Team. 2020. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/



wsp.com

REPORT

Chapter 4.0 Benthic Infauna

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario
Canada
L6H 6K8

Submitted by:

WSP Canada Inc.



1663724-499d-R-Rev0-70000

15 March 2024

Table of Contents

4.0 BENTHIC INFAUNA 1

4.1 Introduction 1

4.1.1 Objectives 1

4.2 Study Design 1

4.2.1 Background 1

4.2.2 Modifications to the Program (2023) 2

4.2.3 Capesize Vessel Existing Conditions Sampling Program 2

4.2.4 Indicators 3

4.3 Materials and Methods 5

4.3.1 Field Methodology 5

4.3.2 Data Analysis 7

4.3.2.1 Data Screening 7

4.3.2.2 Benthic Community Performance Indicators 8

4.3.2.3 Statistical Analysis 9

4.3.3 Quality Management 10

4.3.3.1 Field QA/QC 10

4.3.3.2 Laboratory and Data Analysis QA/QC 11

4.4 Results 12

4.4.1 2023 Benthic Invertebrate Community Indicators 12

4.4.2 2023 Relative Densities of Benthic Invertebrate Taxa 21

4.4.3 Statistical Comparisons of Community Indicators 23

4.4.3.1 Total Density 23

4.4.3.2 Richness 28

4.4.3.3 Simpson’s Diversity Index 33

4.4.3.4 Simpson’s Evenness Index 38

4.4.4 Capesize Vessel Existing Conditions Sampling Program 43

4.5 Discussion 46

4.5.1 Statistical Comparisons of Community Indicators 47
4.5.2 Potential Effects of Propeller Wash and Scouring in West Transect 47
4.5.3 Sediment Sampling to Support Assessment of the Use of Capesize Vessels 47
4.6 Conclusions and Recommendations 48
4.7 Closure 49
4.8 References 50

TABLES

Table 4-1: Benthic Infauna Stations at Milne Port (2023) 5
Table 4-2: Marine Environment TARP Framework for Benthic Infauna 11
Table 4-2: Summary of the Benthic Infauna Regression Model Results (2018-2023; four monitoring years) 24
Table 4-3: Multiple Comparisons of Benthic Infauna Total Density between Distance from Ore Dock Area within Years, 2018 – 2023 26
Table 4-4: Post hoc Multiple Comparisons of Benthic Infauna Total Density between Years within Distances from the Ore Dock Area, 2018-2023. 28
Table 4-5: Multiple Comparisons of Benthic Infauna Taxa Richness between Distances from Ore Dock Area within Years, 2018 – 2023 31
Table 4-6: Post hoc Multiple Comparisons of Benthic Infauna Taxa Richness between Years within Distances from the Ore Dock Area, 2018-2023 33
Table 4-7: Multiple Comparisons of Benthic Infauna Simpson's Diversity Index between Distance from Ore Dock Area within Years, 2018 – 2023 36
Table 4-8: Post hoc Multiple Comparisons of Benthic Infauna Simpson's Diversity Index between Years within Distances from the Ore Dock Area, 2018-2023 38
Table 4-9: Multiple Comparisons of Benthic Infauna Simpson’s Evenness Index between Distance from Ore Dock Area within Years, 2018 – 2023. 41
Table 4-10: Post hoc Multiple Comparisons of Benthic Infauna Simpson’s Evenness Index between Years within Distances from the Ore Dock Area, 2018-2023. 43

FIGURES

Figure 4-1: MEEMP Sampling Stations for Marine Sediment Quality and Benthic Infauna 2023. 4
Figure 4-2: Total Density (organisms/m^2) of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 13
Figure 4-3: Inverse Distance Weighted Interpolation of Total Density of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 14

Figure 4-4: Total Richness of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 15

Figure 4-5: Inverse Distance Weighted Interpolation of Total Richness of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 16

Figure 4-6: Simpson's Diversity Index of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 17

Figure 4-7: Inverse Distance Weighted Interpolation of Simpson's Diversity Index of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 18

Figure 4-8: Simpson's Evenness Index of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 19

Figure 4-9: Inverse Distance Weighted Interpolation of Simpson's Evenness Index of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 20

Figure 4-10: Relative Density of Major Benthic Infauna Taxa from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023. 22

Figure 4-11: Spatiotemporal Trends in Benthic Infauna Total Density Relative to Distance from the Ore Dock Area, 2018 – 2023 25

Figure 4-12: Interannual Differences in Benthic Infauna Total Density Relative to Distance from the Ore Dock Area, 2018-2023. 27

Figure 4-13: Spatiotemporal Trends in Benthic Infauna Taxa Richness Relative to Distance from the Ore Dock Area, 2018 – 2023 30

Figure 4-14: Interannual Differences in Benthic Infauna Taxa Richness Relative to Distance from the Ore Dock Area, 2018 – 2023 32

Figure 4-16: Interannual Differences in Benthic Infauna Simpson's Diversity Index Relative to Distance from the Ore Dock Area, 2018 – 2023. 37

Figure 4-17: Spatiotemporal Trends in Benthic Infauna Simpson's Evenness Index Relative to Distance from the Ore Dock Area, 2018 – 2023. 40

Figure 4-18: Interannual Differences in Benthic Infauna Simpson's Evenness Index Relative to Distance from the Transect Origin, 2018 – 2023. 42

Figure 4-19: Community Endpoints of Benthic Infauna from Capesize Vessel Stations Near the Ore Dock Area, Milne Port, 2023 45

APPENDICES

APPENDIX 4A
Photographs

APPENDIX 4B
Biologica Environmental Services Ltd. Methods

APPENDIX 4C
Biologica Environmental Services Ltd. Raw Data

APPENDIX 4D
Summary Statistics

APPENDIX 4E
Power Analysis

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
AIC	Akaike information criterion
ANOVA	Analysis of variance
BACI	Before-After Control-Impact
Biologica	Biologica Environmental Services Ltd.
CD	Chart datum
cm	Centimetre
Df	Degrees of freedom
FEIS	Final Environmental Impact Statement
HDPE	High-density polyethylene
IDW	Inverse Distance Weighting
L	Litre
mm	Millimetre
m^2	Square metres
MEEMP	Marine Environmental Effects Monitoring Program
NIRB	Nunavut Impact Review Board
NIS/AIS	Non-Indigenous and Aquatic Invasive Species
Org/m^2	Organisms per squared meter
PC	Project Certificate
p_i	Proportion of the i^{th} taxon
%	Percent
QA/QC	Quality Assurance/Quality Control
QIA	Qikiqtani Inuit Association
RM	Repeated measures
S	Total number of taxa
SDI	Simpson’s Diversity Index
SEI	Simpson’s Evenness Index
SW	West Transect
TARP	Trigger Action Response Plan
UTM	Universal Transverse Mercator
x	Magnification factor
±	Plus or minus

4.0 BENTHIC INFAUNA

4.1 Introduction

This chapter presents the results of the benthic infaunal monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted within the vicinity of Milne Port in Milne Inlet, during the 2023 open-water season. The 2023 MEEMP benthic infaunal sampling program was focused on the 60 stations of the radial transect study design from the 2020 joint sediment and benthic sampling program (Golder 2021).

This component was developed in consideration of the monitoring requirements outlined in the Project Certificate (PC) 005 Conditions described in Chapter 1.0, Table 1-2. PC Conditions related to the benthic infaunal monitoring include PC Conditions No. 76, 87, 99(a), 99(c), and 126.

4.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 of Chapter 1.0 (Program Overview). The objectives specific to the 2023 benthic infaunal sampling program are:

- Conduct sampling of benthic infauna along four radiating transects in Milne Port to better identify Project-related effects.
- Verify predictions made in the Final Environmental Impact Statement (FEIS) and subsequent addenda (Baffinland 2012, 2013) to the Nunavut Impact Review Board (NIRB) regarding effects on benthic infauna communities, as applicable.
- Collect benthic infauna samples at non-transect stations added to the MEEMP in 2023 to characterize existing conditions to support the assessment of Project-related effects due to the use of larger ore vessels (Baby Cape and Capesize) at Milne Port.
- Recommend any necessary and appropriate changes to the benthic infauna component of the MEEMP for future years.
- Involve Inuit in the marine benthic infaunal monitoring program and include protocols that are responsive to Inuit concerns.

4.2 Study Design

4.2.1 Background

In the 2020 MEEMP Report, Golder (2021) reported that monitoring results to date have not identified Project-induced changes to benthic infauna communities in Milne Inlet. After three consecutive years of implementation, the joint radial benthic and sediment sampling program was moved from an annual to a three-year cycle. The revised monitoring frequency was more comparable with the Federal Metal Mining Environmental Effects Monitoring Program and was commensurate with the lack of directional trends observed from 2018 to 2020 that indicated the Project had not adversely impacted benthic infaunal communities in Milne Inlet.

In 2020, station SW-2 stood out as an outlier with substantially reduced performance indicators (e.g., density, diversity) and a coarser sediment composition relative to other stations along the West Transect and compared to previous years. While it is plausible that this result simply reflects the variability inherent in a dynamic environment, it may also reflect localized physical disturbance at station SW-2 in 2020 resulting from propeller-generated currents (propeller wash) from Project vessels. To determine whether Project activities contributed to these differences, targeted benthic infauna and sediment quality sampling was performed at station SW-2 in 2021 and 2022, with the addition of sampling at adjacent West Transect stations SW-1, SW-3, and SW-4 in 2022. The additional stations were added to continue monitoring for signs of recovery and to better characterize variability in benthic infauna. The 2022 results suggested that the benthic community at SW-2 appeared to have rebounded from the anomaly in 2020 and returned to 2019 levels (WSP 2023). Additionally, in 2021 and 2022, benthic infauna samples were also collected from the first four stations along each of the four transects for the Non-Indigenous and Aquatic Invasive Species (NIS/AIS) monitoring program (Chapter 8.0; WSP 2023).

In 2023, the radial transect sampling program was conducted based on the adjusted monitoring frequency of every three years, 2020 being the last year the full joint sediment and benthic program was sampled. In short, the radial study design involves sampling at 15 stations per transect which are co-located with sediment quality stations (Chapter 3.0) to allow for evaluation of exposure data (sediment quality) in relation to biological variables (benthic infauna community characteristics) (Golder 2021; Figure 3-1). The two Coastal Transects (East and West) and the two Northern Offshore Transects (Northwest and Northeast) are described in detail in Chapter 3.0, Section 3.2.1.

4.2.2 Modifications to the Program (2023)

The radial transect sampling program was designed such that 15 stations along each of the four transects (East, West, Northwest and Northeast) were to be sampled for sediment quality and benthic infauna according to a gradient sampling design. While this was achieved in 2020, in 2023 a total of 41 stations out of the intended 60 stations were sampled due to logistical and time constraints as described in Section 3.2.2. Stations were sampled along each of the four transects for the best spatial coverage in the time allotted.

Two new sampling stations, SCV-1, SCV-2, and one preexisting sediment quality station, SE18-1, were added to the 2023 benthic infauna program. These three stations, all located near the Ore Dock, were sampled for benthic infauna as part of the existing conditions sampling program to account for Capesize vessels arriving in Milne Inlet for the first time. The sampling program is further discussed in Section 4.2.3.

In 2023, benthic infauna samples were also collected from six stations for the Non-Indigenous and Aquatic Invasive Species (NIS/AIS) monitoring program (Chapter 8.0) where flagged specimens of concern, or potential NIS/AIS species were collected during the 2019 to 2022 MEEMP and NIS/AIS Monitoring Program surveys (Golder 2020, 2021, 2022; WSP 2023).

4.2.3 Capesize Vessel Existing Conditions Sampling Program

In 2023, NIRB accepted the Sustaining Operations Proposal and issued Amendment 5 of Project Certificate 005. Under Amendment 5, Term and Condition 83(a) required Baffinland to update the marine sediment quality program to reflect the increased use of larger ore vessels at Milne Port. Baffinland committed that stations SW-1 through SW-4, SE18-1, SNW-1, and two new sites (SCV-1 and SCV-2) would be monitored for scouring effects

on sediment and benthic infauna for three years after the initial use of large (Baby Cape and Capesize) ore carriers in fall 2023 (Commitment 10, SOP Technical Comment QIA ME-7(3); NIRB, 2023). Following this three-year period, Baffinland will consider a reduced frequency in sampling at these locations (once every three years) if sediment and benthic conditions at these sites are shown to be stable and within the limits of impact predictions. As the initial Capesize ore carrier use in Milne Port was planned to take place in the late ice-free period of 2023 (29 August 2023), sampling for Capesize vessel effects monitoring commenced in August 2023 (August 4-19, 2023), with the intention of documenting existing conditions for benthic infauna prior to the use of the larger vessels.

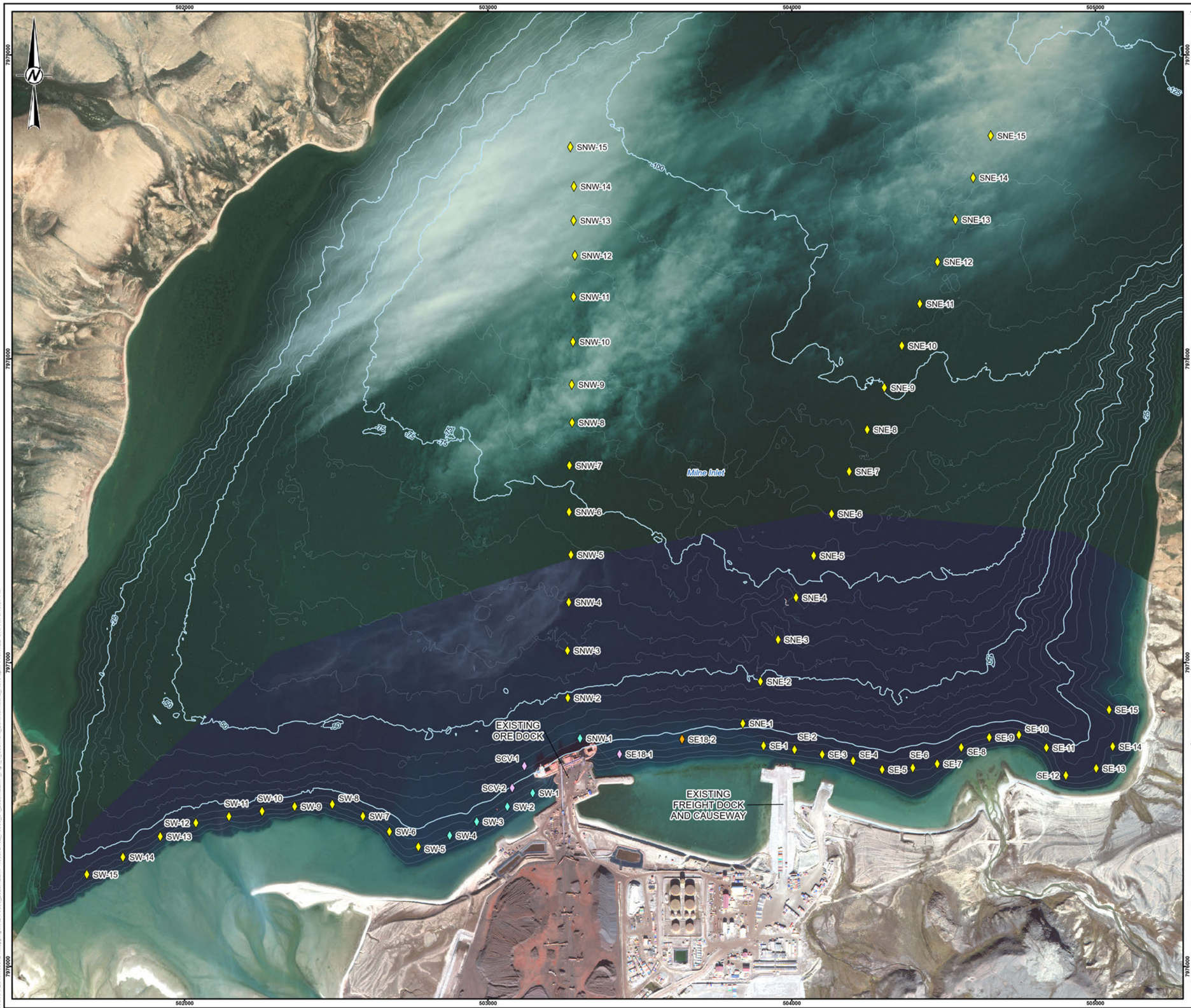
Three of the stations to be monitored for Capesize vessel impacts are additional to the 60 stations sampled under the radial transect sampling design. The three stations are SE18-1, which was established in 2019 to maintain consistency with previous MEEMP programs (i.e., previous sediment stations SE-1) and the two new stations established in 2023 specifically for Capesize vessel impacts monitoring (SCV-1 and SCV-2).

4.2.4 Indicators

Indicators and thresholds for the MEEMP program are described in Section 1.4.2. Performance indicators selected to evaluate potential Project-induced changes in benthic infauna communities include density, taxa richness (number of unique taxa present), Simpson's Diversity Index (SDI), and Simpson's Evenness Index (SEI). These indicators are calculated from data collected according to the radial gradient design and analyzed statistically to evaluate Project-related effects within the Milne Inlet study area. The purpose of the radial transect design adopted for the sediment and benthic MEEMP monitoring programs is to assess marine sediment quality and benthic invertebrate communities over time, and similar to previous years, to investigate the potential for project-related effects on these components. The overall trend in benthic communities is compared spatially and temporally examining changes in density, richness, diversity and evenness.

These indicators are described in detail in Section 4.3.2.2.

Along with several other components of the MEEMP, the benthic infauna monitoring program has indicators, thresholds and risk categories that are part of Baffinland's Trigger Action Response Plan (TARP), an adaptive management process. The TARP uses effect indicators that are measured against a series of tiered thresholds (i.e., low, moderate and high-risk thresholds) that are designed to guide short-term and long-term adaptive management strategies as outlined in Baffinland (2023). Baffinland has updated the TARP as part of the revised draft Marine Monitoring Plan (MMP) (Baffinland 2023). The pre-defined actions identified in the TARP describe the responses that Baffinland would implement should the corresponding threshold levels be exceeded and assuming there is some degree of certainty that the measured change is Project-related. As adaptive management is beyond the scope of the present report, only the indicators, risk categories and thresholds are presented here (section 4.3.4).



LEGEND

- CAPESIZE STATION ONLY
- CAPESIZE AND TRANSECT STATION
- SEDIMENT STATION ONLY
- TRANSECT STATION
- BATHYMETRIC CONTOUR (5 m INTERVAL)
- BATHYMETRIC CONTOUR (25 m INTERVAL)

0 250 500

1:12,500 METRES

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
MEEMP SEDIMENT QUALITY AND BENTHIC INFAUNA SAMPLING STATIONS 2023

CONSULTANT

wsp

YYYY-MM-DD	2024-03-21
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	4-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: I:\2016\166372\4Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig4_1_Sediment_Benthosinfauna_Rev0.aprx, PRINTED ON: Aug 5, 2024 5:10:37 PM

4.3 Materials and Methods

4.3.1 Field Methodology

The 2023 full-scale radial sampling program involved the collection of benthic infauna samples from 41 stations along four transects and were each co-located with a sediment sampling station (Figure 4-1; Table 4-1). In total, 44 benthic infauna samples were collected for the program (41 transect stations, SE18-1, SCV-1, and SCV-2). Each benthic sample was collected as a composite of three individual grabs using a standard Van Veen sampler with a surface area of 0.1 m². Each grab sample was examined for acceptability using the criteria outlined in Section 3.3.1 in Chapter 3.0 and, upon acceptance, the three individual grab samples were split using a field splitter purpose-built for this program due to the large volume of the Van Veen sampler.

The composite material was gently rinsed with filtered seawater through a 1 cm mesh sieve to initially remove larger organisms that could otherwise become damaged when the composite material was subsequently filtered through a 0.5 mm mesh sieve. The 1 cm sieved sample was either retained as a whole sample, or further split into ½ or ¼, such that a reasonable volume would be submitted to the taxonomy laboratory. Large debris, such as gravel and cobble, were checked for encrusting fauna and included in the sample jar if potential encrusting epifauna were observed. The 1 cm mesh sieved composited material was further split in half, totalling a ¼ field split. The ¼ field split sample was retained and transferred to an aluminum sieving table. The sample was gently rinsed through a 0.5 mm mesh sieve with filtered seawater. A representative photograph was taken of the sieved sample, including a visible sample label (Appendix 4A). Remaining material on the sieve was placed in pre-labeled 1-L wide-mouth high-density polyethylene (HDPE) sample jars and preserved in a 10% buffered formalin solution. The containers were then sealed and inverted several times to promote homogenization with the formalin. Containers were labeled internally and externally with water-resistant labels. The benthic samples were sent to Biologica Environmental Services Ltd. (Biologica) for sorting and taxonomic identifications, as per the previous MEEMP programs. Details on laboratory methods are provided in Appendix 4B.

Table 4-1: Benthic Infauna Stations at Milne Port (2023)

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance Along Transect (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
East Transect				
SE-1	503907	7976727	651	15.4
SE-2	504009	7976714	750	17.8
SE-3	504100	7976698	839	15.5
SE-4	504202	7976677	939	16.8
SE-5	504299	7976648	1,035	12.6
SE-6	504400	7976654	1,136	Not sampled
SE-7	504480	7976667	1,216	14.8
SE-8	504559	7976721	1,298	Not sampled
SE-9	504651	7976754	1,393	Not sampled
SE-10	504749	7976762	1,491	Not sampled
SE-11	504839	7976720	1,578	17.2
SE-12	504903	7976629	1,639	Not sampled
SE-13	505003	7976652	1,739	15.3
SE-14	505057	7976724	1,796	Not sampled
SE-15	505045	7976845	1,794	17.2

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance Along Transect (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
West Transect				
SW-1	503147	7976571	130	14.2
SW-2	503064	7976526	224	17.4
SW-3	502963	7976477	336	18.1
SW-4	502874	7976431	436	14.6
SW-5	502771	7976394	545	15.9
SW-6	502674	7976444	618	9.5
SW-7	502587	7976495	690	Not sampled
SW-8	502486	7976534	784	17.2
SW-9	502362	7976527	907	Not sampled
SW-10	502255	7976511	1,016	17.0
SW-11	502146	7976494	1,126	14.9
SW-12	502037	7976473	1,237	16.1
SW-13	501920	7976428	1,359	12.2
SW-14	501797	7976360	1,491	Not sampled
SW-15	501678	7976303	1,619	14.6
Northwest Transect				
SNW-1	503303	7976751	131	30.0
SNW-2	503263	7976884	258	50.0
SNW-3	503262	7977040	414	60.3
SNW-4	503266	7977199	573	65.7
SNW-5	503273	7977355	729	70.2
SNW-6	503267	7977496	870	Not sampled
SNW-7	503268	7977649	1,023	77.8
SNW-8	503277	7977790	1,164	Not sampled
SNW-9	503276	7977915	1,289	87.1
SNW-10	503280	7978056	1,430	Not sampled
SNW-11	503282	7978204	1,578	90.7
SNW-12	503286	7978340	1,714	Not sampled
SNW-13	503282	7978455	1,829	95.0
SNW-14	503283	7978567	1,941	Not sampled
SNW-15	503271	7978697	2,071	97.5
Northeast Transect				
SNE-1	503839	7976800	60	28.0
SNE-2	503897	7976938	70	46.2
SNE-3	503955	7977076	82	54.7
SNE-4	504014	7977214	953	66.4
SNE-5	504072	7977352	1,086	78.9
SNE-6	504131	7977490	1,224	Not sampled
SNE-7	504189	7977629	1,364	93.8

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance Along Transect (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
SNE-8	504248	7977767	1,507	Not sampled
SNE-9	504306	7977905	1,649	101.4
SNE-10	504364	7978043	1,793	103.4
SNE-11	504423	7978181	1,939	Not sampled
SNE-12	504481	7978319	2,085	Not sampled
SNE-13	504540	7978458	2,232	116.2
SNE-14	504598	7978596	2,379	Not sampled
SNE-15	504656	7978734	2,526	120.5
Additional Non-Transect Stations				
SE18-1	503433	7976699	Not on transect	15.5
Capesize Vessel Stations (note that there is duplication with the stations marked *)				
SCV-1	503120	7976660	Not on transect	34.2
SCV-2	503080	7976588	Not on transect	25.5
SE18-1	503433	7976699	Not on transect	15.5
SW-1 *	503147	7976571	130	14.2
SW-2 *	503064	7976526	224	17.4
SW-3 *	502963	7976477	336	18.1
SW-4 *	502874	7976431	436	14.6
SNW-1 *	503303	7976751	131	30.0

Notes:

m = metres; UTM = Universal Transverse Mercator

[1] Sample depth was converted to meters chart datum (CD), estimated using tide table for Milne Inlet, Nunavut (https://tides.gc.ca/en/stations/05791 [accessed November 2023]). The negative (-) numbers indicate 'below' CD.

4.3.2 Data Analysis

4.3.2.1 Data Screening

The benthic samples sent to Biologica were sorted using dissecting microscopes at 10-40x magnification. The 1 cm sample fraction was processed based on the field split (no further splitting by Biologica). The fine 0.5 mm sample fraction (¼ field split) was further split into another quarter (¼) by Biologica for a final 1/16 split of the composite sample, using a Caton tray. Each sample was spread evenly on a Caton grid and subsampled via sequential random quadrat sorting. Sorting continued until a minimum ¼ split was reached and taxonomic identifications were carried out to the lowest practicable level.

Taxonomy data provided by Biologica were screened for incidental organisms not considered to be part of the marine benthic community, such as freshwater, terrestrial, planktonic, and parasitic taxa. Meiofauna, such as nematodes, were removed from benthic analysis because these species often fall through the 0.5 mm mesh sieve used to separate benthic infauna from sediments in the field. Nematode species counts would thus not represent true population numbers at each station and could bias station comparisons of total abundance and species diversity. Eliminated taxa, not expected to have significant direct exposure to sediments, included Nematoda (meiofauna), Chironomidae (subfamily Diamesinae, Chironominae, Orthocladiinae, Tanypodinea and Tipulinae,

brackish/freshwater), Diptera (freshwater), Arachnida (freshwater), fish (Cottidae, Ammodytidae, Stichaeidae and Zoarcidae), Ostracoda (planktonic), Copepoda (parasitic and planktonic), Ctenophora (planktonic), and Insecta (terrestrial) taxa.

4.3.2.2 Benthic Community Performance Indicators

A description of performance indicators (organism density, taxa richness, Simpson's Diversity Index, Simpson's Evenness Index) selected to evaluate potential Project-induced changes in benthic infauna communities is provided below.

Organism Density

Total invertebrate density was calculated as the number of organisms per square metre (organism/m^2) for each station. The surface area of the Van Veen (0.1 m^2) was multiplied by three to account for the three composite grab samples using the following equation:

$$Density = \frac{number\ of\ organisms\ (org)\ per\ station}{(grab\ sampler\ area * 3\ composites)}$$

Taxa Richness

Taxa richness is the total number of unique[1] taxa per station and provides an indication of the diversity of benthic invertebrates in an area; a higher richness value typically indicates a healthier and balanced community.

Simpson's Diversity Index (SDI)

Simpson's Diversity Index (SDI) measures the proportional distribution of organisms in the community. The SDI considers the abundance patterns and taxonomic richness of the community. Certain conditions may favour one taxa over another, resulting in the community being dominated by a few taxa, which is reflected in decreased diversity (Simpson 1949). The SDI value ranges between zero and one, where lower values indicate a less diverse community and higher values indicate a more diverse community. The SDI was calculated using the formula provided by Krebs (Krebs 1999):

$$SDI = 1 - \sum_{i=1}^{S} (p_i)^2$$

Where:

- SDI = Simpson's diversity index
- S = the total number of taxa
- p_i = the proportion of the i^{th} taxon

[1] Did not include higher order taxa for which there exists a lower order identification. For example, does not include *Ophiura* sp. if *Ophiura robusta* is found in the same sample.

Simpson's Evenness Index (SEI)

Simpson's Evenness Index (SEI) is a measure of the relative abundance of the different taxa contributing to richness, or in other words, how evenly the total invertebrate density is distributed among the taxa present at the station. SEI compares the observed community to a hypothetical community, which consists of the same number of taxa that are equally abundant. The SEI is included along with the SDI to provide context as to whether richness or the distribution of total density among taxa is driving the SDI values. The SEI is also expressed as a value between one and zero, with one representing high evenness (i.e., equal numbers of all taxa present in a sample) and zero representing low evenness (i.e., a high degree of dominance by one or a few taxa). Communities with a high degree of dominance by one or a few taxa are often referred to as "stressed" and may reflect the influence of natural and/or anthropogenic stressors.

The SEI values were calculated using the following formula (Smith and Wilson 1996):

$$SEI = 1 / \sum_{i=1}^{S} (p_i)^2 / S$$

Where:

- SEI = Simpson's evenness index
- S = the total number of taxa
- p_i = the proportion of the i^{th} taxon

4.3.2.3 Statistical Analysis

Benthic infauna data collected during the 2018 to 2020 and 2023 programs, which collectively comprise the Post-2017 Dataset, were analyzed to assess spatial and temporal gradients in benthic indicators[2]. The radial transect program was implemented in those MEEMP years and was the focus of the statistical analysis in this report. Accordingly, data collected during targeted sampling at SW-2 and at surrounding stations in 2021 and 2022 were not included in the analysis.

Modeling the benthic infauna data required the use of a distance variable as a predictor in the spatio-temporal models. Prior to 2020 (Golder 2021), distance from the Ore Dock area was used; however, in line with analysis performed after the collection of 2020 data to standardize the values and improve interpretation, a single origin point was used for spatio-temporal modelling. This point (the transect origin), an imaginary intersection between the East, West, and Northwest transects, was determined to be at coordinates of -80.905917°, 71.889649°, and was at the center of the Ore Dock area. All distances reported in the analyses were calculated as straight-line distances from each sampling location to this point of origin.

Statistical analyses were conducted using generalized linear modelling and included main effects of distance from the Ore Dock area, year (as a categorical variable), transect, all possible interactions among the three variables, and percent fines. Model residuals were examined to identify departures from generalized linear regression

[2] Prior to statistical analysis the, SDI, and SEI indicators were recalculated for the 2018 benthic dataset to allow for a consistent dataset for the temporal comparisons.

assumptions (as applicable): residual distribution, homoscedasticity (equal variances), and linearity in predictors (lack of structure in residuals).

In order to account for nonlinear relationships between response variables and distance from transect origin as well as percent fines, these predictors were modelled using natural splines, a form of non-linear regression. The number of spline knots was determined using Akaike information criterion (AIC), where models with the lowest AIC was selected as the preferred model. Statistical outliers and influential points were identified and removed during the analysis but were shown on the plots depicting raw values and model predictions for transparency. Following regression analysis, multiple comparisons were performed to assess differences in modelled benthic infauna indicator variables among years at select distances along the transects. These multiple comparisons were performed at distances of 250 m, 500 m, 1,000 m, and 1,500 m along each transect for each year, as applicable based on the length of the transect. In addition, multiple comparisons, with familywise p-value adjustments, were performed at each distance across sampling years, in order to evaluate temporal variation in response variables at distance.

The analyses of benthic fauna total density, richness, SDI, and SEI were performed in the statistical environment R v.4.3.2 (R 2023), using the packages “car” (Fox and Weisberg 2019), “emmeans” (Lenth 2020), and “glmmTMB” (Brooks et al. 2017).

Inverse Distance Weighting (IDW) of Benthic Infauna Diversity Metrices

An Inverse Distance Weighting (IDW) interpolation method in ArcGIS was used to create Figures 4-3 (total density), 4-5 (total richness), 4-7 (SDI), and 4-9 (SEI) to provide a visual depiction of the spatial variability in these benthic community indicators across the study area, as informed by the results of the radial gradient study design in 2023. IDW is a deterministic interpolation method that assumes the variable being interpolated decreases in influence (its weight) with increased distance from its sample location, and conversely, that an interpolated value is most influenced by the known sample(s) closest to it.

4.3.3 Quality Management

Quality assurance and quality control (QA/QC) procedures were applied to the field collection, data analysis, and reporting tasks within the benthic infauna component to verify that the data presented were valid and of acceptable quality to address objectives stated in Section 4.1.1.

4.3.3.1 Field QA/QC

QA measures undertaken to confirm benthic infauna sample integrity are the same as those described for sediment quality as noted in Section 3.3.1. Each grab sample was examined for acceptability based on the following criteria:

- The sampler was fully closed.
- There was adequate penetration depth (i.e., sediment volume greater than 25% full).
- The sample did not appear overfilled or disturbed, and the sample did not appear to have been collected on an angle.

- The sampler did not appear to be leaking sediment at a substantial rate (i.e., the top of the sediment profile did not appear to be sloping inwards).

4.3.3.2 Laboratory and Data Analysis QA/QC

Biologica's laboratory QA/QC measures included an assessment of sorting recovery, identification error, and precision/accuracy of sub-sampling. Laboratory procedures included sample sorting measures, spot-checks of portions of samples by a second sorter to ensure all organisms have been removed from the sample, preliminary counting of major groups, and collaborative identification to accurately identify species to their lowest practicable level. Further detailed discussion of the laboratory QA/QC procedures used by Biologica and the findings of their QA/QC assessment are provided in their laboratory reports in Appendix 4B.

Benthic data received from Biologica were reviewed upon receipt to verify that specified laboratory data quality objectives were met. No inconsistencies were noted that required follow up with the laboratory. Screening of the benthic data and calculation of the benthic indicators were reviewed by a second biologist for accuracy.

4.3.4 TARP Assessment

As part of applying the Trigger Action Response Plan benthic infauna performance indicators were screened against condition status/thresholds in 2023, in order to assess risk levels for each performance indicator (Table 4-2).

Table 4-2: Marine Environment TARP Framework for Benthic Infauna

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Benthic Infauna	• Density • Taxa Richness • Simpson's Diversity Index • Simpson's Evenness Index	• Spatial and temporal trend analysis for density or taxa richness suggest a pattern indicative of Port-related effects beyond FEIS predictions. AND • Low Risk Status/Threshold is triggered for sediment.	• Spatial and temporal trend analysis for density and taxa richness suggest a pattern indicative of Port-related effects beyond FEIS predictions. AND • Moderate Risk Status/Threshold is triggered for sediment.	• To be determined based on outcome of moderate response investigations.

4.4 Results

Benthic invertebrate infauna samples were collected from 44 stations, with 41 arranged along four transects (i.e., East, West, Northwest, and Northeast) extending out from the Ore Dock and three additional non-transect stations located within the vicinity of the Ore Dock. Photographs are provided in Appendix 4A. The laboratory methods report, and results provided by Biologica are located in Appendix 4B and 4C, respectively. Summary results of the taxonomic analysis of benthic infauna are available in Appendix 4D.

4.4.1 2023 Benthic Invertebrate Community Indicators

Benthic invertebrate community indicators used to evaluate infauna along the four transects are depicted in Figure 4-2 to 4-9 and summary statistics (mean, median, minimum, maximum, count, standard deviation, and standard error) for those indicators are presented in Appendix 4D. An evaluation of the four indicators is provided below with a focus on mean +/- SE values.

- **Total Density**— Densities were greater and more variable along the East Transect (22,274 ± 2,749 org/m^2) and West Transect (13,195 ± 1,842 org/m^2) compared to the Northwest and Northeast Transects (6,343 ± 920 org/m^2 and 6,532 ± 942 org/m^2, respectively) (Figure 4-2). As these mean values indicate and as shown on Figure 4-3, total densities were higher along the East Transect compared to the West Transect.
- **Richness** (i.e., number of unique taxa) — On average, richness was higher along the East Transect (60 ± 3) compared to the other three transects Figure 4-4), which had similar mean values (Appendix 4D). As a result of higher variability in richness along the West Transect, the mean was lower than the East Transect but the range of richness values was higher than the offshore transects.
- **Simpson's Diversity Index (SDI)** — Communities along all four transects were diverse with relatively high SDI values. The lowest mean SDI value was calculated for the East Transect (0.89 ± 0.03), driven by a lower SDI value at SE-11 (Figure 4-6 and Figure 4-7). The offshore transects were less variable in diversity compared to the coastal transects.
- **Simpson's Evenness Index (SEI)** — SEI was somewhat variable along the four transects but was typically higher along the Northwest (0.35 ± 0.04) and Northeast Transects (0.33 ± 0.04) when compared to the East (0.19 ± 0.02) and West Transects (0.13 ± 0.02) (Figure 4-8 and Figure 4-9). On the scale of 0 to 1, evenness values across all transects were reasonably low as shown on Figure 4-9, indicating that the distribution of taxa within the community was relatively uneven, and that a small number of taxa contained most of the organisms. These results are reflective of the natural community.

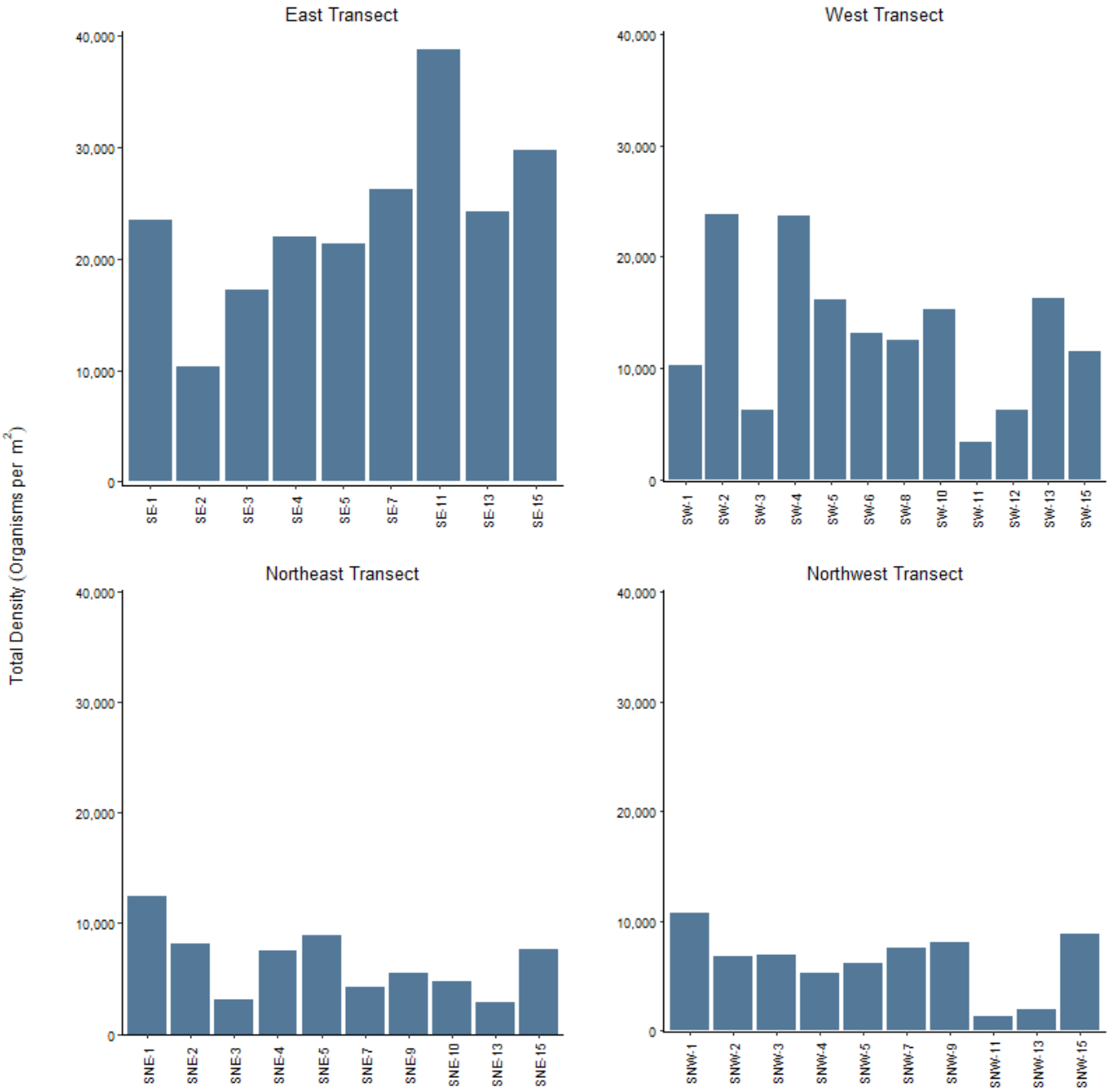
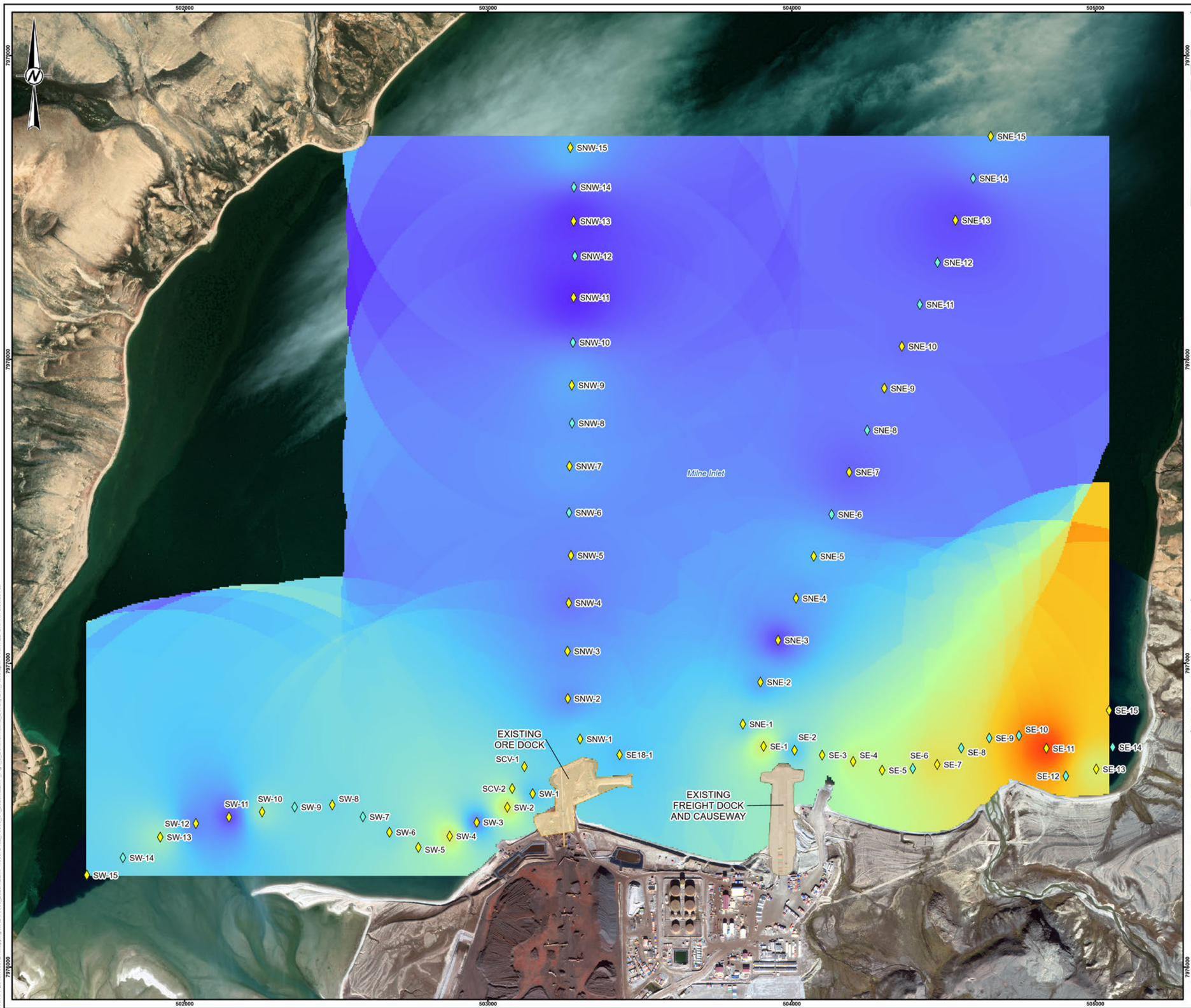


Figure 4-2: Total Density (organisms/m^2) of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023.



LEGEND

- 2023 BENTHIC INFAUNA SAMPLE LOCATION; SCV-1; SCV-2
- PROPOSED, NOT SAMPLED IN 2023
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK

BENTHIC DENSITY

40000
35000
30000
25000
20000
15000
10000
5000
0

0 250 500
1:12,500 METRES

NOTE(S)

IDW INTERPOLATION METHOD:
GRID SIZE: 5 m
VARIABLE SEARCH RADIUS: 750 m
MAXIMUM SAMPLE POINTS: 12
POWER: 2

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
IDW INTERPOLATION OF TOTAL DENSITY OF BENTHIC INFAUNA FOR SAMPLING STATIONS ALONG COASTAL AND NORTHERN OFFSHORE TRANSECTS EXTENDING FROM THE ORE DOCK, MILNE PORT, 2023

CONSULTANT
wsp

YYYY-MM-DD	2024-03-27
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	4-3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

PATH: I:\2016\166372402\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig4_3_BenthicInfauna_DensityIDW_Rev0.aprx PRINTED ON: AT: 8:59:35 AM

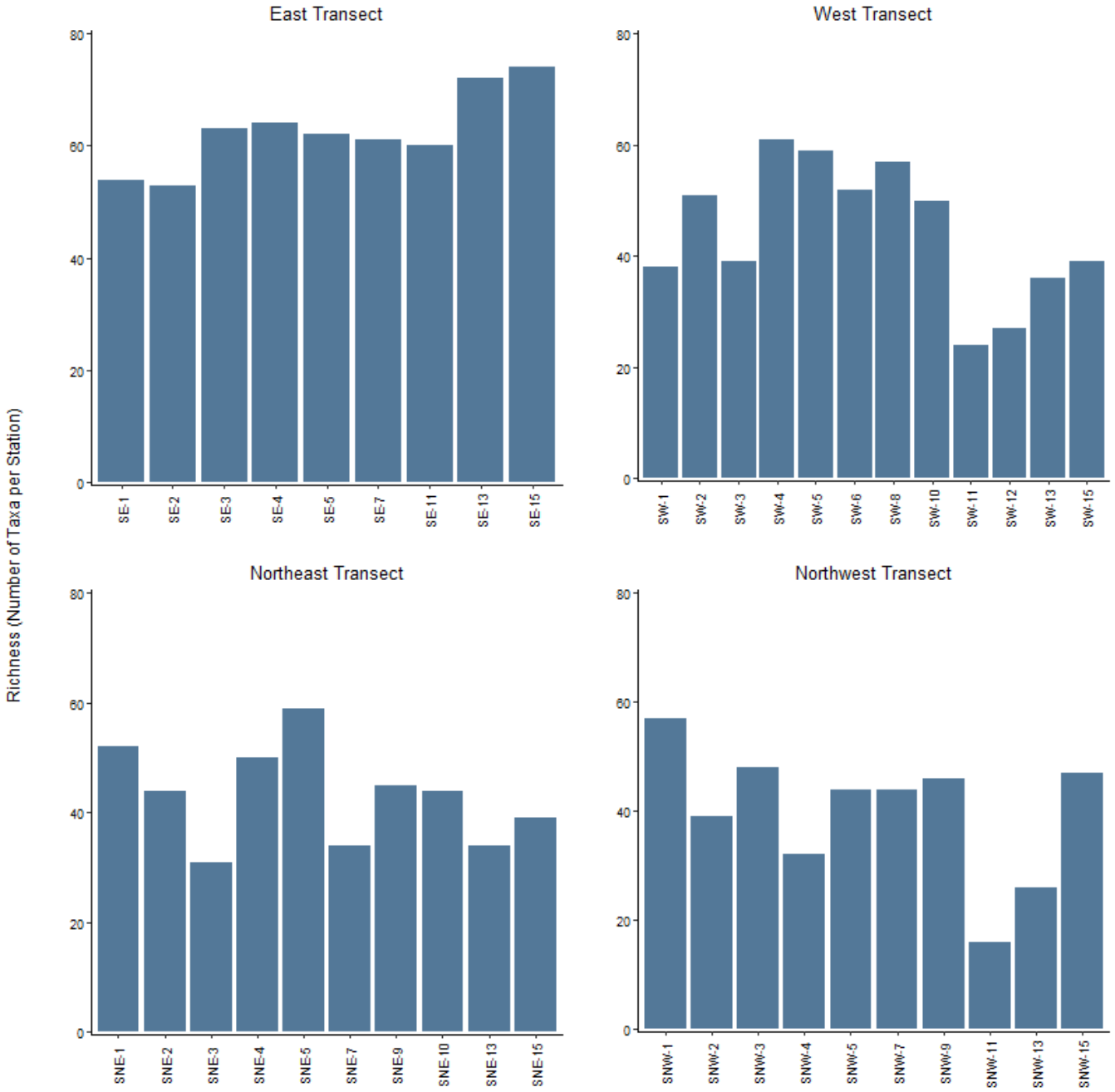
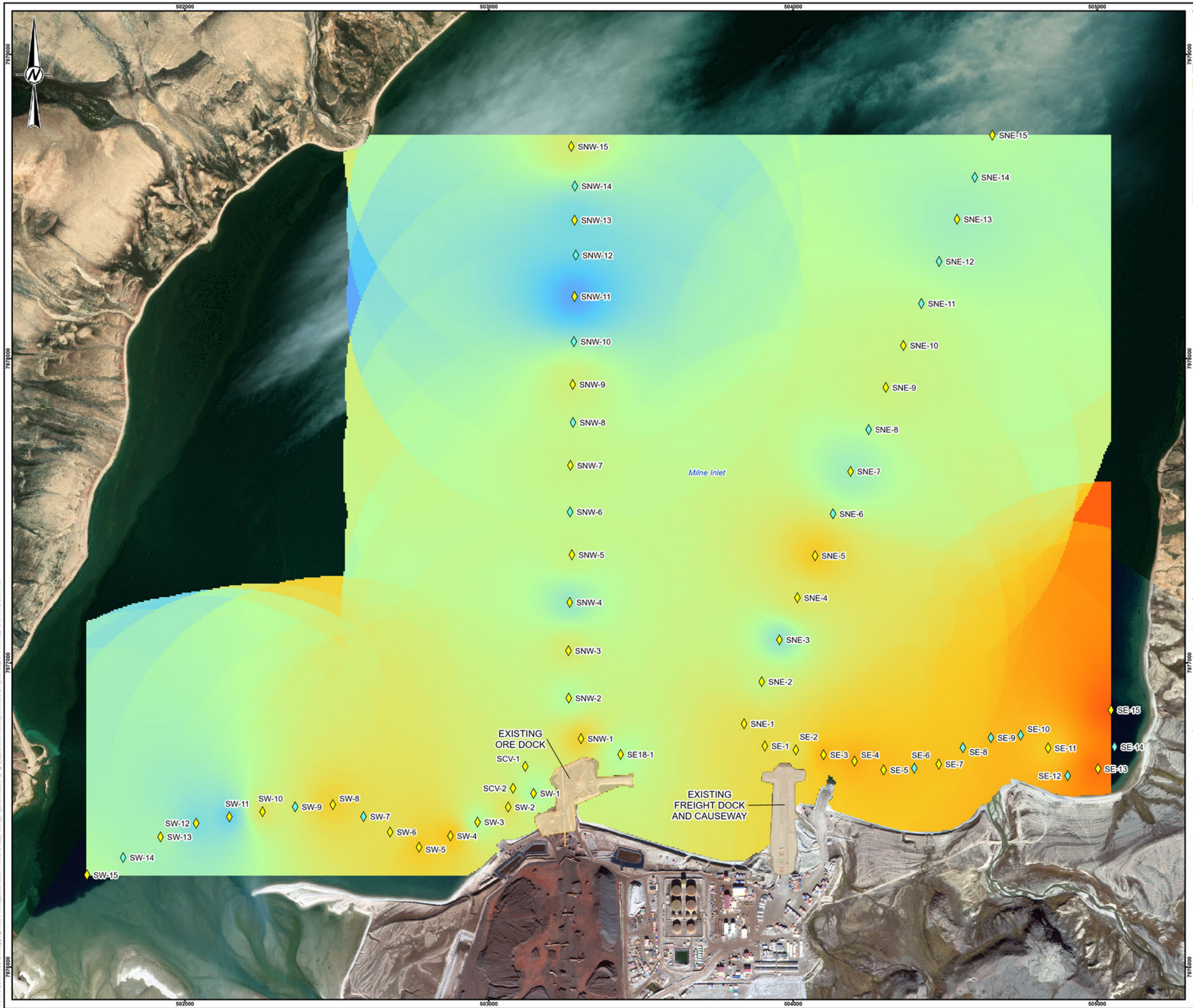


Figure 4-4: Total Richness of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023.



LEGEND

- 2023 BENTHIC INFAUNA SAMPLE LOCATION
- PROPOSED, NOT SAMPLED IN 2023
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK

RICHNESS

80
70
60
50
40
30
20
10
0

0 250 500

1:12,500 METRES

NOTE(S)

IDW INTERPOLATION METHOD:
GRID SIZE: 5 m
VARIABLE SEARCH RADIUS: 750 m
MAXIMUM SAMPLE POINTS: 12
POWER: 2

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
IDW INTERPOLATION OF RICHNESS INDEX OF BENTHIC INFAUNA FOR SAMPLING STATIONS ALONG COASTAL AND NORTHERN OFFSHORE TRANSECTS EXTENDING FROM THE ORE DOCK, MILNE PORT, 2023

CONSULTANT
wsp

YYYY-MM-DD	2024-03-27
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	4-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: I:\2016\166372414\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig4_5_Benthicinfauna_Richness\IDW_RevD.aprx, PRINTED ON: Fri, 8:50:41 AM

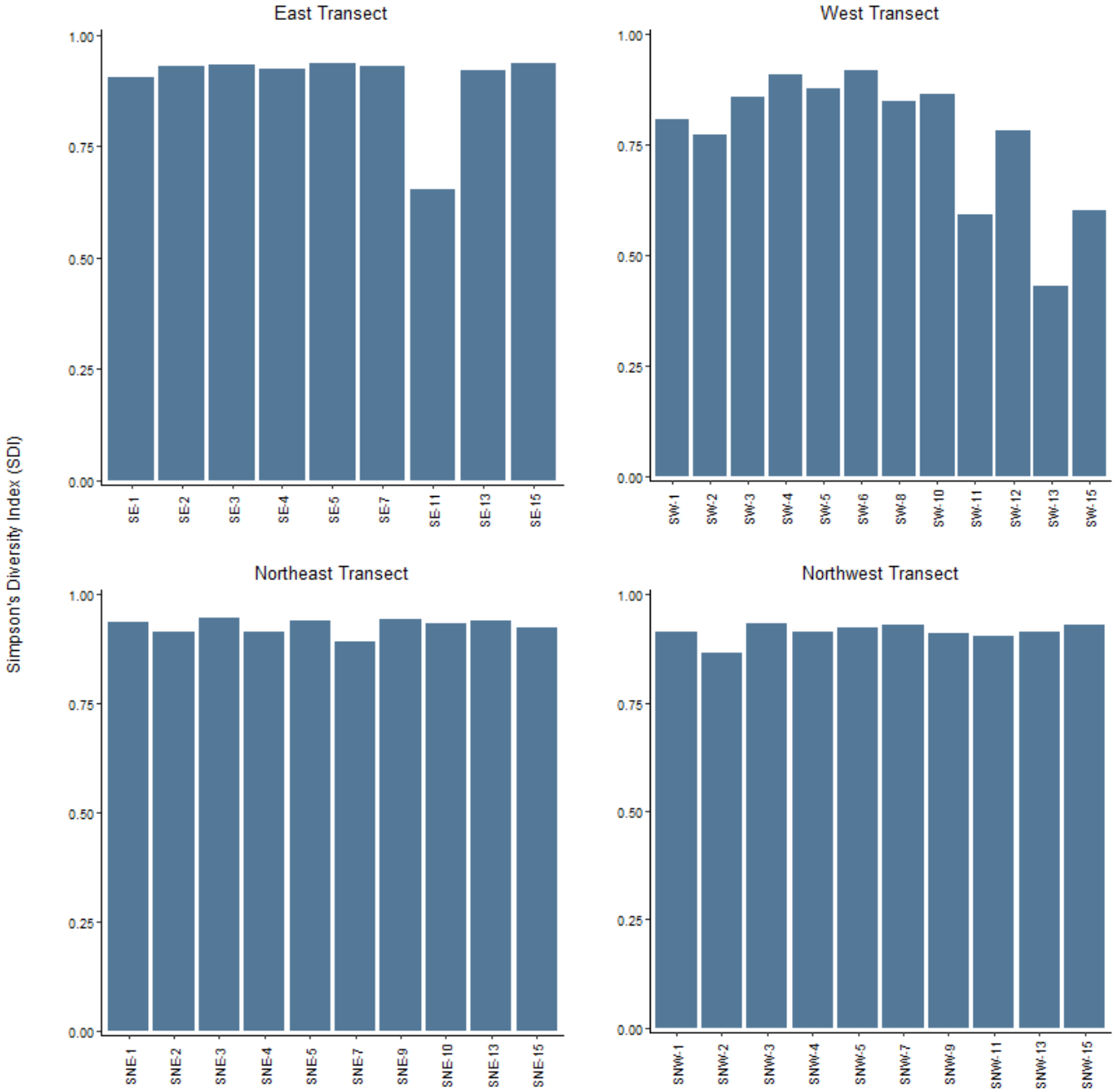
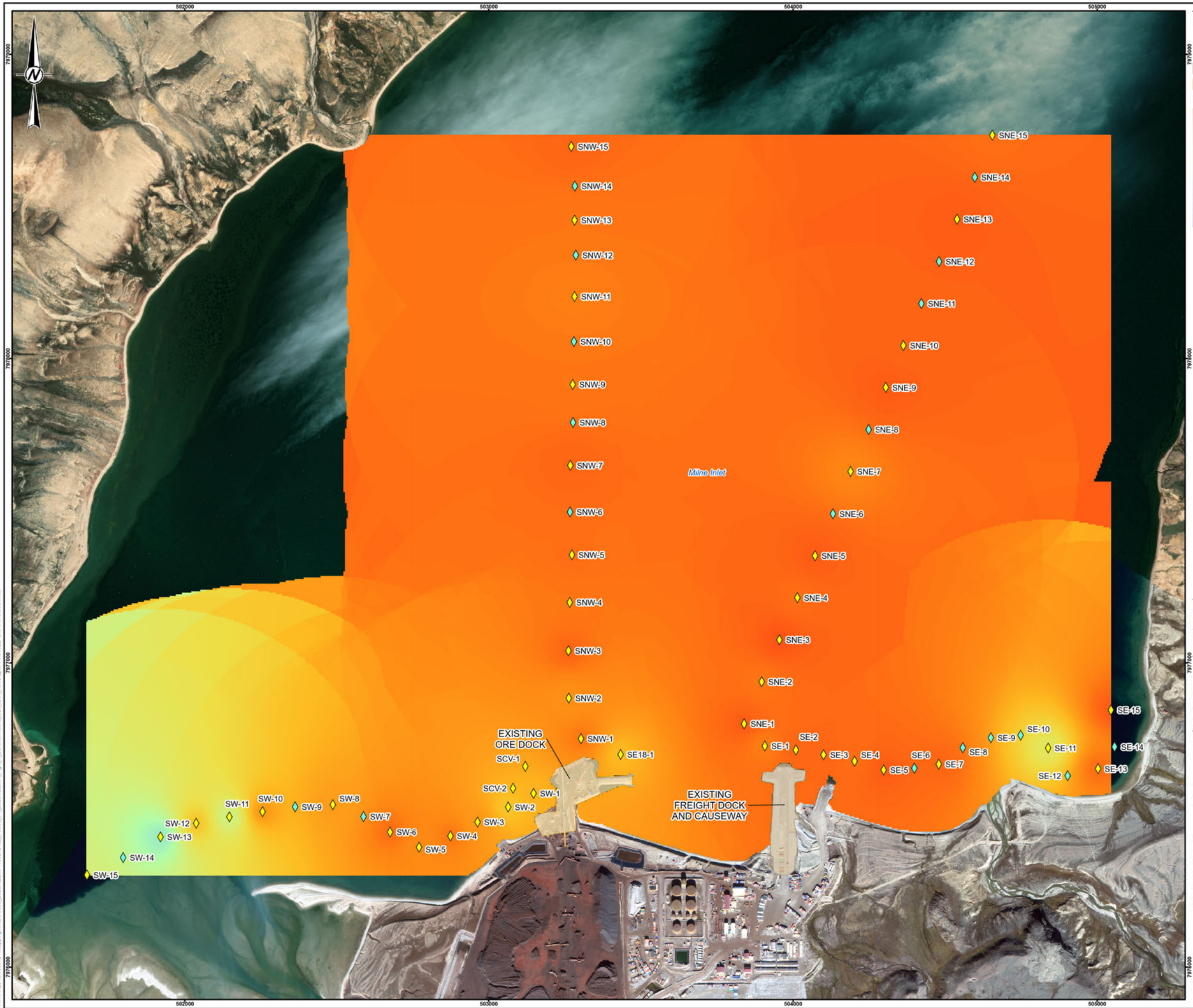


Figure 4-6: Simpson's Diversity Index of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023.



LEGEND

- 2023 BENTHIC INFAUNA SAMPLE LOCATION
- PROPOSED, NOT SAMPLED IN 2023
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK

SIMPSON'S DIVERSITY INDEX

1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

0 250 500
1:12,500 METRES

NOTE(S)

IDW INTERPOLATION METHOD:
GRID SIZE: 5 m
VARIABLE SEARCH RADIUS: 750 m
MAXIMUM SAMPLE POINTS: 12
POWER: 2

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
IDW INTERPOLATION OF SIMPSON'S DIVERSITY INDEX OF BENTHIC INFAUNA FOR SAMPLING STATIONS ALONG COASTAL AND NORTHERN OFFSHORE TRANSECTS EXTENDING FROM THE ORE DOCK, MILNE PORT, 2023

CONSULTANT
wsp

YYYY-MM-DD	2024-03-27
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	4-7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

PATH: I:\2016\166372402\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig4_7_BenthicInfauna_SDI_IDW_Rev0.aprx, PRINTED ON: AT 8:51:04 AM

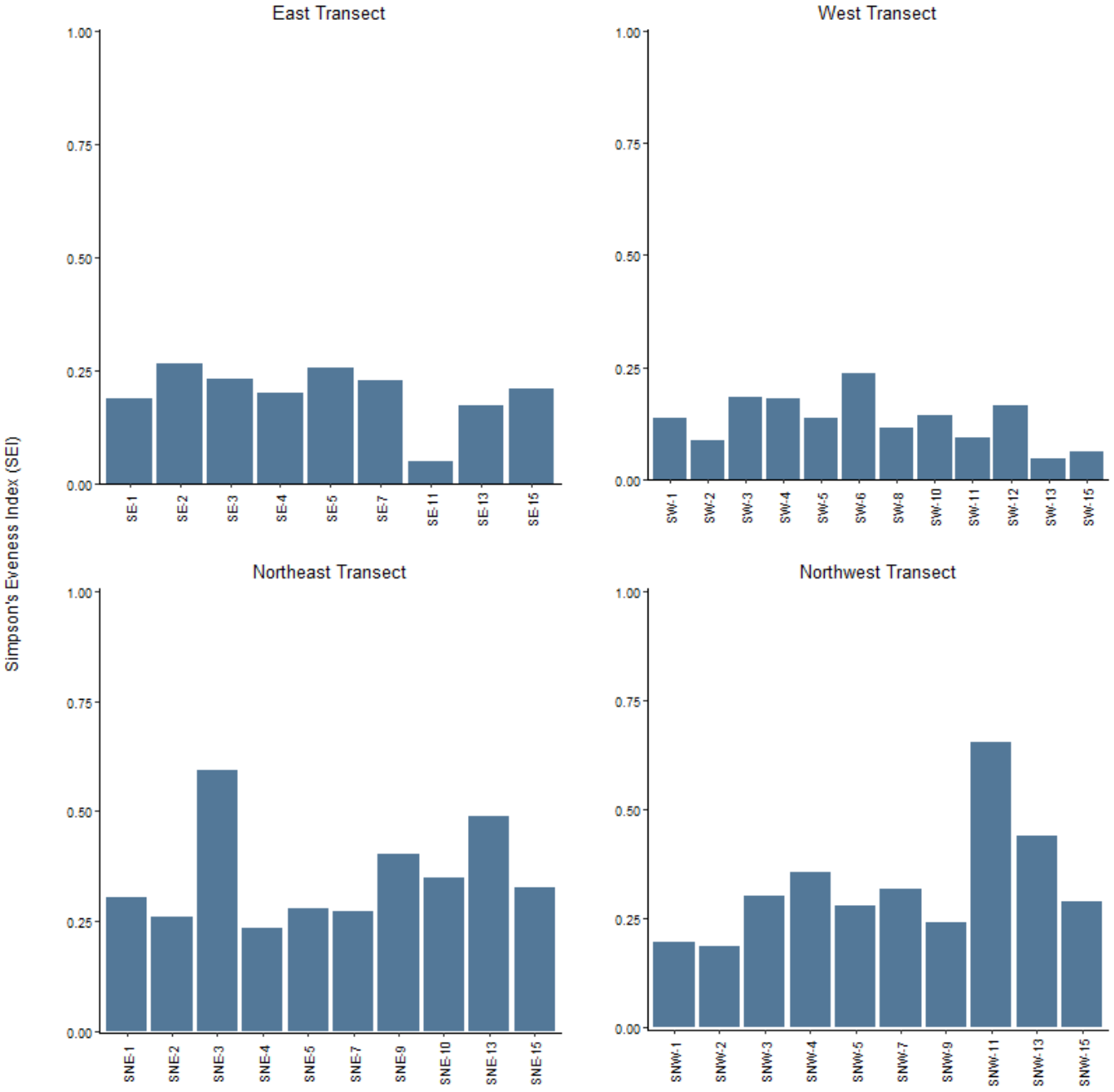
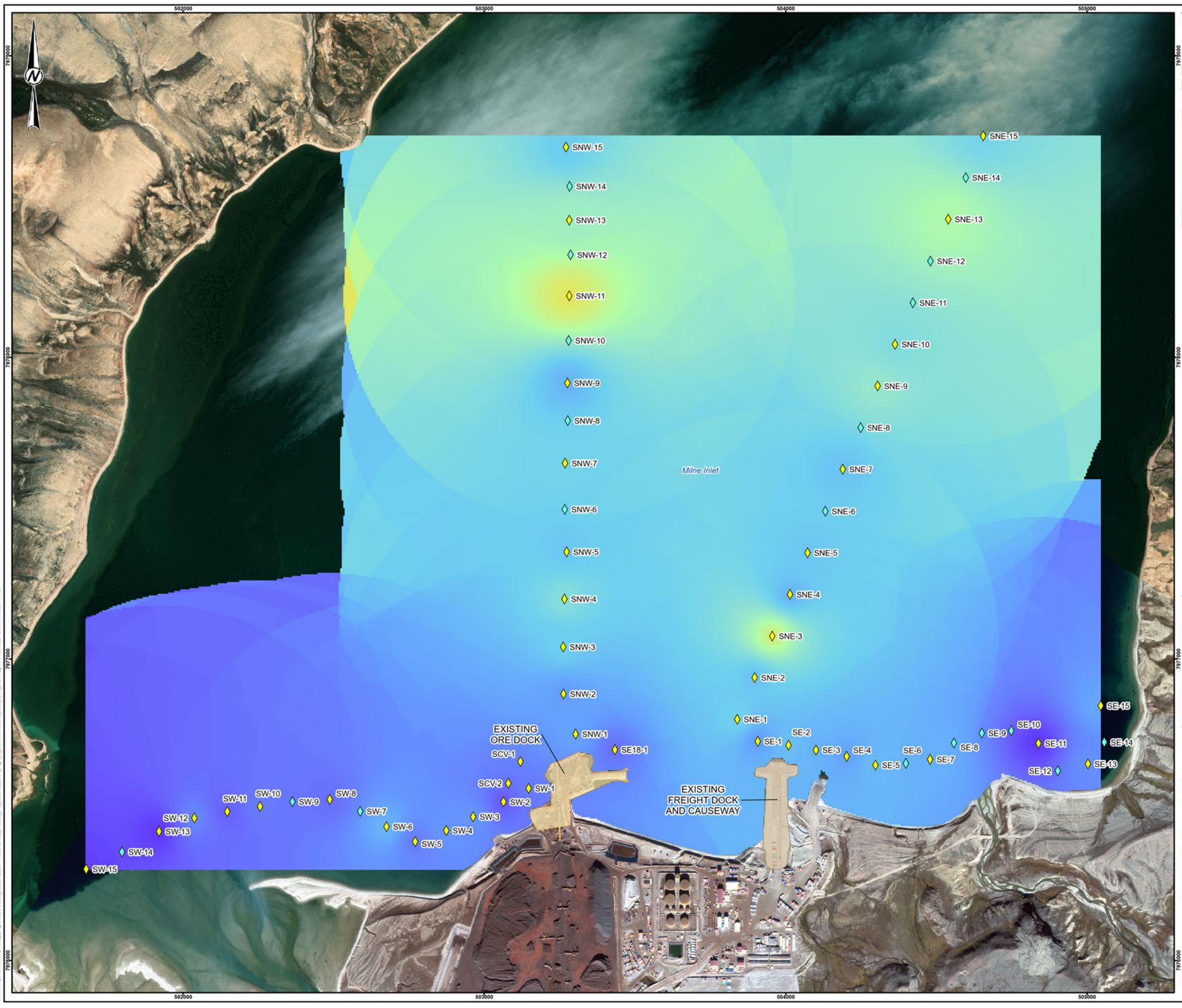


Figure 4-8: Simpson's Evenness Index of Benthic Infauna from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023.



LEGEND

- 2023 BENTHIC INFAUNA SAMPLE LOCATION
- PROPOSED, NOT SAMPLED IN 2023
- EXISTING FREIGHT DOCK AND CAUSEWAY
- EXISTING ORE DOCK

SIMPSON'S EVENNESS INDEX

1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

0 250 500
1:12,500 METRES

NOTE(S)

IDW INTERPOLATION METHOD:
GRID SIZE: 5 m
VARIABLE SEARCH RADIUS: 750 m
MAXIMUM SAMPLE POINTS: 12
POWER: 2

REFERENCE(S)

FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
IDW INTERPOLATION OF SIMPSON'S EVENNESS INDEX OF BENTHIC INFAUNA FOR SAMPLING STATIONS ALONG COASTAL AND NORTHERN OFFSHORE TRANSECTS EXTENDING FROM THE ORE DOCK, MILNE PORT, 2023

CONSULTANT

YYYY-MM-DD	2024-03-27
DESIGNED	AD
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000	0	4-9

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig4_9_BenthicInfauna_SEI_IDW_Rev0.aprx PRINTED ON: AT 8:50:47 AM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm

4.4.2 2023 Relative Densities of Benthic Invertebrate Taxa

Benthic communities sampled at stations along the offshore and coastal transects were mainly dominated by Polychaeta (26 to 93%) followed by Malacostraca, then ostracods and bivalves (Figure 4-10). The polychaete species *Nereimyra aphroditoides* and genus *Pholoe* spp. accounted for approximately 11% and 12%, respectively, of total density across the transects (Appendix 4C). The two exceptions were station SE-11 on the East Transect which was dominated by Malacostraca, and SNW-2 on the Northwest Transect which had approximately equal distribution of polychaetes, ostracods, Malacostraca, and bivalves. Relative dominance by Malacostraca at SE-11 was the result of a large influx of Malacostraca compared to other stations and not a decrease in polychaetes or other taxa, which were largely comparable to other stations. Conversely, changes in relative abundance at SNW-2 were driven mainly by a decrease in polychaete density compared to adjacent stations. These differences likely reflect natural variation in the benthic infaunal community.

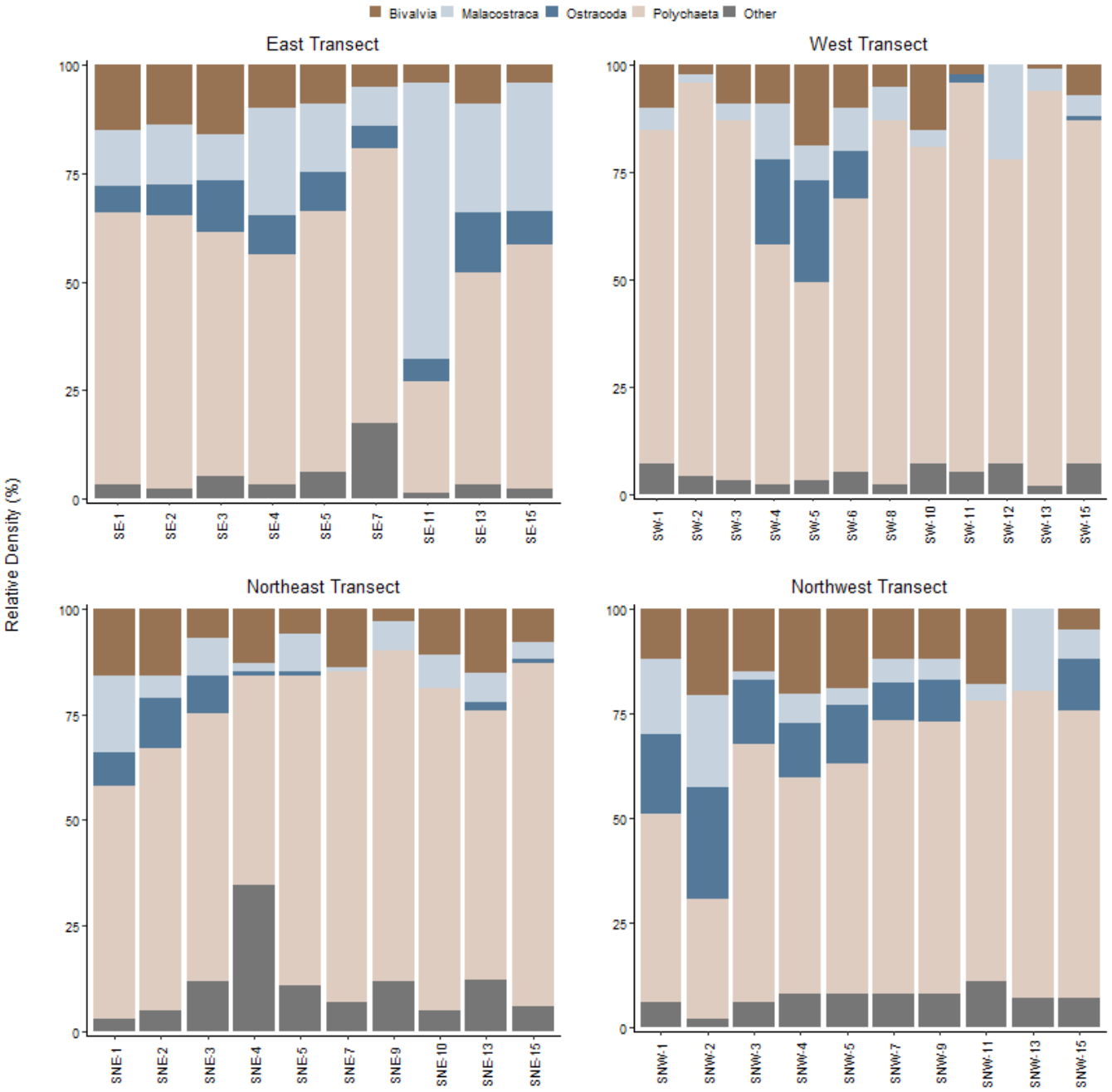


Figure 4-10: Relative Density of Major Benthic Infauna Taxa from Sampling Stations along the Four Radial Transects Extending from the Ore Dock Area, Milne Port, 2023.

4.4.3 Statistical Comparisons of Community Indicators

Generalized linear models were used to evaluate spatial and temporal trends in community indicators (i.e., total density, richness, SDI, and SEI) in Milne Port from 2018 to 2023. The main effects of each model included distance from the Ore Dock area, year (as a categorical variable), transect, and all possible interactions between these three variables. Additionally, a main effect of percent fines was used to account for the ecological relationship between total density and habitat variation (with percent fines being the dominant habitat variable). Both distance from the Ore Dock area and percent fines were modelled using non-linear terms (i.e., natural splines) to account for non-linearity in trends of total density relative to distance and habitat variability. Results of the generalized linear models are presented in Table 4-2. Post hoc marginal mean trend evaluations are presented in Tables 4-3 to 4-10. The interpretation of the results focused on post hoc comparisons within 2023 and between 2023 and previous monitoring years; however, results for all comparisons are included herein.

4.4.3.1 Total Density

The total density three-way interaction was not significant (Table 4-2); however, the two-way interactions between distance from the Ore Dock area and transect, as well as between distance from the Ore Dock area and year were statistically significant, indicating differences in the relationship between total density of benthic infauna taxa and distance among transects, as well as among years (Table 4-2). Total benthic infauna density was also significantly related to percent fines.

Overall, in 2023, infaunal density was comparable to previous years. There was an approximately linear relationship between density and distance from the Ore Dock area along all transects, except for the West Transect in most years and the East Transect in 2020 (Figure 4-11). There were no significant spatial trends in density along the offshore transects with distance in 2023, or significant differences between years for most combinations of distances and transects. Some significant spatial trends and interannual differences were identified for the coastal transects, as follows:

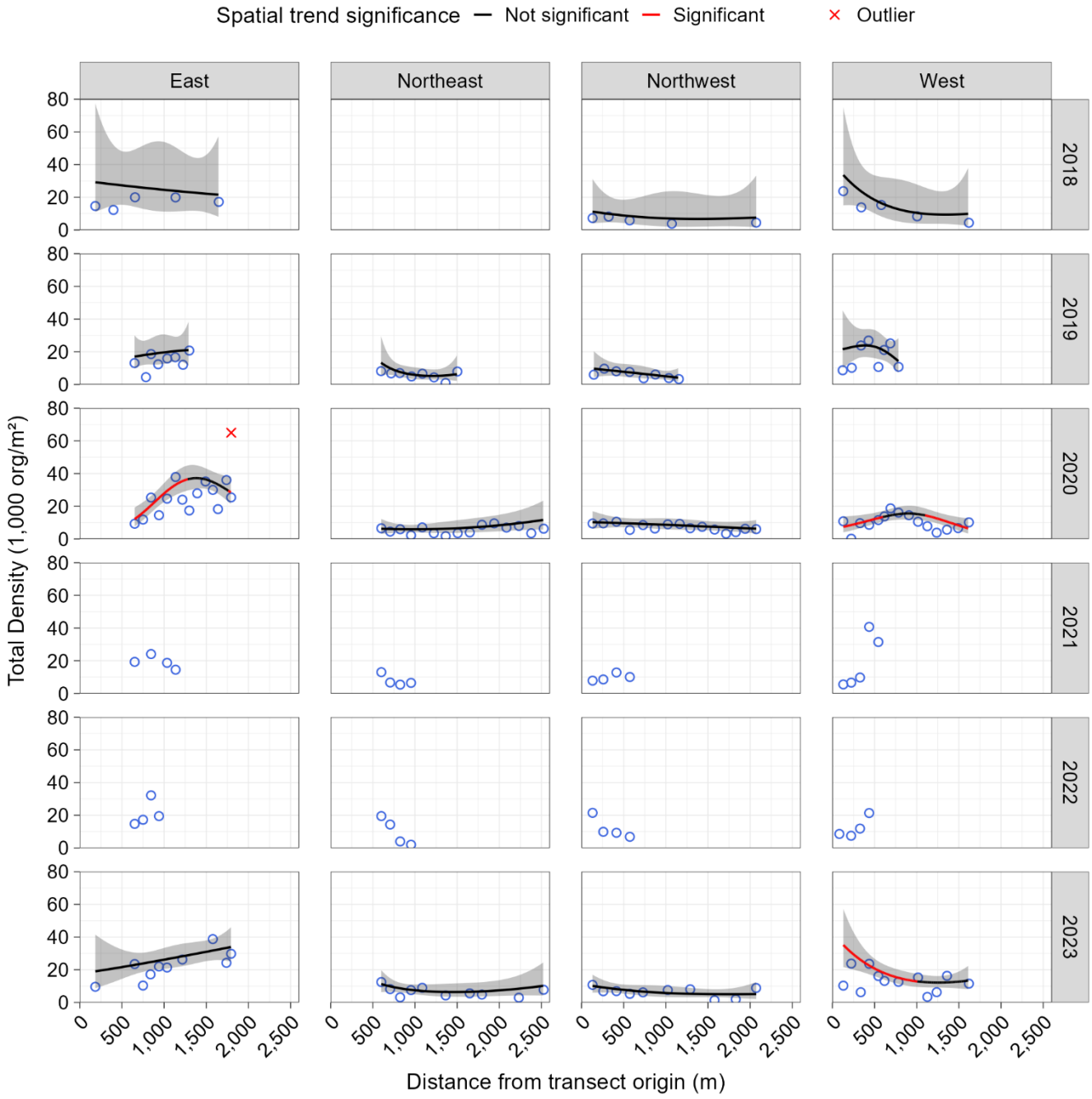
- In 2023, total density displayed a significantly decreasing trend with increasing distance from the Ore Dock area along the West Transect (250 m to 1,000 m; Figure 4-11). Mean infaunal densities were significantly higher at 250 m and 500 m, compared to 1,000 m (Table 4-3), likely due to the influence of Phillips Creek. No other spatial trend in benthic infauna total densities were observed in 2023.
- Although some interannual variability was observed within and among transects (Figure 4-12), significant interannual differences in total density were only observed along the East Transect at 500 m (2020 < 2018) and The West Transect at 250 m (2020 < 2018, 2020 < 2019, 2020 < 2023) and 500 m (2020 < 2019, 2020 < 2023; Figure 4-12; Table 4-4).

Statistical power was sufficient to detect a reduction of 72–85% in density along all four transects between 1,000 m from transect origin and the first sampling station, or an increase of 105–200%, depending on the transect (Appendix 4E). None of the observed effect sizes had sufficient statistical power. For the temporal effects, statistical power was sufficient to detect decreases in density ranging between -90% and -67% for three of the transects or an increase at effect sizes ranging between 99% and 290% for three of the transects (Appendix 4E). The large effect sizes required to obtain sufficient power for increasing density, especially for the temporal effects, was due to density values observed in 2020 being small, requiring increases of large percent values to detect a significant difference from the simulated 2023 density values.

Table 4-2: Summary of the Benthic Infauna Regression Model Results (2018-2023; four monitoring years)

Parameter	DF	Chi-Square	P-value
Total Density			
Distance from Ore Dock Area[(a)]	2	10.12	0.006
Year	3	2.42	0.490
Transect	3	155.26	<0.001
Percent Fines[(a)]	2	29.36	**<0.001**
Distance from Ore Dock Area[(a)] × Year	6	14.43	**0.025**
Distance from Ore Dock Area[(a)] × Transect	6	28.05	<0.001
Year × Transect	8	14.3	0.074
Distance from Ore Dock Area[(a)] × Year × Transect	16	14.88	0.534
Taxa Richness			
Distance from Ore Dock Area[(a)]	2	28.46	**<0.001**
Year	3	30.32	**<0.001**
Transect	3	118.83	**<0.001**
Percent Fines[(a)]	3	61.75	**<0.001**
Distance from Ore Dock Area[(a)] × Year	6	14.42	**0.025**
Distance from Ore Dock Area[(a)] × Transect	6	39.91	**<0.001**
Year × Transect	8	14.32	0.074
Distance from Ore Dock Area[(a)] × Year × Transect	16	42.09	**<0.001**
Simpson's Diversity Index (SDI)			
Distance from Ore Dock Area[(a)]	11	48.25	**<0.001**
Year	11	89.94	**<0.001**
Transect	12	166.49	**<0.001**
Percent Fines[(a)]	3	9.92	**0.019**
Distance from Ore Dock Area[(a)] × Year	13	69.83	**<0.001**
Distance from Ore Dock Area[(a)] × Transect	13	80.41	**<0.001**
Year × Transect	12	79.77	**<0.001**
Distance from Ore Dock Area[(a)] × Year × Transect	24	69.96	**<0.001**
Simpson's Evenness Index (SEI)			
Distance from Ore Dock Area[(a)]	2	6.19	**0.045**
Year	3	16.33	**0.001**
Transect	3	63.95	**<0.001**
Percent Fines[(a)]	2	3.21	0.201
Distance from Ore Dock Area[(a)] × Year	6	2.75	0.84
Distance from Ore Dock Area[(a)] × Transect	6	8.8	0.185
Year × Transect	8	15.5	0.050
Distance from Ore Dock Area[(a)] × Year × Transect	16	16.43	0.423

Notes: Cells highlighted in **blue** indicate significant effects (p-value <0.05), while **bold** values indicate statistically significant effects in the face of significant, higher-order terms – these values should not be directly interpreted. In instances of significant interaction terms, the main effects cannot be interpreted. Refer to post hoc multiple comparison tables. DF= degrees of freedom; ns = natural spline.
(a) Modelled using a natural spline to account for non-linear relationships between endpoint and variable.



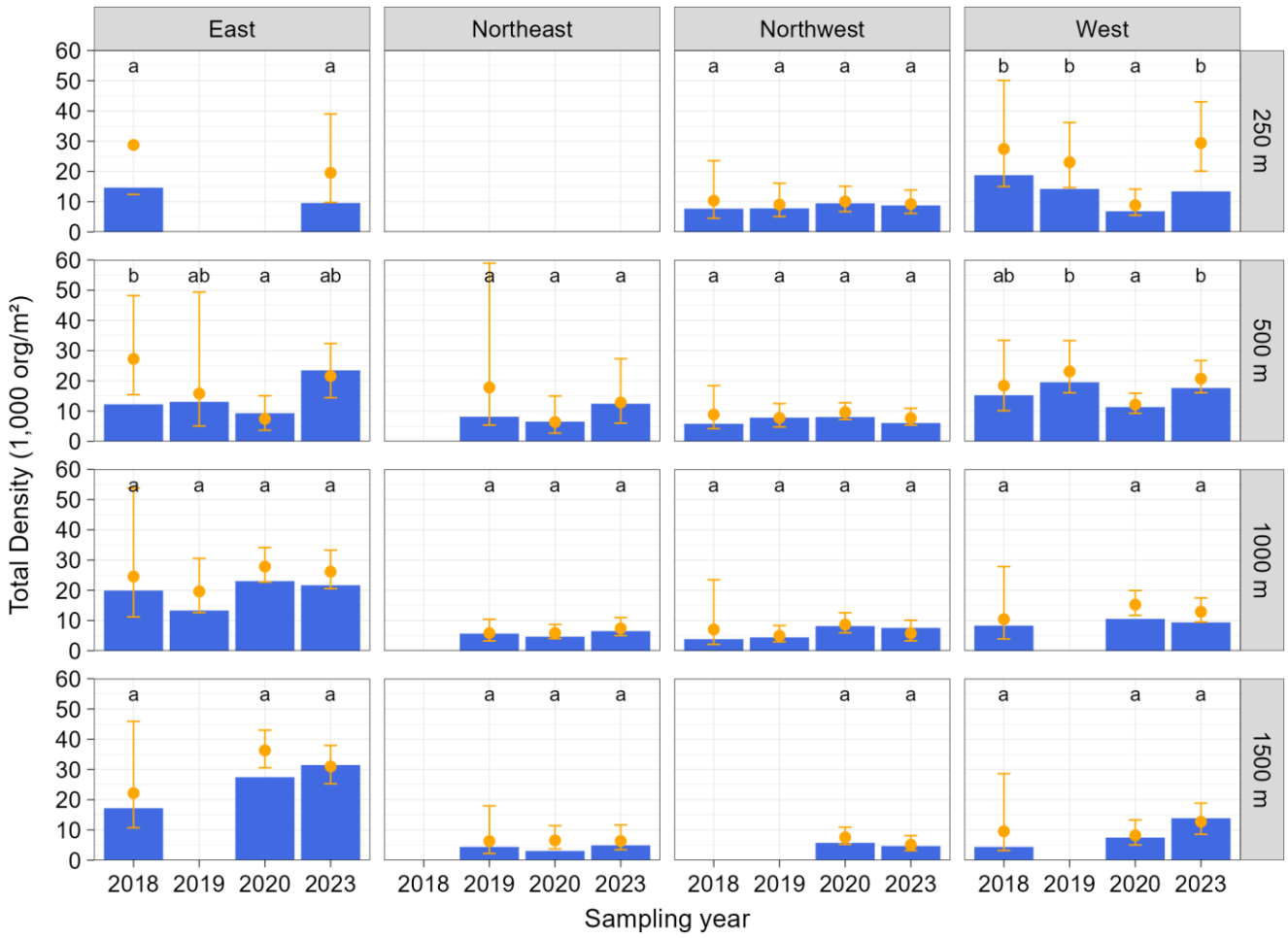
Measured total infaunal density (open circles) and mean densities (lines) plus 95% confidence intervals (grey ribbons) are shown for each sampling year and transect. Red lines indicate a significant spatial trend, black lines indicate no significant trend. No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Data collected in 2022 (n = 16) were part of the Aquatic Invasive Species (AIS) surveys, not part of the radial study design, and are included for completeness.

Figure 4-11: Spatiotemporal Trends in Benthic Infauna Total Density Relative to Distance from the Ore Dock Area, 2018 – 2023.

Table 4-3: Multiple Comparisons of Benthic Infauna Total Density between Distance from Ore Dock Area within Years, 2018 – 2023

Transect	Year	Distance From Ore Dock		
		250 m vs 500 m	500 m vs 1000 m	1000 m vs 1500 m
Total Density				
East	2018	0.998 (5%)	0.990 (11%)	0.995 (10%)
	2019	-	0.991 (-19%)	-
	2020	-	**0.002 (-73%)**	**0.019 (-24%)**
	2023	0.933 (-10%)	0.832 (-17%)	0.494 (-14%)
Northeast	2018	-	-	-
	2019	-	0.491 (206%)	1.000 (1.6%)
	2020	-	0.998 (8%)	0.983 (-6.2%)
	2023	-	0.634 (73%)	0.659 (21%)
Northwest	2018	0.963 (17%)	0.951 (25%)	0.997 (5.5%)
	2019	0.930 (17%)	0.488 (56%)	-
	2020	0.983 (5.0%)	0.919 (11%)	0.510 (16%)
	2023	0.688 (20%)	0.471 (33%)	0.860 (14%)
West	2018	0.550 (49%)	0.297 (76%)	0.992 (17%)
	2019	1.00 (0%)	-	-
	2020	0.144 (-27%)	0.489 (-20%)	0.315 (52%)
	2023	**0.033 (42%)**	**0.005 (61%)**	0.999 (2.7%)

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results (p-value <0.05). Positive effect sizes indicate total density is higher at the distance closer to the Ore Dock area (i.e., total density decreases with increasing distance). Negative effect sizes indicate total density is lower at the distance closer to the Ore Dock area (i.e., total density increases with increasing distance).
- = Data not available for comparison.



No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Measured total density (blue bars) and marginal means ± 95% confidence intervals (orange circles, error bars) are indicated for each sampling year and distance.

Figure 4-12: Interannual Differences in Benthic Infauna Total Density Relative to Distance from the Ore Dock Area, 2018-2023.

Table 4-4: Post hoc Multiple Comparisons of Benthic Infauna Total Density between Years within Distances from the Ore Dock Area, 2018-2023.

Transect	Distance From Ore Dock Area	Post hoc Comparisons					
		2018 vs 2019	2018 vs 2020	2018 vs 2023	2019 vs 2020	2019 vs 2023	2020 vs 2023
Total Density							
East	250 m	-	-	0.470 (-32%)	-	-	-
	500 m	0.831 (42%)	**0.027 (73%)**	0.904 (21%)	0.690 (53%)	0.956 (-37%)	0.053 (-190%)
	1000 m	0.962 (20%)	0.990 (-13%)	0.999 (-7%)	0.465 (-42%)	0.664 (-33%)	0.975 (6%)
	1500 m	-	0.398 (-64%)	0.663 (-40%)	-	-	0.455 (15%)
Northeast	250 m	-	-	-	-	-	-
	500 m	-	-	-	-	-	-
	1000 m	-	-	-	0.999 (-1%)	0.761 (-27%)	0.638 (-26%)
	1500 m	-	-	-	0.997 (-4%)	1.00 (-1%)	0.996 (3%)
Northwest	250 m	0.994 (12%)	1.00 (3%)	0.995 (11%)	0.991 (-11%)	1.00 (-2%)	0.990 (9%)
	500 m	0.991 (12%)	0.997 (-9%)	0.986 (13%)	0.865 (-24%)	1.00 (1%)	0.743 (20%)
	1000 m	0.951 (30%)	0.989 (-22%)	0.990 (18%)	0.268 (-74%)	0.979 (-16%)	0.586 (33%)
	1500 m	-	0.981 (-12%)	0.888 (25%)	-	-	0.292 (33%)
West	250 m	0.966 (16%)	**0.014 (68%)**	0.997 (-7%)	**0.011 (62%)**	0.801 (-27%)	**<0.001 (-233%)**
	500 m	0.919 (-26%)	0.589 (34%)	0.984 (-13%)	**0.027 (47%)**	0.962 (10%)	**0.008 (-71%)**
	1000 m	-	0.745 (-46%)	0.915 (-23%)	-	-	0.687 (16%)
	1500 m	-	0.966 (14%)	0.879 (-33%)	-	-	0.348 (-55%)

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results (p-value <0.05). Positive effect sizes indicate total density is higher in the past. Negative effect sizes indicate total density is higher in the more recent year.
- = Data not available for comparison.

4.4.3.2 Richness

The richness three-way interaction between distance from the Ore Dock area, year, and transect was statistically significant for richness (Table 4-2), indicating significant interannual differences in the relationship between richness and distance from the Ore Dock area along different transects. Percent fines was also a statistically significant predictor of benthic infauna richness (Table 4-2).

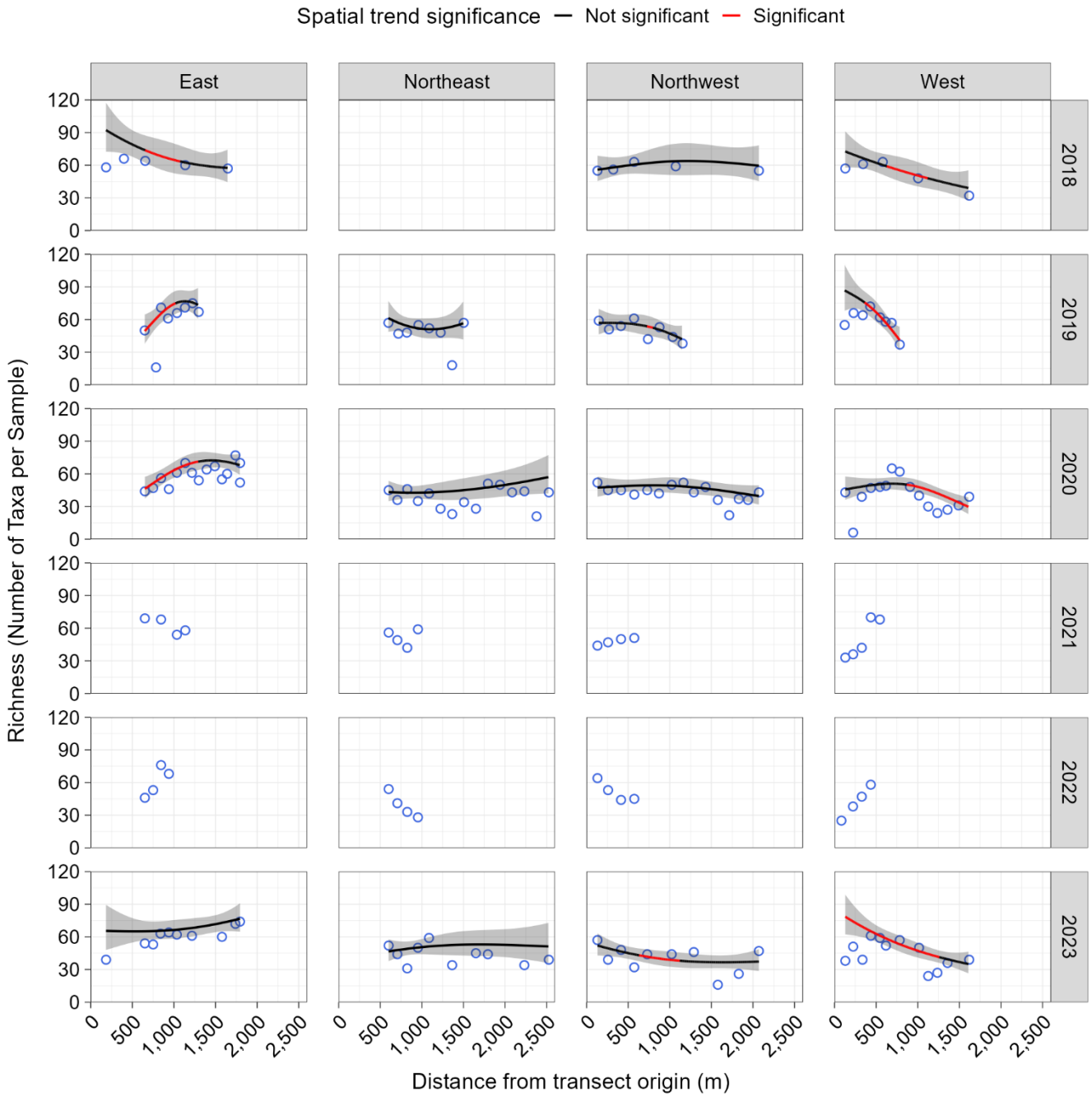
For the most part, benthic invertebrate richness had a non-linear relationship with distance from the Ore Dock area along both offshore and coastal transects (Figure 4-13). Although there were some significant differences among years as described below, no consistent differences (i.e., trends) were found among sampling years.

- **East Transect**—Richness decreased with distance from the Ore Dock area in 2018 but increased with distance in all subsequent years (Table 4-5; Figure 4-13). Richness was significantly higher at 1,000 m compared to 1,500 m and at 1,000 m compared to 500 m in 2020 (Table 4-5). The only significant differences between years were at 500 m from the Ore Dock area, where richness in 2018 was significantly higher compared to 2019 and 2020, and richness in 2023 was significantly higher compared to 2020 (Figure 4-14; Table 4-6).
- **West Transect**—Richness generally decreased with distance from the Ore Dock area in all years (Figure 4-13). In 2023, richness decreased significantly with increasing distance from the Ore Dock area (Table 4-5).

The trend of significantly higher richness near the Ore Dock area compared to later in the transect was seen in most years to various degrees (Table 4-5). At 250 m and 500 m from the Ore Dock area, 2023 richness was significantly higher than 2020 but not significantly higher than in other years (Figure 4-14; Table 4-6).

- **Northwest Transect**—Richness spatial trends with increasing distance were not consistent between years (Figure 4-13). There were no significant differences in richness along the transect within any year (Table 4-5). In 2023, richness was significantly lower than 2018 at 500 m, 1000 m, and 1,500 m from the Ore Dock area, but not significantly lower than 2020 at any distance along the transect (Figure 4-14; Table 4-6).
- **Northeast Transect**—Richness spatial trends with increasing distance were not consistent between years (Figure 4-13). There were no significant differences in richness along the transect within or between years (Figure 4-14; Table 4-5; Table 4-6).

Statistical power was sufficient to detect a reduction of 45–52% or an increase of 57–75% in species richness along each transect between 1,000 m from transect origin and the first sampling station (Appendix 4E). Only one observed difference was larger than these effect size cutoffs, with an increase of 109% in richness at the West Transect. For the temporal effects, power was sufficient to detect a reduction of 37–75% or an increase of 42–120% in species richness (Appendix 4E). Observed effect sizes ranged from +4% to +69%, indicating either no change or an increase in richness between 2020 and 2023 in proximity to transect origins.



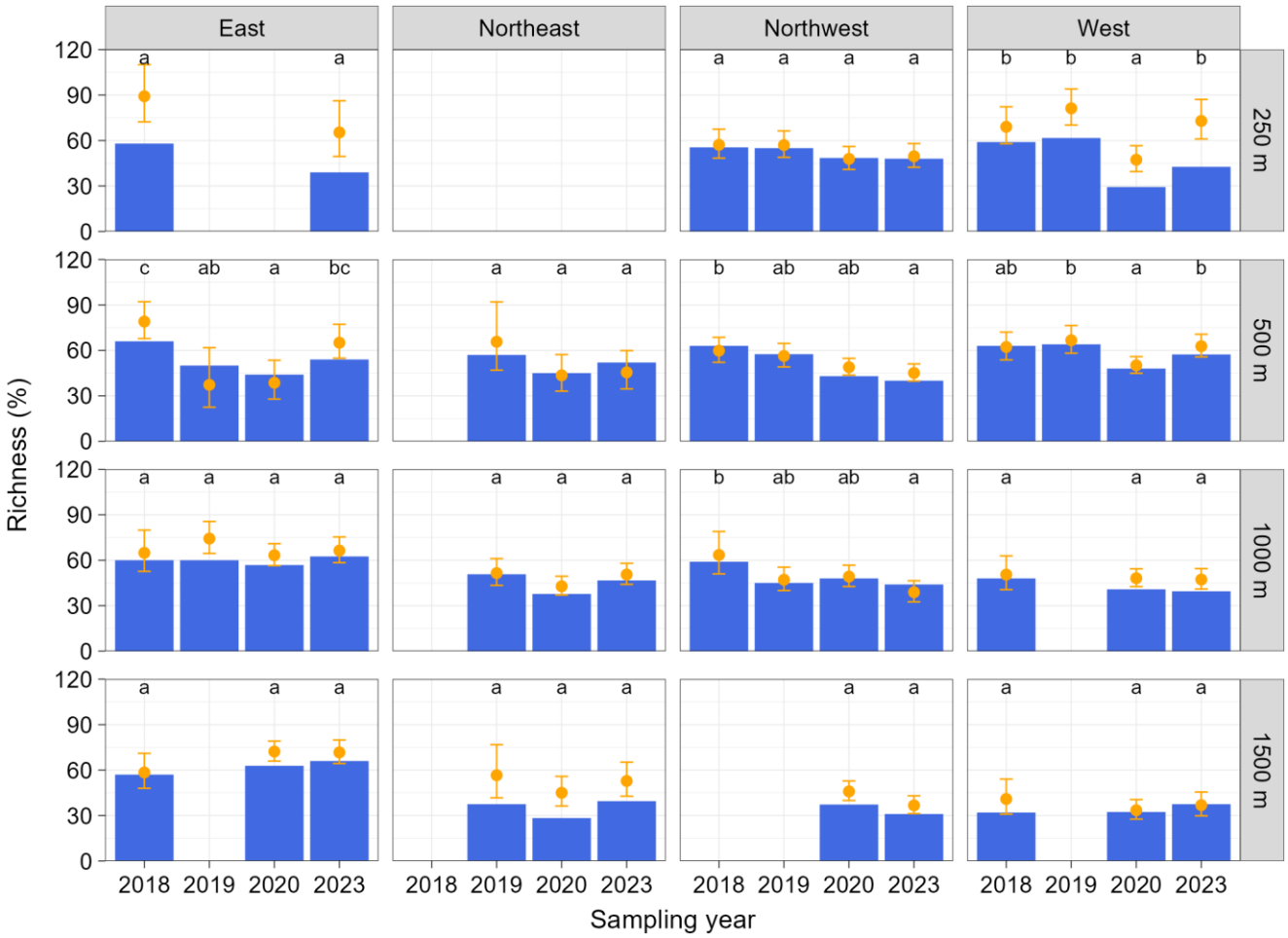
Measured total infaunal taxa richness (open circles) and mean richness (lines) plus 95% confidence intervals (grey ribbons) are shown for each sampling year and transect. Red lines indicate a significant spatial trend (p-value <0.05), black lines indicate no significant trend. No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Data collected in 2021 and 2022 (n = 17 and n = 16, respectively) were part of the Aquatic Invasive Species (AIS) surveys, not part of the radial study design, and are included for completeness.

Figure 4-13: Spatiotemporal Trends in Benthic Infauna Taxa Richness Relative to Distance from the Ore Dock Area, 2018 – 2023.

Table 4-5: Multiple Comparisons of Benthic Infauna Taxa Richness between Distances from Ore Dock Area within Years, 2018 – 2023

Transect	Year	Distance From Ore Dock Area		
		250 m vs 500 m	500 m vs 1000 m	1000 m vs 1500 m
Taxa Richness				
East	2018	0.382 (13%)	0.099 (20%)	0.786 (11%)
	2019	-	0.088 (-50%)	-
	2020	-	**0.021 (-39%)**	**0.045 (-12%)**
	2023	1.000 (0.4%)	0.997 (-1.9%)	0.524 (-7.4%)
Northeast	2018	-	-	-
	2019	-	0.693 (28%)	0.949 (-9.0%)
	2020	-	0.999 (2%)	0.861 (-4.9%)
	2023	-	0.907 (-10%)	0.908 (-4.3%)
Northwest	2018	0.884 (-4.4%)	0.885 (-5.8%)	1.000 (0.3%)
	2019	0.999 (1.2%)	0.185 (20%)	-
	2020	0.971 (-2.1%)	1.000 (-0.6%)	0.344 (7.1%)
	2023	0.279 (10%)	0.132 (16%)	0.678 (6.0%)
West	2018	0.481 (11%)	**0.044 (23%)**	0.469 (23%)
	2019	0.099 (22%)	-	-
	2020	0.763 (-5.6%)	0.925 (4.1%)	**0.004 (44%)**
	2023	0.072 (16%)	**<0.001 (33%)**	0.175 (28%)

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results (p-value <0.05). Positive effect sizes indicate richness is higher closer to the Ore Dock area (i.e., total density decreases with increasing distance). Negative effect sizes indicate richness is lower closer to the Ore Dock area (i.e., total density increases with increasing distance).
- = Data not available for comparison.



No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Measured taxa richness (blue bars) and marginal means ± 95% confidence intervals (orange circles, error bars) are indicated for each sampling year and distance.

Figure 4-14: Interannual Differences in Benthic Infauna Taxa Richness Relative to Distance from the Ore Dock Area, 2018 – 2023.

Table 4-6: Post hoc Multiple Comparisons of Benthic Infauna Taxa Richness between Years within Distances from the Ore Dock Area, 2018-2023

Transect	Distance From Ore Dock Area	Post hoc Comparisons					
		2018 vs 2019	2018 vs 2020	2018 vs 2023	2019 vs 2020	2019 vs 2023	2020 vs 2023
Taxa Richness							
East	250 m	-	-	0.053 (27%)	-	-	-
	500 m	**0.022 (53%)**	**0.001 (51%)**	0.241 (18%)	0.999 (-4%)	0.153 (-75%)	**0.028 (-69%)**
	1000 m	0.706 (-15%)	0.997 (2.4%)	0.998 (-2.3%)	0.250 (15%)	0.614 (11%)	0.926 (-4.9%)
	1500 m	-	0.125 (-24%)	0.166 (-23%)	-	-	0.993 (0.8%)
Northeast	250 m	-	-	-	-	-	-
	500 m	-	-	-	0.135 (34%)	0.196 (31%)	0.971 (-4%)
	1000 m	-	-	-	0.157 (17%)	0.982 (1.8%)	0.127 (-18%)
	1500 m	-	-	-	0.244 (20%)	0.890 (6.7%)	0.275 (-17%)
Northwest	250 m	1.000 (0.3%)	0.429 (16%)	0.613 (13%)	0.405 (16%)	0.594 (13%)	0.990 (-3.5%)
	500 m	0.925 (5.8%)	0.104 (18%)	**0.012 (25%)**	0.368 (13%)	0.070 (20%)	0.754 (7.8%)
	1000 m	0.110 (26%)	0.179 (23%)	**0.003 (39%)**	0.972 (-4.4%)	0.355 (17%)	0.124 (21%)
	1500 m	-	**0.019 (27%)**	**<0.001 (42%)**	-	-	0.051 (20%)
West	250 m	0.431 (-18%)	**0.009 (31%)**	0.968 (-5.6%)	**<0.001 (42%)**	0.707 (10%)	**0.001 (-54%)**
	500 m	0.901 (-7.1%)	0.076 (19%)	1.000 (-0.8%)	**0.006 (25%)**	0.909 (5.9%)	**0.012 (-25%)**
	1000 m	-	0.923 (4.7%)	0.869 (6.5%)	-	-	0.979 (1.8%)
	1500 m	-	0.466 (18%)	0.826 (9.9%)	-	-	0.784 (-10%)

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results for comparisons to 2023 (p-value <0.05), while **bold** values indicated statistically significant results between previous monitoring years. Positive effect sizes indicate richness is higher in the past. Negative effect sizes indicate richness is higher in the more recent year.
- = Data not available for comparison.

4.4.3.3 Simpson's Diversity Index

The Simpson's Diversity Index (SDI) three-way interaction between distance, transect, and year was statistically significant (Table 4-2), indicating interannual differences in the relationship between SDI and distance along different transects. Percent fines was also a statistically significant explanatory variable of benthic infauna richness (Table 4-2).

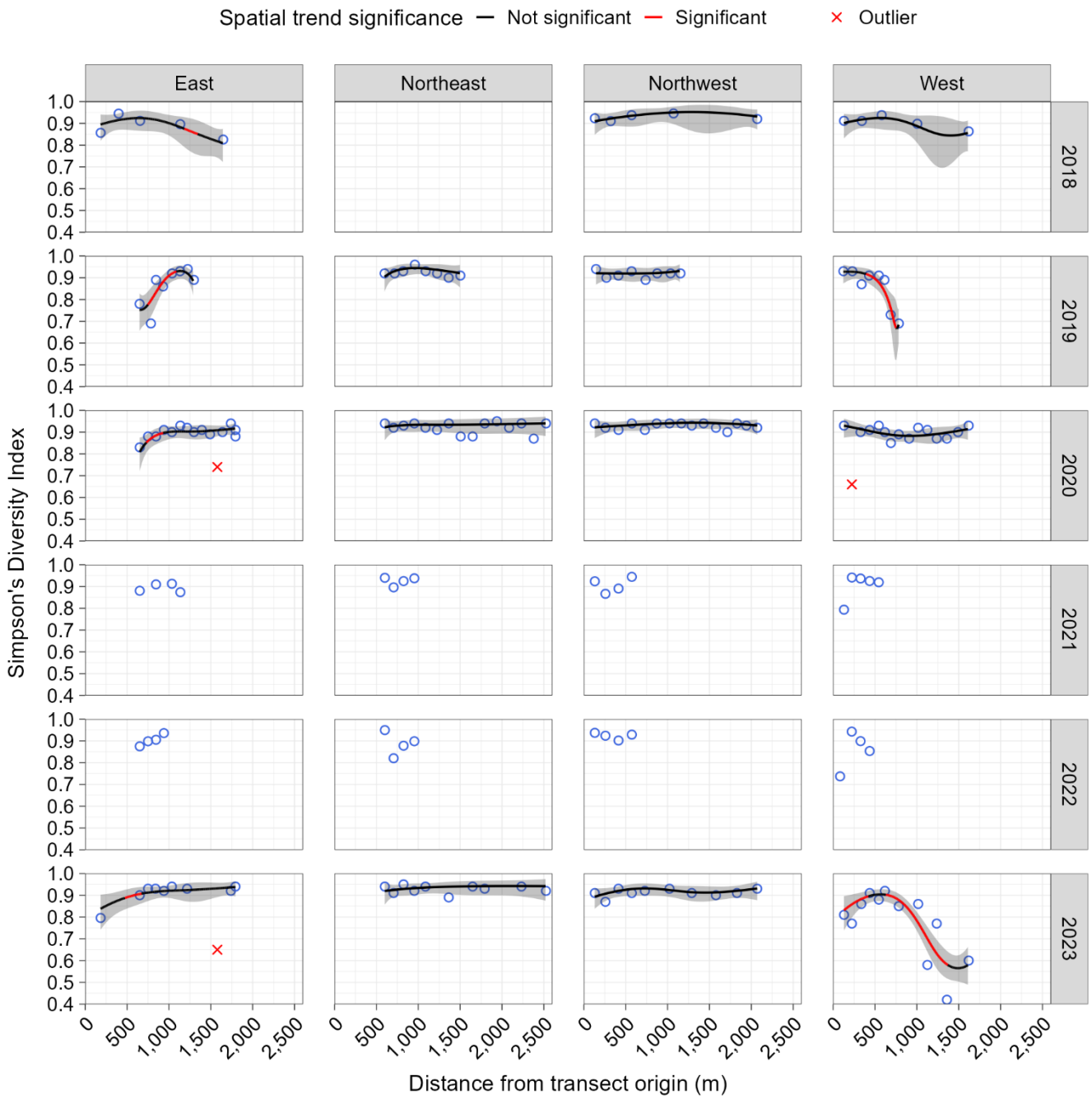
SDI had a non-linear relationship with distance from the Ore Dock area along the East and West transects in all sampling years, along the Northeast transect in 2019, and along the Northwest transect in 2023 (Figure 4-15). SDI showed a general increase with distance from the Ore Dock area along the East Transect, peaking at ~1,500 m in 2020 and 2023 (Figure 4-15). Significant differences within transects in a given year were only identified for 2023 on the West Transect (Figure 4-15; Table 4-7). SDI along the West Transect peaked ~500 m in 2023 then significantly decreased to a low at 1,500 m (Figure 4-15; Table 4-7).

Significant differences between 2023 and previous years were identified only along the East and West transects (Figure 4-16; Table 4-8), as follows:

- **East Transect**—SDI did not vary significantly between years, except at a distance of 1,500 m where 2020 and 2023 SDI values were significantly greater than 2018 (Figure 4-16; Table 4-8).

- **West Transect**—SDI was significantly lower in 2023 compared to 2019 at 250 m from the Ore Dock area (Table 4-8). Diversity was also significantly lower at 1,000 m and 1,500 m in 2023 compared to 2018 and 2020 (Figure 4-16; Table 4-8).

Statistical power was sufficient to detect a reduction of 57–72% in SDI along each transect between 1,000 m from transect origin and the first sampling station, or an increase of +177% at the West Transect (Appendix 4E). Only one observed difference was larger than these effect size cutoffs, with an increase of 362% in SDI at the West Transect. For the temporal effects, statistical power was sufficient to detect decreases in SDI ranging between -65% and -44% for three of the transects or an increase ranging between 82% and 110% for the Northwest and West transects (Appendix 4E). Power to detect increases in SDI was generally low, since observed SDI values were generally high, and due to the bounding of SDI between 0 and 1, further increases in SDI would be difficult to detect.



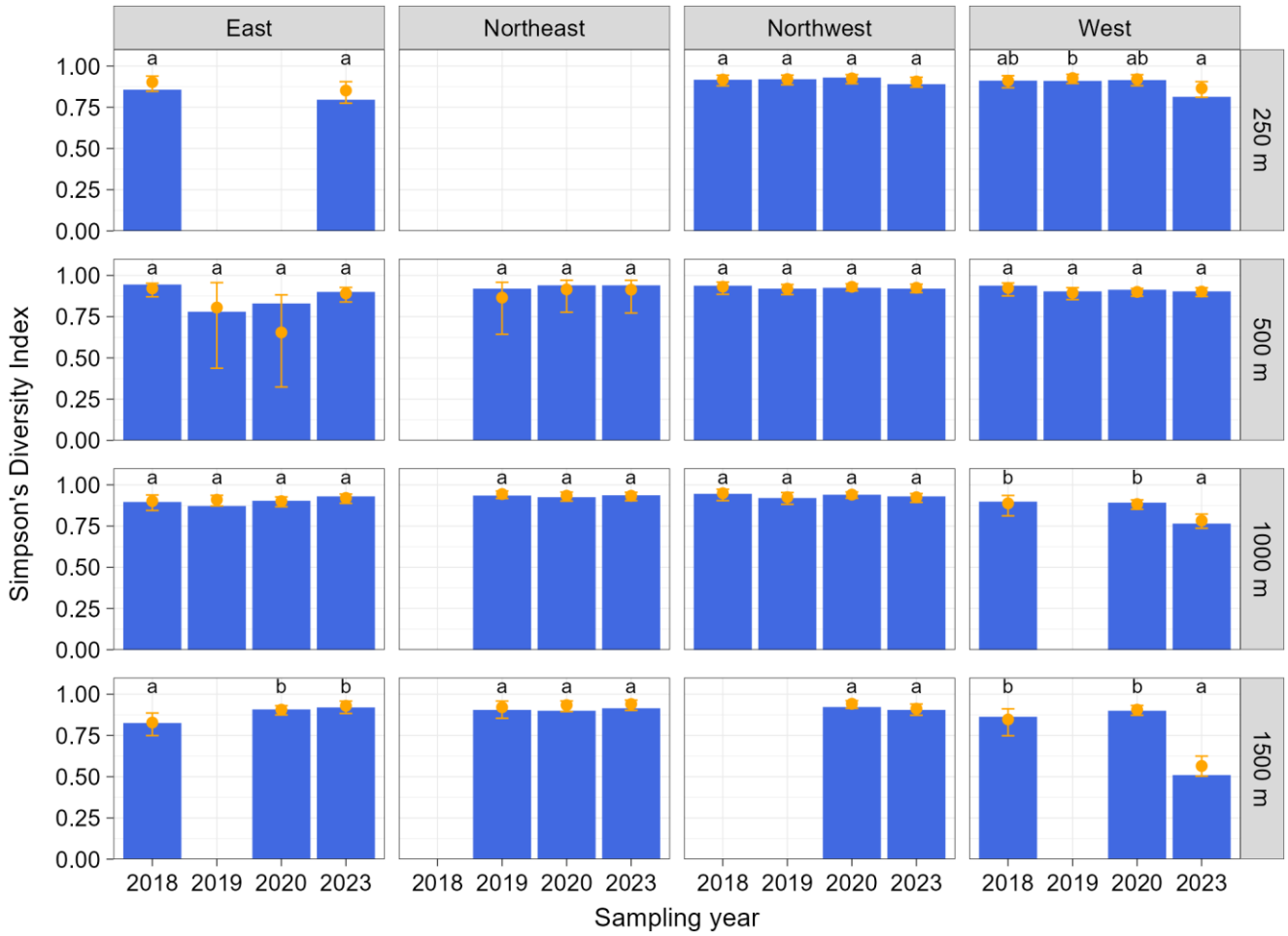
Measured Simpson's Diversity index (open circles) and mean SDI (lines) plus 95% confidence intervals (grey ribbons) are shown for each sampling year and transect. Red lines indicate a significant spatial trend (p-value <0.05), black lines indicate no significant trend. No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Data collected in 2021 and 2022 (n = 17 and n = 16, respectively) were part of the Aquatic Invasive Species (AIS) surveys, not part of the radial study design, and are included for completeness.

Figure 4-15: Spatiotemporal Trends in Benthic Infauna Simpson's Diversity Index Relative to Distance from the Ore Dock Area, 2018 – 2023.

Table 4-7: Multiple Comparisons of Benthic Infauna Simpson's Diversity Index between Distance from Ore Dock Area within Years, 2018 – 2023

Transect	Year	Distance From Ore Dock Area		
		250 m vs 500 m	500 m vs 1000 m	1000 m vs 1500 m
Simpson's Diversity Index (SDI)				
East	2018	0.856 (-20.9%)	0.843 (28%)	0.065 (89%)
	2019	-	0.729 (-59%)	-
	2020	-	0.194 (-79%)	0.993 (-6.1%)
	2023	0.314 (-29.7%)	0.567 (-30%)	0.927 (-13%)
Northeast	2018	-	-	-
	2019	-	0.579 (-62%)	0.775 (45%)
	2020	-	0.982 (-24%)	1.000 (-0.2%)
	2023	-	0.977 (-25%)	0.976 (-11%)
Northwest	2018	0.887 (-18%)	0.866 (-27%)	1.000 (-2.7%)
	2019	1.000 (1.0%)	0.997 (-7.1%)	-
	2020	0.970 (-8.3%)	0.767 (-15%)	0.999 (-2.7%)
	2023	0.542 (-22%)	1.000 (0.7%)	0.811 (18%)
West	2018	0.920 (-15%)	0.734 (53%)	0.531 (43%)
	2019	0.208 (49%)	-	-
	2020	0.588 (28%)	0.749 (19%)	0.621 (-22%)
	2023	0.152 (-31%)	**<0.001 (155%)**	**<0.001 (178%)**

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results (p-value <0.05). Positive effect sizes indicate SDI is higher closer to the Ore Dock area (i.e., total density decreases with increasing distance). Negative effect sizes indicate SDI is lower closer to the Ore Dock area (i.e., total density increases with increasing distance).
- = Data not available for comparison.



No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Measured SDI (blue bars) and marginal means ± 95% confidence intervals (orange circles, error bars) are indicated for each sampling year and distance.

Figure 4-16: Interannual Differences in Benthic Infauna Simpson's Diversity Index Relative to Distance from the Ore Dock Area, 2018 – 2023.

Table 4-8: Post hoc Multiple Comparisons of Benthic Infauna Simpson's Diversity Index between Years within Distances from the Ore Dock Area, 2018-2023

Transect	Distance From Ore Dock Area	Post hoc Comparisons					
		2018 vs 2019	2018 vs 2020	2018 vs 2023	2019 vs 2020	2019 vs 2023	2020 vs 2023
Simpson's Diversity Index (SDI)							
East	250 m	-	-	0.109 (38%)	-	-	-
	500 m	0.659 (65%)	0.059 (84%)	0.700 (30%)	0.895 (54)	0.873 (97%)	0.169 (331%)
	1000 m	0.991 (-10%)	1.000 (0.4%)	0.871 (-27%)	0.977 (9.5%)	0.944 (-15%)	0.728 (-27.4%)
	1500 m	-	**0.042 (-100%)**	**0.018 (-174%)**	-	-	0.581 (-37%)
Northeast	250 m	-	-	-	-	-	-
	500 m	-	-	-	0.812 (-68%)	0.826 (-64%)	1.00 (2%)
	1000 m	-	-	-	0.789 (16%)	0.787 (17%)	1.000 (0.4%)
	1500 m	-	-	-	0.820 (-21%)	0.664 (-35%)	0.902 (-12%)
Northwest	250 m	0.999 (-3.7%)	0.986 (-11%)	0.956 (13%)	0.996 (-6.7%)	0.908 (16%)	0.797 (22%)
	500 m	0.960 (16%)	1.000 (1.1%)	0.992 (9.1%)	0.925 (-18%)	0.991 (-8.1%)	0.986 (8.1%)
	1000 m	0.766 (34%)	0.974 (15%)	0.708 (34%)	0.831 (-28%)	1.000 (0.3%)	0.692 (22%)
	1500 m	-	0.965 (15%)	0.605 (46%)	-	-	0.247 (36%)
West	250 m	0.880 (-23%)	0.981 (-12%)	0.293 (37.9%)	0.984 (9.0%)	0.014 (49%)	0.071 (44%)
	500 m	0.717 (30%)	0.762 (26%)	0.812 (24%)	0.995 (-5.7%)	0.989 (-8.0%)	1.000 (-2.2%)
	1000 m	-	0.990 (4.4%)	**0.041 (54%)**	-	-	**<0.001 (52%)**
	1500 m	-	0.251 (-75%)	**<0.001 (77%)**	-	-	**<0.001 (87%)**

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results for comparisons to 2023 (p-value <0.05), while **bold** values indicated statistically significant results between previous monitoring years. Positive effect sizes indicate SDI is higher in the past. Negative effect sizes indicate SDI is higher in the more recent year.
- = Data not available for comparison.

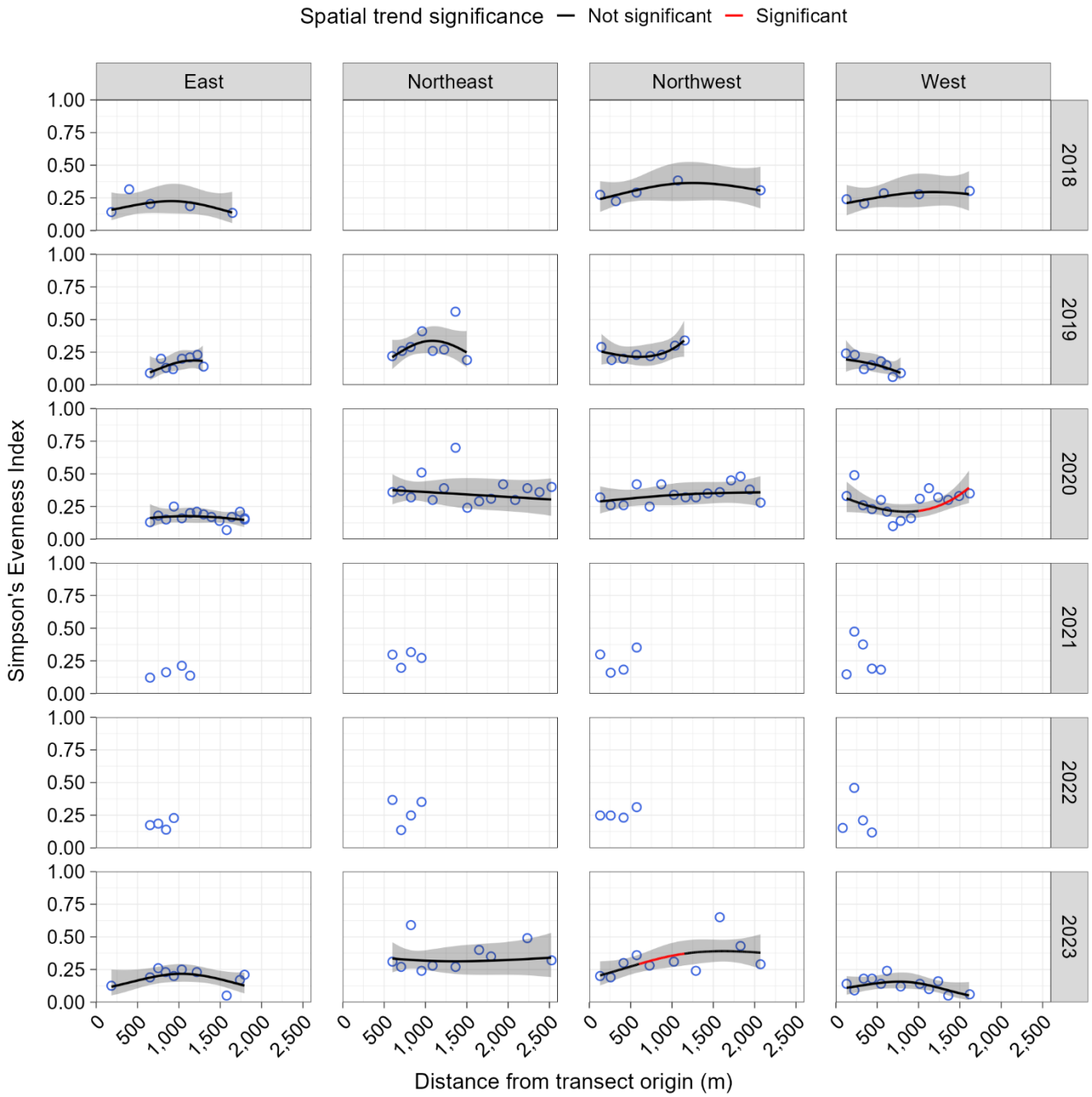
4.4.3.4 Simpson's Evenness Index

The Simpson's Evenness Index (SEI) three-way interaction between distance, transect, and year was not statistically significant, and no two-way interactions were significant (Table 4-2). The main effects of distance from Ore Dock area, year, and transect were significant, indicating significant differences in SEI between distances along the transects, the sampling years, and the transects (Table 4-2). Percent fines was not a statistically significant explanatory variable of benthic infauna SEI (Table 4-2).

Spatial trends in SEI were not consistent between years along the East and Northeast transects, with several years where little variation in SEI values over distance (i.e., no spatial trend present). In contrast, SEI generally increased with distance along the Northwest Transect and showed significant, non-linear trend with distance along the West Transect (Figure 4-17). In 2023, SEI was relatively consistent with distance, except for the Northwest Transect, which showed significant increases in SEI with increasing distance from the Ore Dock area (Figure 4-17).

Significant differences between 2023 and previous years were identified only along the West Transect (Figure 4-18; Table 4-10). At 250 m and 500 m, SEI was significantly lower in 2023 compared to 2020. In addition, at 1,500 m SEI in 2023 was significantly lower than 2018 and 2020. No other significant differences were observed (Table 4-10).

Statistical power was sufficient to detect a reduction of 69–92% in SEI along three of the four transects between 1,000 m from transect origin and the first sampling station, or an increase of 175-390%, depending on the transect (Appendix 4E). None of the observed effect sizes had sufficient statistical power. For the temporal effects, statistical power was sufficient to detect decreases in SEI ranging between -55% and -75% for three of the transects or an increase at effect sizes ranging between 90% and 170% for three of the transects (Appendix 4E). The large effect sizes required to obtain sufficient power for increasing SEI were due to the low SEI values used as the baseline (e.g., the SEI values at the end of the transect). This was especially noticeable for the West Transect, where the 2023 SEI value at the end of the transect was only 0.06, leading to an effect size of +390% required for sufficient power.



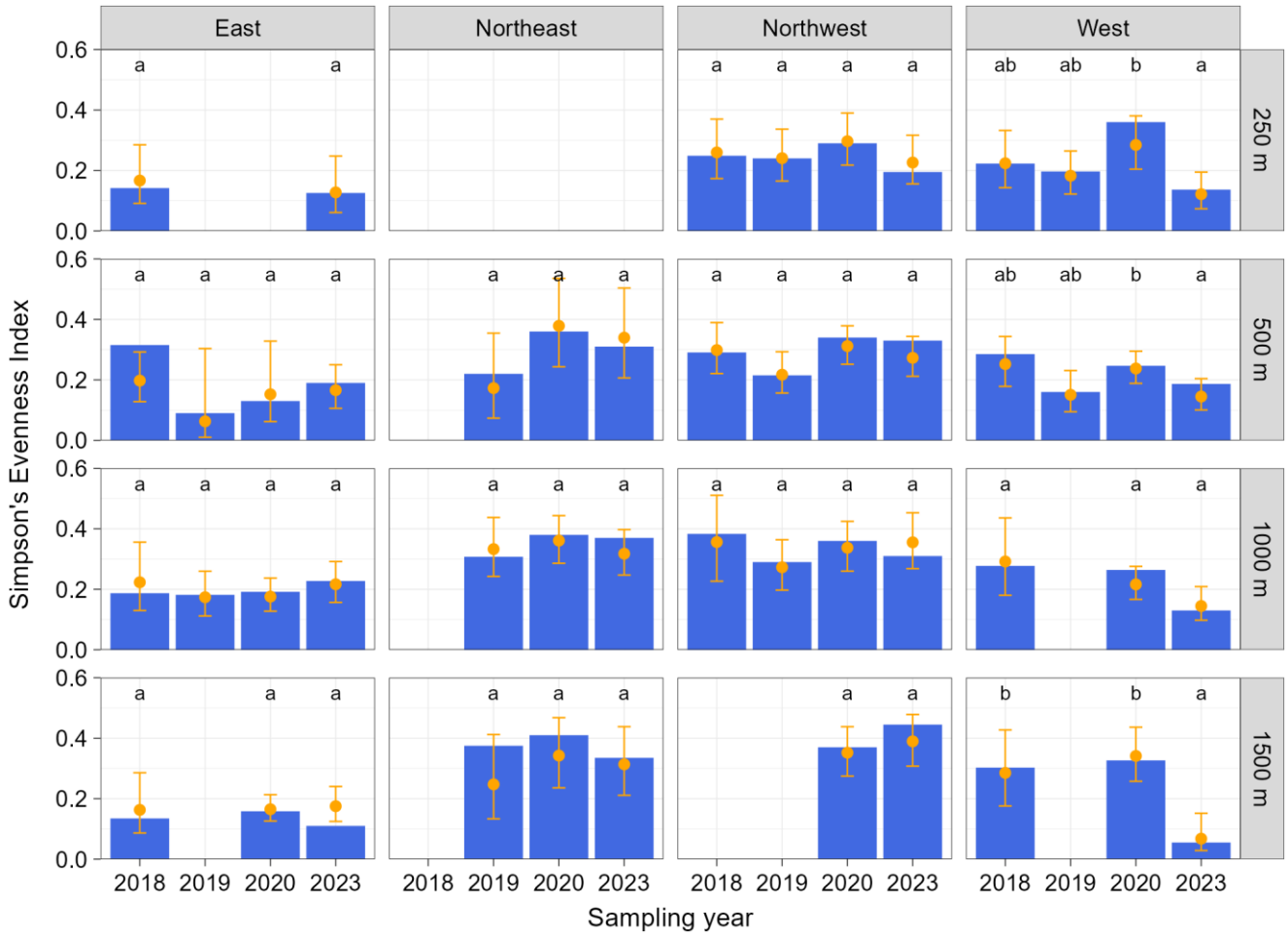
Measured Simpson's Evenness index (open circles) and mean SEI (lines) plus 95% confidence intervals (grey ribbons) are shown for each sampling year and transect. Red lines indicate a significant spatial trend (p-value <0.05), black lines indicate no significant trend. No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Data collected in 2022 (n = 16) were part of the Aquatic Invasive Species (AIS) surveys, not part of the radial study design, and are included for completeness.

Figure 4-17: Spatiotemporal Trends in Benthic Infauna Simpson's Evenness Index Relative to Distance from the Ore Dock Area, 2018 – 2023.

Table 4-9: Multiple Comparisons of Benthic Infauna Simpson's Evenness Index between Distance from Ore Dock Area within Years, 2018 – 2023.

Transect	Year	Distance From Ore Dock Area		
		250 m vs 500 m	500 m vs 1000 m	1000 m vs 1500 m
Simpson's Evenness Index (SEI)				
East	2018	0.816 (-19%)	0.941 (-14%)	0.772 (48%)
	2019	-	0.726 (-68%)	-
	2020	-	0.989 (-16%)	0.972 (7.9%)
	2023	0.425 (-27%)	0.591 (-28%)	0.625 (30%)
Northeast	2018	-	-	-
	2019	-	0.485 (-58%)	0.771 (52%)
	2020	-	0.997 (8%)	0.952 (8.5%)
	2023	-	0.994 (10%)	0.999 (1.9%)
Northwest	2018	0.725 (-18%)	0.714 (-23%)	1.000 (-0.4%)
	2019	0.938 (14%)	0.551 (-26%)	-
	2020	0.938 (-6.8%)	0.892 (-11%)	0.908 (-6.3%)
	2023	0.255 (-22%)	0.135 (-32%)	0.576 (-14%)
West	2018	0.884 (-14%)	0.827 (-18%)	1.000 (3.2%)
	2019	0.855 (26%)	-	-
	2020	0.298 (28%)	0.854 (13%)	**0.044 (-47%)**
	2023	0.712 (-18%)	1.000 (0.2%)	0.345 (133%)

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results (p-value <0.05). Positive effect sizes indicate SEI is higher closer to the Ore Dock area (i.e., total density decreases with increasing distance). Negative effect sizes indicate SEI is lower closer to the Ore Dock area (i.e., total density increases with increasing distance).
- = Data not available for comparison.



No data were collected in 2019 along the Northwest Transect at farther distances, precluding comparisons to 2018, 2020, and 2023. Measured SEI (blue bars) and marginal means ± 95% confidence intervals (orange circles, error bars) are indicated for each sampling year and distance.

Figure 4-18: Interannual Differences in Benthic Infauna Simpson's Evenness Index Relative to Distance from the Transect Origin, 2018 – 2023.

Table 4-10: Post hoc Multiple Comparisons of Benthic Infauna Simpson's Evenness Index between Years within Distances from the Ore Dock Area, 2018-2023.

Transect	Distance From Ore Dock Area	Post hoc Comparisons					
		2018 vs 2019	2018 vs 2020	2018 vs 2023	2019 vs 2020	2019 vs 2023	2020 vs 2023
Simpson's Evenness Index (SEI)							
East	250 m	-	-	0.521 (27%)	-	-	-
	500 m	0.543 (73%)	0.947 (27%)	0.917 (19%)	0.799 (-168%)	0.681 (-196%)	0.998 (-11%)
	1000 m	0.876 (27%)	0.858 (26%)	1.000 (3.8%)	1.000 (-1.5%)	0.820 (-32%)	0.751 (-30%)
	1500 m	-	0.999 (-1.6%)	0.977 (-9.1%)	-	-	0.958 (-7.4%)
Northeast	250 m	-	-	-	0.194 (-538%)	0.258 (-457%)	0.981 (13%)
	500 m	-	-	-	0.149 (-192%)	0.272 (-146%)	0.926 (16%)
	1000 m	-	-	-	0.867 (-13%)	0.960 (6.7%)	0.608 (18%)
	1500 m	-	-	-	0.388 (-59%)	0.650 (-39%)	0.850 (12%)
Northwest	250 m	0.992 (9.7%)	0.947 (-20%)	0.955 (17%)	0.807 (-33%)	0.995 (7.7%)	0.652 (31%)
	500 m	0.443 (35%)	0.995 (-6.4%)	0.964 (12%)	0.194 (-63%)	0.644 (-35%)	0.822 (17%)
	1000 m	0.732 (32%)	0.996 (8.0%)	1.000 (0.4%)	0.629 (-36%)	0.521 (-47%)	0.989 (-8.3%)
	1500 m	-	0.998 (2.2%)	0.917 (-15%)	-	-	0.754 (-17%)
West	250 m	0.884 (23%)	0.767 (-38%)	0.188 (52%)	0.189 (-78%)	0.450 (38%)	**0.003 (65%)**
	500 m	0.252 (47%)	0.990 (7.6%)	0.093 (50%)	0.253 (-76%)	0.999 (4.4%)	**0.034 (46%)**
	1000 m	-	0.505 (33%)	0.060 (59%)	-	-	0.181 (39%)
	1500 m	-	0.762 (-30%)	**0.006 (82%)**	-	-	**<0.001 (86%)**

Notes: Values are shown as: P-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results for comparisons to 2023 (p-value <0.05), while **bold** values indicated statistically significant results between previous monitoring years. Positive effect sizes indicate SDI is higher in the past. Negative effect sizes indicate SEI is higher in the more recent year.
- = Data not available for comparison.

4.4.4 Capesize Vessel Existing Conditions Sampling Program

Benthic invertebrate community samples were collected from eight stations located in close proximity to the Ore Dock at Milne Port to characterize existing conditions prior to the use of the larger Capesize vessels within the study area in fall 2023 (Figure 4-1). These stations included five from existing transects (SNW-1, SW-1, SW-2, SW-3, and SW-4) as well as two newly added stations (SCV-1 and SCV-2) and one station previously used only for sediment quality (SE18-1). Sampling of Capesize vessel stations was completed by 19 August 2023, and the first Capesize vessels arrived in the area on 29 August, 2023.

Benthic invertebrate community indicators calculated from infaunal data collected at the eight stations are summarized in Figure 4-19 and described below.

- **Total Density**—Density was comparable between stations except for stations SW-2 and SW-4 in the West Transect. The lowest observed density was at station SW-3, which lies in between the two highest observed densities, so density was highly variable in this section of the West Transect. The density range observed in the Capesize stations was within the overall range of densities seen along benthic transects.
- **Richness**— Richness was highest at station SW-4 and lowest at SW-1. As with density, the greatest variation in richness was observed between West Transect stations closer to the Ore Dock area, but

richness at the Capesize stations were within the range of richness values documented for the four radial transects in the 2023 program (Figure 4-19).

- **Simpson's Diversity Index**—All stations had diverse communities, with SDI values ranging from 0.77 to 0.93, which were highest at the newly-introduced stations SCV-1 and SCV-2. However, all Capesize stations had similar diversity to stations along the East and West transects (Figure 4-19).
- **Simpson's Evenness Index**—SEI was highest at station SCV-2 and lowest at SW-2 compared to other stations, but was generally low, ranging from 0.09 to 0.30 overall. This indicates that distribution of organisms across taxa was generally uneven, and that a few taxa made up the majority of organisms in the community. These values were comparable to other nearby stations (Figure 4-19).

4.4.5 TARP Assessment

Results of the benthic infauna assessment above were screened against the TARP criteria (Table 4-2). The 'Low Risk' threshold was not triggered in 2023 because the spatial and temporal trend analysis for density and taxa richness did not suggest a pattern indicative of Port-related effects beyond FEIS predictions, and the low risk status/threshold was not triggered for benthic infauna.

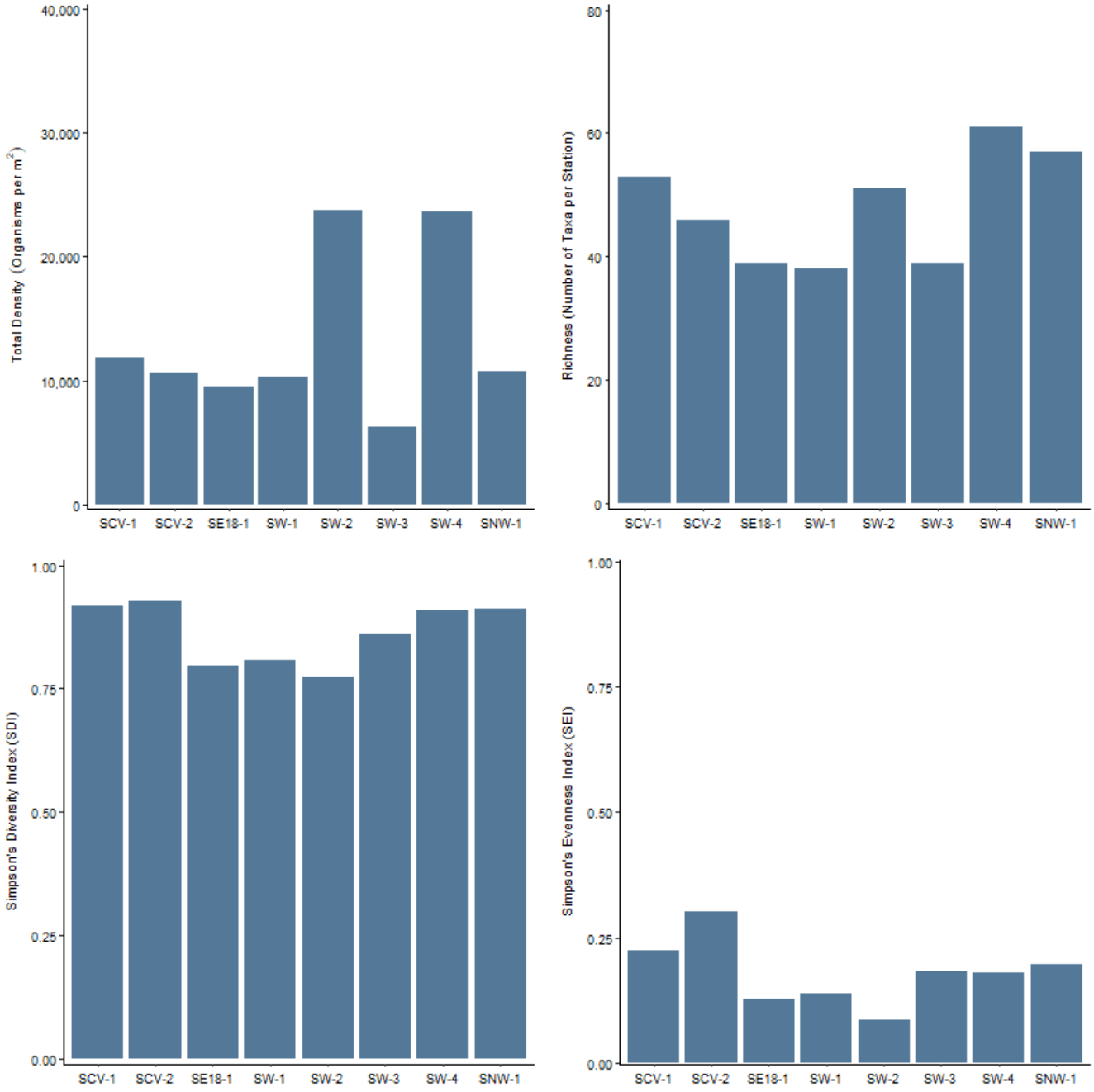


Figure 4-19: Community Endpoints of Benthic Infauna from Capesize Vessel Stations Near the Ore Dock Area, Milne Port, 2023.

4.5 Discussion

Over four monitoring years, the MEEMP has characterized the benthic infaunal community along both coastal and offshore transects radiating out from the Ore Dock area. As discussed below, the 2023 MEEMP provided a characterization of benthic infauna along two coastal and two offshore transects, as well as sampling of several stations closer to the Ore Dock area to provide benthic infaunal community data for existing conditions prior to the use of larger ore carriers (Baby Cape and Capesize) at Milne Port[3].

In 2023, benthic infaunal communities along the offshore and coastal transects were largely dominated primarily by polychaetes, followed by Malacostraca, then ostracods and bivalves. While richness, diversity, and evenness were within comparable ranges for the four transects, benthic invertebrate densities were greater and more variable along the coastal transects compared to the offshore transects. The observed difference in invertebrate densities between the coastal and offshore transects are expected and reflect the natural variation in substrate characteristics between nearshore and offshore habitats, as described in Section 3.0. The proportion of fine-grained sediments increased with greater distance from the shore due to internal mixing and sediment redistribution processes, such that finer sediments tended to accumulate further from shore. Closer to shore at shallower depths, substrates were more variable due to the influence of the nearshore environment and features such as Phillips Creek. Within the shallower coastal environment, benthic densities were naturally higher in sheltered areas characterized by finer sediments but were lower in more exposed areas with sandier substrates. Variability within the coastal transects is likely due to natural variability in substrate type, in addition to the influence of the Phillips Creek inflow, through localized changes in substrate type, hydrology, and water quality (e.g., total suspended solids, salinity).

Marine benthic infaunal communities are influenced by abiotic factors, such as sediment grain size, organic carbon concentration, depth, inundation time, and salinity (Eckman 1996; Ricciardi and Bourget 1999; Hyland et al. 2005). When comparing nearshore and offshore habitats, water depth becomes an important consideration as the density and biomass of marine benthic infauna generally decreases with increasing water depth and distance from land (Wei et al. 2010; Degen et al. 2015). The driving force behind this pattern is the decrease in food input, depending on the regionally varying surface production and the assimilation efficiency in the water column (Gage and Tyler 1991; Levin et al. 2003). Productivity (and hence food) tends to be higher in shallower, nearshore habitats, primarily due to increased light penetration through the water column to the bottom sediments, and warmer ambient water temperatures. In deeper waters, such as those along the Northern Offshore transects, decreased light penetration and colder water temperatures naturally limit benthic habitat productivity. At comparable depths, sediment grain size is likely the single best predictor of benthic invertebrate community characteristics (Ricciardi and Bourget 1999). In general, smaller sediment grain sizes correspond to higher invertebrate abundance, biomass, and diversity (Heck et al. 1995; Sewell 1996) because of the larger available surface area for adhesion of organic particles (i.e., total organic carbon [TOC]), which constitute an important food source for invertebrates. Habitats with finer sediment therefore tend to be naturally more productive and support more abundant communities.

[3] The eight Capesize vessel stations were sampled from August 4-19, 2023 and the first Capesize vessel arrived in Milne Port on 29 August 2023.

4.5.1 Statistical Comparisons of Community Indicators

Total density, richness, and diversity were significantly higher at stations closer to the Ore Dock area along the West Transect in 2023, which is not indicative of adverse effects on the benthic communities from Port activities at or close to the Ore Dock area, even though sediments appear to have been locally impacted by scouring due to propeller wash as predicted by the FEIS. Comparison of diversity in the West Transect across years indicates that overall diversity near the Ore Dock area in 2023 was comparable to those observed in 2018 and 2020.

In 2023, benthic infaunal communities were diverse throughout the study area and well established in both habitat types. There were no consistent differences (i.e., trends, or directional change) between years in benthic community indicators along each of the four transects. Also, statistical differences tended to occur with greater distance from the Ore Dock area rather than closer to the dock. These results do not align with the community response pattern typical of a toxicological impairment due to contaminant exposure (i.e., a significant decrease in both density and richness). If both these indicators were to show a pattern of being significantly reduced, then the community could become increasingly simplified as contaminant-sensitive taxa disappear or numbers are diminished, leaving more tolerant taxa to dominate the community (Environment Canada 2012). However, the 2023 results are more consistent with expected natural variability for these benthic habitat types within Milne Inlet and there is no evidence to suggest that benthic infaunal communities have been affected by the Project. A lack of adverse effects on local benthic communities that can be linked to the Project is consistent with FEIS predictions of no significant adverse residual effects to Arctic Char habitat. In 2023, mitigation measures appeared to be functioning as intended and Project operational activities were being managed in a way that did not adversely affect benthic infauna at Milne Port.

4.5.2 Potential Effects of Propeller Wash and Scouring in West Transect

There was a decreasing trend in the West Transect with distance from the Ore Dock area for total density and richness in 2023, a nonlinear relationship for diversity, and no trend in evenness. Community indicators at West Transect stations were variable between 2019 and 2023, with a notable decline in density, richness, diversity, and evenness at station SW-2 in 2020. This appears to have been driven by a change in grain size in 2020, and data from subsequent years indicate that the community at SW-2 has since recovered from this decline. Total density at station SW-2 was higher than all other West Transect stations, and richness was high, and similar to other stations. There was some decrease of richness, diversity, and evenness at the adjacent station SW-1 in 2022 which, again, coincided with a drop in percent fines of the sediment. The effects were less substantial than those observed in 2020 at SW-2, and were not accompanied by a decrease in total density. Community indicators at SW-1 also appear to have recovered in 2023, consistent with FEIS predictions of minor sediment disturbances which stabilize over time. The differences observed between years may also reflect a degree of natural variability.

4.5.3 Sediment Sampling to Support Assessment of the Use of Capesize Vessels

Eight stations (SW-1 through SW-4, SCV-1, SCV-2, SE18-1, and SNW-1) were sampled in 2023 as part of the Capesize Vessel Existing Conditions Sampling Program to establish baseline conditions prior to the arrival of Baby Cape and Capesize ore carriers in Milne Inlet. Consistent with the Northern and Coastal transect stations, benthic communities showed some variability in benthic indicators. Results for these stations appear to be consistent with overall MEEMP project stations.

4.6 Conclusions and Recommendations

The results of the 2023 MEEMP, combined with previous years of monitoring, indicate that the Project has not caused adverse impacts on benthic infauna at Milne Port. This conclusion is supported by similar or elevated density and richness at stations nearest to the Ore Dock area and relatively few changes to overall community composition across transects. There was evidence of potential propeller wash at one station (SW-2) in 2020, which prompted follow up programs with targeted sampling in 2021 and 2022 before a return to scheduled sampling in 2023. Data collected from 2021 through 2023 generally indicate that the benthic community at that station have since recovered, and that the effects were temporary and localized.

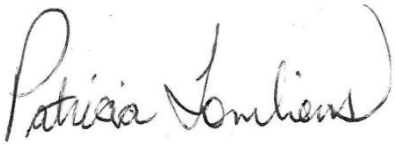
The benthic infauna results, in combination with those from sediment monitoring to date, suggest that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not adversely affected benthic infaunal communities within the Milne Inlet study area. Given that there will be continued use of larger ore carriers (Baby Cape and Capesize) at Milne Port, Baffinland has committed to a frequency of annual sampling of the newly implemented Capesize monitoring stations, for a minimum of three years (2023 to 2025) to identify Project-related effects due to the change in vessel types.

4.7 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.



Bryce Pippy, MSc
Aquatic Ecotoxicologist



Trish Tomliens, BSc, EPt
Marine Biologist



Sima Usvyatsov, PhD
Biological Scientist

Reviewed by:



Elaine Irving, PhD, RPBio
Senior Environmental Scientist

BP/TT/SU/EI/asd

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499d-r-rev0-70000/1663724-499d-r-rev0-70000-2023 meemp_4.0 benthic infauna_15mar_24.docx

4.8 References

Baffinland. 2023. Marine Monitoring Plan (MMP) - Draft. Document #: BAF-PH1-830-P16-0046. NIRB File No. 08MN053. Public Registry Identification No. 344992.

Brooks, ME, Kristensen K, van Benthem KJ, Magnusson A, Berg CW, Nielsen A, Skaug HJ, Maechler M, Bolker BM. 2017. glmmTMB Balances Speed and Flexibility Among Packages for Zero-inflated Generalized Linear Mixed Modeling. The R Journal 9(2): 378-400.

Degen, R., Vedenin, A., Gusky, M., Boetius, A. and T. Brey. 2015. Patterns and Trends of Macrobenthic Abundance, Biomass, and Production in the Deep Arctic Ocean. Polar Research. 34(1).

Eckman, J. 1996. Closing the Larval Loop: Linking Larval Ecology to the Population Dynamics of Marine Benthic Invertebrates. Journal of Experimental Marine Biology and Ecology 200:207–237.

Environment Canada. 2012. Metal Mining Environmental Effects Monitoring Technical Guidance Document. Ottawa ON.

Gage J.D., Tyler P.A. 1991. Deep-sea Biology: A Natural History of Organisms at the Deep-sea Floor. 1991. London: Cambridge University Press.

Golder. 2020. Mary River Project 2019 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-197-R-Rev0-24000; 27 August 2020. 1219 p.

Golder. 2021. 2020 Milne Inlet Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Golder. 2022. 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-349-R-Rev0-44000; 21 October 2022. 1213 p.

Heck, K. L., K. W. Able, C. T. Roman, and M. P. Fahay. 1995. Composition, Abundance, Biomass, and Production of Macrofauna in a New England Estuary: Comparisons among Eelgrass Meadows and Other Nursery Habitats. Estuaries 18:379–389.

Hyland, J., L. Balthis, I. Karakassis, P. Magni, A. Petrov, J. Shine, O. Vestergaard, and R. Warwick. 2005. Organic Carbon Content of Sediments as an Indicator of Stress in the Marine Benthos. Marine Ecology Progress Series 295:91–103.

Krebs CJ. 1999. Ecological Methodology, 2nd edn. Addison Wesley Longman, Menlo Park.

Levin L.A., Gooday A.J., and Tyler P.A. 2003. The deep Atlantic ocean floor. Ecosystems of the deep oceans. 2003; Amsterdam: Elsevier Science. 111–178.

Nunavut Impact Review Board (NIRB). 2023. Project Certificate No. 005, Amendment 5. Issues 17 November 2023.

R Core Team. 2023. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. URL www.R-project.org

Ricciardi, A., and E. Bourget. 1999. Global Patterns of Macroinvertebrate Biomass in Marine Intertidal Communities. Marine Ecology Progress Series 185:21–35.

SEM (Sikumiut Environmental Management Ltd.). 2015. Marine Biological and Environmental Baseline Surveys Milne Inlet 2014. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario.

Sewell, M. A. 1996. Detection of the Impact of Predation by Migratory Shorebirds: An Experimental Test in the Fraser River Estuary, British Columbia (Canada). Marine Ecology Progress Series 144:23–40.

Simpson EH. Measurement of diversity. nature. 1949 Apr 30;163(4148):688.

Smith B, and Wilson JB. 1996. A consumer's guide to evenness indices. Oikos. 76: 70-82.

Wei C.L., Rowe G.T., Escobar-Briones E., Boetius A., Soltwedel T., Caley M.J., Soliman Y., Huettmann F., Qu F., Yu Z., Pitcher C.R., Haedrich R.L., Wicksten M.K., Rex M., Baguley J.G., Sharma J., Danovaro R., MacDonald I.R., Nunnally C.C., Deming J.W., Montagna P., Lévesque M., Weslawski J.M., Wlodarska-Kowalczuk M., Ingole B.S., Bett B.J., Billett D.S.M., Yool A., Bluhm B.A., Iken K., Narayanaswamy B.E. 2010. Global patterns and predictions of seafloor biomass using random forests. PLoS One: 5(12).

WSP (WSP Canada Inc.). 2023. 2022 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-430-R-Rev0-64000; 28 April 2023. 1167 p.

APPENDIX 4A

Photographs

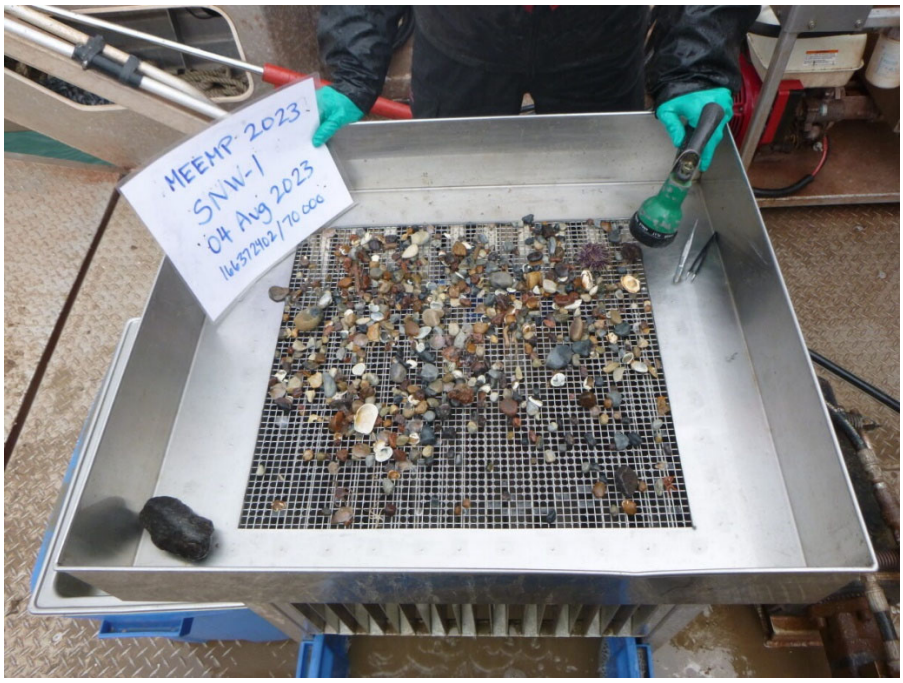


Photo 1: Benthic sample on 1.0 cm sieve, collected at station SNW-1 on 4 August 2023.



Photo 2: Benthic sample (¼ field split) on 0.5 mm sieve, collected at station SNW-1 on 4 August 2023.



Photo 3: Benthic sample on 1.0 cm sieve, collected at station SNW-5 on 21 August 2023.



Photo 4: Benthic sample (¼ field split) on 0.5 mm sieve, collected at station SNW-5 on 21 August 2023.



Photo 5: Benthic sample on 1.0 cm sieve, collected at station SW-4 on 07 August 2023.



Photo 6: Benthic sample (¼ field split) on 0.5 mm sieve, collected at station SW-1 on 7 August 2023.



Photo 7: Benthic sample on 1.0 cm sieve, collected at station SW-11 on 11 August 2023.



Photo 8: Benthic sample (¼ field split) on 0.5 mm sieve, collected at station SW-11 on 11 August 2023.



Photo 9: Benthic sample on 1.0 cm sieve, collected at station SE-4 on 5 August 2023.



Photo 10: Benthic sample (¼ field split) on 0.5 mm sieve, collected at station SE-4 on 5 August 2023.



Photo 11: Benthic sample on 1.0 cm sieve, collected at station SNE-10 on 6 August 2023.



Photo 12: Benthic sample (¼ field split) on 0.5 mm sieve, collected at station SNE-10 on 6 August 2023.



Photo 13: Field crew rinsing benthic samples on the field splitter, collected from station SNE-3 on 16 August 2023.



Photo 14: Echinoderm collected at station SNE-9 on 22 August 2023.

APPENDIX 4B

Biologica Environmental Services Ltd. Methods

Marine Benthic Enumeration and Identification Methods
Client: WSP
Project: Baffinland MEEMP
Protocol: EEM

Sample Inventory

Sample arrival: 7-Sep-23
Number of samples: 44
Number of jars: 67
Screen size: 500 µm and 1.0 cm
Biologica project number: mb23-059

The chain of custody documents were checked and approved with the client. Samples were transferred from formalin into 70% ethanol and stained with Rose Bengal to aid in sorting. Each sample was provided a unique identification number and placed in the queue for analysis.

Table 1. Summary of benthic samples processed for WSP Baffinland MEEMP, 2023.

Client Sample ID	Date Sampled	Biologica Sample ID	# of Jars	Field Screen	Field Split	Final Split	Organisms Counted
SCV-1	19-Aug-23	mb23-059-113	1	1/4	1/4	1/16	217
			1	Whole	Whole	Whole	91
SCV-2	19-Aug-23	mb23-059-114	3	1/4	1/4	1/16	194
			1	Whole	Whole	Whole	104
SE-1	10-Aug-23	mb23-059-115	1	1/4	1/4	1/16	429
			2	Whole	Whole	Whole	180
SE-2	18-Aug-23	mb23-059-116	2	1/4	1/4	1/16	184
			1	Whole	Whole	Whole	151
SE-3	05-Aug-23	mb23-059-117	1	1/4	1/4	1/16	312
			2	Whole	Whole	Whole	152
SE-4	05-Aug-23	mb23-059-118	2	1/4	1/4	1/16	399
			3	Whole	Whole	Whole	200
SE-5	06-Aug-23	mb23-059-119	1	1/4	1/4	1/16	386
			2	Whole	Whole	Whole	229
SE-7	22-Aug-23	mb23-059-120	2	1/2	Whole	1/2	83
			1	1/4	1/4	1/16	482
SE-11	19-Aug-23	mb23-059-121	1	1/2	Whole	1/2	99
			1	1/4	1/4	1/16	714
SE-13	17-Aug-23	mb23-059-122	2	1/4	1/4	1/16	437
			2	Whole	Whole	Whole	289
SE-15	15-Aug-23	mb23-059-123	1	1/2	Whole	1/2	50
			2	1/4	1/4	1/16	552
SE18-1	18-Aug-23	mb23-059-124	1	1/4	1/4	1/16	170
			1	Whole	Whole	Whole	150

Client Sample ID	Date Sampled	Biologica Sample ID	# of Jars	Field Screen	Field Split	Final Split	Organisms Counted
SNE-1	06-Aug-23	mb23-059-125	2	1/2	Whole	1/2	51
			3	1/4	1/4	1/16	227
SNE-2	10-Aug-23	mb23-059-126	3	1/4	1/4	1/16	148
			1	Whole	Whole	Whole	79
SNE-3	17-Aug-23	mb23-059-127	1	1/4	1/4	1/16	57
			1	Whole	Whole	Whole	18
SNE-4	20-Aug-23	mb23-059-128	1	1/4	1/4	1/16	137
			1	Whole	Whole	Whole	58
SNE-5	21-Aug-23	mb23-059-129	2	1/4	1/4	1/16	165
			1	Whole	Whole	Whole	42
SNE-7	18-Aug-23	mb23-059-130	1	1/4	1/4	1/16	78
			1	Whole	Whole	Whole	33
SNE-9	22-Aug-23	mb23-059-131	1	1/4	1/4	1/16	103
			1	Whole	Whole	Whole	15
SNE-10	06-Aug-23	mb23-059-132	1	1/4	1/4	1/16	87
			1	Whole	Whole	Whole	43
SNE-13	10-Aug-23	mb23-059-133	1	1/4	1/4	1/16	50
			1	Whole	Whole	Whole	72
SNE-15	17-Aug-23	mb23-059-134	1	1/4	1/4	1/16	144
			1	Whole	Whole	Whole	12
SNW-1	04-Aug-23	mb23-059-135	2	1/4	1/4	1/16	197
			1	Whole	Whole	Whole	68
SNW-2	11-Aug-23	mb23-059-136	1	1/4	1/4	1/16	125
			1	Whole	Whole	Whole	49
SNW-3	16-Aug-23	mb23-059-137	3	1/4	1/4	1/16	126
			1	Whole	Whole	Whole	55
SNW-4	20-Aug-23	mb23-059-138	2	1/4	1/4	1/16	97
			1	Whole	Whole	Whole	17
SNW-5	21-Aug-23	mb23-059-139	1	1/2	Whole	1/2	64
			2	1/4	1/4	1/16	107
SNW-7	22-Aug-23	mb23-059-140	1	1/4	1/4	1/16	137
			2	Whole	Whole	Whole	78
SNW-9	14-Aug-23	mb23-059-141	1	1/2	Whole	1/2	28
			2	1/4	1/4	1/16	147
SNW-11	13-Aug-23	mb23-059-142	2	1/4	1/4	1/16	23
			1	Whole	Whole	Whole	27
SNW-13	13-Aug-23	mb23-059-143	1	1/4	1/4	1/16	35
			1	Whole	Whole	Whole	19
SNW-15	07-Aug-23	mb23-059-144	2	1/4	1/4	1/16	155
			2	Whole	Whole	Whole	165
SW-1	07-Aug-23	mb23-059-145	2	1/4	1/4	1/16	188
			2	Whole	Whole	Whole	70
SW-2	16-Aug-23	mb23-059-146	3	1/4	1/4	1/16	443
			1	Whole	Whole	Whole	40

Client Sample ID	Date Sampled	Biologica Sample ID	# of Jars	Field Screen	Field Split	Final Split	Organisms Counted
SW-3	05-Aug-23	mb23-059-147	1	1/4	1/4	1/16	112
			1	Whole	Whole	Whole	77
SW-4	07-Aug-23	mb23-059-148	1	1/2	Whole	1/2	64
			1	1/4	1/4	1/16	435
SW-5	09-Aug-23	mb23-059-149	1	1/4	1/4	1/16	296
			1	Whole	Whole	Whole	102
SW-6	09-Aug-23	mb23-059-150	1	1/4	1/4	1/16	239
			1	Whole	Whole	Whole	124
SW-8	14-Aug-23	mb23-059-151	1	1/4	1/4	1/16	227
			2	Whole	Whole	Whole	144
SW-10	13-Aug-23	mb23-059-152	1	1/4	1/4	1/16	280
			2	Whole	Whole	Whole	100
SW-11	11-Aug-23	mb23-059-153	2	1/2	Whole	1/2	19
			2	1/4	1/4	1/16	61
SW-12	20-Aug-23	mb23-059-154	1	1/4	1/4	1/16	110
			1	Whole	Whole	Whole	117
SW-13	13-Aug-23	mb23-059-155	1	1/4	1/4	1/16	301
			1	Whole	Whole	Whole	64
SW-15	11-Aug-23	mb23-059-156	1	1/4	1/4	1/16	211
			1	Whole	Whole	Whole	68

Sample Processing

Sorting and Subsampling:

All samples were sorted using dissecting microscopes at 10–40x magnification by trained personnel. Microscopic sorting is the only way to ensure >90% of organisms are removed from the debris, which is required by EEM (Environment Canada; Environmental Effects Monitoring) guidelines for marine benthic analyses. To minimize potential sorter bias, samples were distributed among technicians such that no one person sorted all the replicates of a given sample.

Due to historically the large volumes and high abundances in the samples, samples were fractioned in the field into a 1.0 cm macro fraction and 500 µm fine fraction. This strategy was developed to maximize the detection of large and rare individuals in the macro fraction while accurately enumerating smaller organisms in the fine fraction. The macro 1.0 cm fraction was analyzed whole, with all large organisms (>1.0 cm) removed from the sample, as was done in previous years for this project. In addition, all large debris in this fraction were checked microscopically, including rocks and other large debris to ensure encrusting organisms were accurately enumerated.

Biologica subsampled the fine 500 µm fraction. The 500 µm fraction was split in the field to 1/4. Biologica subsequently split this fraction by a second 1/4 split, for a final 1/16 split. Subsampling was done with a Caton tray (Caton, 1991). The sample was spread evenly over a Caton grid, and

sequential random quadrats were selected and sorted until the minimum 1/4 lab split was reached.

Sub-sampling accuracy was assessed by sorting the remaining sample for 10% (n= 4) of all sub-sampled samples and comparing the fractions to one another. Refer to Table 2 for sub-sampling accuracy results.

Sorting QA/QC:
To ensure sorting efficiency was >95%, whole and/or partial sub-samples were re-sorted. Sorting efficiency was calculated using the following equation (where total count = final total number of organisms in sample):

Sorting efficiency = [1−(# of organisms in spot check or re-sort / total organisms)] x 100
*Total organisms includes the original count and the number found from the re-sort

All samples checked must meet or exceed 95% sorting efficiency. Any samples falling below 95% sorting efficiency are re-sorted in their entirety, and additional checks are undertaken as necessary. For quality assurance, QA re-sorts were performed on 10% of samples. Four samples were randomly selected and re-sorted in their entirety. Refer to Table 2 for sorting efficiency results.

Table 2. Summary of sorting QA/QC results for WSP Baffinland MEEMP, 2023.

Client Sample ID	Biologica Sample ID	Sorting Efficiency QA Whole Re-sorts	Sub-sampling accuracy
SCV-2	mb23-059-114	99.05%	
SE-4	mb23-059-118		74.21%
SNE-1	mb23-059-125	95.37%	
SNW-1	mb23-059-135		66.88%
SW-3	mb23-059-147	96.43%	
SW-4	mb23-059-148		76.36%
SW-12	mb23-059-154	97.99%	
SW-15	mb23-059-156		77.98%
	Average:	**97.12%**	**73.86%**

Identification and Invasive Species Detection:

All organisms were identified using a combination of dissecting (10–40x) and compound microscopes (100–1000x) and standard taxonomic keys (see methodological and taxonomic references) to the lowest practicable level (species whenever possible). All specimens were archived in air-tight glass vials with glycerin and 70% ethanol for long-term storage. Taxonomic data were recorded in Biologica's custom database.

During the identification process, taxonomists recorded if any identified taxa were beyond their recorded range and/or potentially introduced (originating from another location) or invasive (both introduced and appearing to proliferate with possible detrimental effects to the ecosystem and/or industry). One genus of interest over the past several years of sampling has been *Marenzelleria.* Multiple specimens were externally verified by DNA analysis by Dr. Vasily

Radashevsky from the National Scientific Center of Marine Biology and were confirmed to be *Marenzelleria wireni*. Historical identifications can all be taken to this species identification. **No taxa observed were identified as putative invasive taxa**.

Twelve new taxa to the project were identified, of which will be sent for verification. There were also a few levels of identification that were new to the project, however all these identifications have been present at a lower level (genus/species) in the past.

Reference Collection:

Biologica houses a reference collection of all taxa that have been observed in the Baffinland MEEMP project thus far. Taxa are added to this reference collection yearly. These may be new taxa and/or new stages. Taxa new to the project are sent for external verification. This collection consists of a minimum of one specimen representing each taxon and stage, with five specimens per taxon/stage wherever possible. These specimens were labelled, given a location code, and placed in evaporation-resistant shell dram vials. Approximately 1 mL of glycerin was added to each vial to prevent desiccation.

Data Management and Analysis

All data were recorded in Biologica's custom database. Total abundances were extrapolated for samples split in the field and the lab to represent the abundance from the whole sample. Organism densities were calculated by dividing the total organism abundance (extrapolated if the sample was split) using the area of a Van Veen grab (0.1 m^2), with three composite Van Veen grabs (3 x 0.1m^2) for each sample.

Results were provided to the WSP project manager in Excel spreadsheets via email.

Arctic & General Taxonomic and Methodological References

Abbott, T. (1974). *American Seashells* (2nd ed.). Litton Educational Publishing Inc.

Barnich, R. (2011). *Identification of scale worms in British and Irish waters*. NMBAQC 2010 taxonomic workshop, Dove Marine Laboratory. 52pp.

Berge, J., Vader, W., & Johnsen, J. R. (2007). Studies on the genus Onisimus Boeck, 1871 (Crustacea, Amphipoda, Uristidae) II. The barentsi and edwardsii groups. *Zootaxa*, *1410*, 55–68.

Bernard, F. R. (1979). Bivalve mollusks of the western Beaufort Sea. *Contributions in Science: Natural History Museum of Los Angeles County*, *313*, 1–80.

Blake, J. (1971). Article: Two new species of polychaetous annelid worms from Baffin Bay and the Davis Strait. *New York Botanical Garden*, 127–132.

Blake, J., & Scott, P. (1998). *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel* (Vol. 1–14). Santa Barbara Museum of Natural History.

Bousfield, E., & Hoover, P. (1997). The Amphipod Superfamily Corophioidea on the Pacific Coast of North America. *Amphipacifica*, *II* (3), 64–107.

Bousfield, E., & Kendall, J. (1994). The amphipod superfamily Dexaminoidea on the North American Pacific Coast; Families Atylidae and Decaminidae; Systematic and Distributional Ecology. *Amphipacifica*, *1*(3), 3–66.

Bousfield, E. L. (1973). *Shallow-water Gammaridean Amphipoda of New England; Handbooks of American Natural History*. Comstock Pub. Associates; 28-Oct-20.

Brix, S., Leese, F., Riehl, T., & Kihara, T. (2014). A new genus and new species of Desmosomatidae Sars, 1897 (Isopoda) from the eastern South Atlantic abyss described by means of integrative taxonomy. *Marine Biodiversity*, *45*(1), 7–61. https://doi.org/10.1007/s12526-014-0218-3

Calder, D. R. (1972). Some athecate hydroids from the shelf waters of northern Canada. *Journal of the Fisheries Research Board of Canada*, *29*(3), 217–228. https://doi.org/10.1139/f72-040

Carlton, J. T. (2007). *Light's Manual, Intertidal Invertebrates of the Central California Coast. 4th ed.* University of California Press. 964pp.

Clarke, A. (1974). *Molluscs from Baffin Bay and the Northern North Atlantic Ocean* (Publications in Biological Oceanography No. 7; p. 23). National Museums of Canada.

Coad, B., & Reist, J. (2017). *Marine Fishes of Arctic Canada*. University of Toronto Press. https://utorontopress.com/ca/marine-fishes-of-arctic-canada-1

Coan, E., Valentich Scott, P., & Bernard, F. (2000). *Bivalve Seashells of Western North America: Marine Bivalve Mollusks from Arctic Alaska to Baja California*. Santa Barbara Museum of Natural History.

Dnestrovskaya, N. Yu., & Jirkov, I. A. (2012). Identification key for Nephtyidae (Polychaeta) of the Eastern Atlantic and the North Polar Basin. *Invertebrate Zoology*, *9*(1), 143–150. https://doi.org/10.15298/invertzool.09.2.06

Bousfield, E. L., & Chevrier, A. (1996). The amphipod family Oedicerotidae on the Pacific coast of North America. 1. The Monoculodes & Synchelidium generic complexes: Systematics and distributional ecology. *Amphipacifica*, *II* (2), 1–75.

Environment Canada. (2010). *Pulp and paper environmental effects monitoring (EEM) technical guidance document.*

Environment Canada. (2012). *Metal mining environmental effects monitoring (EEM) technical guidance document.*

Environment Canada. (2002). *Revised guidance for sample sorting and subsampling protocols for*

EEM benthic invertebrate community surveys. https://www.ec.gc.ca/esee-eem/default.asp?lang=En&n=F919D331-1. Accessed December 2012.

Environmental Protection Agency. (1987). *Recommended protocols for sampling and analyzing macroinvertebrate assemblages in Puget Sound.* http://www.psparchives.com/our_work/science/protocols.htm. Accessed January 2014.

Garwood, P. R. (2006). *Family Maldanidae; a guide to species in waters around the British Isles*. NMBAQC 2006 taxonomic workshop, Dove Marine Laboratory.

Gerken, S. (2018). The Lampropidae (Crustacea: Cumacea) of the world. *Zootaxa*, *4428*(1), 1–192. https://doi.org/10.11646/zootaxa.4428.1.1

Giangrande, A., & Cantone, G. (1990). Redescription and systematic position of Pseudofabricia aberrans Cantone, 1972 (Polychaeta, Sabellidae, Fabriciinae). *Bolletino Di Zoologia*, *57*(4), 361–364. https://doi.org/10.1080/11250009009355720

Given, R. R. (1965). *Five Collections of Cumacea from the Alaskan Arctic* (p. 213). Allan Hancock Foundation, University of Southern California. https://journalhosting.ucalgary.ca/index.php/arctic/article/view/66522

Glasby, C. J., & Hutchings, P. (2014). Revision of the taxonomy of Polycirrus Grube, 1850 (Annelida: Terebellida: Polycirridae). *Zootaxa*, *3877*(1), 1–117. https://doi.org/10.11646/zootaxa.3877.1.1

Jansen, T. (2002). A taxonomic revision of Westwoodilla Bate, 1862 (Amphipoda: Crustacea) including descriptions of 2 new species. *Steenstrupia*, *27*, 83–136.

Jarvis, S. (2011). Hesionidae (Grube, 1850)—A Provisional guide to the identification of the British Species. *Marine Invertebrate Ecological Services*, 1–10.

Sikorski A.V. (2001). Spionidae of the Arctic ocean. In: I.A. Jirkov (Ed.), *Polychaeta of the Arctic Janus-K.* Moscow: 273–332 (in Russian).

Keast, M., & Lawrence, M. (1990). *A Guide to Identification of Decapoda, Euphausiacea, and Mysidacea from the Southern Beaufort Sea* (No. 2047; Canadian Manuscript Report of Fisheries and Aquatic Sciences, p. 69). Department of Fisheries and Oceans.

Kozloff, E. N. (1987). *Marine Invertebrates of the Pacific Northwest.* University of Washington Press. 511pp.

Laubitz, D. R. (1977). A revision of the genera Dulichia Krøyer and Paradulichia Boeck (Amphipoda, Podoceridae). *Canadian Journal of Zoology*, *55*(6), 942–982. https://doi.org/10.1139/z77-123

Lawrence, M., & Keast, M. (1990). *A guide to the identification of benthic isopoda from the southern Beaufort Sea* (Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2048). Department of Fisheries and Oceans.

Loia, M., Nicoletti, L., & La Porta, B. (2017). First record of genus Paramphitrite (Polychaeta: Terebellidae) in Mediterranean Sea. *Marine Biodiversity Records*, *10*(11), 1–7. https://doi.org/10.1186/s41200-017-0113-2

Macpherson, E. (1971). *The Marine Molluscs of Arctic Canada* (Publications in Biological Oceanography No. 3; p. 149). National Museums of Canada.

Marine Species Identification Portal: Identification keys. [Identification Key]. Marine Species Identification Portal. Retrieved October 26, 2020, from http://species-identification.org/identify_species.php

Oliver, G., Killeen, I., & Ockelmann, K. (2002). *The Thyasiridae (Mollusca; Bivalvia) of the British Continental Shelf and North Sea Oilfields: An Identification Manual* (BIOMOR No. 3; p. 41). National Museums & Galleries of Wales.

Olivier, F., San Martín, G., & Archambault, P. (2013). A new species of Streptospinigera Kudenov, 1983 (Polychaeta, Syllidae, Anoplosyllinae) from the Arctic and north-western Atlantic with a key to all species of the genus. *Polar Biology*, *36*(10), 1499–1507. https://doi.org/10.1007/s00300-013-1369-6

Oug, E. (2012). Guide to identification of Lumbrineridae (Polychaeta) in north east Atlantic waters. *Norwegian Institute for Water Research*, 31.

Pettibone, M. H. (1993). Revision of some species referred to Antinoe, Antinoella, Antinoana, Bylgides, and Harmothoe (Polychaeta: Polynoidae: Harmothoinae). *Smithsonian Contributions to Zoology*, *545*, 1–41. https://doi.org/10.5479/si.00810282.545

Ryland, J. S., & Hayward, P. J. (1991). *Marine Flora and Fauna of the Northeastern United States Erect Bryozoa* (NOAA Technical Report No. 99; pp. 1–48). National Marine Fisheries Service.

Salazar-Vallejo, S., & Buzhinskaja, G. (2011). Revision of Diplocirrus Haase, 1915, including Bradiella Rullier, 1965, and Diversibranchius Buzhinskaja, 1993 (Polychaeta, Flabelligeridae). *ZooKeys*, *106*, 1–45. https://doi.org/10.3897/zookeys.106.795

Sars, G. (1901). *An account of the Crustacea of Norway with short descriptions and figures of all the species: Vol. IV*. Bergen Museum.

Schuchert, P. (2001). Hydroids of Greenland and Iceland (Cnidaria, Hydrozoa). *Bioscience*, *53*, 184.

Schultz, G. A. (1969). *How to Know the Marine Isopod Crustaceans*. V.C. Brown Company Publishers. Dubuque, Iowa.

Smith, D. L., & Johnson, K. B. (1996). *A Guide to Marine Coastal Plankton and Marine Invertebrate Larvae*. Kendall/Hunt Publishing Company.

Squires, H. (1990). *Decapod Crustacea of the Atlantic Coast of Canada*. Department of Fisheries and Oceans. Canadian Bulletin of Fisheries and Aquatic Sciences, 221.

Steele, D., & Brunel, P. (1968). Amphipoda of the Atlantic and Arctic Coasts of North America: Anonyx (Lysianassidae). *Fisheries and Marine Service Canada*, *25*(5), 943–1060.

Steele, D. H. (1982). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific and Arctic oceans: Anonyx nugax group. *Canadian Journal of Zoology*, *60*(7), 1754–1775. https://doi.org/10.1139/z82-228

Steele, D. H. (1983). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific Ocean: Anonyx validus group. *Canadian Journal of Zoology*, *61*(12), 2921–2931. https://doi.org/10.1139/z83-380

Steele, D. H. (1986). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific and Arctic oceans: Anonyx laticoxae group. *Canadian Journal of Zoology*, *64*(11), 2603–2623. https://doi.org/10.1139/z86-380

Steele, D. H. (1991). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific and Arctic oceans: The Anonyx bispinosus group. *Canadian Journal of Zoology*, *69*(6), 1600–1611. https://doi.org/10.1139/z91-224

Vader, W., Johnsen, J. R., & Berge, J. (2005). Studies on the genus Onisimus Voeck, 1871 (Crustacea, Amphipoda, Lysianassoidea, Uristidae) I. The brevicaudatus and sextonae species groups. *Organisms Diversity & Evolution*, *5*(7), 1–48.

Valdés, Á. (2019). Northeast Pacific benthic shelled sea slugs. *Zoosymposia*, *13*(1), 242–304. https://doi.org/10.11646/zoosymposia.13.1.21

Vassilenko, S. V., & Petryashov, V. V. (2009). *Illustrated Keys to Free-Living Invertebrates of Eurasian Arctic Seas and Adjacent Deep Waters, Vol. 1 Rotifera, Pycnogonida, Cirripedia, Leptostraca, Mysidacea, Hyperiidea, Caprellidea, Euphausiacea, Dendrobranchiata, Pleocyemata, Anomura, and Brachyura* (Vol. 1). Alaska Sea Grant. https://doi.org/10.4027/ikflieasadw.2009

Watling, L. (1991). Revision of the Cumacean Family Leuconidae. *Journal of Crustacean Biology*, *11*(4), 569–582. https://doi.org/10.2307/1548527

Worsfold, T. (2006). *Identification guides for the NMBAQC Scheme: 1. Scalibregmatidae (Polychaeta) from shallow seas around the British Isles*. Porcupine Marine Natural History Society Newsletter, 20: 15–18.

Wrobel, D., & Mills, C. (1998). *Pacific Coast Pelagic Invertebrates: A guide to the common gelatinous animals*. Monterey Bay Aquarium.

APPENDIX 4C

Biologica Environmental Services Ltd. Raw Data

Abbreviations & Definitions

Worksheets:

1. Abbreviations & Definitions	Glossary of terms and outline of report.
2. Data-Matrix	Total abundance data in matrix format, including total taxa count per sample and total abundance per sample.
3. Data-Long	Raw abundance data in long format.
4. QC-QA Report	Results of sorting efficiency.
5. Subsampling Accuracy	Raw subsampling accuracy data based on preliminary abundance counts.
6. Provisional Taxa	Description of unique taxa that are undescribed and assigned internal numbers (e.g., sp. 1, sp.2 etc.)
7. Taxaonomic Updates	Taxonomic updates for historical data considerations and verification purposes.

Life Stages:

A	Adult
Int	Intermediate - has adult features but not of typical reproductive size
J	Juvenile
L	Larvae
N	Nymph
P	Pupa
Col	Colony
Deut	Deutonymph
MEMO	Incidental taxa/fragments not included in data, or whose abundance is not generally captured accurately by 1.0mm screen.
MEIO	Meiofauna
Total Number of Taxa	Number of unique taxa (=species richness), not including higher-order taxa for which there exists a lower-order identification (e.g. not including *Lumbrineris* sp. if there exists *Lumbrineris cruzensis* in the data).
Total Number of Organisms	Total Abundance, not including incidental taxa
URL	Unique, rare, large (>1.0 cm) taxa removed from the whole sample
BDL	Below detection limit. Used for biomass measurements for weights less than 0.00001g.

Biologica Coding

Major Taxonomic Groups:

Taxa Group	Group Code	Taxonomic Group
Annelida	ANHI	Annelida Hirudinea
Annelida	ANOL	Annelida Oligochaeta
Annelida	ANXX	Annelida
Annelida	POER	Polychaeta Errantia
Annelida	POSE	Polychaeta Sedentaria
Annelida	POXX	Polychaeta
Arthropoda	CHAR	Chelicerata Arachnida (Acari)
Arthropoda	CHPY	Chelicerata Pycnogonida
Arthropoda	CHXX	Chelicerata
Arthropoda	CRAM	Crustacea Amphipoda
Arthropoda	CRCI	Crustacea Cirripedia
Arthropoda	CRCL	Crustacea Cladocera
Arthropoda	CRCO	Crustacea Copepoda
Arthropoda	CRCU	Crustacea Cumacea
Arthropoda	CRDE	Crustacea Decapoda
Arthropoda	CRDI	Crustacea Diplostraca
Arthropoda	CREU	Crustacea Euphausiacea
Arthropoda	CRIS	Crustacea Isopoda
Arthropoda	CRLE	Crustacea Leptostraca
Arthropoda	CRMY	Crustacea Mysidacea
Arthropoda	CROS	Crustacea Ostracoda
Arthropoda	CRTA	Crustacea Tanaidacea
Arthropoda	CRXX	Crustacea
Arthropoda	INCM	Insecta Collembola
Arthropoda	INCO	Insecta Coleoptera
Arthropoda	INDI	Insecta Diptera
Arthropoda	INEP	Insecta Ephemeroptera
Arthropoda	INHM	Insecta Hemiptera
Arthropoda	INHY	Insecta Hymenoptera
Arthropoda	INLE	Insecta Lepidoptera
Arthropoda	INMG	Insecta Megaloptera
Arthropoda	INNE	Insecta Neuroptera
Arthropoda	INOD	Insecta Odonata
Arthropoda	INPL	Insecta Plecoptera
Arthropoda	INTH	Insecta Thysanoptera
Arthropoda	INTR	Insecta Tricoptera
Arthropoda	INXX	Insecta
Arthropoda	MYCH	Chilopoda
Arthropoda	MYDI	Diplopoda
Echinodermata	ECAS	Echinodermata Asteroidea
Echinodermata	ECCR	Echinodermata Crinoidea
Echinodermata	ECEC	Echinodermata Echinoidea
Echinodermata	ECHO	Echinodermata Holothuroidea
Echinodermata	ECOP	Echinodermata Ophiuroidea
Miscellaneous	ACAN	Acanthocephala
Miscellaneous	AMPH	Amphibia
Miscellaneous	BRAC	Brachiopoda
Miscellaneous	BRYO	Bryozoa
Miscellaneous	CHAE	Chaetognatha
Miscellaneous	CILI	Ciliophora Ciliophora
Miscellaneous	CNAN	Cnidaria Anthozoa
Miscellaneous	CNHY	Cnidaria Hydrozoa
Miscellaneous	CNSC	Cnidaria Scyphozoa
Miscellaneous	CNXX	Cnidaria
Miscellaneous	CTEN	Ctenophora
Miscellaneous	ENTO	Entoprocta
Miscellaneous	EURA	Echiura
Miscellaneous	FORA	Foraminifera
Miscellaneous	HEMI	Hemichordata
Miscellaneous	KINO	Kinorhyncha
Miscellaneous	NODA	Nemata
Miscellaneous	NTEA	Nemertea
Miscellaneous	PHOR	Phoronida
Miscellaneous	PIXX	Pisces
Miscellaneous	PLTY	Platyhelminthes
Miscellaneous	PORI	Porifera
Miscellaneous	PRIA	Priapulida
Miscellaneous	ROTI	Rotifera
Miscellaneous	SIPN	Sipuncula
Miscellaneous	TARD	Tardigrada
Miscellaneous	URAP	Appendicularia
Miscellaneous	URAS	Ascidiacea
Miscellaneous	URTH	Thaliacea
Mollusca	MOAP	Mollusca Aplacophora
Mollusca	MOBI	Mollusca Bivalvia
Mollusca	MOCE	Mollusca Cephalopoda
Mollusca	MOGA	Mollusca Gastropoda
Mollusca	MOPO	Mollusca Polyplacophora
Mollusca	MOSC	Mollusca Scaphopoda
Mollusca	MOXX	Mollusca

biologica

Total abundance data in matrix format, including total taxa (species richness) for MSP Baffinland-MEMP, 2023.

| Biologica Sample ID | | |

biologica

Total abundance data in matrix format, including total taxa (species richness) for MSP Baffinland-MEMP, 2023.

| | | |

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	1	2	5				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	6						6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	19		4				23	16.00	368			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	9	3					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	10	3	4				17	16.00	272			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		1	6				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus hirsutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	10						10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Orbiniidae	Leitosciloplos acutus	Orbiniinae	Leitosciloplos acutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			7				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	2						2	16.00	32	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculodes sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Onisimus sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1						1	16.00	16	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis bradyi		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis spinulosa	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	8	15	13				36	16.00	576	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus	6	12	2				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.			1				1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum	2						2	1.00	2	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1	2					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	110						110	16.00	1,760			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	7						7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	PIXX	Chordata	Teleostei	Perciformes	Cottidae		Cottidae indet.		1					1	1.00	1	1		Damaged, possibly Triglops
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		2					2	1.00	2	1		Degraded
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	13	6					19	1.00	19	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			1				1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	3	8					11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		1	3				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	6	3					9	1.00	9	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		5					5	1.00	5			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Axinopsida sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1					1	16.00	16			Possibly Thyasira
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1	7				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	21	1					22	1.00	22	1		Damaged x1
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	2						2	1.00	2	1		Degraded
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			2				2	16.00	32			Damaged, small, possibly Astarte x1
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Polinicinae	Euspira pallida	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-113	SCV-1	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	7	1					8	1.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		1					1	16.00	16	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	5	7	4				16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1		1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	10	1					11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Marenzelleria sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	11	1					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	14	2					16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	20	1	6				27	16.00	432	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	7	3	1				11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		5	9				14	16.00	224			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.	1	3	8				12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitosciloplos sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	1						1	16.00	16	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculopsis longicornis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		1					1

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	4						4	16.00	64			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	30						30	16.00	480			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	2						2	1.00	2	1		on Macoma
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	14	4					18	1.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		1					1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	5	9					14	1.00	14	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	20	20					40	1.00	40	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		1	2				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		9					9	1.00	9	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2					2	1.00	2			
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.	1		4				5	16.00	80			Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			1				1	1.00	1			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	2	1	2				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	6						6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-114	SCV-2	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineris fauchaldi	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		3	7				10	16.00	160	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	1	5	20				26	16.00	416			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	8	1					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	28	3					31	16.00	496			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	6						6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	73	8					81	16.00	1,296			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	25	4	8				37	16.00	592	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor		2	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spionidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		4					4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.	1						1	1.00	1			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		4	13				17	16.00	272			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	3						3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Amphitrite cirrata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.		1					1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	4	4	3				11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	4	3					7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Scoloplos armiger		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.		4	2				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1	3	4				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	18	14					32	16.00	512	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Orchomene sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.	1	1	1				3	16.00	48			Adult has anterior portion only, Int is dam
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	5						5	16.00	80	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei	1						1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		Poor condition
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea			Cumacea indet.		1					1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	10	15	3				28	16.00	448	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	127						127	16.00	2,032			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	250						250	16.00	4,000			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata	Bougainvilliidae		Bougainvilliidae indet.	1						1	16.00	16	1		on Astarte
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.		1					1	16.00	16	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	2	9					11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	2	2					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		4	1				5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1	2					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	35	19					54	1.00	54	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		5	1				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	14	39					53	1.00	53	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		3	10				13	16.00	208			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		5					5	1.00	5			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.	3	1					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		5	3				8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			3				3	16.00	48			
WSP	Baffinland

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		1					1	16.00	16			Possibly Retusa
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea	1						1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-115	SE-1	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.		2					2	16.00	32	1		Possibly Curtitoma violacea, but damaged
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana			5				5	16.00	80	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	3	1	3				7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1	1					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	2	3					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	32	1					33	16.00	528	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Branchiomma sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	10	6	4				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex		3	5				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		1	6				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Amphitrite cirrata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	10						10	1.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	3	4	3				10	16.00	160			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	22	11					33	1.00	33	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		3					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	3	1					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	18	8					26	1.00	26	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		3					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	7	25					32	1.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		5					5	1.00	5			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	5	8					13	1.00	13	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-116	SE-2	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		1	6				7	16.00	112	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	2	1					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa		3					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe hirsuta	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	4	10					14	16.00	224	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	40	2	1				43	16.00	688	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		3	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Branchiomma sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	10	6	4				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex		3	5				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		1	6				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Amphitrite cirrata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	10						10	1.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	3	4	3				10	16.00	160			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	7						7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	6	2					8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Opheliidae	Opheliininae	Ophelina cylindricaudata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	3		1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	1						1	16.00	16	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1	1	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	10	14					24	16.00	384	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	2						2	16.00	32	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis lucifera		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		Possibly male Alamprops
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	15	21	3				39	16.00	624	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus droebachiensis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.			1				1	1.00	1			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	120						120	16.00	1,920			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	114						114	16.00	1,824			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalothrichidae		Cephalothrix sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	8	5					13	1.00	13	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		4					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		4					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	20	12					32	1.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		9					9	16.00	144			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	14	23					37	1.00	37	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2	6				8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		6					6	1.00	6			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			6				6	16.00	96			Possibly M. truncata
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	1	10					11	1.00	11	1		Damaged x4
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		1					1	16.00	16			Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Capulidae		Ariadnaria borealis	1						1	1.00	1	1		Eroded
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Naticinae	Cryptonatica affinis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-117	SE-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		1	3				4	16.00	64	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	7	4	5				16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	8	6					14	16.00	224	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	40	5	1				46	16.00	736	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	10						10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	6	2					8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	10	7	3				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	500	6	15				21	16.00	336			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			12				12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.		3	5				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	26						26	1.00	26	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		4	1				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex	2						2	1.00	2	1		Possibly P. norvegicus
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	2	2	5				9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	8	1					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3						3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Opheliidae	Opheliininae	Ophelina acuminata	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	2						2	16.00	32	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1	1	3				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Amphilochidae		Amphilochus sp.	3						3	16.00	48	1		Possibly A. tenuimanus from Tandberg ar
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	45	27					72	16.00	1,152	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.	1						1	1.00	1	1		Possibly A. nugax group most likely A. nu
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	6						6	1.00	6	1		x6 on Similipecten greenlandicus
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1						1	16.00	16	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanaidae indet.	3	1					4	4.00	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.		1					1	1.00	1	1		Possibly Strongylocentrotus droebachien
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	56						56	16.00	896			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	51						51	16.00	816			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	2						2	1.00	2	1		on Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	16.00	16			on Macominae
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalothrichidae		Cephalothrix sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	30	15					45	1.00	45	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		4	1				5	1.00	5	1		Damaged juvenile
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	25	7					32	1.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		4	2				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	12	26					38	1.00	38	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		4					4	1.00	4			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	2	4					6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	17						17	1.00	17	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-118	SE-4	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		2	9				11	16.00	176	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		7	3				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	12						12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	35	4	2				41	16.00	656	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	6	2	3				11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	22	9					31	16.00	496	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	6	5					11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	3	12	4				19	16.00	304			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		4	15				19	16.00	304			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	6	1					7	1.00	7	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1	2	1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	5	5	1				11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	28						28	16.00	448	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3	1					4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	22						22	1.00	22	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	6						6	16.00	96	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	2		4				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola	1						1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	10	23					33	16.00	528	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.	1	3	1				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sarsi		4					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			4				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	8						8	16.00	128	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	1	4					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella truncatula		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea			Cumacea indet.			2				2	16.00	32			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	22	5	10				37	16.00	592	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanaidae indet.	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (parasitic)	4	1					5	1.00	5			Parasitic copepod found in Polycarpa fibr
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	142						142	16.00	2,272			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	338						338	16.00	5,408			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	16.00	16			on Macoma
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	5						5	1.00	5	1		on Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	URAS	Chordata	Ascidiacea	Phlebobranchia	Ascidiidae		Ascidia sp.	1						1	1.00	1	1		Possibly A. callosa
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Pyuridae		Boltenia echinata		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Styelidae		Polycarpa fibrosa	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	39	15					54	1.00	54	1		Damaged x1
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		6					6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Card

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.		1					1	1.00	1			Possibly M. truncata
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	1	4					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		1	3				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-119	SE-5	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	EURA	Annelida	Polychaeta	Echiuroidea	Echiuridae		Echiurus echiurus		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		3	7				10	16.00	160	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	4	21	7				32	16.00	512	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1	1	2				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	1	6	1				8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	13	1	1				15	16.00	240	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	36	3					39	16.00	624	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	12	8	6				26	16.00	416			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Eusyllinae indet.		1					1	16.00	16			Possibly Brania
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Pionosyllis sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	26	3					29	16.00	464	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	8	3	2				13	16.00	208	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1	1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	5	8	9				22	16.00	352			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		5	9				14	16.00	224			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	4						4	2.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Lanassa venusta venusta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	PO	12					12	2.00	24	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	5	7	4				16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4	2	1				7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	14	4					18	16.00	288	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3						3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3						1	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiininae	Scoloplos armiger	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiininae	Scoloplos sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	4						4	16.00	64	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	5	3	1				9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	15	24	1				40	16.00	640	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculodes sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Orchomene sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	68						68	16.00	1,088	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	14	5	8				27	16.00	432	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanaidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECAS	Echinodermata	Asteroidea				Asteroidea indet.			1				1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura robusta		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	34						34	16.00	544			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Malacostraca	Amphipoda	Podoceridae		Podoceridae indet. (fragment)	1						1	16.00	16			Fragment, posterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	70						70	16.00	1,120			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	136						136	16.00	2,176			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.	1						1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea	Monostilifera	Tetrastemmatidae		Tetrastemmatidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.	1		2				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Carinomiformes	Carinomidae		Carinoma sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Pyuridae		Boltenia echinata	1						1	2.00	2	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	8	8					16	2.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		5					5	2.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	3	1					4	2.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.		1					1	2.00	2			Possibly M. calcarea or M. moesta
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.		1	2				3	16.00	48			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	5	3					8	2.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	2	1	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	4	6					10	2.00	20	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1	5				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2					2	2.00	4			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	2	7					9	2.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		3	1				4	16.00	64	1		Damaged, small x2 Int, x1 J
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-120	SE-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Trochida			Trochoidea indet.			1				1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		3	4				7	16.00	112	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		2	3				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	2	1					3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	2						2	16.00	32	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		1	5				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	4						4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		4	11				15	16.00	240			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides hyperborea	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	9						9	2.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1	2	4				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	4						4	2.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	2	5					7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	17						17	16.00	272	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	6	3					9	16.00	144			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	14						14	2.00	28	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregmatidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus carinatus	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopiidae		Calliopiidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	12	13					25	16.00	400	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichia sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata	3	4	1				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1						1	16.00	16	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima	94	131	158				383	16.00	6,128	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	1						1	2.00	2	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lamprops fuscatus	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella emarginata	5	1					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	10	20	5				35	16.00	560	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Podocopida	Trachyleberididae		Robertsonites tuberculatus	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.	6						6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	12	4					16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	14						14	16.00	224			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	8						8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	2.00	2	1		on Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	2						2	16.00	32			on Macominae
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	9	4					13	2.00	26	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	6	2					8	2.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	3						3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Astartidae		Astarte borealis		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	4	6					10	2.00	20	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		2	1				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	6	12					18	2.00	36	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1	4				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		3					3	2.00	6			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		7					7	2.00	14	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1						1	2.00	2	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia		Periplomatidae		Periploma aleuticum	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-121	SE-11	19-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		4					4	16.00	64	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Chrysopetalidae	Dysponetinae	Dysponetus sp.	1						1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	2	12	2				16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe rarispina	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	4	2					6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	8						8	1.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	25	10	3				38	16.00	608	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	6	5	3				14	16.00	224			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	33	6					39	16.00	624	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	7						7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		1	3				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora socialis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	3	2					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spio sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	3	2	1				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.	1	3	10				14	16.00	224			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	13	1					14	1.00	14	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex	1						1	16.00	16	1		Possibly P. medusa
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	2	6	3				11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	15	2					17	1.00	17	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	10						10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1	2					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	2						2	16.00	32	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		3	2				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	5	2					7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus carinatus	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	17	9					26	16.00	416	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Stenothoidae		Stenothoidae indet.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1					1	1.00	1	1		Possibly Anonyx nugax group
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima	14	18	29				61	16.00	976	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	5	5					10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	27	17	18				62	16.00	992	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (parasitic)	1						1	16.00	16			Parasitic
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	20						20	16.00	320			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	57						57	16.00	912			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	7						7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata	Bougainvilliidae		Bougainvilliidae indet.	2						2	1.00	2	1		on Nuculana
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	11						11	1.00	11	1		on Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	2						2	16.00	32			on Macominae
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalotrichidae		Cephalothrix sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea					Nemertea indet.		1					1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PIXX	Chordata	Teleostei	Perciformes	Zoarcidae	Gymnelinae	Gymnelus sp.	1						1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	14	4					18	1.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	9	4					13	1.00	13	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	11						11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.		1	2				3	16.00	48			Juveniles small, Intermediates possibly M
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	24	16					40	1.00	40	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		5	1				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	42	41					83	1.00	83	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2	2				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		6					6	1.00	6			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	6	10	1				17	1.00	17	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	8						8	1.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			7				7	16.00	112			Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-122	SE-13	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		2	1				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Ophryotrocha sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana			2				2	16.00	32	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	13	35	15				63	16.00	1,008	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	3		1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	5	4	1				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	13	8					21	16.00	336	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		3	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	17	2					19	16.00	304	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1		2	2				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	7	1					8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.	1						1	16.00	16			Possibly E. sp. 1
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	3						3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata	4	12					16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio steenstrupi	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	10	3	2				15	16.00	240	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyla	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex	2	1	1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.			6				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			6				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus hirsutus	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Paramphitrite birulai	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	10	9					19	16.00	304	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	9						9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3	2					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	5	3	5				13	16.00	208	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus carinatus	4						4	2.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.		11					11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopiidae		Calliopiidae indet.			1				1	16.00	16	1		Possibly Apherusa
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium clarencense	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	15	7					22	16.00	352	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichia sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae		Ischyroceridae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculodes sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculoides sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata	11	5	15				31	16.00	496	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Tryphosidae indet.		1	2				3	16.00	48	1		Possibly Orchomene
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1						1	16.00	16	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima	35	13	28				76	16.00	1,216	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda			Isopoda indet.	1						1	16.00	16	1		Possibly Nannoniscidae
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	17	14	13				44	16.00	704	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	2.00	2	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura robusta		2					2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	8						8	16.00	128			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	108						108	16.00	1,728			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata	Bougainvilliidae		Bougainvilliidae indet.	1						1	2.00	2	1		on Nuculana
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PLTY	Platyhelminthes					Platyhelminthes indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	4	1					5	2.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	9						9	2.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		4					4	2.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		3	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1					1	2.00	2			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			3				3	16.00	48			Possibly M. truncata
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	2	4					6	2.00	12	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.			3				3	16.00	48			Possibly Boreocingula castanea
WSP	Baffinland MEEMP	2023	mb23-059-123	SE-15	15-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites helicinus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	3	40	22				65	16.00	1,040	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	1						1	1.00	1	1		Possibly H. imbricata
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	4						4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Anoplosyllinae	Streptospinigera niuqtuut	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	7	9	2				18	16.00	288	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		2	8				10	16.00	160			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		1	4				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Paramphitrite birulai		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1	3					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.	2						2	16.00	32	1		Possibly Praxillella
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella praetermissa	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.	1		1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	2	1					3	16.00	48	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1		1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	4	4					8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		2					2	16.00	32	1		Anterior portion only x1
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	3						3	1.00	3	1		x3 on Similipecten greenlandicus
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	2		1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	5						5	16.00	80			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	7						7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalothrichidae		Cephalothrix sp.		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	17	4					21	1.00	21	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae		Cardiidae indet.			1				1	16.00	16			Possibly Serripes groenlandicus
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		2	1				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	13						13	1.00	13	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Polinicinae	Euspira pallida	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-124	SE18-1	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		3	1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	4	18	7				29	16.00	464	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	5	2					7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	17	1					18	16.00	288	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	3						3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	3	2	1				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		3	1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	8	3	1				12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	2	5					7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		1	4				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	2	2	1				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	6						6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			6				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	1						1	16.00	16	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	2	2					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	1	3					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.			3				3	16.00	48			Possibly D. rathkei
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella truncatula	1	1	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	4	10	4				18	16.00	288	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus	6	10	3				19	16.00	304	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanaidae indet.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	17						17	16.00	272			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	4						4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	2.00	2	1		on Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	HEMI	Hemichordata	Enteropneusta				Enteropneusta indet.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetodermatidae indet.	1						1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	5	1					6	2.00	12	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	1	2					3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		5	1				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	4	23					27	2.00	54	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		3					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		2					2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		2	6				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites groenlandicus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Trochidae		Trochidae indet.			2				2	16.00	32	1		Eroded, possibly Margarites sp.
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-125	SNE-1	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda				Patellogastropoda indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		5	7				12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	13						13	16.00	208	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		3					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri	1	1					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	9	3					12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio steenstrupi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		3	4				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		4	2				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Pectinariidae indet.			1				1	16.00	16	1		Possibly C. hyperborea
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	15						15	16.00	240	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	3						3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	PO

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	5	7	6				18	16.00	288	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum	3	1					4	1.00	4	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	12						12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	1						1	1.00	1	1		on limpet shell
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	18						18	1.00	18	1		x1 on Macoma moesta, x17 on Macoma c
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea					Nemertea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.	1						1	16.00	16	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	2	27					29	1.00	29	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.		2					2	1.00	2			Possibly M. calcarea or M. moesta
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	8						8	1.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.		2					2	16.00	32	1		Immature
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		5	9				14	16.00	224	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	1						1	1.00	1	1		Eroded
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia myopsis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Lepetidae			Lepeta caeca		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-126	SNE-2	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Hesperonoe sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodorum gracilis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae sp. 3		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Spionida	Spionidae		Prionospio steenstrupi	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	3	3	4				10	16.00	160			
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-127	SNE-3	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Nicomachinae	Nicomachinae indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus	1		1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Polyphysia baffinensis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	28						28	16.00	448	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		6					6	16.00	96	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	1.00	1		New	
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	2						2	1.00	2	1		

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			8				8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	4						4	16.00	64			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	43						43	16.00	688			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Flustrina indet.	2						2	1.00	2	1		Attached to mollusc, possibly Cystisella sa
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida	Crisiidae		Crisia sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	8						8	1.00	8	1		x2 on Macoma moesta, x6 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.		1	1				2	16.00	32	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	3	6					9	1.00	9	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	13	3					16	1.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.		5					5	16.00	80	1		Immature, possibly Yoldiella frigida x1
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1		5				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Simplicipecten greenlandicus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	13						13	1.00	13	1		Many eroded
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-128	SNE-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Parougia caeca		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		12	8				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	4						4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta		6					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae		Phyllodocidae indet.			1				1	16.00	16	1		Damaged, possibly Pterocirrus
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	21	1	1				23	16.00	368	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodorum gracilis	1						1	16.00	16	1		New
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	6						6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	3	1					4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.	2		1				3	16.00	48	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	2	7					9	1.00	9	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Dacrydium vitreum	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1	3				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichnidae indet.		1					1	16.00	16	1		Damaged, ambiguous
WSP	Baffinland MEEMP	2023	mb23-059-129	SNE-5	21-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	4	6	10				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	1		2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	1	1	1				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Bushiella (Jugaria) quadrangularis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Spirorbinae indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata		1					1	16.00	16	1		

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.	1		1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		2	2				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		1					1	16.00	16	1		Possibly P. fedorovi
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	2		1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	6						6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella gracilis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	4	1					5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiopyrgidae		Ophiopleura borealis	1						1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		5					5	1.00	5	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	2						2	16.00	32			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	16						16	16.00	256			
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	4						4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Myriaporidae		Leieschara sp.	1						1	16.00	16	1		Possibly L. coarciata
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.	1						1	16.00	16	1		Damaged, possibly Entalophoroecia defle
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	3						3	1.00	3	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	12	5					17	1.00	17	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.		1					1	16.00	16	1		Immature
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1	2	5				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-130	SNE-7	18-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		7	9				16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3	3					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	3	1					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri		5					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Sosane wireni		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		1	3				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	4	1	1				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.		2	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Nicomachinae	Petaloproctus tenuis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Paraonides sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECAS	Echinodermata	Asteroidea	Paxillosida	Ctenodiscidae		Ctenodiscus crispatus	1						1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		2					2	16.00	32	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia	Siphonostomatoida			Siphonostomatoida indet. (parasitic)		1					1	16.00	16			Parasitic
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	14						14	16.00	224			
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.	5						5	16.00	80	1		Possibly Cauloramphus x1
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma nitidulum			1				1	16.00	16	1	New	Was keyed out using guide to the Macrof
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	9	2					11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Philinidae		Philininae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-131	SNE-9	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Trochidae		Trochidae indet.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		7	10				17	16.00	272	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3	1					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	4	1					5	16.00	80	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.	1						1	16.00	16	1		Possibly E. sp. 1
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata	2		1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychae

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda			Isopoda indet.		1					1	16.00	16	1		Possibly Nannoniscidae, Nannoniscinus p
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		2					2	16.00	32		New	
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		7					7	1.00	7	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	1.00	1	1		Damaged, anterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	5						5	16.00	80			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	96						96	16.00	1,536			
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	3						3	1.00	3	1		x1 on Macoma moesta, x2 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	15	4					19	1.00	19	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella lenticula	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.		1					1	16.00	16			Immature
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.			1				1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia		Cuspidariidae		Cuspidaria sp.	1						1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-132	SNE-10	06-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		3	4				7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	1		1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	31	5					36	1.00	36	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	2	2					4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridae indet.		1					1	16.00	16	1		Possibly Sphaerodoropsis
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.		1					1	16.00	16	1		Possibly E. sp.1
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spionidae indet.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitellidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	6	3	1				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregmatidae indet.			1				1	16.00	16	1		Possibly Polyphysa
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-13	10-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeiinae indet.		1					1	16.00	16	1		Possibly Protomedeia
WSP	Baffinland MEEMP	2023	mb23-059-133	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	2	4	3				9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3	6					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides sp.		1					1	16.00	16	1		Possibly Bylgides elegans
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	1	2					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Ephesiella sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri	1	4					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae		Serpulidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	1	4					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	4	4					8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		4	7				11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			6				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	6	3	1				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregmatidae indet.			1				1	16.00	16	1		Possibly Polyphysa
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeiinae indet.		1					1	16.00	16	1		Possibly Protomedeia
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis spinulosa	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.	1						1	16.00	16	1		Possibly E. emarginata
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiopyrgidae		Ophiopleura borealis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Insecta				Insecta indet. (terrestrial)	1						1	16.00	16			Terrestrial
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	1.00	1	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea					Nemertea indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.	1						1	16.00	16	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	10						10	1.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.	2	3					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella lenticula	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Polinicinae	Euspira pallida		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-134	SNE-15	17-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca		1					1	16.00	16	1		

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.		1	1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	9	1					10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	10	3					13	16.00	208	1		Degraded
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	6						6	1.00	6	1		Fragile, easily fragmented
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.	1						1	1.00	1	1		Possibly Euchone, anterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	5	3					8	16.00	128	1		Degraded
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	8						8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	7	12					19	16.00	304			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		1	2				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1	2					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Ampelisca eschrichtii	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Byblis sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeia sp.	1						1	1.00	1	1		Possibly P. fasciata
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Harpiniinae	Harpinia sp.	1						1	16.00	16	1		Possibly H. serrata
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.		1					1	16.00	16			Anterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	1	3					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella truncatula	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea			Cumacea indet.			1				1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Paramunnidae		Pleurogonium sp.	1						1	16.00	16	1		Possibly P. rubicundum
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	14	14	10				38	16.00	608	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Podocopida			Podocopida indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus	10	7					17	16.00	272	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus droebachiensis		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECHO	Echinodermata	Holothuroidea	Molpadida	Eupyrgidae		Eupyrgus scaber			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum			1				1	16.00	16		New	
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum	4						4	1.00	4	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		3					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida			Ophiuroidea indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	5						5	16.00	80			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea	Monostilifera	Tetrastemmatidae		Tetrastemmatidae indet.	1						1	16.00	16	1		Anterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	5	10					15	1.00	15	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	7						7	1.00	7	1		Many eroded
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2	2				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana pernula	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.		1	1				2	16.00	32			Immature
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1	1	2				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus		3					3	16.00	48			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	13	5					18	1.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thraciidae indet.		2	1				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.			4				4	16.00	64	1		Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-135	SNW-1	04-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae		Naticidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1	6				7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	3	3					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Isaeidae		Isaeidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	10	7	17				34	16.00	544	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus	5	15	1				21	16.00	336	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea			Tanaidacea indet.		1					1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	8	5					13	1.00	13	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	6						6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus sp.			1				1	16.00	16	1		Immature
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.		3	1				4	16.00	64	1		Immature
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella frigida	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella lenticula	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1	11				12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	5						5	1.00	5	1		Eroded
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thraciidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-136	SNW-2	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	2	1					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		6					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	6						6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	6	2					8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	2	2					4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	2						2	1.00	2	1		Fragile, easily fragmented
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		2	2				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	1	1					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		4	2				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella gracilis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Polyphysia baffinensis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregmatidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella truncatula		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Argis dentata	1						1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	9	8	3				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	16.00	16		New	
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		6					6	1.00	6	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	6						6	16.00	96			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	9						9	16.00	144			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	3						3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	9						9	1.00	9	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.	1						1	16.00	16	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	4	11					15	1.00	15	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	3	2					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.			2				2	16.00	32	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana pernula	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella frigida	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella lenticula	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanoidea indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		2	7				9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia		Periplomatidae		Periploma aleuticum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-137	SNW-3	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	7	3					10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	1	6					7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		6					6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.	1	5					6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Paroediceros sp.		1					1	16.00	16	1		Possibly P. lynceus
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1					1	1.00	1	1		Possibly A. laticoxae
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis spinulosa	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	1.00	1	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalothrichidae		Cephalothrix sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida				Priapulida indet.			1				1	16.00	16	1		Damaged, possibly P. caudatus
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	3	2					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.		2	4				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		2	6				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia		Cuspidariidae		Cuspidaria sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.		1					1	1.00	1			Damaged, possibly Thracia sp. or Periplor
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichnidae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-138	SNW-4	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	1	6	4				11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	5						5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	25						25	2.00	50	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	6	6					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Polynoinae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	3	2	2				7	16.00	112	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri	3						3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		3	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		1					1	16.00	16	1		Possibly P. fedorovi
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Polyphysia baffinensis	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	7	6	3				16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus droebachiensis		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECHO	Echinodermata	Holothuroidea	Apodida	Myriotrochidae		Myriotrochus rinkii		3					3	2.00	6	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		2					2	2.00	4	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1	1					2	2.00	4	1		Immature
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Ostracoda					Ostracoda indet. (meiofaunal)	16						16	16.00	256			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	78						78	16.00	1,248			
WSP	Baffinland MEEMP	2023	mb23-059-139	SNW-5	21-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	16.00	16			on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	4						4	2.00	8	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma nitidulum	1						1	2.00	2	1	New	Was keyed out using guide to the Macrof
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.		2					2	16.00	32			Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		3					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	5	5					10	2.00	20	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	2	1					3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.		1					1	16.00	16	1		Immature
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		3	5				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichnidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.	1						1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		2	9				11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	14	3	1				18	16.00	288			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	32						32	1.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	7	2					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	2	9	1				12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Laonice cirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	4	1	1				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	2	3					5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus hirsutus	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1		2				3	16.00	48	1		x4 parasites attached to adult
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1	1					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	SIPN	Annelida		Sipuncula	Golfingiidae		Golfingiidae indet.			1				1	16.00	16	1		
WS

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	2	8	3				13	16.00	208	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECAS	Echinodermata	Asteroidea	Valvatida	Solasteridae		Solasteridae indet.			1				1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Pycnogonida indet.		2					2	16.00	32		New	
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		2					2	1.00	2	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		2					2	16.00	32	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	4						4	16.00	64			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	15						15	16.00	240			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	4						4	1.00	4	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Styelidae		Polycarpa fibrosa	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.			1				1	16.00	16	1		Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	8	6					14	1.00	14	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	8	3					11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1	2				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia sp.		1					1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-140	SNW-7	22-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	3	2					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Parougia caeca	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		8	2				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		8	4				12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	2	1	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	16						16	2.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera capitata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	19	10					29	16.00	464	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1	1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	4	4					8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodorum gracilis		1					1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		2	2				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1	1	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella gracilis		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	SIPN	Annelida			Golfingiidae		Golfingiidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CHPY	Arthropoda	Pycnogonida				Pycnogonida indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Byblis sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	5	8	2				15	16.00	240	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECHO	Echinodermata	Holothuroidea	Molpadida	Eupyrgidae		Eupyrgus scaber			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		2					2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	18						18	16.00	288			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	21						21	16.00	336			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	13						13	16.00	208			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.	1						1	16.00	16	1		Fragment
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	2						2	2.00	4	1		x1 on Macoma moesta, x1 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia			Stolidobranchia indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma nitidulum	1						1	2.00	2	1	New	Was keyed out using guide to the Macrof
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.	1						1	16.00	16			Possibly Chaetoderma nitidulum
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	4	1					5	2.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella frigida	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1	5	4				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.		1					1	16.00	16	1		Eroded
WSP	Baffinland MEEMP	2023	mb23-059-141	SNW-9	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.			1				1	16.00	16			Shell-less
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	7						7	1.00	7	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.	1						1	1.00	1	1		Possibly Euchone rubrocincta
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella gracilis		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1	1					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	16.00	16		New	
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		9					9	1.00	9	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Insecta				Insecta indet. (terrestrial)	1						1	16.00	16			Terrestrial
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-142	SNW-11	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	1.00

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides sp.	1						1	1.00	1	1		Possibly Bylgides elegans
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		2	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	SIPN	Annelida		Sipuncula	Golfingiidae		Golfingiidae indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1					1	1.00	1	1		Possibly A. laticoxae
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Sabinea septemcarinata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiopyrgidae		Ophiopleura borealis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		5					5	1.00	5	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	2						2	16.00	32			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	6						6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	6						6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-143	SNW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	1	10	8				19	16.00	304	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		3	3				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	5	2					7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	114	8					122	1.00	122	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera capitata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera capitata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	3	7	1				11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	3	1	1				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae		Polynoidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	11	7	1				19	16.00	304			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis	3	1					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	11						11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.		1	1				2	16.00	32	1		Possibly E. sp. 1
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Lumbriclymeninae	Praxillura sp.	1						1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2	1					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	SIPN	Annelida		Sipuncula	Golfingiidae		Golfingiidae indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Orchomene sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		2					2	1.00	2	1		Possibly A. laticoxae
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1						1	16.00	16	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	8	6	6				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea			Tanaidacea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	16.00	16		New	
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		3					3	1.00	3	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Stictochironomus sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae	Pseudokiefferiella sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	21						21	16.00	336			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	123						123	16.00	1,968			
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNAN	Cnidaria	Anthozoa	Actiniaria			Actiniaria indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	1.00	1	1		on Macoma
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida				Priapulida indet.			1				1	16.00	16	1		Possibly Priapulus caudatus
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	9	2					11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.		1					1	1.00	1			Possibly M. calcarea or M. moesta
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-144	SNW-15	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	4	52	10				66	16.00	1,056	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor		2	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		1					1

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.	1	2	6				9	16.00	144			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Paramphitrite birulai		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	3	2	1				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldaninae	Maldaninae	Maldane sarsi	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Opheliidae	Opheliininae	Ophelia limacina	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium sp.	1						1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichiidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oediceratidae		Paroediceros sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	5						5	16.00	80	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.		1					1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	4						4	16.00	64			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	12						12	16.00	192			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	1						1	16.00	16			Fish egg
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalotrichidae		Cephalothrix sp.		9					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	24	13					37	1.00	37	1		Damaged x1
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		2	3				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	13	7					20	1.00	20	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	2	2					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2					2	1.00	2			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-145	SW-1	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Dorvilleidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		1					1	16.00	16	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	7	121	18				146	16.00	2,336	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Microphthalmidae		Microphthalmus sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1	18	1				20	16.00	320	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	6	1	1				8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	4		1				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	5	1					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Apistobranchidae		Apistobranchus sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora socialis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	10						10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spio sp.		3					3	16.00	48	1		Possibly S. malmgreni
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	6						6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	4	2					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	31	2					33	16.00	528	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		50	61				111	16.00	1,776			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.	1	2					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	8	4					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	3	1					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium clarencense	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oediceratidae		Oediceratidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oediceratidae		Paroediceros sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oediceratidae		Rostroculodes sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1					1	1.00	1	1		Possibly Anonyx lilljeborgi
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	3						3	16.00	48	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	6						6	16.00	96			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	38						38	16.00	608			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	4						4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalotrichidae		Cephalothrix sp.		9					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		3	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	18	10					28	1.00	28	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	3	1					4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			2				2	16.00	32			Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-146	SW-2	16-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		1					1	16.00	16	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	2	23	5				30	16.00	480	1		

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	6	3					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.			15				15	16.00	240			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Proclea graffii		1					1	16.00	16	1		Previously misspelled as Proclea grafi
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.	1		2				3	16.00	48			Adult damaged
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Paroediceros lynceus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	1						1	1.00	1	1		on Similipecten greenlandicus
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Sclerocrangon boreas	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	5						5	16.00	80			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	15						15	16.00	240			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalotrichidae		Cephalothrix sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	37	7					44	1.00	44	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	4	1					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	10						10	1.00	10	1		Damaged x1
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	3	2					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1	1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-147	SW-3	05-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Dorvilleidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana		2	3				5	16.00	80	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		14	8				22	16.00	352	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	1	1					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe rarispina	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	4	8					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	17	5	1				23	16.00	368	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	8	5	3				16	16.00	256			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Eusyllis sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	8	3					11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.		1					1	16.00	16		Possibly E. sp.1	
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	17	5	3				25	16.00	400	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	15	2	7				24	16.00	384			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		7	9				16	16.00	256			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Paramphitrite birulai		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	4	1					5	2.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	14	5					19	16.00	304	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	7	2					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	15	2					17	16.00	272	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelina acuminata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	6						6	16.00	96	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae		1	2				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Amphilochidae		Amphilochidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopiidae		Calliopiidae indet.		1					1	16.00	16	1		Possibly Apherusa borealis
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	13	15					28	16.00	448	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		1	4				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	2						2	2.00	4	1		on Similipecten greenlandicus
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	5						5	16.00	80	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima	1		3				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	6	5					11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	30	31	27				88	16.00	1,408	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INPL	Arthropoda	Insecta	Plecoptera	Chloroperlidae		Chloroperlidae indet.					1		1	16.00	16			Damaged, freshwater
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Insecta				Insecta indet. (terrestrial)	3						3	16.00	48			Terrestrial
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	63						63	16.00	1,008			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	36						36	16.00	576			

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1	2					3	2.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.		1	3				4	16.00	64			Intermediate is possibly Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		5	4				9	16.00	144			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	7	2					9	2.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	3	9					12	2.00	24	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1	6				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		3					3	2.00	6			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	4						4	2.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-148	SW-4	07-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Polinicinae	Euspira pallida	1						1	2.00	2	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana			3				3	16.00	48	1		Previously Scoletoma impatiens
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	2	3					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	3	2					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe rarispina	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	8	4					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	17	8	2				27	16.00	432	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	18	1	4				23	16.00	368			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	4	1					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spionidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	6	5					11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae	1		1				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	17	1					18	1.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1	4	2				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	7						7	16.00	112	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	3						3	16.00	48	1		Previously Aricidea minuta
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum			3				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	11	4					15	16.00	240	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.	1						1	1.00	1	1		Possibly Anonyx lilljeborgi
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1	1	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	24	32	16				72	16.00	1,152	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		3					3	1.00	3	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	71						71	16.00	1,136			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Ctenophora					Ctenophora indet. (planktonic)			1				1	16.00	16			Planktonic
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	105						105	16.00	1,680			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	10						10	16.00	160			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	16.00	16			on Macoma moesta
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	5						5	1.00	5	1		x1 on Macoma moesta, x3 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	9	9					18	1.00	18	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	5	1					6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		2					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	4	3					7	1.00	7	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.	1						1	1.00	1			Possibly M. calcarea or M. moesta
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			8				8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		3	8				11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	4	2					6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	1	7					8	1.00	8	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1					1	1.00	1			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		4					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		4	2				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		5					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	2	1					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana pernula	1						1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	3	1	2				6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			5				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		2	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.		2	1				3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-149	SW-5	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites helicinus	1						1	1.

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa		1					1	1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	7	5	3				15	16.00	240	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	20	8	7				35	16.00	560	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	19	10	4				33	16.00	528			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	6						6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		3	1				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			6				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	10						10	1.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1	2	3				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	11	5					16	16.00	256	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	4	2					6	16.00	96	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopiidae		Calliopiidae indet.		1					1	16.00	16	1	Possibly Apherusa	
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	2	3					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oediceratidae		Oediceratidae indet.			5				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Stenothoidae		Stenothoidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	4						4	16.00	64	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.			5				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	10	6	12				28	16.00	448	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	ISTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	28						28	16.00	448			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	13						13	16.00	208			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata			Anthoathecata indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	8						8	1.00	8	1		x1 on Macoma moesta, x6 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea					Nemertea indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	28	9					37	1.00	37	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		10					10	1.00	10	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	6	5					11	1.00	11	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.	1	1					2	1.00	2			Damaged Adult x1, possibly M. calcarea x
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	8	1					9	1.00	9	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	4	1					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		2					2	1.00	2			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		12					12	1.00	12	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Mytilidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana pernula	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Gastropoda	Cephalaspidea				Cephalaspidea indet.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-150	SW-6	09-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Trochidae		Trochidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		7	3				10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	6	2					8	16.00	128	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1		1				2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe rarispina	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	5	4					9	16.00	144			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	19	7	3				29	16.00	464	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	3	2	3				8	16.00	128			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			4				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Bushiella (Jugaria) quadrangularis	4						4	1.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	9	3					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		2	9				11	16.00	176			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.	1						1	1.00	1			Possibly Tharyx, anterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	22	3					25	1.00	25	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	7	3					10	16.00	160	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	57	14					71	16.00	1,136	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			2				2	16.00	32			Possibly Monoculodes
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	8						8	1.00	8	1		on Similipecten
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.			1				1	1.00	1	1		Possibly Strongylocentrotus droebachien
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16			Damaged
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	18						18	16.00	288			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	21						21	16.00	336			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	13						13	16.00	208			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	10						10	1.00	10	1		x1 on Macoma moesta, x8 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	PORI	Porifera	Calcarea				Calcarea indet.		1					1	1.00	1	1		Attached to mollusc
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	10	6					16	1.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus	2	5					7	1.00	7	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	4	16					20	1.00	20	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1						1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.		1					1	1.00	1			Possibly M. calcarea or M. moesta
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	1	1					2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Mytilidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1		2				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	16	11					27	1.00	27	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Capulidae		Ariadnaria borealis	1						1	1.00	1	1		Damaged, eroded
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites helicinus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	3	43	8				54	16.00	864	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone barbata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1	2	2				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	4	1					5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	6						6	1.00	6	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	17	21	6				44	16.00	704			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	2	2	2				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	2	1	2				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.	2	11	14				27	16.00	432			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		4	13				17	16.00	272			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	11	4					15	16.00	240			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	7						7	1.00	7	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	6	1					7	1.00	7	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		3					3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	4	5					9	16.00	144	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ARTH	CHPY	Arthropoda	Pycnogonida	Pantopoda	Nymphonidae		Nymphon sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichia sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.			2				2	16.00	32			Possibly Monoculodes x 1 and Monoculo
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Stenothoidae		Stenothoidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	8						8	16.00	128	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		3					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.		1					1	1.00	1	1		Possibly Strongylocentrotus droebachien
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECHO	Echinodermata	Holothuroidea	Apodida	Myriotrochidae		Myriotrochus rinkii			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum	1	1					2	1.00	2	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae	Pseudokiefferiella sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Cricotopus/Orthocladius sp. complex				1			1	16.00	16			Taxon contains some marine species
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Hydrosmittia sp.				1			1	16.00	16			Likely freshwater, similar genera can be n
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.				2			2	16.00	32			Damaged x1, taxon contains some marine
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	2						2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	37						37	16.00	592			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	20						20	16.00	320			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	6						6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata			Anthoathecata indet.	2						2	16.00	32	1		on Pectinariidae tube
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	8						8	1.00	8	1		x 1 on Serripes, x7 on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	PRIA	Cephalorhyncha	Priapulida				Priapulida indet.			2				2	16.00	32			Possibly Priapulus caudatus
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	1	2					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus	1	24					25	1.00	25	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	6	10					16	1.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-151	SW-8	14-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		11	5

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		1	1				2	16.00	32	1		Intermediates possibly Retusa or Acteocin
WSP	Baffinland MEEMP	2023	mb23-059-152	SW-10	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Buccinidae	Buccininae	Buccinum sp.	1						1	1.00	1	1		Eroded, possibly Buccinum glaciale
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	EURA	Annelida	Polychaeta	Echiuroidea	Echiuridae		Echiurus echiurus		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		24	12				36	16.00	576	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		2					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce sp.	1						1	2.00	2			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Melaenis loveni	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	1						1	2.00	2			Possibly P. minuta
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.	1						1	16.00	16			Possibly E. sp. 1
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.	1	1	1				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Marenzelleria sp.	2						2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		1	1				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1	3					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	CHAR	Arthropoda	Arachnida				Arachnida indet.	8	1					9	16.00	144			Acari indet., freshwater mite, possibly Hy
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Cladopelma sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Rheotanytarsus sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Stictochironomus sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae	Pseudokiefferiella sp.				13			13	16.00	208			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.				4			4	16.00	64			Likely freshwater, possibly Eukiefferiella
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae	Pentaneurini indet.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae		Chironomidae indet.				1			1	16.00	16			Taxon contains some marine species
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	2						2	16.00	32			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	16.00	16	1		on Macoma
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	PIXX	Chordata	Teleostei	Perciformes	Ammodytidae		Ammodytes sp.		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus	1						1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	1	1					2	2.00	4	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	10,000	1/2	Whole	1/2	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus		1					1	2.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-153	SW-11	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	2	32	6				40	16.00	640			
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	9						9	1.00	9	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Microphthalmidae		Microphthalmus sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone long complex	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1	4	2				7	16.00	112			
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	5						5	1.00	5			
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce sp.	1						1	1.00	1			
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Melaenis loveni	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	8	4					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	2	4					6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-154	SW-12	20-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3		3	3				6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera capitata	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		169	52				221	16.00	3,536	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		3	2				5	16.00	80			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Melaenis loveni	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa			2				2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	8	4					12	16.00	192	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	2	4					6	16.00	96			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3		3	3				6	16.00	96			

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023.

Client	Project	Year	Biologica Sample ID	Client Sample ID	Date Sampled	Sampler	Fraction (µm)	Field Split	Lab Split	Final Split	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	P	Raw Count	Split Multiplier	Total Abundance	Unique Taxa Count	New identifications	Comments
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	19	1					20	1.00	20	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	21	3					24	1.00	24	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		2	2				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora sp.		1					1	16.00	16	1		Degraded
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.	3						3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	2	1					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	3						3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus hirsutus	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		2	3				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1	3	1				5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopiidae		Calliopiidae indet.	1	1					2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium clarencense	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichia sp.	3	1					4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Orchomene sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1						1	16.00	16	1		Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea			Tanaidacea indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	16.00	16	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	CHAR	Arthropoda	Arachnida				Arachnida indet.		1					1	16.00	16			Acari indet., freshwater mite
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Stictochironomus sp.				1			1	16.00	16			Freshwater
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Hydrosmittia sp.				1			1	16.00	16			Likely freshwater, similar genera can be n
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	INDI	Arthropoda	Insecta	Diptera			Diptera indet.						1	1	16.00	16			Damaged, degraded
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Insecta				Insecta indet. (terrestrial)	3						3	16.00	48			Terrestrial
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO						Egg/egg mass	1						1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1						1	16.00	16	1		on Macoma calcarea
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MISC	NTEA	Nemertea					Nemertea indet.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		3					3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-155	SW-13	13-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	1	32	78				111	16.00	1,776	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	4						4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	2	3					5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	10	8	5				23	16.00	368			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridium minutum		1					1	16.00	16	1		Previously Sphaerodoropsis minutum and
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	2						2	1.00	2	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.			2				2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	5						5	16.00	80	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata		2	1				3	1.00	3	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.		2					2	16.00	32			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1						1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1		3				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.			1				1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum		3	1				4	16.00	64	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Byblis sp.			1				1	16.00	16	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium clarencense		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	1	2					3	16.00	48	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis lucifera		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides		1					1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	2						2	16.00	32	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	ECHI	ECHO	Echinodermata	Holothuroidea	Apodida	Myriotrochidae		Myriotrochus rinkii	1						1	16.00	16			Anterior portion only
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECHO	Echinodermata	Holothuroidea	Apodida	Myriotrochidae		Myriotrochus rinkii		1					1	1.00	1	1		Damaged
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		1					1	1.00	1	1	New	
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Hexanauplia	Siphonostomatoida			Siphonostomatoida indet. (parasitic)		1					1	16.00	16			Parasitic
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	69						69	16.00	1,104			Meiofaunal
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MEMO	MEMO	Nematoda					Nematoda indet.	194						194	16.00	3,104			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	13						13	1.00	13	1		x1 on Macoma moesta, x3 on Macoma ca
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		1					1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	11	6					17	1.00	17	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum		1					1	1.00	1	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus	1	4					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea			1				1	16.00	16			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1	11					12	1.00	12	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	5						5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.		2					2	1.00	2			Possibly M. calcarea or M. moesta
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.			3				3	16.00	48			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.		1	3				4	16.00	64			
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	10,000	Whole	Whole	Whole	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		5					5	1.00	5	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			4				4	16.00	64			Damaged, small
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichna alba	1						1	16.00	16	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.	9	2					11	16.00	176	1		
WSP	Baffinland MEEMP	2023	mb23-059-156	SW-15	11-Aug-23	Van Veen	500	1/4	1/4	1/16	MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.		1					1	16.00	16	1		Possibly Curtitoma violacea, but damaged

Benthic report of sorting efficiency quality control/quality assurance and subsampling accuracy for WSP Baffinland MEEMP, 2023.

Biologica Sample ID	Client Sample ID	Sorting Efficiency QA: Random whole re-sorts	Subsampling Accuracy
mb23-059-113	SCV-1		
mb23-059-114	SCV-2	99.05%	
mb23-059-115	SE-1		
mb23-059-116	SE-2		
mb23-059-117	SE-3		
mb23-059-118	SE-4		74.21%
mb23-059-119	SE-5		
mb23-059-120	SE-7		
mb23-059-121	SE-11		
mb23-059-122	SE-13		
mb23-059-123	SE-15		
mb23-059-124	SE18-1		
mb23-059-125	SNE-1	95.37%	
mb23-059-126	SNE-2		
mb23-059-127	SNE-3		
mb23-059-128	SNE-4		
mb23-059-129	SNE-5		
mb23-059-130	SNE-7		
mb23-059-131	SNE-9		
mb23-059-132	SNE-10		
mb23-059-133	SNE-13		
mb23-059-134	SNE-15		
mb23-059-135	SNW-1		66.88%
mb23-059-136	SNW-2		
mb23-059-137	SNW-3		
mb23-059-138	SNW-4		
mb23-059-139	SNW-5		
mb23-059-140	SNW-7		
mb23-059-141	SNW-9		
mb23-059-142	SNW-11		
mb23-059-143	SNW-13		
mb23-059-144	SNW-15		
mb23-059-145	SW-1		
mb23-059-146	SW-2		
mb23-059-147	SW-3	96.43%	
mb23-059-148	SW-4		76.36%
mb23-059-149	SW-5		
mb23-059-150	SW-6		
mb23-059-151	SW-8		
mb23-059-152	SW-10		
mb23-059-153	SW-11		
mb23-059-154	SW-12	97.99%	
mb23-059-155	SW-13		
mb23-059-156	SW-15		77.98%
	Average	97.21%	73.86%

Quality Assurance/Control

Sorting efficiency: [(total count – organisms recovered in spot check and/or re-sort) / total count] x 100%

Benthic report of raw subsampling accuracy data based on preliminary abundance counts for WSP Baffinland MEEMP, 2023.

Client Sample ID	Biologica Sample ID	Subsample	Split	Ann	Arth	Echi	Moll	Other	Total	Predicted #	Predicted - Actual	% Difference from Actual	Absolute Difference	Mean Error	Subsampling Accuracy
SE-4	mb23-059-118	Whole	1/4A	226	137	0	33	4	400	1,600	270	20.3	20.3		
			1/4B	202	112	13	48	5	380	1,520	190	14.3	14.3		
			1/4C	227	93	6	59	4	389	1,556	226	17.0	17.0		
			1/4D	97	38	2	23	1	161	644	-686	-51.6	51.6		
			Total	**752**	**380**	**21**	**163**	**14**	**1,330**					**25.79**	**74.21**
SNW-1	mb23-059-135	Whole	1/4A	112	76	5	30	1	224	896	357	66.2	66.2		
			1/4B	64	34	5	19	1	123	492	-47	-8.7	8.7		
			1/4C	38	25	5	12	0	80	320	-219	-40.6	40.6		
			1/4D	61	33	1	17	0	112	448	-91	-16.9	16.9		
			Total	**275**	**168**	**16**	**78**	**2**	**539**					**33.12**	**66.88**
SW-4	mb23-059-148	Whole	1/4A	258	147		33	2	440	1,760	565	47.3	47.3		
			1/4B	140	84		38		262	1,048	-147	-12.3	12.3		
			1/4C	142	89		22		253	1,012	-183	-15.3	15.3		
			1/4D	127	75		38		240	960	-235	-19.7	19.7		
			Total	**667**	**395**	**0**	**131**	**2**	**1,195**					**23.64**	**76.36**
SW-15	mb23-059-156	Whole	1/4A	172	13	1	33	0	219	876	-214	-19.6	19.6		
			1/4B	294	17	0	26	0	337	1,348	258	23.7	23.7		
			1/4C	171	5	1	27	2	206	824	-266	-24.4	24.4		
			1/4D	265	22	4	34	3	328	1,312	222	20.4	20.4		
			Total	**902**	**57**	**6**	**120**	**5**	**1,090**					**22.02**	**77.98**

Description of unique taxa that are undescribed and assigned internal numbers (e.g., sp. 1, sp. 2 etc.) for WSP Baffinland MEEMP, 2023.

taxcode	grpcode	TaxonName	Morphological Description	Note
ANNE	POSE	Dialychone sp. 1	Methyl Green staining pattern is similar to Paradialychone harrisae observed in California, but has ventral cleft present on collar which is lacking in California specimens.	Present in 2022
ANNE	POSE	Dialychone sp. 2	There is a well-defined circular unstained area in the middle of the ventral collar. There is no ventral cleft present. Likely not described.	Present historically
ANNE	POSE	Dialychone sp. 3	Similar to Chone duneri, with a simple depression on posterior. Thoracic chaetae with long macron, prostomium not covered, with oval shaped unstained area on collar. Posterior segments with a reddish brown pigmentation in a striped pattern.	Present historically
ANNE	POSE	Sabellidae sp. 2	Specimens do not have companion chaetae. Eyespots present from setiger 4. Collar similar to Parasabella pallida.	Present historically
ANNE	POSE	Sabellidae sp. 3	cf Chone, but has only capillary setae on the thorax. There is a semicircular unstained section on the collar (Methyl Green). Does not appear to be described in literature.	Present in 2022
ANNE	POSE	Sabellidae sp. 4	Specimens with rectangular staining pattern on the ventral collar. Thorax has long handled setae, with no white glandular ring, ventral cleft present, and a lateral and dorsal incision on collar.	Present historically
ANNE	POSE	Euchone sp. 1	Staining pattern on abdominal segments similar to Euchone analis and with a rectangular glandular area on each side and on the anterior and posterior portion of each segment. Both dorsal and ventral sides of the collar have a large divergent lobe, and there is narrow white glandular area beneath collar on the ventral side.	Present historically

Taxonomic updates for historical data considerations and verification purposes for WSP Baffinland MEEMP, 2023.

Year	Taxon	Biologica Comment	Referenced specimens
2021	Marenzelleria sp.	Identification updated to Marenzelleria wireni (Vasily Radashevsky (2021))	Speciemens referenced
2020	Marenzelleria viridis	Verified and agreed in 2019 by U. Laval. - Identification updated to Marenzelleria wireni (Vasily Radashevsky (2021))	Additional specimens referenced in 2020
2020	Caudofoveata indet.	Name change. Previously Aplacophora indet.	
2020	Amphitrite cirrata	ID corrected from historical ID of Neoamphitrite affinis	Speciemens referenced
2020	Sosane wireni	Historically Sosane sp. nr. wireni. Verified and agreed to Sosane wireni by the University of Laval in 2019.	
2020	Pholoe longa	Historically Pholoe minuta. Pholoe longa - With facial tubercles, bare middorsum, unpigmented elytra, relatively large species. Located along the west coast of Greenland; Canada, in Bay of Fundy, Hudson Bay, and Resolute Bay , based on molecular data (MEIßNER).	Speciemens referenced from 2017, 2018, 2019 and 2020
2020	Pholoe minuta	Historically Pholoe tecta. Pholoe minuta - No facial tubercles, dorsum covered, pigmented elytra, smaller species than Pholoe longa.	Speciemens referenced from 2017, 2018, 2019 and 2020
2023	Aricidea (Aricidea) minuta	Previously Aricidea minuta	
2023	Golfingia sp.	Taxcode change from MISC to ANNE	
2023	Nephasoma sp.	Taxcode change from MISC to ANNE	
2023	Golfingiidae indet.	Taxcode change from MISC to ANNE	
2023	Proclea graffii	Previously mispelled as Proclea grafi	
2023	Scoletoma laurentiana	Previously Scoletoma impatiens	
2023	Sphaerodoridium minutum	Previously Sphaerodoropsis minutum and Sphaerodoropsis minuta	

APPENDIX 4D

Summary Statistics

Appendix 4D - Benthic Infauna Summary Statistics
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavut, 2023

Transect	Station	Total Density (org/m^2)	Richness (taxa/station)	Simpson's Diversity Index	Simpson's Evenness Index
East	SE-1	23474	54	0.9	0.19
	SE-2	10312	53	0.93	0.26
	SE-3	17137	63	0.93	0.23
	SE-4	21943	64	0.92	0.2
	SE-5	21345	62	0.94	0.25
	SE-7	26251	61	0.93	0.23
	SE-11	38735	60	0.65	0.048
	SE-13	24211	72	0.92	0.17
	SE-15	29767	74	0.94	0.21
Mean		22,274	60	0.89	0.19
Median		22,709	62	0.93	0.20
Minimum		9,562	39	0.65	0.05
Maximum		38,735	74	0.94	0.26
Count		10	10	10	10
SD		8,693	10	0.09	0.06
SE		2,749	3	0.03	0.02
West	SW-1	10255	38	0.81	0.14
	SW-2	23756	51	0.77	0.09
	SW-3	6224	39	0.86	0.18
	SW-4	23622	61	0.91	0.18
	SW-5	16121	59	0.88	0.14
	SW-6	13155	52	0.92	0.24
	SW-8	12578	57	0.85	0.12
	SW-10	15261	50	0.86	0.14
	SW-11	3375	24	0.58	0.10
	SW-12	6253	27	0.77	0.16
	SW-13	16263	36	0.42	0.05
	SW-15	11475	39	0.60	0.06
Mean		13,195	44	0.77	0.13
Median		12,867	45	0.83	0.14
Minimum		3,375	24	0.42	0.05
Maximum		10,255	38	0.81	0.14
Count		12	12	12	12
SD		6,380	12	0.16	0.05
SE		1,842	4	0.04	0.02
Northwest	SNW-1	10723	57	0.91	0.20
	SNW-2	6820	39	0.87	0.19
	SNW-3	6898	48	0.93	0.30
	SNW-4	5225	32	0.91	0.36
	SNW-5	6127	44	0.92	0.28
	SNW-7	7565	44	0.93	0.31
	SNW-9	8021	46	0.91	0.24
	SNW-11	1313	16	0.90	0.65
	SNW-13	1927	26	0.91	0.43
	SNW-15	8814	47	0.93	0.29
Mean		6,343	40	0.91	0.33
Median		6,859	44	0.91	0.30
Minimum		1,313	16	0.87	0.19
Maximum		10,723	57	0.93	0.65
Count		10	10	10	10
SD		2,910	12	0.02	0.14
SE		920	4	0.01	0.04
Northeast	SNE-1	12443	52	0.94	0.31
	SNE-2	8148	44	0.91	0.27
	SNE-3	3096	31	0.95	0.59
	SNE-4	7495	50	0.92	0.24
	SNE-5	8936	59	0.94	0.28
	SNE-7	4266	34	0.89	0.27
	SNE-9	5536	45	0.94	0.40
	SNE-10	4778	44	0.93	0.35
	SNE-13	2901	34	0.94	0.49
	SNE-15	7717	39	0.92	0.32
Mean		6,532	43	0.93	0.35
Median		6,516	44	0.94	0.31
Minimum		2,901	31	0.89	0.24
Maximum		12,443	59	0.95	0.59
Count		10	10	10	10
SD		2,979	9	0.02	0.11
SE		942	3	0.01	0.04
Non-Transect Capesize Vessel	SCV-1	11865	53	0.92	0.23
	SCV-2	10687	46	0.93	0.3
	SE18-1	9562	39	0.8	0.13
Mean		10,705	46	0.88	0.22
Median		10,687	46	0.92	0.23
Minimum		9,562	39	0.80	0.13
Maximum		11,865	53	0.93	0.30
Count		3	3	3	3
SD		1,152	7	0.07	0.09
SE		665	4	0.04	0.05

Notes:
org/m^3 = organisms per cubic metre; SD = standard deviation; SE = standard error; taxa/station = number of taxa per sampling station.

APPENDIX 4E

Power Analysis

POWER ANALYSIS - METHODS

A Type I error is concluding there is a significant effect when none exists (i.e., a false positive). Alpha (α) is the probability of committing a Type I error. A Type II error is the probability of concluding there is no significant effect when there is a real effect of some specified magnitude (i.e., a false negative). Beta (β) is the probability of committing a Type II error. The power of a statistical test (1 - β) is the probability of detecting a real effect. In this analysis, the Type I error-rate (α), also referred to as the significance level, was set to 0.05. The desired minimum statistical power was 80%, which corresponds to a type II error-rate of 0.2. Power analyses were conducted to assess the power of statistical tests under multiple effect sizes. For each model, a set of effect sizes was created, based on preliminary power analyses, so that power >80% was achieved at the largest absolute values of effect sizes, but also so that power is assessed at a range of effect sizes. Both negative and positive effect sizes were used, to assess the power of detecting either a reduction or an increase in values of the response variables. Since the analysis focused on assessment of changes to statistical power at different effect sizes, the power analysis used the observed samples sizes from the collected data.

Data Simulation following Effect Size Application

The power to detect statistically significant effects was estimated using residual bootstrapping in R v. 4.3.2 (R 2023), following the approach of Fox and Weisberg (2018). The general approach was to simulate data based on the model selected for interpretation, the observed sample size, and the residuals, and re-run the models that were used for the original analysis using the simulated data. The data simulation and analysis were repeated 5,000 times, and the proportion of repetitions where the *P*-values of interest were significant ($P<0.05$) was interpreted as the statistical power of the test.

To produce simulated data, the original model was used to predict values of the response variable. The predicted values were then adjusted according to the effect size, depending on the analysis (see below for details). The simulated data were then analyzed using the same model structure as the original analysis. Effect sizes and statistical tests were applied differently to different models, as detailed below.

Effect Sizes

In this power analysis, the question of interest was the models' power to detect between-year differences at various distances within transect, as well as the power to detect a significant trend over time along each transect.

To assess the power to detect spatial trends, the effect size was applied linearly, where the first sampling station in each transect had the full effect size, whereas the last sampling station along the transect had an effect size of zero. This simulated the expected distribution, where disturbance was highest in close proximity to the ore dock. The effect sizes were calculated relative to the observed values at maximum distance along each transect, since it was assumed that at the end of each transect, disturbance was minimal. The effect size was only applied to 2023 data, whereas all data collected previously only had an effect size of zero. This allowed assessing what effect size, relative to the values in low-disturbance portion of each transect, the model would be able to identify. The effect size was applied up to a distance of 1,000 m from transect origin, such that at the beginning of the transect, the effect size was applied fully, decreasing linearly with distance until reaching 0% effect size at a distance of 1,000 m. This

distance was selected as a previous assessment of ship wake and propeller wash indicated that sediment scouring and deposition would be limited to less than 1,000 m from the dock (Golder 2018). An example of the effect size application to the Post-2018 Dataset (i.e., 2019, 2020, and 2023) for fines content is provided in Figure 4E-1.

To assess the power to detect between-year differences, the effect size was applied differently than for the effect of distance. Specifically, the effect size was also applied linearly relative to distance from transect origin, and it was also only applied to 2023 data. However, the effect size was calculated relative to the values observed in the previous sampling year (i.e., 2020). This allowed assessing what effect size, relative to the previous sampling year, the model would be able to identify.

The simulated data based on effect sizes applied to values of the response variable from 2023 were combined with simulated data from previous years (with an effect size of zero). This combined dataset was analyzed using the models from the original analysis in the main report.

To estimate the power to detect a spatial effect, the significance of the spatial trend in 2023 was assessed at 500 m and 700 m from transect origin (for Northeast Transect) and at 250 m and 500 m from transect origin (for all other transects) using the package emmeans (Lenth 2019), and the minimum *P*-values for the trend across both distances were retained. The use of two distances per transect allowed the estimation of power to detect at least one significant spatial trend per transect. The proportion of repetitions with *P*-values less than 0.05 was interpreted as the statistical power to detect a spatial effect.

To estimate power to detect a temporal effect, the significance of the difference between 2023 and 2022 was assessed at 500 m from transect origin, and the *P*-value for the comparison was retained. For each effect size, the proportion of repetitions with *P*-values less than 0.05 at each transect was interpreted as the statistical power to detect a year effect. This analysis assessed how much higher or lower the 2023 values would have to be to detect a significant difference relative to the previous sampling year.

Power Analysis – Reporting of Results

Power curves were produced, showing statistical power as a function of effect size in percentages. Horizontal lines were added to visualize statistical power values of 0.8 (hereafter sufficient power) and 0.9 (hereafter high power), and a vertical line was added to visualize the magnitude of difference (or the slope value, for continuous predictor variables) that was observed in the original analysis.

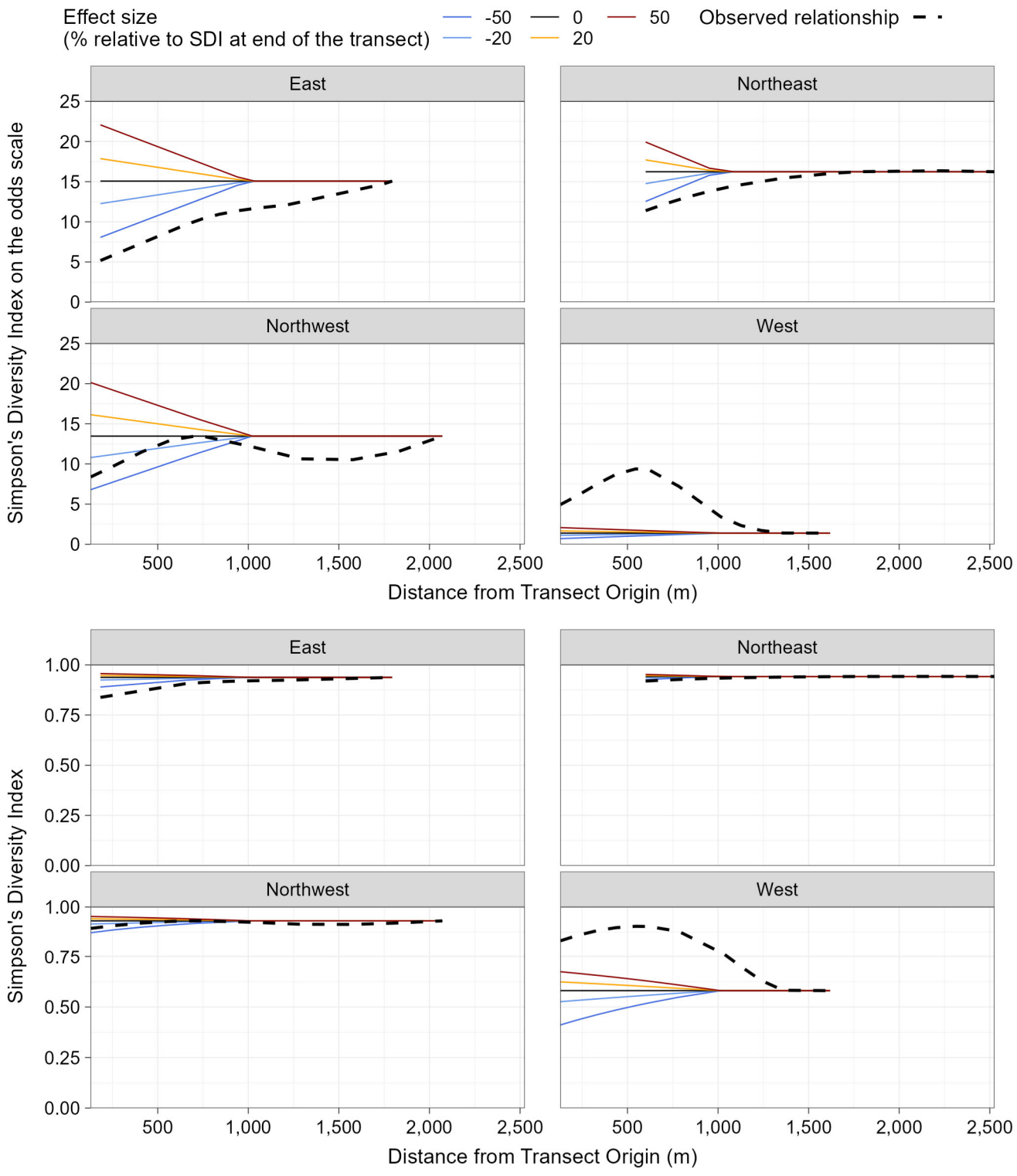


Figure 4E-1: Application of effect sizes to examine effect of distance in SDI, illustrating how effect sizes applied on the odds scale (top) are affected by the bounding of SDI by 0 and 1 once effect sizes are expressed on the SDI scale (bottom).

POWER ANALYSIS – RESULTS

Total Density

The analysis of density had sufficient power (>0.8) to detect spatial effects of decreasing density at effect sizes ranging between -85% (for the Northeast and Northwest transects) and -72% (for the East Transect; Figure 4E-2). Power was also sufficient (>0.8) to detect spatial effects of increasing density at effect sizes ranging between +105% (for the East Transect) and +200% (for the Northwest Transect). Observed effect sizes in 2023 were -42%, +119%, +82%, and +26% for the East, West, Northwest, and Northeast transects, respectively. The model did not have sufficient power to detect any of the observed effect sizes, although it did have power of 0.7 to detect the effect size at the West Transect, consistent with the finding of a significant increasing trend near the transect origin for West Transect in 2023, but not for the remaining transects (Section 4.4.3.1 in the 2023 MEEMP main report [WSP 2024]). The model had higher power to detect decreases in density than increases. Since a reduction in density due to Project activity is of more concern than an increase in density, the statistical power to detect reductions was considered to be more relevant.

For the temporal effects, the model had sufficient power (>0.8) to detect temporal effects of decreasing density at effect sizes of -90% and -67% (Northeast and Northwest transects, respectively), but not at the East Transect; Figure 4E-2). Power was also sufficient (>0.8) to detect temporal effects of increasing density between 2020 and 2023 at effect sizes of ranging between +99% (for the Northwest Transect) and +290% (for the East Transect). Observed effect sizes were +190% and +233% for the East and West transect, respectively, and -9% and +101% for the Northwest and Northeast transects, respectively. Since all substantial observed effect sizes were positive (i.e., increase in density), the low statistical power to detect a decrease in density over time was not considered a concern at this time.

Overall, power to detect decreases in density was higher than power to detect increases. Only one observed temporal effect, and none of the spatial effects, had sufficient power. Of the four transects, three had observed spatial increases in density (i.e., higher density at proximity to the transect origins), and three had substantial increases in density in proximity to transect origin between 2020 and 2023. Power to detect increases in density between 2020 and 2023 in proximity to the transect origins was generally low, since density values observed in 2020 were small, requiring increases of large percent values to detect a significant difference from the simulated 2023 density values.

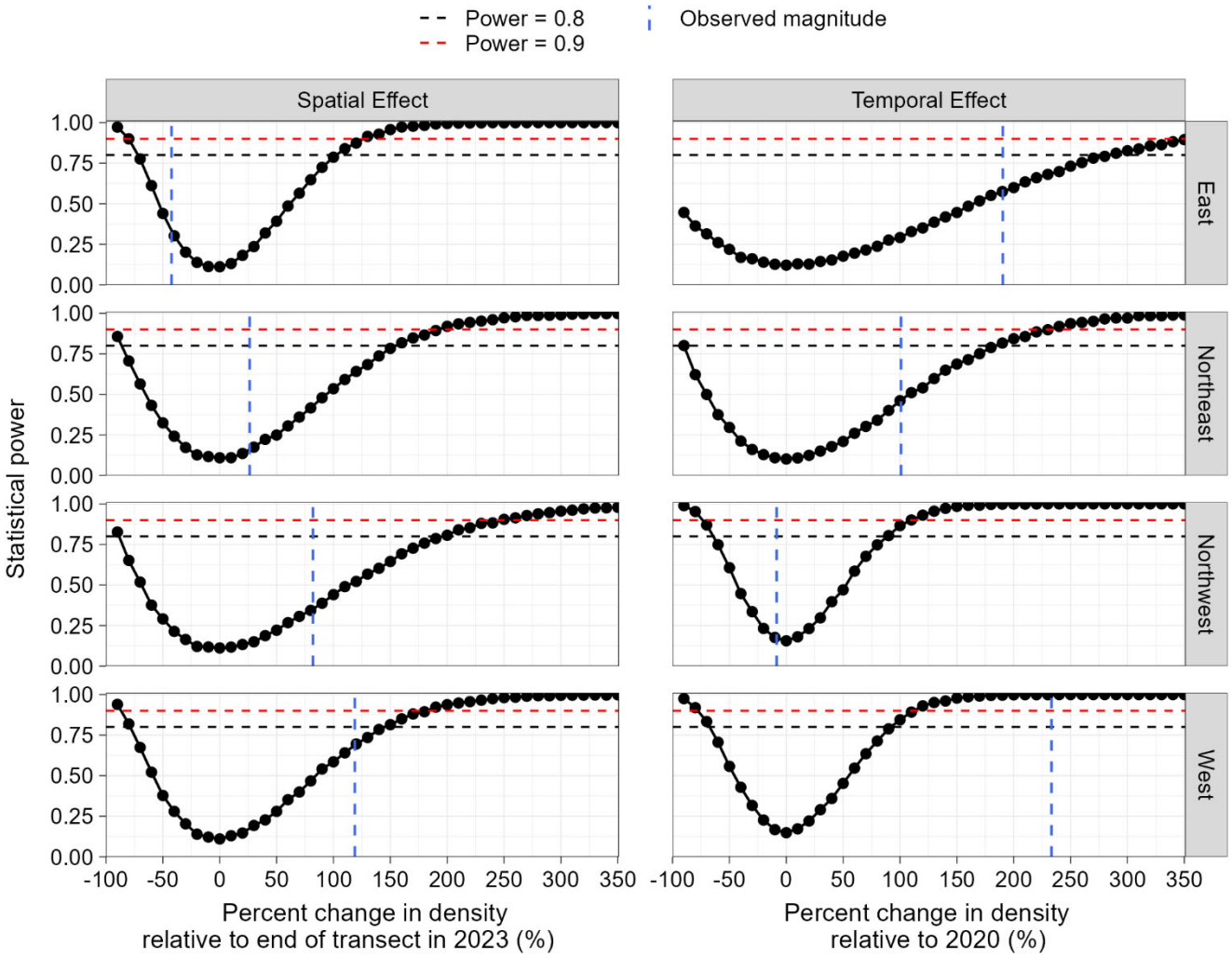


Figure 4E-2: Statistical power of the 2018-2023 density model to detect a significant spatial trend (left) and a significant temporal trend in 2023 (right). Both spatial and temporal effects were tested at 250 m (Northwest and West transects) and 500 m (East and Northeast transects) from transect origin.

Richness

The analysis of richness had sufficient power (>0.8) to detect spatial effects of decreasing richness at effect sizes ranging between -52% (for the West Transect) and -45% (for the East, and Northwest transects; Figure 4E-3). Power was also sufficient (>0.8) to detect spatial effects of increasing richness at effect sizes ranging between +57% (for the East Transect) and +75% (for the West Transect). Observed effect sizes in 2023 were -15%, +109%, +33%, and -7% for the East, West, Northwest, and Northeast transects, respectively. The model had high power (>0.9) to detect the observed effect size for the West Transects, but low power (<0.5) to detect the effect size observed at the Northwest Transect. For both East and Northeast transects, observed effect sizes were small, indicating little to no effect; consequently, statistical power to observe those was low. This is consistent with the finding of a significant increasing trend near the transect origin for West Transect in 2023, but not for the remaining transects (Section

4.4.3.2 in the 2023 MEEMP main report [WSP 2024]). The model had higher power to detect decreases in richness than increases, especially for the West Transect. Since a reduction in richness due to Project activity is of more concern than an increase in richness, the statistical power to detect reductions was considered to be more relevant.

For the temporal effects, the model had sufficient power (>0.8) to detect temporal effects of decreasing richness at effect sizes ranging between -75% (East Transect) and -37% (West Transect; Figure 4E-3). Power was also sufficient (>0.8) to detect temporal effects of increasing richness between 2020 and 2023 at effect sizes of ranging between +42% (for the Northwest Transect) and +120% (for the East Transect). Observed effect sizes were +69% and +54% for the East and West transect, respectively, and 4–5% for the Northeast and Northwest transects. Since both of the larger observed effect sizes were positive (i.e., increase in richness), the low statistical power to detect the observed effect at the East Transect was not considered a concern at this time.

Overall, power to detect spatial trends was similar to the power to detect temporal trends. The observed spatial and temporal effects at the West Transect, but not at any of the other transects, had sufficient power. Of the four transects, two had observed spatial increases in richness (i.e., higher richness at proximity to the transect origins), and two had substantial increases in richness in proximity to transect origin between 2020 and 2023.

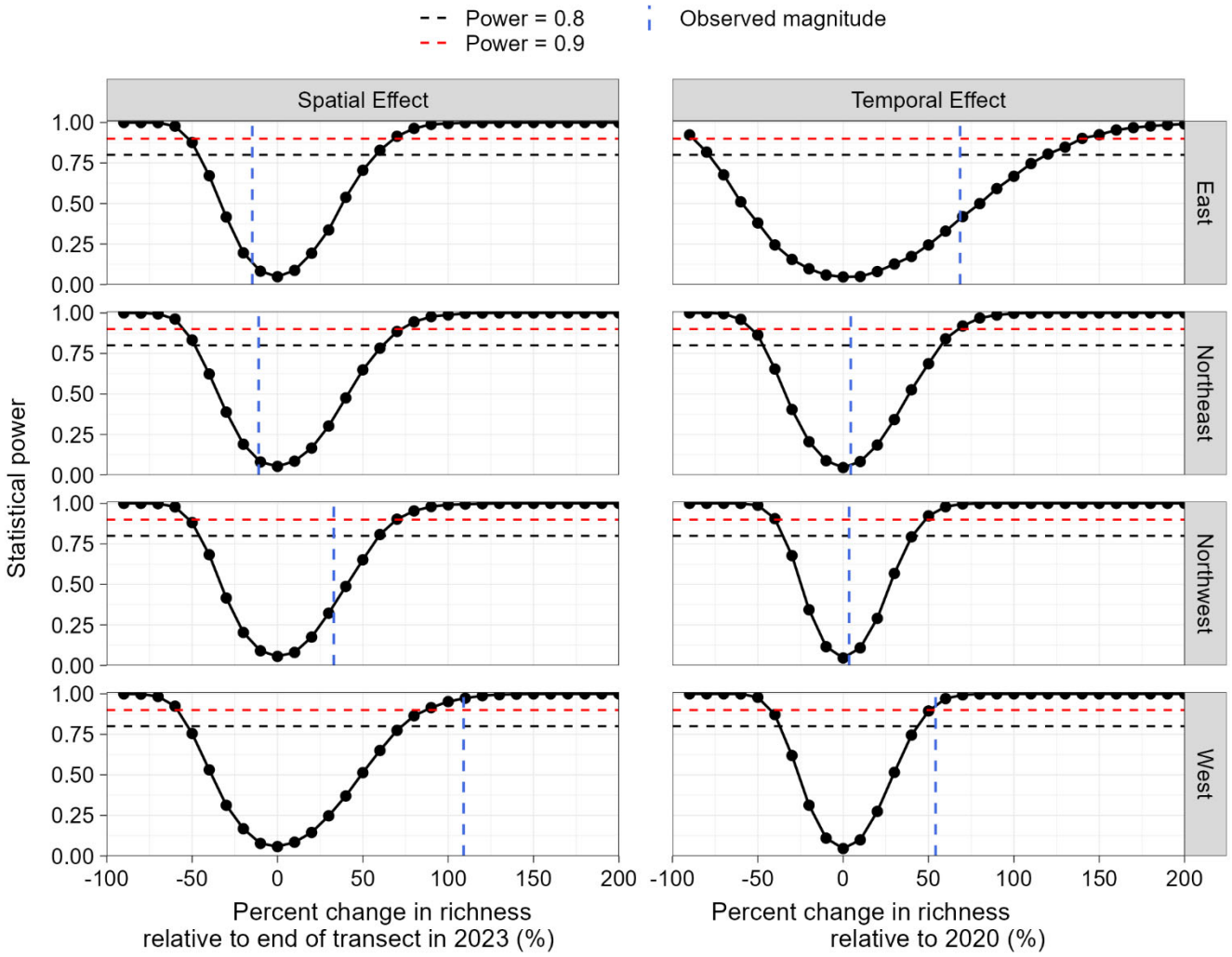


Figure 4E-3: Statistical power of the 2018-2023 richness model to detect a significant spatial trend (left) and a significant temporal trend in 2023 (right). Both spatial and temporal effects were tested at 250 m (Northwest and West transects) and 500 m (East and Northeast transects) from transect origin.

Simpson's Diversity Index

The analysis of SDI had sufficient power (>0.8) to detect spatial effects of decreasing SDI at effect sizes of -65% , -57%, -62%, and -72%, for the East, West, Northwest, and Northeast transects, respectively (Figure 4E-4. Power was sufficient (>0.8) to detect a spatial increase in SDI only at the West Transect, at an effect size of +177%. Observed effect sizes in 2023 were -62%, +362%, -28%, and -35% for the East, West, Northwest, and Northeast transects, respectively. The model had high power (>0.9) to detect the observed effect size for the West Transect, marginally insufficient power (0.76) to detect the observed effect at the East Transect, and low power (<0.5) to detect the effect size observed at the Northwest and Northeast transects. This is consistent with the finding of a significant increasing trend near the transect origin for West Transect and a section of the East Transect in 2023, but not for the remaining transects (Section 4.4.3.3 in the 2023 MEEMP main report [WSP 2024]). The model had higher power to detect decreases in SDI than increases for all four transects. Since a reduction in SDI due to Project activity is of

more concern than an increase in richness, the statistical power to detect reductions was considered to be more relevant.

For the temporal effects, the model had sufficient power (>0.8) to detect temporal effects of decreasing SDI at effect sizes of -45%, -44%, and -65% for the West, Northwest, and Northeast transects, respectively, but not at any effect size at the East Transect (Figure 4E-4). Power was also sufficient (>0.8) to detect temporal effects of increasing SDI between 2020 and 2023 at effect sizes of +82% and +110% for the West and Northwest transects, respectively, but not at the Northeast or East transects for any of the assessed effect sizes. Observed effect sizes were +331% and -44% for the East and West transect, respectively, and -22% and -2% for the Northwest and Northeast transects, respectively. The low power to detect a significant temporal effect at the East Transect is likely due to the high uncertainty associated with the 2020 estimate at the East Transect at 500 m from transect origin, as the sampling was only performed starting at 650 m from origin.

Overall, power to detect spatial trends was lower than power to detect temporal trends for three of the four transects, and for most cases, power to detect decreases in SDI was higher than power to detect increases. Only one observed spatial effect had sufficient power. Of the four transects, only the West Transect had observed spatial increases in SDI (i.e., higher SDI at proximity to the transect origin), and one had a substantial increase in SDI in proximity to transect origin between 2020 and 2023. Power to detect increases in SDI was generally low, since observed SDI values were generally high, and due to the bounding of SDI between 0 and 1, further increases in SDI would be difficult to detect.

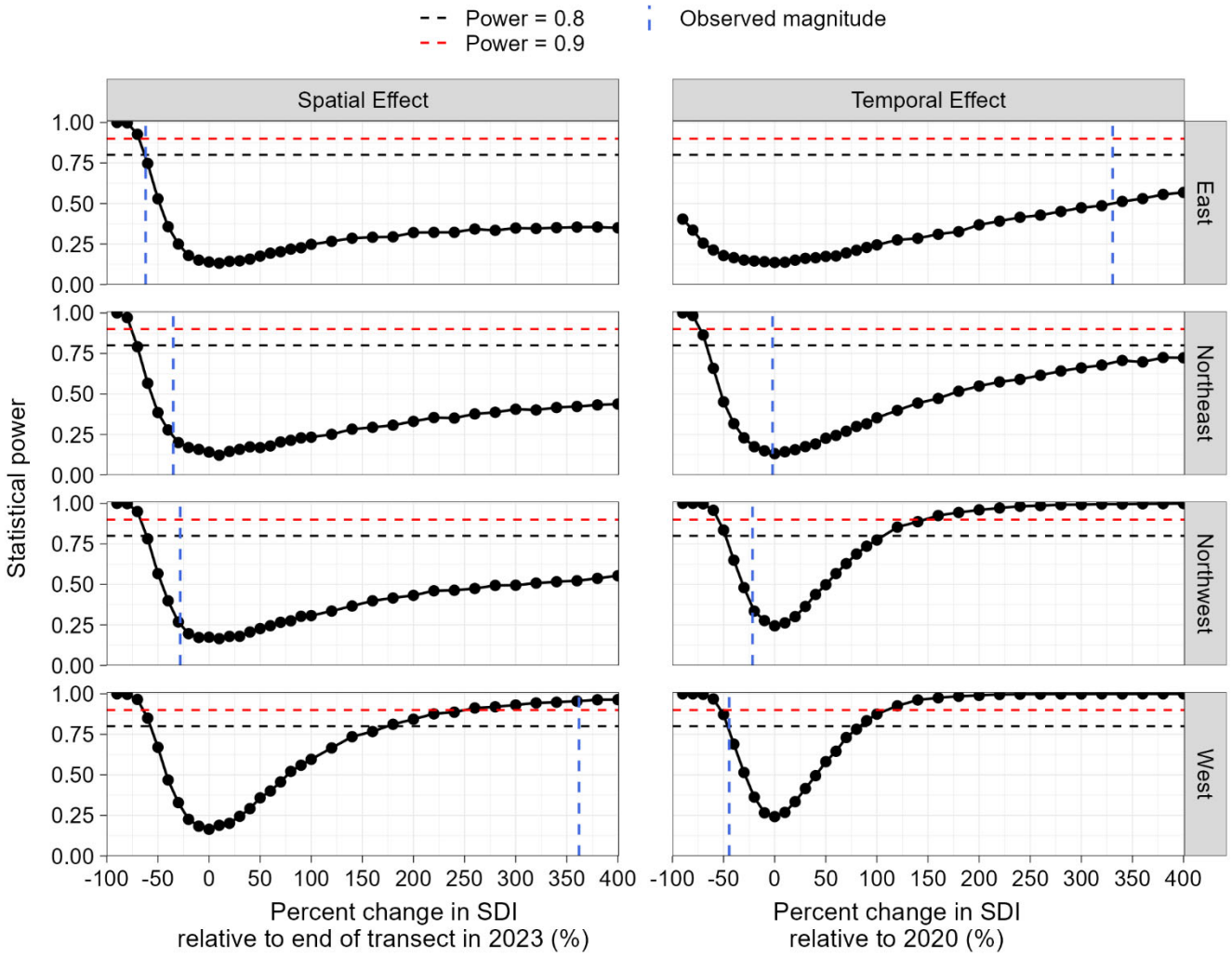


Figure 4E-4: Statistical power of the 2018-2023 SDI model to detect a significant spatial trend (left) and a significant temporal trend in 2023 (right). Both spatial and temporal effects were tested at 250 m (Northwest and West transects) and 500 m (East and Northeast transects) from transect origin.

Simpson's Evenness Index

The analysis of SEI had sufficient power (>0.8) to detect spatial effects of decreasing SEI at effect sizes of -92%, -80%, and -69% for the East, Northwest, and Northeast transects, respectively, but not for the West Transect (Figure 4E-5). Power was sufficient (>0.8) to detect a spatial increase in SEI at effect sizes of +285%, +390%, +175%, and +200% for the East, West, Northwest, and Northeast transects, respectively. The model had low power (<0.7) to detect all observed spatial effects. This is consistent with the lack of statistically significant slopes at distances of 250 m or 500 m from transect origin (Section 4.4.3.4 in the 2023 MEEMP main report [WSP 2024]). Observed effect sizes were +1% and +159% for the East and West transect, respectively, and -51% and 0% for the Northwest and Northeast transects, respectively. The model generally had higher power to detect decreases in SEI than increases. The large effect sizes required to obtain sufficient power for increasing SEI were due to the low SEI values used as

the baseline (i.e., the SEI values at the end of the transect). This was especially noticeable for the West Transect, where the 2023 SEI value at the end of the transect was only 0.06, leading to an effect size of +390% required for sufficient power. Overall, since a reduction in SEI due to Project activity is of more concern than an increase in richness, the statistical power to detect reductions was considered to be more relevant.

For the temporal effects, the model had sufficient power (>0.8) to detect temporal effects of decreasing SEI at effect sizes of -55%, -65%, and -75% for the West, Northwest, and Northeast transects, respectively, but not at any effect size at the East Transect (Figure 4E-5). Power was also sufficient (>0.8) to detect temporal effects of increasing SEI between 2020 and 2023 at effect sizes of +90%, +110%, and +170% for the West, Northwest, and Northeast transects, respectively, but not at the East transects for any of the assessed effect sizes. Observed effect sizes were +11% and -65% for the East and West transect, respectively, and -31% and -16% for the Northwest and Northeast transects, respectively. The low power to detect a significant temporal effect at the East Transect was likely due to the low SEI values and the high uncertainty associated with the 2020 estimate at the East Transect at 500 m from transect origin.

Overall, power to detect spatial trends was similar to the power to detect temporal trends for three of the four transects, and for most cases, power to detect decreases in SEI was higher than power to detect increases. None of the observed spatial effects had sufficient power. Of the four transects, only the West Transect had observed spatial increases in SEI (i.e., higher SEI at proximity to the transect origin). Power to detect increases in SEI was generally low, since observed SEI values were small, requiring increases of large percent values to detect a significant difference from the simulated 2023 values.

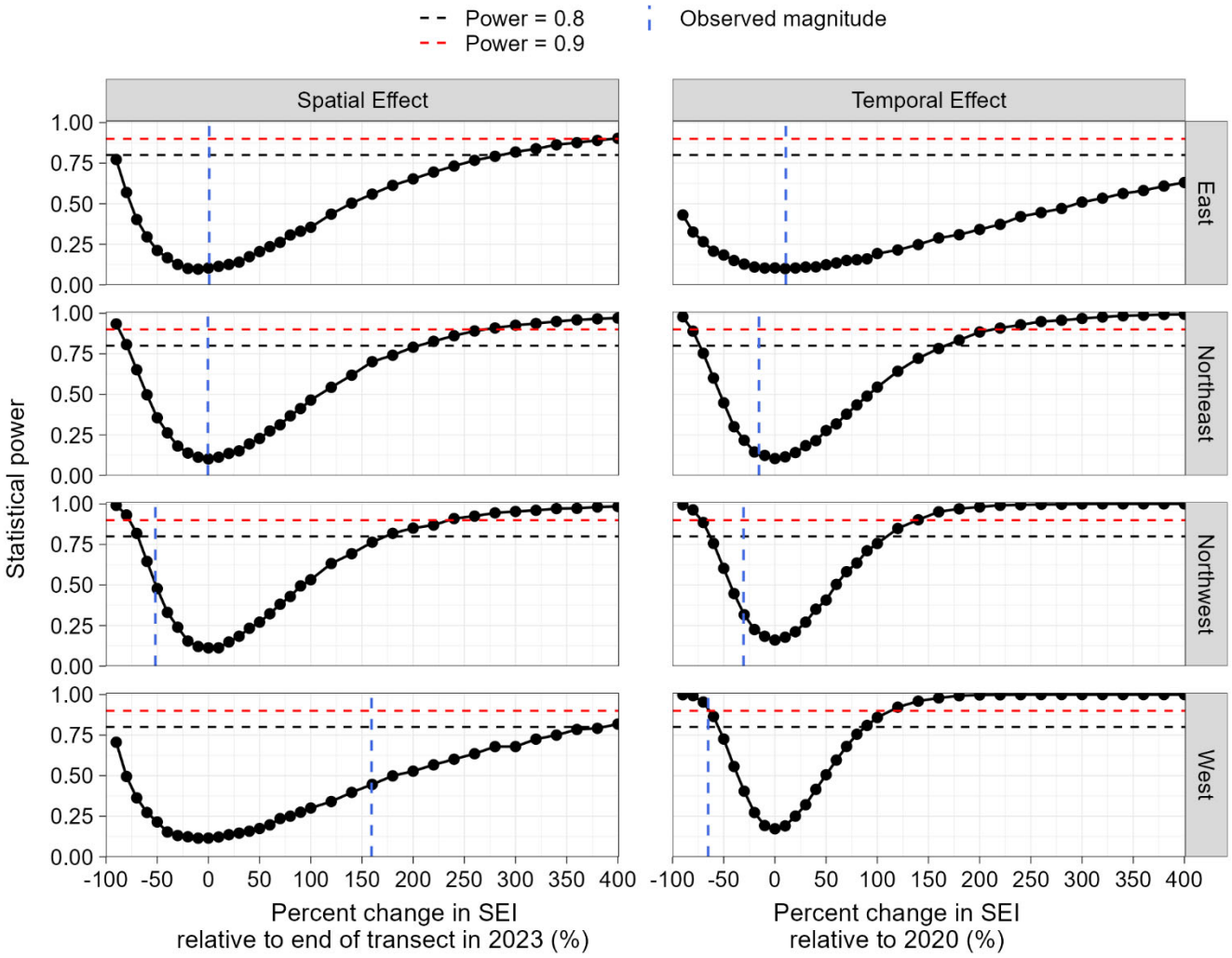


Figure 4E-5: Statistical power of the 2018-2023 SEI model to detect a significant spatial trend (left) and a significant temporal trend in 2023 (right). Both spatial and temporal effects were tested at 250 m (Northwest and West transects) and 500 m (East and Northeast transects) from transect origin.

POWER ANALYSIS – SUMMARY

Summary of Findings

- Density
  - Spatial effects: sufficient power to detect a spatial effect of reduction in density at effect sizes ranging between -85% and -72%. Sufficient power to detect increases in density at effect sizes ranging between +105% and +200%.
  - Temporal effects: sufficient power to detect a temporal effect of decreasing density at effect sizes of -90% and -67% for three of the transects (but not for the East Transect) and an increase in density ranging between 99% and 290%
- Richness
  - Spatial effects: sufficient power to detect a spatial effect of reduction in richness at effect sizes ranging between -52% and -45%. Sufficient power to detect increases in richness at effect sizes ranging between +57% and +75%.
  - Temporal effects: sufficient power to detect a temporal effect of decreasing richness at effect sizes of -75% and -37% and an increase in richness ranging between 42% and 120%.
- SDI
  - Spatial effects: sufficient power to detect a spatial effect of reduction in SDI at effect sizes ranging between -72% and -57%. Sufficient power to detect increases in SDI only at the West Transect, at effect size of +177%.
  - Temporal effects: sufficient power to detect a temporal effect of decreasing SDI at effect sizes ranging between -65% and -44% for three of the transects and an increase in SDI ranging between 82% and +110% for two of the transects.
- SEI
  - Spatial effects: sufficient power to detect a spatial effect of reduction in SEI at effect sizes ranging between -92% and -69%. Sufficient power to detect increases in SEI at effect sizes ranging between +175% and +390%.
  - Temporal effects: sufficient power to detect a temporal effect of decreasing SEI at effect sizes ranging between -75% and -55% and an increase in SEI at effect sizes ranging between +90% and +170% for three of the transects.

Implications of Power Analysis Results

- Generally, analyses of benthic infauna had higher statistical power to detect decreases, rather than increases, in values. Since reductions in benthic infauna indices are of more concern than increases, the statistical power to detect reductions was considered to be more relevant.
- Given the low statistical power to detect effect sizes that may be of biological relevance, going forward, it is recommended that conclusions are not made based on strict adherence to statistical significance. Instead, effect size, uncertainty, and statistical significance and power should be considered together before ruling out spatial and temporal changes in benthic infauna.

References

Fox, J. and Weisberg, S. 2018. Bootstrapping Regression Models in R. An Appendix to An R Companion to Applied Regression – 3rd Edition. https://socialsciences.mcmaster.ca/jfox/Books/Companion/appendices/Appendix-Bootstrapping.pdf.

Golder. 2018. Baffinland Iron Mines Corporation, Mary River Project – Phase 2 Proposal. TSD #22: Ship Wake and Propeller Wash Assessment. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-030-R-Rev3; 13 July 2019. 33 pp + appendices.

Golder. 2021. 2020 Milne Inlet Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Lenth R.2019. emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.4. https://CRAN.R-project.org/package=emmeans

R Core Team. 2020. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/



wsp.com

REPORT

Chapter 5.0 Substrate, Macroflora, and Benthic Epifauna

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

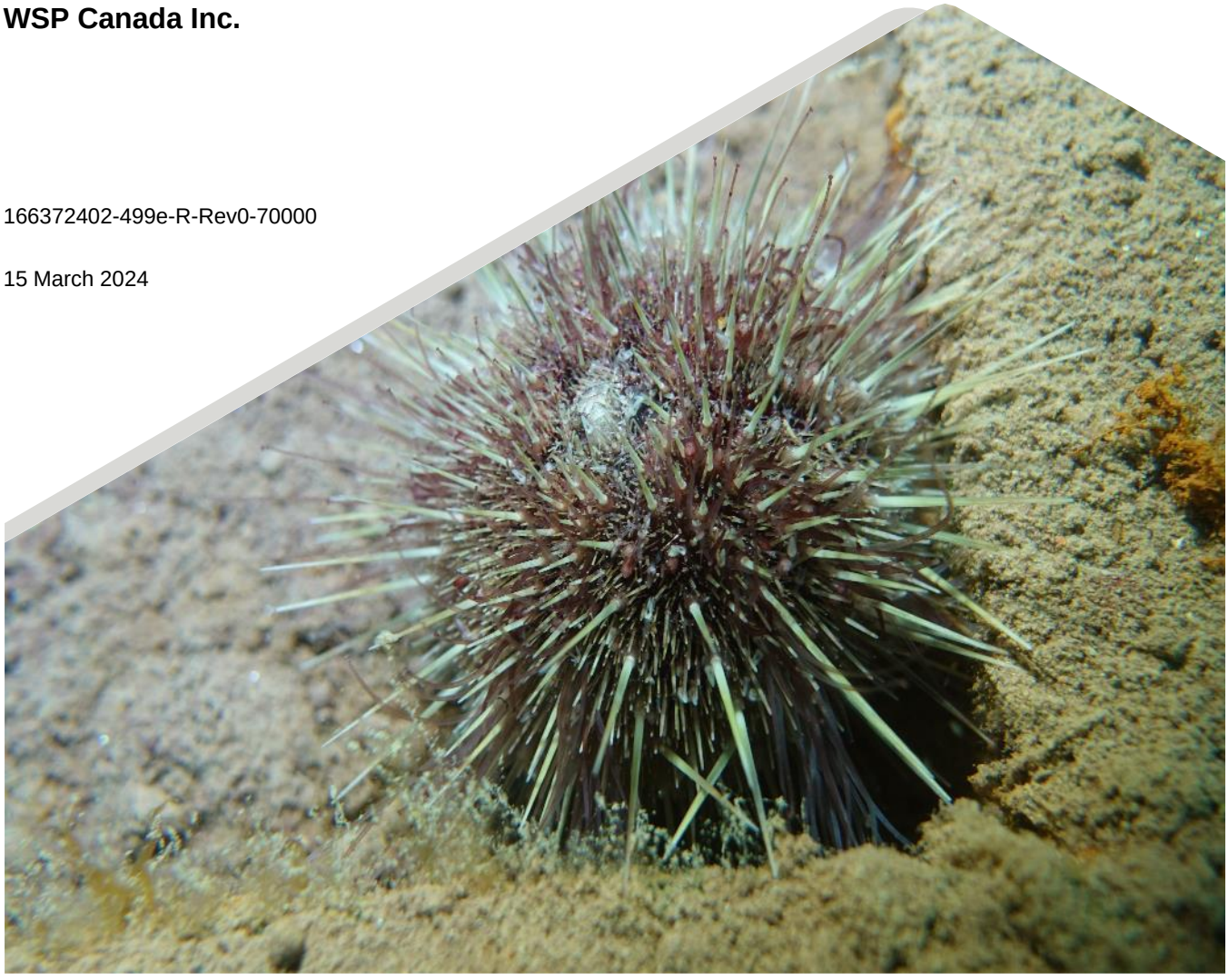
Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario L6H 6K8
Canada

Submitted by:

WSP Canada Inc.



166372402-499e-R-Rev0-70000

15 March 2024

Table of Contents

5.0 SUBSTRATE, MACROFLORA, BENTHIC EPIFAUNA 1

5.1 Introduction 1

5.1.1 Objectives 1

5.2 Study Design 1

5.2.1 Background 1

5.2.2 Modifications to the Program (2023) 3

5.2.3 Indicators 4

5.3 Materials and Methods 6

5.3.1 Field Methodology 6

5.3.1.1 Quadrat Survey 8

5.3.1.2 Opportunistic Specimen Collection 8

5.3.2 Data Analysis 9

5.3.2.1 Community Indicators 10

5.3.2.2 Statistical Analysis 11

5.3.3 Quality Management 12

5.4 Results 13

5.4.1 Substrate 13

5.4.2 Macroflora 21

5.4.3 Benthic Epifauna 27

5.4.3.1 Sessile Epifauna 27

5.4.3.2 Motile Epifauna 33

5.4.4 2023 Relative Diversity 39

5.4.5 Species Accumulation Curve and Sampling Effort 41

5.4.6 Opportunistic Observations 42

5.5 Discussion 42

5.6 Conclusions and Recommendations 43

5.7 Closure 44

5.8 References 45

TABLES

Table 5-1: Quadrat Locations in Milne Port (2023) 7

Table 5-2: Diversity Categories for Simpson's Diversity Index (SDI) Values 10

Table 5-3: Results of Generalized Linear Mixed Models for Substrate, Macroflora, and Benthic Epifauna in Milne Port, 2021 – 2023 17

Table 5-5: Quadrat Survey Results for Macroflora in Milne Port (2023) 23

Table 5-6: Quadrat Survey Results for Sessile Epifauna in Milne Port (2023) 29

Table 5-7: Quadrat Survey Results for Motile Epifauna in Milne Port (2023) 35

FIGURES

Figure 5-1: A) Diagram of Belt Transects Used for Macroflora and Epifauna Surveys in 2018 – 2019; B) Deployed Belt Transect; C) Example of 1 x 1 m Steel Quadrat Deployed in 2021; D) Active Deployment of Survey Quadrat; and E) Underwater Photo of Quadrat (Q4) With Attached Settlement Substrates for NIS/AIS Monitoring. 2

Figure 5-2: Deployment Locations for Permanent Quadrats Used for Monitoring Substrate, Macroflora and Benthic Epifauna in Milne Port (2023) 5

Figure 5-3: Substrate Types Observed in Survey Quadrats at Milne Port, Showing Areas Dominated By: A) Soft Substrate (Sand/Silt); B) Gravel; C) Cobble; and D) Anthropogenic Debris (e.g., chain and rust). 14

Figure 5-4: Relative Abundance of Substrate Types from Quadrats Surveyed Every Year during Quadrat Surveys in Milne Port, 2021 – 2023. 15

Figure 5-5: Interannual Differences in Soft Substrate Percent Cover in Milne Port, 2021 – 2023. 16

Table 5-4: Post hoc Comparisons of Estimated Marginal Means and Effect Sizes for Generalized Linear Mixed Models for Substrate, Macroflora, and Benthic Epifauna in Milne Port, 2021 – 2023 18

Figure 5-6: A) Total Percent Cover of Detrital Veneer, B) Detrital Macroalgae, and C) Other Anthropogenic Debris from Quadrats Surveyed during Quadrat Surveys in Milne Port, 2021 – 2023. 20

Figure 5-7: A) Total Percent Cover and B) Relative Abundance of Macroflora Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023. 24

Figure 5-8: Interannual Differences in Macroflora Percent Cover, Taxa Richness, and Simpson's Diversity Index in Milne Port, 2021 – 2023. 25

Figure 5-9: A) Taxa Richness and B) Simpson's Diversity Index of Macroflora Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023. 26

Figure 5-10: A) Total Percent Cover and B) Relative Abundance of Sessile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023. 30

Figure 5-11: Interannual Differences in Sessile Epifauna Percent Cover, Taxa Richness, and Simpson's Diversity Index in Milne Port, 2021 – 2023. 31

Figure 5-12: A) Taxa Richness and B) Simpson's Diversity Index of Sessile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023. 32

Figure 5-13: A) Total Percent Cover and B) Relative Abundance of Motile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023. 36

Figure 5-14: Interannual Differences in Motile Epifauna Density, Taxa Richness, and Simpson's Diversity Index in Milne Port, 2021 – 2023. 37

Figure 5-15: A) Taxa Richness and B) Simpson's Diversity Index of Motile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023. 38

Figure 5-16: A) Taxa Richness and B) Simpson's Diversity Index (SDI) for Macroalgae, Sessile Epifauna, and Motile Epifauna in Milne Port (2023) 40

Figure 5-17: Mean Taxa Accumulation Curve for Quadrat Benthic Community Assemblage in Milne Port, 2021 – 2023. 41

APPENDICES

APPENDIX 5A
DFO's Marine Foreshore Environmental Assessment Procedures

APPENDIX 5B
Photographs

APPENDIX 5C
Quadrat Survey Data (2021 - 2023)

APPENDIX 5D
2023 Taxa List

APPENDIX 5E
Power Analysis

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
BACI	Before-After-Control-Impact
BC	British Columbia
CD	Chart Datum
Cm	centimetre
DF	Degrees of freedom
DFO	Fisheries and Oceans Canada
EEM	Environmental Effects Monitoring
FEIS	Final Environmental Impact Statement
GLMM	Generalized Linear Mixed Models
LPL	Lowest Practical Level
M	metre
Mm	millimetre
m^2	square-metre
MEEMP	Marine Environmental Effects Monitoring Program
MEWG	Marine Environment Working Group
MFEAP	Marine Foreshore Environment Assessment Procedure
mL	millilitre
NIS/AIS	Non-Indigenous Species/Aquatic Invasive Species
No.	Number
Ns	Natural spline
org/m^2	Organism per square-meter
PC	Project Certificate
Q	Quadrat
QA/QC	Quality Assurance and Quality Control
ROV	Remotely Operated Vehicle
SCUBA	Self Contained Breathing Apparatus
SDI	Simpson’s Diversity Index
SE	Standard Error
sp.	Species
UTM	Universal Trans Mercator
VIF	Variance Inflation Factor
ZOI	Zone of Influence

5.0 SUBSTRATE, MACROFLORA, BENTHIC EPIFAUNA

5.1 Introduction

This chapter presents the results of the substrate, macroflora, and benthic epifauna monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted at Milne Port and in Milne Inlet during the 2023 open-water season. The MEEMP is designed to evaluate potential Project-related effects on the marine environment as predicted in the Final Environmental Impact Statement (FEIS) and FEIS addenda (Baffinland 2012, 2013). This component was also developed in consideration of the monitoring requirements outlined in the Project Certificate (PC) Conditions described in in Chapter 1.0, Table 1-2. PC Conditions related to the monitoring of substrate, macroflora, and epifauna included PC Conditions No. 76, 83 (a), 87, 99 (a), and 99 (c).

5.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 of Chapter 1.0 (Program Overview). Objectives specific to the substrate, macroflora, and benthic epifaunal component are as follows:

- Monitor for changes in substrate conditions or in the macrofloral and benthic epifaunal community at Milne Port and in a nearby reference area for the purpose of identifying potential Project-related effects.
- Verify predictions made in the FEIS, and subsequent addenda, regarding effects on Arctic char (*Salvelinus alpinus*) habitat.
- Recommend necessary and appropriate changes to survey methodology for future years, if warranted.

5.2 Study Design

5.2.1 Background

The 2014 to 2017 MEEMP study design monitored for changes to the benthic community with epifauna[1] and epiflora[2] as indicators, using towed underwater video transect surveys. The use of epifauna and epiflora as effect indicators deviated from the standard Environmental Effects Monitoring (EEM) methodology (Environment Canada 2010; 2012) and presented a number of challenges, including 1) high temporal and spatial variability due to the mobile and transient nature of many epifaunal species, 2) typically low resolution of video survey data compared to laboratory analysis for species identification, enumeration and substrate classification, and 3) difficulty in distinguishing between live epiflora (e.g., kelp) and detrital vegetation debris using video survey methods, which can result in inaccurate results.

In 2018, a new survey design was implemented, based on a Before-After-Control-Impact (BACI) approach. A reference area had been established in 2013 and selected for its proximity to Milne Port while residing outside of the main zone of influence (ZOI) of Project activities (SEM 2014). Towed underwater video transects were replaced with five belt transects (1 m x 5 m plots) permanently installed on the seabed in each exposure (impact) and reference (control) areas. Monitoring was conducted using a remotely operated vehicle (ROV) underwater

[1] Benthic invertebrates living on the substrate.

[2] Marine vegetation attached to the substrate (e.g. kelp).

video system. In addition to informing this component of the MEEMP, taxonomic data were also used to inform the Non-Indigenous Species and Aquatic Invasive Species (NIS/AIS) program (Chapter 8.0). In 2019, underwater video monitoring of epifauna and macroflora communities within permanent belt transects continued for a second year. The belt transects deployed in 2018 were composed of two 1 m-long, 5 cm-diameter aluminum pipes filled with concrete connected by two steel chains, 5 m in length, attached to both ends of the pipes (Figure 5-1A). In 2019, it was determined that the flexible design was not suitable for the environment, as five of the ten deployed transects had been dragged from their original position due to presumed interactions with the sea-ice during spring break-out or had become embedded in the sediment and thus obscured from video detection (Figure 5-1B).

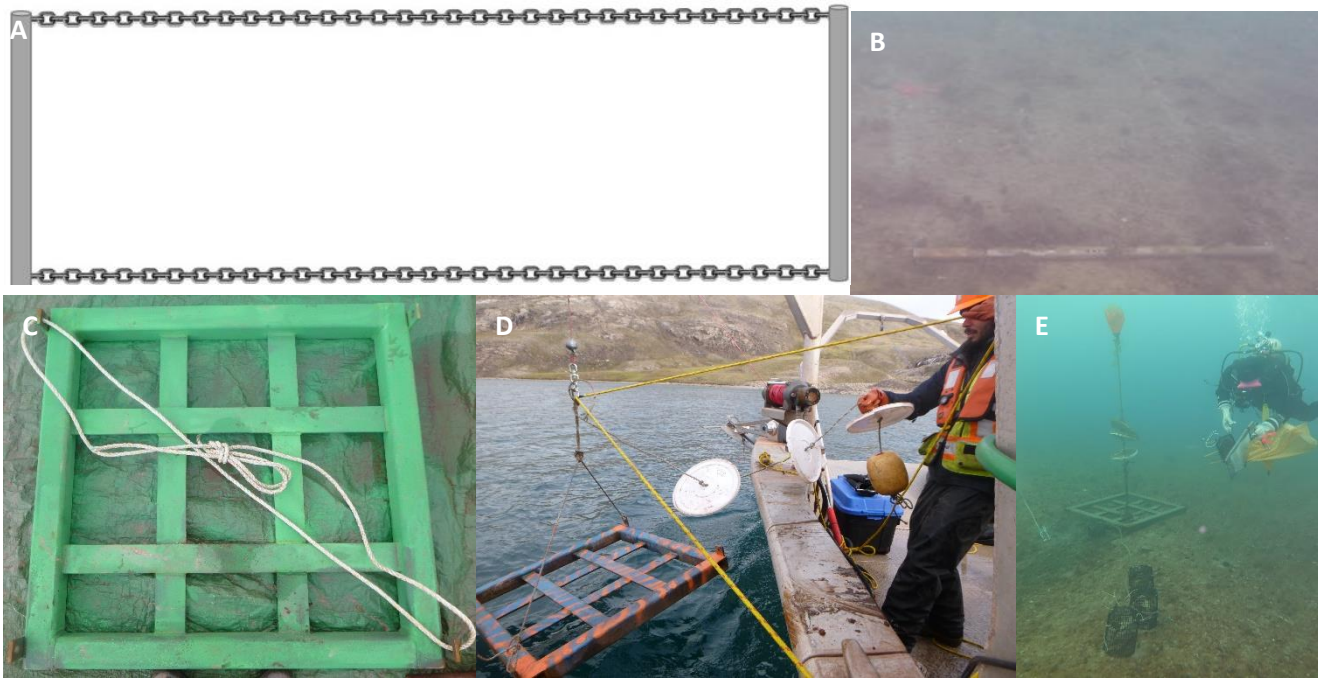


Figure 5-1: A) Diagram of Belt Transects Used for Macroflora and Epifauna Surveys in 2018 – 2019; B) Deployed Belt Transect; C) Example of 1 x 1 m Steel Quadrat Deployed in 2021; D) Active Deployment of Survey Quadrat; and E) Underwater Photo of Quadrat (Q4) With Attached Settlement Substrates for NIS/AIS Monitoring.

The program was modified in 2020 to replace the belt transects, which had been determined to be ineffective due to being dragged out of position. Modifications to the program in 2020 included the use of divers to undertake biophysical surveys of permanent, heavy-duty steel quadrats to improve the resolution of taxonomic identification. A total of ten 1 m x 1 m square quadrats were fabricated onsite in 2020 and installed on the sea bottom in Milne Port, five in the exposure area (Q1 through Q5) and five in the reference area (Q6 through Q10) (Figure 5-1C-E; Figure 5-2). An additional ten square steel quadrats were fabricated and deployed in 2021 (Q11 through Q20; five in each exposure and reference area), doubling the total number of quadrats relative to 2020. Six new permanent quadrats, Q21 through Q26, were deployed (three in each of the exposure and reference areas) in 2022, to increase statistical power and address Marine Environment Working Group (MEWG) Comment No. 05 from the 2021 MEEMP and NIS/AIS Monitoring Program Report (Golder 2022). This modification expanded the total number of quadrats to 13 in each area (Figure 5-2).

Additionally, starting in 2020 as part of the Chapter 8.0 NIS/AIS program, settlement substrates were co-located and deployed with the quadrats to monitor for short- and medium-term recruitment of encrusting taxa. Settlement substrates consisted of settlement plates attached to a line with a subtidal buoy, and cobble-filled settlement baskets attached to a corner of the quadrat, as described in Chapter 8.0. Additional quadrats deployed in 2022, Q21 through Q26, are not co-located with Chapter 8.0 NIS/AIS settlement substrates.

In previous years, taxonomic resolution was relatively coarse because of poor visibility due to suspended particles in the water column and the use of a ROV-based underwater video survey for monitoring. Survey of the quadrats was performed by a combination of divers and ROV in 2020[3] and exclusively by divers in 2021 to 2023. The rationale for discontinuing the ROV was that divers were more accurately able to distinguish unique taxa, differentiate between detrital algae or non-living organisms versus living organisms, move vegetation aside to observe the underlying substrate and marine organisms, and collect specimens from the quadrats for identification purposes.

Surveys conducted in 2020 indicated that Q9 had been originally deployed over hard substrate (boulder) and supported different ecological communities relative to the soft substrate quadrats. Therefore, in 2021, Q9 was relocated to a different area to maintain comparability between quadrats.

During the 2021 field program, divers were unable to locate Q2 after undertaking a thorough search between the -3 and -12 m CD (chart datum) depth contour (Q2 was deployed at approximately -10 m CD), extending approximately 25 m to the west and east of the original location. This quadrat was assumed to have been dragged from its original position by sea-ice. A replacement quadrat (Q2) was deployed at -12 m CD in 2022 with co-located settlement substrates. Surveys conducted in 2021 also noted that Q12 had been deployed too shallow (-6 m CD) from desired target depth (-7 to -9 m CD) and, consequently, the Q12 quadrat data was not included in analyses in 2021. Quadrat Q12 was relocated to deeper water in 2022 (with co-located settlement substrates) to maintain comparability between quadrats, as per recommendations in Golder (2022).

During the 2022 field program, the vessel anchor had been deployed and caught on Q16, causing it to drag across the bottom to a new location in -9.1 m CD from the original -5.7 m CD depth. Divers observed that the sediment surface was disturbed inside and outside the quadrat and the data collected during the 2022 quadrat survey indicated that less silt was observed compared to 2021 and that infauna, such as clams, had been brought up to the sediment surface. Therefore, Q16 results from 2022 were considered an outlier and removed from analyses. One objective of the field program in 2023 was to relocate Q16 to a new location at a similar depth as the original location in 2021 (-5.7 m CD) with a new quadrat name to restart the quadrat data series. Relocation was not possible in 2023 due to field program constraints.

5.2.2 Modifications to the Program (2023)

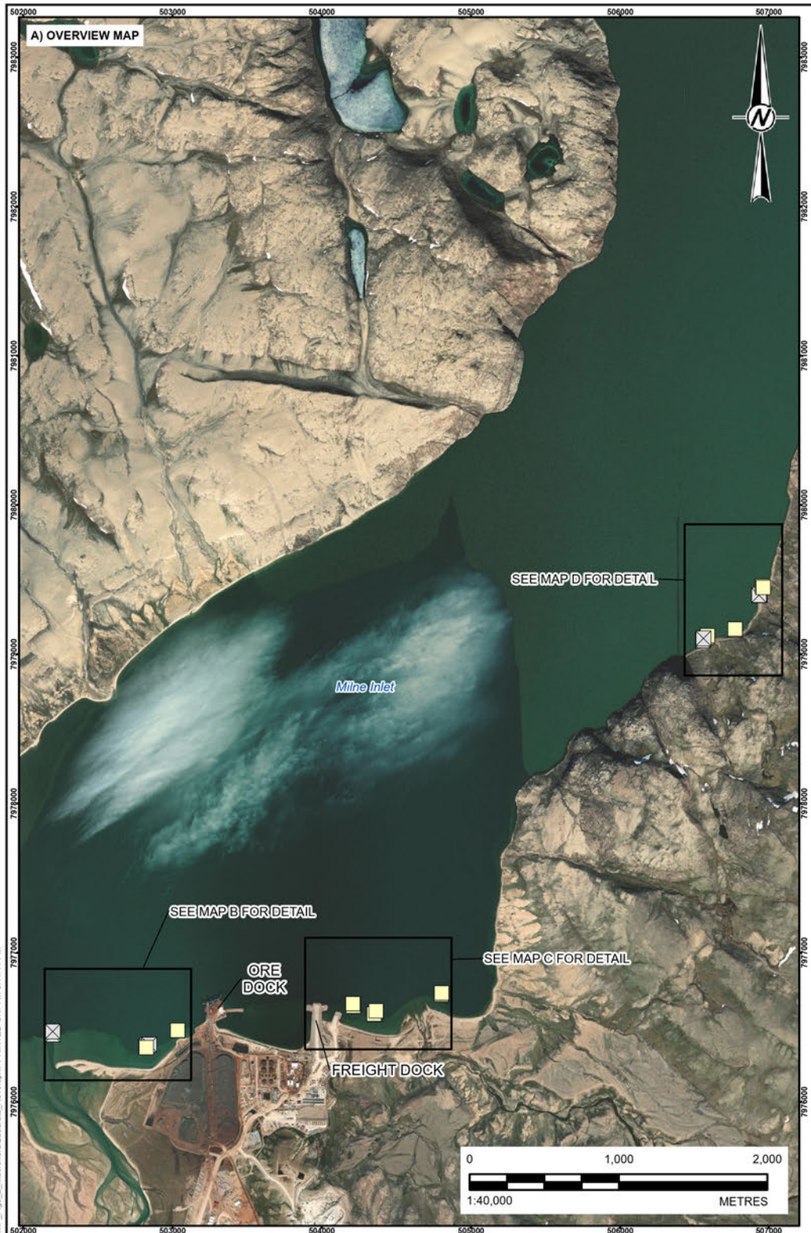
There were no survey design modifications to the program in 2023; however, the start of the field program was delayed by late ice breakup, vessel repairs, and a minor illness (with mandatory quarantine to rule out COVID). Consequently, only 18 out of the 26 quadrats could be surveyed.

[3] Divers surveyed quadrats in the reference area (Q6, Q8, Q9, Q10), but were unable to survey the quadrats in the exposure area due to time constraints in the field program (these were subsequently completed using ROV-video surveys).

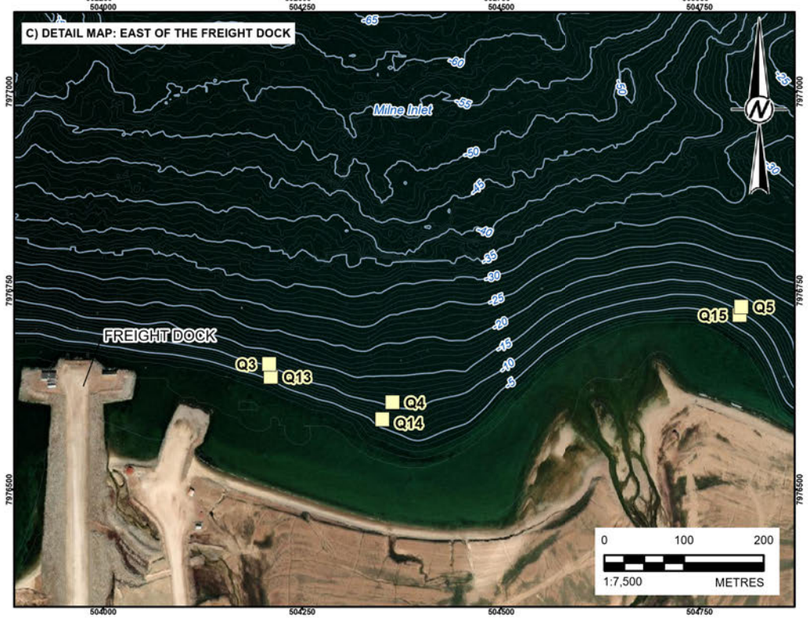
5.2.3 Indicators

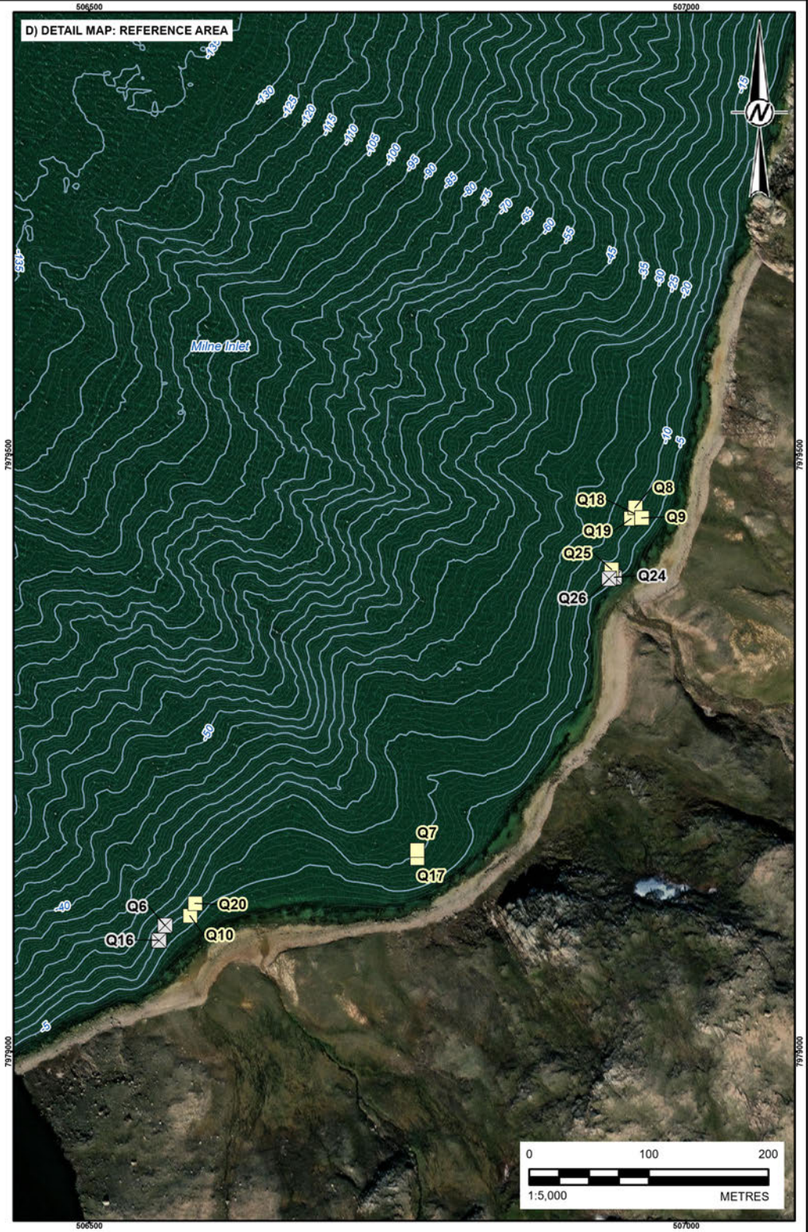
Effect indicators selected to evaluate potential Project-induced changes in substrate, macroflora and epifauna include taxa richness (number of unique taxa present), relative abundance, Simpson's Diversity Index (SDI), density (motile taxa) and percent cover (macroflora and sessile invertebrates). These indicators are described in detail in Section 5.3.2.1. The indicators were calculated from data collected in both reference and exposure areas and analyzed statistically to evaluate Project-related effects within the study area.

Changes in field methodologies over time (as explained in Section 5.2.1), preclude the ability to make quantitative temporal comparisons to years prior to 2021. The 2021 quadrat survey results served as a benchmark for quantitative comparisons for future monitoring years so long as field methodologies remain consistent.









LEGEND

BATHYMETRIC CONTOUR (1 m INTERVAL)

BATHYMETRIC CONTOUR (5 m INTERVAL)

PERMANENT QUADRAT LOCATIONS

NOT SURVEYED 2023

SURVEYED 2023

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. IMAGERY COPYRIGHT © 20230730 AND 20230728 ESRI AND ITS LICENSORS. SOURCE: MAXAR. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTED COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	NO
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
DEPLOYMENT LOCATIONS FOR THE PERMANENT QUADRATS FOR MONITORING SUBSTRATE, MACROFLORA AND BENTHIC EPIFAUNA IN MILNE PORT, 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000.04	0	5-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

PATH: I:\2016\166372491\Masters\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig5_2_MaryriverQuadrats_Rev0.aprx, PRINTED ON: AT: 5:11:41 PM

5.3 Materials and Methods

5.3.1 Field Methodology

Twenty-six 1 m x 1 m square steel quadrats[4] were fabricated on site and lowered to the sea floor from a vessel: thirteen quadrats in each of the exposure area and reference area (Table 5-1, Figure 5-2). Ten quadrats (Q1 through Q10) were deployed in 2020, ten additional quadrats were deployed in 2021 (Q11 through Q20), and six additional quadrats were deployed in 2022 (Q21 through Q26). In each case, annual surveying commenced in the year of deployment. Further, a replacement quadrat was deployed in 2022 at a new location to replace Q2 which had not been recovered in 2021. The quadrats were deployed from the field vessel at the locations of the previous belt transects, in water depths of approximately -4 to -18 m CD. Each quadrat was marked with fluorescent spray paint to aid in relocating them in subsequent surveys and with quadrat-specific identifying features to identify quadrat number to the divers[5]. With the exception of Q12, quadrats were deployed in pairs or clusters so that more than one quadrat could be surveyed on a single dive.

Field surveys of the quadrats were conducted in late June to early August 2023 by WSP's occupational (SCUBA-based) dive team composed of marine biologists. The dive team is certified in accordance with Canadian Standard Association Z275:4-97, and WorkSafe BC Regulations Part 24. A single diver carried out all data recording (identification and quantification of substrate type and taxa) to ensure consistency, while the second diver collected photographic records. Dive surveys were conducted from Baffinland's 9 m research vessel.

Field surveys included the following components:

- Subtidal dive quadrat surveys to quantitatively evaluate macroalgae, sessile and motile invertebrates and fish occurrence (commonly termed epifauna) within both the exposure area and reference area.
- Opportunistic observations[6] of macroalgae, fish and motile/sessile invertebrates during quadrat surveying.
- Opportunistic specimen collection of macroalgae, fish and motile/sessile invertebrates to enhance taxonomic resolution, particularly in cases where organisms may be suspected to be non-indigenous to the area.

[4] The quadrat frames are approximately 1 x 1 m but the survey area excludes the metal sub-grid bars (see Section 5.3.1.1). 2020/2021-fabricated quadrats have a survey area 0.44 m^2; the 2022-fabricated quadrats have a survey area 0.64 m^2.

[5] Quadrats Q1 through Q10 have anchor chain suspending the settlement plates, while quadrats Q11 through Q20 have polyurethane line. Quadrats Q21 through Q26 do not have co-located settlement plates and have unique buoys associated with each quadrat. Quadrats Q11 through Q20 also have tactical markers to indicate the specific quadrat.

[6] Opportunistic observations refer to observations that were recorded during diver-collected photo or video to document presence/absence in a qualitative manner rather than quantitatively assessed during the quadrat survey.

Table 5-1: Quadrat Locations in Milne Port (2023)

Area	Quadrat	UTM Coordinates (17W)		Depth (-m below CD)[1]	Deployment Date	Survey Date (2023)
		Easting (m)	Northing (m)			
Milne Port (Exposure)	Q1	502828	7976382	8.8	12 August 2020	27 July
	Q2	502843*	7976385*	12.3*	9 August 2022	Not surveyed
	Q3	504208	7976659	10.2	12 August 2020	31 July
	Q4	504363	7976611	11.6	12 August 2020	25 July
	Q5	504802	7976731	12.6	12 August 2020	26 July
	Q11	502820	7976371	6.5	10 August 2021	27 July
	Q12	503034	7976479	10.4	6 August 2022	2 August
	Q13	504210	7976643	7.8	10 August 2021	31 July
	Q14	504350	7976589	7.3	6 August 2021	25 July
	Q15	504800	7976721	6.8	6 August 2021	26 July
	Q21	502197*	7976453*	6*	6 August 2022	Not surveyed
	Q22	502198*	7976473*	10*	6 August 2022	Not surveyed
	Q23	502823	7976365	4	6 August 2022	27 July
Reference Area	Q6	506563*	7979107*	18.3*	13 August 2020	Not surveyed
	Q7	506774	7979170	9.9	13 August 2020	29 July
	Q8	506957	7979457	10.3	13 August 2020	29 July
	Q9	506962	7979448	7.9	11 August 2021	29 July
	Q10	506584	7979115	6.4	13 August 2020	31 July
	Q16	506558[2]*	7979093[2]*	9.1*	8 August 2021	Not surveyed
	Q17	506774	7979163	8.6	11 August 2021	29 July
	Q18	506956	7979452	9.7	11 August 2021	29 July
	Q19	506953	7979447	10.1	11 August 2021	29 July
	Q20	506588	7979125	10.4	8 August 2021	31 July
	Q24	506939*	7979398*	8.1*	7 August 2022	Not surveyed
	Q25	506937*	7979405*	9.8*	7 August 2022	Not surveyed
	Q26	506935*	7979397*	9.1*	7 August 2022	Not surveyed

Note: '*' indicates coordinates and depth data are reported from 2022 as these quadrats were not surveyed in 2023.

[1] Diver depth gauge was converted to meters chart datum (CD), estimated using tide table for Milne Inlet, Nunavut (https://tides.gc.ca/en/stations/05791 [accessed November 2023]). The negative (-) numbers indicate 'below' CD.

[2] Q16 had moved to deeper depths in 2022 due to vessel anchor dragging the quadrat.

5.3.1.1 Quadrat Survey

Biophysical data within each quadrat were recorded by one diver while another diver collected representative photographs[7] of the quadrat (Appendix 5B – Photo 1). Observations were made of the quadrat as a whole[8] as opposed to surveying each sub-quadrat individually (as was done in 2021) to increase survey efficiency and remain standardized for multi-year comparisons. The area covered by the metal sub-grid bars[9], or organisms sitting on top of the sub-grid bars or on the outside steel frame of the quadrat were not surveyed.

Quantitative data were collected in general accordance with Fisheries and Oceans Canada's (DFO) Marine Foreshore Environmental Assessment Procedure (MFEAP) (Appendix 5A). Quadrat data were recorded on project-specific datasheets, and included the following information:

- Substrate type was visually estimated according to the following size ranges derived from Wentworth (1922) and recorded as relative composition (i.e., as a percent areal coverage): bedrock; boulder (>256 mm diameter); cobble (64 to 256 mm); gravel (2 to 64 mm); and soft substrate[10] (<2 mm). The combination of sand and silt categories into a single soft substrate (<2 mm) category was done in 2023 as separation of these two categories was demonstrated to be subjective and prone to diver error.
- Total percent cover of detritus and debris was calculated separately from substrate composition as it overlaid the existing substrate. Detritus and debris were categorized into three groups: detrital veneer, detrital macroalgae, and other debris (i.e., metal). Detrital veneer is organic material and appears to consist of phytoplankton/diatoms and silt.
- Macroalgae were identified to the lowest practical level (LPL) and total areal coverage was estimated.
- Sessile invertebrates (e.g., clams and mussels) were identified to LPL and total areal coverage was estimated (as above).
- Motile invertebrates (e.g., urchins, limpets) and fish were identified to LPL and enumerated. Abundance was estimated if relatively large numbers (typically, numbers exceeding 100, depending on size and behaviour of organisms) of motile species were present.
- Photographs showing representative biological features and aiding in species identification were taken.

5.3.1.2 Opportunistic Specimen Collection

Opportunistic samples of epifauna and macroflora were collected to improve species identifications, which is particularly important if this sampling method is to effectively detect species that might be non-indigenous to the area. Specimens were collected using the following protocol:

[7] Underwater imagery collected using a SONY RX100 V camera in Fantasea underwater housing and Big Blue video light for all underwater surveys. The camera has high-definition video capability and still photography features.

[8] Survey area excludes the area covered by the metal sub-grid bars (Figure 5-2). Organisms on or beneath the metal sub-grid bars were excluded from quadrat data (and noted as opportunistic observations) unless they entered the survey area during the survey.

[9] The sub-grid bars were used during the 2021 ROV surveys to systematically photograph the quadrat.

[10] Sand (0.0625 to 2 mm) and silt/mud/clay (<0.0625 mm) were combined into one category of soft sediment in 2023 due to constraints in the field determining exact grain size through dive gloves and misalignment of Chapter 5.0 and Chapter 3.0 (Sediment Quality) results in previous years. Data from 2022 and 2021 were adjusted to follow this change.

- Divers collected specimens in sealed plastic bags or small vials and brought these to the surface in a mesh bag.
- Discretion was used to sample only one to two representative individual(s) to avoid over-harvesting from the quadrats which could have future implications on the community assemblage (experimental design interaction).
- Samples were placed into 50 mL or 120 mL clear glass jars and preserved in a 10% buffered formalin solution. This concentration has been confirmed to be appropriate for initial preservation of specimens for DNA analysis by the Canadian Centre for DNA Barcoding (T. Macdonald, Biologica Environmental Services Ltd, pers. comm.). The jars were then sealed and inverted several times to promote homogenization and saturation with the preservative. Jars were labeled internally and externally with water-resistant labels.
- Samples were sent to Biologica Environmental Services Ltd. (Biologica) for taxonomic identifications.

5.3.2 Data Analysis

Diver-collected quadrat data were entered into an electronic database by one biologist and verified by a second biologist to reduce transcription errors. Some taxa observed were neither epifauna nor benthic, such as pelagic taxa (mysid shrimp, sea angels), and hence considered “incidental” and not included in data analysis. Field-based identifications were updated where lab identifications of opportunistically sampled specimens resulted in improved taxonomic resolution. Further, identifications were verified and updated, as necessary, with photographs taken from the field.

Data analysis was based on separating biota by three assemblages, defined as taxa that share an attribute of habitat or taxonomic similarity, and representing subsets of a biological community: macroflora, sessile epifauna, and motile epifauna. Results are therefore presented by these three assemblages in Section 5.4.

Statistical analysis was based on four indicators: taxa richness (to the lowest practicable level), SDI, organism density (motile epifauna) and percent cover (macroflora and sessile epifauna). In addition, assemblages were explored as relative abundance, by grouping related taxa into broader taxonomic classifications (e.g., grouping all fish taxa into the broader classification ‘fish’) to evaluate how proportions of these major classifications might differ between exposure and reference area. Quantitative statistical analyses were performed comparing results from 2021 to 2023. Due to inconsistent sampling methodologies in previous survey years, a quantitative statistical analysis was not possible for pre-2021 survey years.

5.3.2.1 Community Indicators

Taxa Richness

Richness is defined as the total number of unique[11] taxa per quadrat. This metric provides an indication of the diversity (number of different species) in the local ecological community. A higher richness value typically indicates a healthier and more balanced community. Mean taxa richness and standard error of the mean was calculated based on number of taxa by area (exposure, reference).

Simpson's Diversity Index

Simpson's Diversity Index (SDI) measures the proportional distribution of organisms in the community. The SDI considers the abundance patterns and taxonomic richness of the community. Certain conditions may favour one taxon over another, resulting in the community being dominated by a few taxa, which is reflected in decreased diversity (Simpson 1949). The SDI values range between zero and one, where lower values indicate a less diverse community and higher values indicate a more diverse community. The SDI was calculated using the formula provided by Krebs (1999):

$$SDI = 1 - \sum_{i=1}^{S} (p_i)^2$$

Where:

- SDI = Simpson's Diversity Index
- S = the total number of taxa
- p_i = the proportion of the i^{th} taxon (of each unique taxon out of the total abundance of the sample)

For categorization, SDI values <0.250 were considered to have very low diversity, 0.250 to 0.499 had low diversity, 0.500 to 0.750 were moderately diverse and >0.750 were considered to have high diversity (Table 5-2). Mean SDI and standard error of the mean were calculated for each exposure and reference areas.

Table 5-2: Diversity Categories for Simpson's Diversity Index (SDI) Values

SDI Value	Diversity Category
<0.250	Very Low
0.250 through 0.499	Low
0.500 through 0.750	Moderate
>0.750	High

[11] Did not include higher order taxa for which there exists a lower order identification. For example, does not include *Mya* sp. if *Mya truncata* is found in the same quadrat.

Organism Density

For motile invertebrates and fish (collectively motile epifauna), density was standardized to organisms/m^2 using a correction factor for quadrat size to maintain comparability. Newly fabricated quadrats in 2022 were larger than those fabricated in 2020 and 2021. The survey area (excluding the metal sub-grid bars; Figure 5-1) of the 2020/2021 quadrats was 0.44 m^2 while the 2022-fabricated quadrats had a survey area of 0.64 m^2. Therefore, correction factors have been applied to quadrats during data analysis to standardize results to 1 m^2. Mean density (organisms/m^2) and standard error of the mean were calculated separately for exposure and reference areas.

Percent Cover

For macroalgae and sessile epifauna, mean percent areal cover (total cover) and standard error of the mean was calculated separately by area (exposure, reference). Relative abundance was calculated as percent cover standardized out of 100% for substrate, macroflora, sessile and motile epifauna.

Relative Abundance

Relative abundance is the proportion that a taxa or grouping contributes to the total abundance (standardized as a percentage). Dominant taxa (e.g., wrinkled rock borers [*Hiatella arctica*], brittle stars [Ophiuroidea indet.]) were kept at the lowest practical level while less commonly observed and/or easily grouped taxa were rolled into broader taxonomic classifications (e.g., grouping all fish taxa into the broader classification ‘fish’).

5.3.2.2 Statistical Analysis

Generalized Linear Mixed Models (GLMMs)

Differences in substrate, detritus and debris, macroalgae, and benthic epifauna indicators between the exposure and reference areas and between the survey years 2021, 2022, and 2023 were analyzed using Generalized Linear Mixed Models (GLMMs). These models were chosen due to their ability to account for both fixed and random effects, making them suitable for repeated measure studies where quadrats are resampled across time. The fixed effects in our models included the categorical explanatory variables of years, area (exposure and reference area), and substrate type, and the continuous explanatory variable of depth; the random effect was quadrat. The models incorporated an interaction term (Year*Area) to assess whether area effects varied across different years. Model selection for finding the best fitting model was performed using Akaike’s Information Criterion weights. The three models compared included the following explanatory variables:

1) y ~ Year * Area + (1 | Quadrat)

2) y ~ Year * Area + ns(substrate) + (1 | Quadrat)

3) y ~ Year * Area + ns(Depth) + (1 | Quadrat)

For count and density data, Poisson or negative binomial distributions were used, while beta regression was employed for percent and substrate data. To ensure the absence of collinearity among the explanatory variables, Variance Inflation Factor (VIF) values were calculated, with values below three indicating no collinearity, as per the guidelines of Zuur et al. (2007).

The models were further checked for overdispersion and outliers. Pairwise comparisons were conducted (1) between years within quadrats and (2) between areas within a year, to describe effect sizes. After fitting the GLMM, estimated marginal means were calculated to perform pairwise comparisons to compare areas within each year and across all years.

A p-value <0.05 is considered to indicate significance between groups. The statistical analyses were conducted using R Studio (R version 4.3.2; R Studio 2023) with the packages glmmTMB (Version: 1.1.8; Brooks et al. 2017), DHARMa (Version: 0.4.6; Hartig 2022), and emmeans (Version 1.10.0; Lenth 2020).

Taxa Accumulation

A taxa accumulation curve was calculated for quadrats surveyed in each year from 2021 to 2023 to provide an estimate of the effort required to fully characterize the epibenthic community assemblage. A taxa accumulation curve illustrates how the number of unique taxa (or species) increases as the number of samples are accumulated; in other words, the harder one looks (i.e., the higher the sampling effort), the more unique taxa are found. The curve reaches an asymptote when all taxa within the given community assemblage have been sampled and the community assemblage is assumed to have been fully described. The observed species (or taxa) curve is plotted and the sample (i.e., quadrat) order is randomized and permutated 999 times, resulting in an averaged curve describing a smooth relationship of the average number of species (or taxa) for each number of replicates and the standard deviation of the mean (i.e., permutations). This is equivalent to station-based rarefaction curves. Analysis was conducted using R statistical software version 4.3.2 (R Core Team 2023).

Power Analysis

A power analysis was performed using the 2021 to 2023 data using simulation methods. A detailed methodology is provided in Appendix 5E.

5.3.3 Quality Management

Quality assurance and quality control (QA/QC) procedures were applied to the field collection, data analysis, and reporting tasks within the chapter component to verify that the data presented were valid and of acceptable quality to address objectives stated in Section 5.1.1.

Field QA/QC

QA/QC measures for quantitative and qualitative data collected during quadrat surveys included:

- Field survey data sheets were checked and cross-validated in the field.
- Taxonomic identifications, including common and species name, were verified using references[12].
- Dive survey video, photographs and datasheets were saved to a laptop computer and external hard drive at the end of each field day. Once in the office, the survey data were uploaded to an internal SharePoint site.

[12] References used during the surveys included but were not limited to: Coad and Reist (2018); Golder (2021, 2022); Guiry and Guiry (2021); Küpper et al. (2016); Mecklenburg et al. (2007); WoRMS (2021), WSP (2023).

Laboratory and Data Analysis QA/QC

The following QA/QC measures were implemented:

- Taxa common name/species name and recorded observations were verified using references[12].
- Transcribed diver-collected data was reviewed for transcription errors by a second biologist.
- Calculations were verified by a second biologist for errors as part of the data review process.

5.4 Results

This section presents results from the 2023 quadrat sampling program at Milne Port, with a quantitative comparison to 2021 and 2022 data. Representative photographs are provided in Appendix 5B. Quadrat/transect data in tabulated form are presented in Appendix 5C for 2021, 2022, and 2023. Results of statistical analysis of substrate macroflora, and benthic epifauna endpoints are provided in Table 5-3, with post hoc pairwise comparison results provided in Table 5-4. A taxa list with common and scientific names is provided in Appendix 5D. Taxonomic results in relation to the objective of monitoring for non-indigenous species are presented in Chapter 8.0 (NIS/AIS).

5.4.1 Substrate

Substrate Composition

Substrate, as visually estimated by the divers using a modified Wentworth scale (Wentworth, 1922), was composed predominantly of soft substrate (silt and sand; Figure 5-3A) for quadrats in both the exposure and reference areas, as observed in previous years (Figure 5-4). Quadrat Q23 within the exposure area contained mainly sand (60%), while silt was more dominant in the other quadrats within both areas (Appendix 5C).

For soft substrate, cover varied significantly among sampling years (P=0.002): mean soft substrate percent cover was lower in 2022 compared to other years when areas were combined (Table 5-3; Figure 5-5). The effect of area (P=0.8) was not significant, indicating no differences in mean soft substrate cover among areas when years were combined. The area × year interaction (P=0.1) was not significant. The non-significant interaction suggests that interannual differences in soft substrate cover did not differ between the reference and exposure areas.

Estimated marginal means were used to describe the magnitude of the differences (i.e., effect sizes) among sampling years (Table 5-4). Within Milne Port, mean soft substrate cover was significantly greater in 2022 compared to 2021 (119%), with no other interannual differences observed. Within the reference area, mean soft substrate cover was significantly lower in 2023 compared to 2022 (-53%), with no other significant interannual differences observed. Effect sizes ranged from -35% to 119% in Milne Port, -53% to 32% in the Reference Area, and was equal to -34% in 2023 between Milne Port and the reference area (Table 5-4).

In the analysis of soft substrate, statistical power was sufficient to detect a significant year and area interaction at effect sizes of -50% and +162% (Appendix 5E). That is, when the 2023 exposure area had mean soft substrate content that was 50% lower or 162% higher than the 2023 reference area, the model could detect a significant interaction between year and area. There was not sufficient power to detect the interaction given the 2023 effect size. The model had higher power to detect decreases than increases in soft substrate, due to the high values of soft substrate observed in 2023 and the bounding of the variable by 0% and 100%.

Other substrate types present in small proportions within each area in 2023 included gravel (0 to 10%), cobble (0 to 5%), and shell (0 to 15%) (Figure 5-3B and C; Figure 5-4). Consistent with 2022 results, bedrock was not observed within the quadrats in 2023 as the limited amount visible in 2021 (only present in one quadrat) had apparently been covered with deposition of finer sediment.

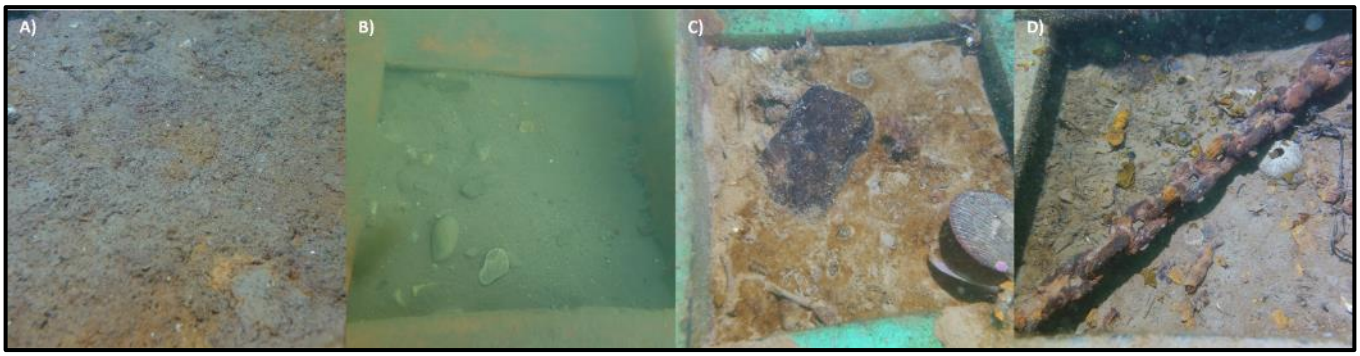
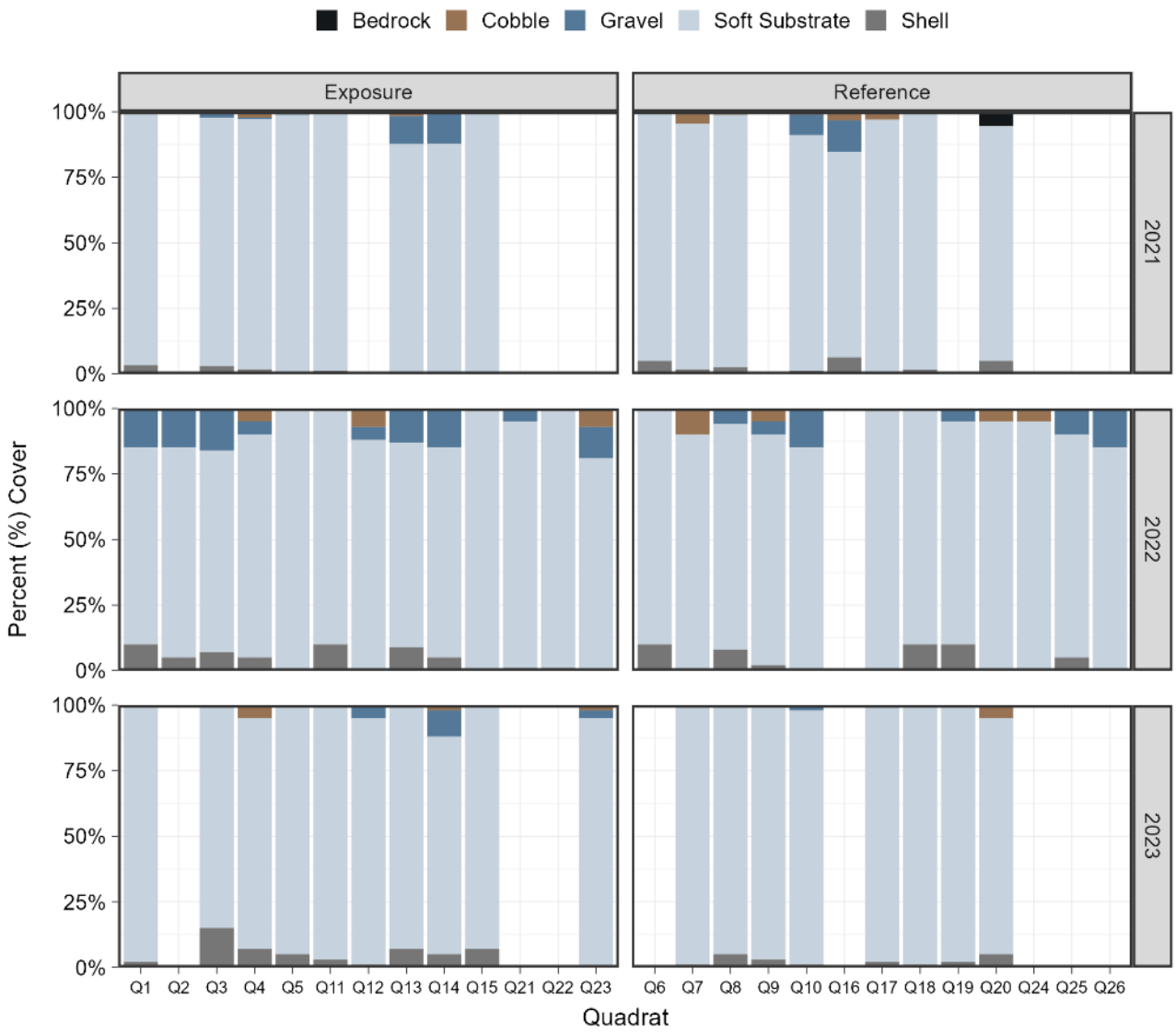
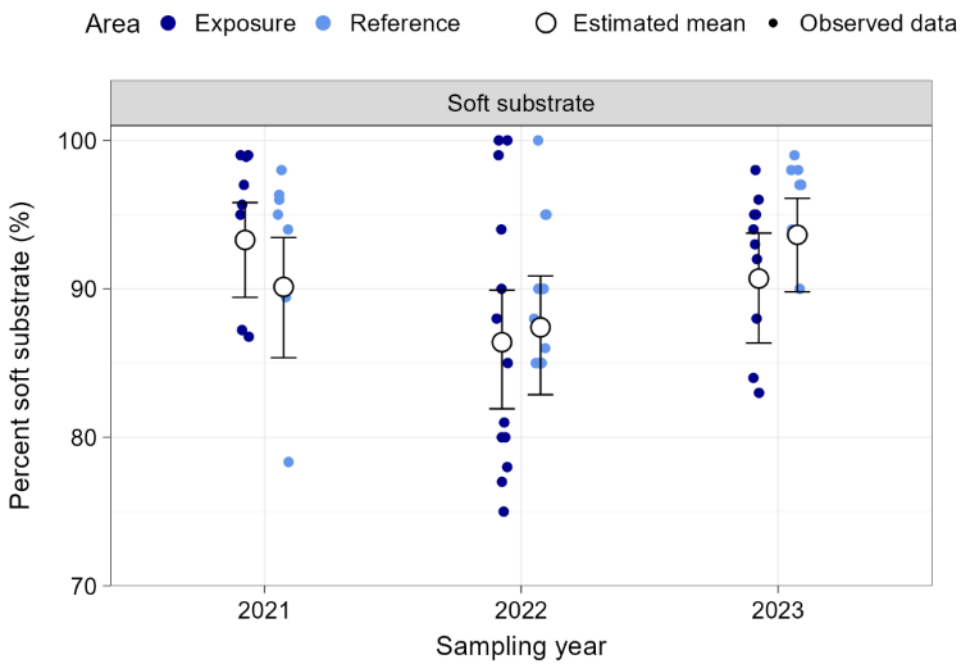


Figure 5-3: Substrate Types Observed in Survey Quadrats at Milne Port, Showing Areas Dominated By: A) Soft Substrate (Sand/Silt); B) Gravel; C) Cobble; and D) Anthropogenic Debris (e.g., chain and rust).



Dashed lines represent the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-4: Relative Abundance of Substrate Types from Quadrats Surveyed Every Year during Quadrat Surveys in Milne Port, 2021 – 2023.



Soft substrate includes sand and silt. Observed (solid points) and estimated marginal mean percent cover (open points) and 95% confidence interval (error bars) are presented for each sampling area and year.

Figure 5-5: Interannual Differences in Soft Substrate Percent Cover in Milne Port, 2021 – 2023.

Table 5-3: Results of Generalized Linear Mixed Models for Substrate, Macroflora, and Benthic Epifauna in Milne Port, 2021 – 2023

Indicator	Variable	Chi square	DF	P-value
Substrate Composition				
Percent soft substrate	Year	12.84	2	**0.002**
	Area	0.04	1	0.834
	Year × Area	4.50	2	0.105
Macroflora				
Percent Cover	Year	16.38	2	**<0.001**
	Area	1.17	1	0.280
	Year × Area	8.15	2	**0.017**
Taxa Richness	Year	12.42	2	**0.002**
	Area	0.30	1	0.581
	Year × Area	0.62	2	0.733
Simpson's Diversity Index	Year	11.45	2	**0.003**
	Area	0.39	1	0.530
	Year × Area	1.45	2	0.486
Sessile Epifauna				
Percent Cover	Year	5.99	2	0.050
	Area	0.48	1	0.489
	Depth	5.46	1	**0.019**
	Year × Area	4.46	2	0.107
Taxa Richness	Year	15.90	2	**<0.001**
	Area	2.20	1	0.145
	Depth[a]	8.38	3	**0.039**
	Year × Area	0.12	2	0.942
Simpson's Diversity Index	Year	5.61	2	0.060
	Area	1.63	1	0.202
	Soft Substrate	8.05	1	**0.005**
	Year × Area	0.80	2	0.671
Motile Epifauna				
Density[(b)]	Year	12.73	2	**0.002**
	Area	2.27	1	0.132
	Depth	19.73	1	**<0.001**
	Year × Area	14.06	2	**0.001**
Taxa Richness	Year	5.93	2	0.052
	Area	0.43	1	0.510
	Depth[a]	19.00	3	**<0.001**
	Year × Area	1.63	2	0.442
Simpson's Diversity Index	Year	1.20	2	0.550
	Area	0.24	1	0.621
	Year × Area	2.15	2	0.341

Note: Cells highlighted **blue** indicate statistically significant results (p-value <0.05). DF = degrees of freedom.

(a) Indicates a variable that was modelled using natural splines in order to account for non-linearity.

(b) Two datapoints were excluded from the density model due to very high values (Q6, years 2021 and 2022).

Table 5-4: Post hoc Comparisons of Estimated Marginal Means and Effect Sizes for Generalized Linear Mixed Models for Substrate, Macroflora, and Benthic Epifauna in Milne Port, 2021 – 2023.

Indicator	*Post hoc* Comparison						
	Milne Port			Reference Area			Within 2023
	2021 – 2022	2021 – 2023	2022 – 2023	2021 – 2022	2021 – 2023	2022 v 2023	Milne Port – Reference
Substrate Composition							
Percent Cover	**0.006 (119%)**	0.368 (43%)	0.132 (-35%)	0.494 (32%)	0.242 (-38%)	**0.015 (-53%)**	0.219 (-34%)
Macroflora							
Percent Cover	0.254 (-45%)	0.293 (-42%)	0.987 (5%)	**0.001 (-78%)**	**<0.001 (-88%)**	0.106 (-48%)	**0.034 (-69%)**
Taxa Richness	0.572 (27%)	0.645 (-18%)	0.094 (-36%)	0.123 (59%)	0.652 (-18%)	**0.010 (-48%)**	0.504 (-13%)
Simpson's Diversity Index	0.952 (-8%)	**0.033 (-51%)**	**0.044 (-47%)**	0.471 (42%)	0.658 (-24%)	0.077 (-47%)	0.445 (43%)
Sessile Epifauna							
Percent Cover	0.785 (25%)	0.659 (-25%)	0.248 (-40%)	0.097 (-54%)	**0.018 (-65%)**	0.689 (-24%)	0.523 (-27%)
Taxa Richness	**0.035 (75%)**	0.971 (5%)	0.055 (-40%)	**0.011 (81%)**	0.746 (17%)	0.104 (-35%)	0.573 (-11%)
Simpson's Diversity Index	0.560 (52%)	0.743 (-25%)	0.123 (-51%)	0.993 (-4.1%)	0.241 (-48%)	0.284 (-46%)	0.308 (-40%)
Motile Epifauna							
Density	0.154 (48%)	**0.021 (80%)**	0.683 (22%)	**<0.001 (347%)**	0.523 (36%)	**0.002 (-70%)**	0.622 (-16%)
Taxa Richness	0.884 (17%)	0.579 (-28%)	0.218 (-39%)	0.077 (101%)	0.864 (20%)	0.329 (-40%)	0.408 (32%)
Simpson's Diversity Index	0.708 (63%)	0.904 (-24%)	0.297 (-54%)	0.887 (31%)	0.553 (83%)	0.834 (39%)	0.145 (129%)

Note: Values are shown as: *P*-value (Effect Size, %). Cells highlighted **blue** indicate statistically significant results (p-value <0.05). Pairwise comparisons were conducted for (1) between years within quadrats and (2) between areas within a year, to describe effect sizes

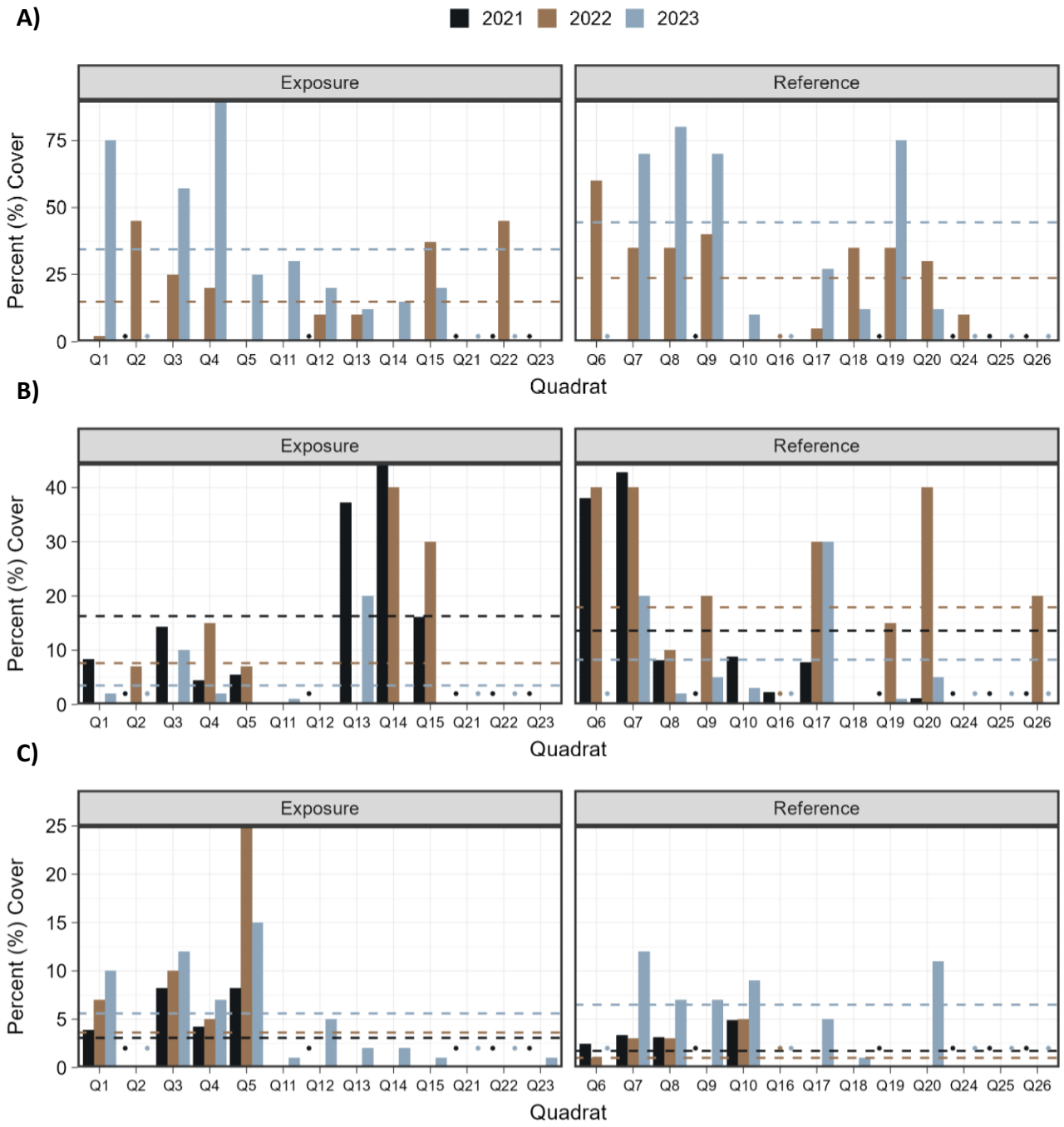
Detritus and Debris

A detrital veneer was present in most quadrats in 2023, consistent with 2022 results (Figure 5-6A). Unlike in 2022, the exposure area contained a larger range of detrital veneer percent cover compared to the reference area (0 to 90% vs 10 to 80%, respectively).

Detrital (or drift) macroalgae was present in two-thirds of the quadrats (Figure 5-6B), with the reference area having a higher average percent cover of detrital algae compared to the exposure area (consistent with 2022 and 2021 results). Highest percent cover was recorded in Q7, Q13, and Q17 (with 20%, 20%, and 30%, respectively). Overall, the percent detrital algae decreased in 2023 compared to the previous years.

Other debris consisted of rusting metal pieces (Figure 5-3D) from the suspended anchor chain maintaining the NIS/AIS monitoring settlement plate (Chapter 8.0) above the 2020-deployed quadrats (Q1 through Q10)[13], aluminum piping from the belt transects observed in Q5 that has been observed every survey year since 2020, and a piece of white plastic debris noted in Q3 in 2023 (Figure 5-6C).

[13] Quadrats deployed in later years did not use chain as part of the experimental design.



Dashed lines represent the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-6: A) Total Percent Cover of Detrital Veneer, B) Detrital Macroalgae, and C) Other Anthropogenic Debris from Quadrats Surveyed during Quadrat Surveys in Milne Port, 2021 – 2023.

5.4.2 Macroflora

Macroflora identified in quadrats belonged to four larger taxonomic groups: Ochrophyta (brown algae), Rhodophyta (red algae), Chlorophyceae (green algae), and Bryophyta (Appendix 5C). There were no new taxa discovered in 2023 and there were no opportunistic collections of unfamiliar specimens to send to taxonomic laboratories for identification.

Brown algae were resolved to four distinct taxa in 2023, two of which were defined to species level: sugar kelp (*Saccharina latissima*), and rockweed (*Fucus distichus)* (Appendix 5B – Photos 2 to 4). The other two brown algae were identified to genus level - *Pylaiella* sp., and acid weed (*Desmarestia* sp.) (Appendix 5B – Photos 4 to 6). Red algae observed within the quadrats that could be identified to the species level were *Coccotylus truncatus* and *Savoiea arctica* (Appendix 5B – Photos 6 and 7). Other red algae observed included encrusting coralline algae (Corallinales indet.) and unidentified filamentous and branched algae (Appendix 5B – Photo 8). Green algae comprised one species, *Chaetomorpha melagonium* (Appendix 5B – Photos 3 and 4), while others were unidentified filamentous green algae. Eight macroalgae taxa observed in previous years (2021 and 2022) were not observed in 2023, including sieve kelp (*Agarum clathratum*), brown filamentous algae *Halosiphon tomentosus* and *Coelocladia arctica*, and red foliose *Dilsea socialis* (Appendix 5C; Golder 2022; WSP 2023).

Percent Cover

Macroalgae percent cover varied greatly among quadrats (from 5 to 100%) in both the exposure and reference areas (Figure 5-7). Q13 in the exposure area had the highest percent cover (83%) while the other quadrats in the exposure area were all below 50%. Half of the quadrats surveyed within the reference area in 2023 contained coverage greater than 50%, resulting in a higher average percent cover compared to the exposure area. Exposure area percent cover in 2023 was equivalent to 2022 and higher than in 2021 (2023 = 23.8%; 2022 = 23.9%; 2021 = 17.8%), but the percent cover in the reference area shows a trend of increasing cover from 18.2% in 2021 to 50.8% in 2023 (Table 5-5).

When investigating differences in macroalgae cover between sampling areas and among years, the interaction between area and year was significant (P=0.017), indicating differing trends in interannual differences among sampling areas (Table 5-3). Within Milne Port, percent cover of macroalga did not differ significantly among sampling years (Table 5-4). In contrast, within the reference area, percent cover of macroalga differed significantly among sampling years (Table 5-4): mean macroalgae percent cover was highest in 2021, differing significantly from 2022 (-78%) and 2023 (-88%), which did not differ from each other. Effect sizes ranged from -45% to 5% in Milne Port, -88% to -45% in the reference area, and was equal to -69% in 2023 between Milne Port and the reference area (Table 5-4).

In the analysis of macroalgal percent cover, statistical power did not have sufficient power to detect a significant interaction at any of the examined effect sizes, ranging from -90% to +400% (Appendix 5E). There was not sufficient power to detect the observed effect size between Milne Port and the reference area. The low statistical power was likely due to the high variability in percent cover of macroflora, leading to high uncertainty and lack of statistical significance.

The most abundant macroalgae type in 2023 was brown algae (acid weed and rockweed) and ephemeral *Pylaiella* sp. across both areas (Table 5-5; Figure 5-7). Sugar kelp, *C. melagonium*, and *C. truncatus* were also present in lower proportions in several quadrats in both areas. Overall, relative abundance of major algae classifications was comparable between years; however, *Pylaiella* sp. appeared to decrease in abundance in 2022 and 2023 compared to 2021 and rockweed and green filamentous algae appeared to increase in abundance since 2021 (Figure 5-7).

Diversity

Macroalgae diversity (taxa richness and SDI) was similar between the exposure and reference area in 2023. Taxa richness ranged between three to seven taxa in the exposure area and four to eight taxa in the reference area, and SDI ranged from low (0.250-0.499) to high (>0.750) in both areas (Table 5-5; Figure 5-9A). Both taxa richness and SDI means and ranges were higher for their respective areas in 2023 compared to both previous years (Figure 5-9B; Golder 2022; WSP 2023).

Macroalgal taxa richness differed significantly between sampling years (*P*=0.002; Figure 5-7) but did not differ among sampling areas (P=0.60; Table 5-3). In addition, the interaction between area × year was also not significant (*P*=0.7), indicating annual differences in macroflora richness were not different between the reference and exposure areas (Table 5-3). *Post hoc* comparisons indicated that macroalgal taxa richness was significantly lower in 2023 compared to 2022 (-48%) in the reference area: no other significant differences were observed (Table 5-4). Effect sizes ranged from -36% to 27% in Milne Port, -48% to 59% in the reference area, and was equal to -13% in 2023 between Milne Port and the reference area (Table 5-4).

In the analysis of macroalgal species richness, statistical power was sufficient to detect a significant year and area interaction at effect sizes of -62% and +102% (Appendix 5E). That is, when the 2023 exposure area had mean macroflora richness 62% lower or 102% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size was small (-13%), and hence power to detect it was low.

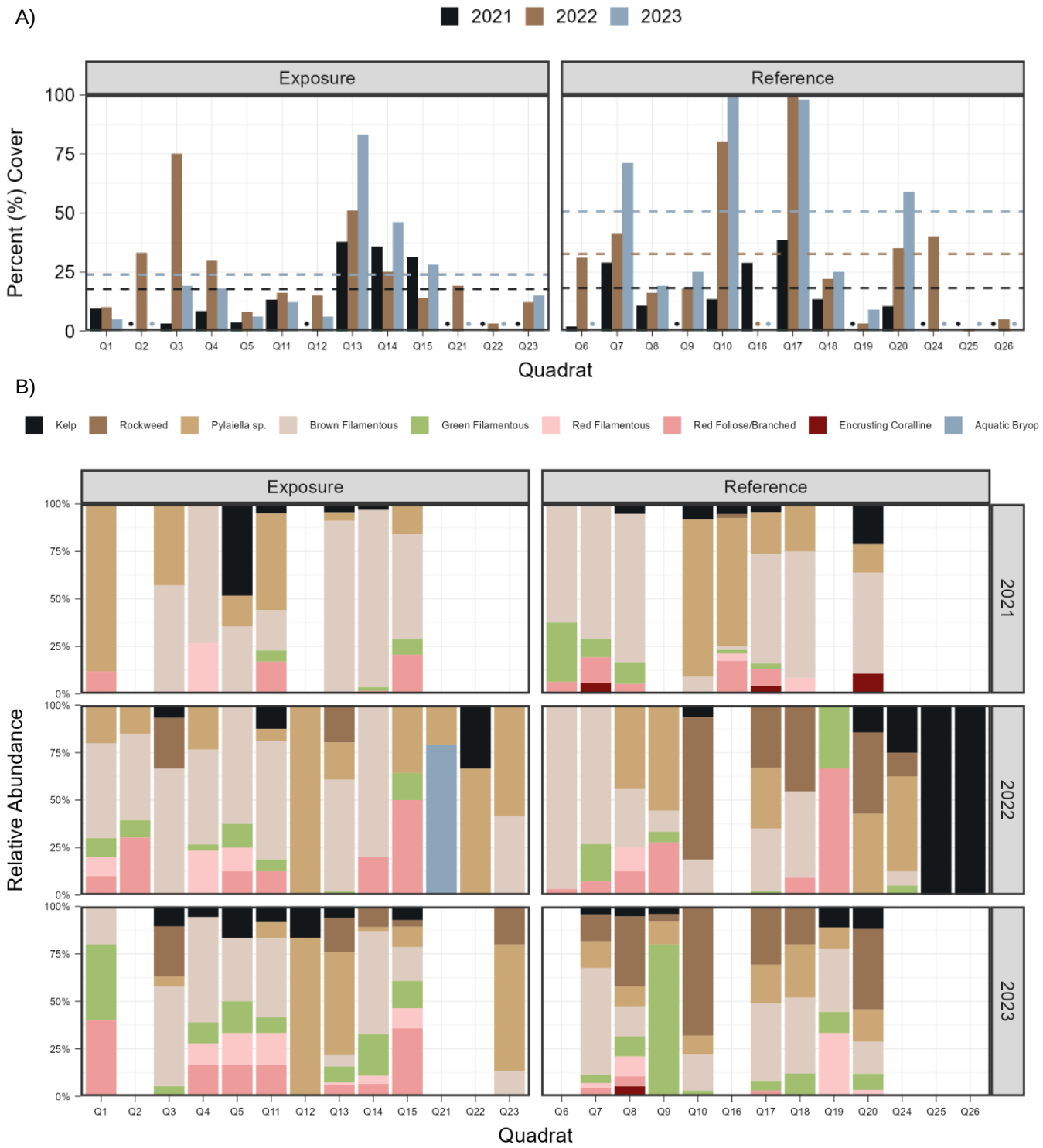
Similarly, macroalgae SDI differed significantly among sampling years (*P*=0.003; Figure 5-8) but did not differ between sampling areas (*P*=0.50); the interaction between area and year was also not significant (*P*=0.50; Table 5-3). Within Milne Port, macroalgae SDI was significantly lower in 2023 compared with 2021 (-51%) and 2022 (-47%), which did not differ from each other. Within the reference area, no significant interannual differences were observed (Table 5-4). Effect sizes ranged from -51% to -7.9% in Milne Port, -47% to 42% in the reference area, and was 43% in 2023 between Milne Port and the reference area (Table 5-4).

In the analysis of macroalgal SDI, statistical power was sufficient to detect a significant year and area interaction at an effect size of +312%, but not at any of the negative effect sizes (Appendix 5E). The observed effect size in 2023 was +43%, and statistical power to detect it was low (<0.3), likely due to the high variability associated with the data.

Table 5-5: Quadrat Survey Results for Macroflora in Milne Port (2023)

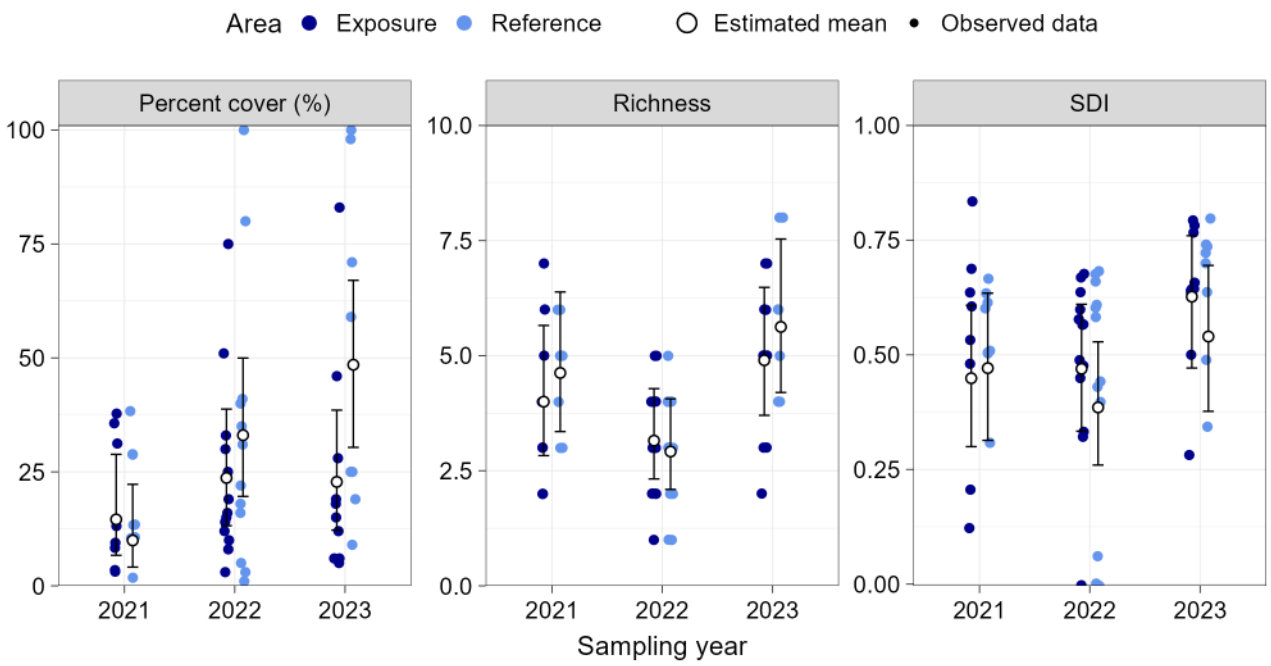
Survey Area	Quadrat	Macroalgae			
		Total Cover (%)	Taxa Richness	SDI	Dominant Taxa
Milne Port (Exposure)	Q1	5	3	0.640	*Coccotylus truncatus, Chaetomorpha melagonium*
	Q2	-	-	-	-
	Q3	19	5	0.637	Acid weed, rockweed
	Q4	18	5	0.636	Acid weed, *Coccotylus truncatus*
	Q5	6	5	0.778	Acid weed
	Q11	12	6	0.771	Acid weed, *Coccotylus truncatus*
	Q12	6	2	0.278	*Pylaiella* sp.
	Q13	83	7	0.655	*Pylaiella* sp., rockweed
	Q14	46	6	0.639	Acid weed, *Chaetomorpha melagonium*
	Q15	28	7	0.791	*Coccotylus truncatus*, acid weed
	Q21	-	-	-	-
	Q22	-	-	-	-
	Q23	15	3	0.498	*Pylaiella* sp., acid weed
	Mean ± SE	**23.8 ± 7.7**	**4.9 ± 0.6**	**0.632 ± 0.048**	***Pylaiella* sp., acid weed**
Reference	Q6	-	-	-	-
	Q7	71	8	0.638	Acid weed, rock weed, *Pylaiella* sp.
	Q8	19	8	0.798	Rock weed, acid weed
	Q9	25	4	0.342	*Chaetomorpha melagonium, Pylaiella* sp.
	Q10	100	4	0.491	Rock weed, acid weed
	Q16	-	-	-	-
	Q17	98	6	0.695	Acid weed, rockweed
	Q18	25	4	0.720	Acid weed, *Pylaiella* sp.
	Q19	9	5	0.741	Acid weed, *Savoiea arctica*
	Q20	59	6	0.741	Rock weed, acid weed, *Pylaiella* sp.
	Q24	-	-	-	-
	Q25	-	-	-	-
	Q26	-	-	-	-
	Mean ± SE	**50.8 ± 12.8**	**5.6 ± 0.6**	**0.646 ± 0.054**	**Rockweed, acid weed**

Note: '-' indicates the quadrat was not surveyed in 2023. Simpson Diversity Index (SDI) values are color-coded by category, red = very low (<0.250), blue = low (0.250 to 0.499), yellow = moderate (0.500 to 0.750), green = high (>0.750).



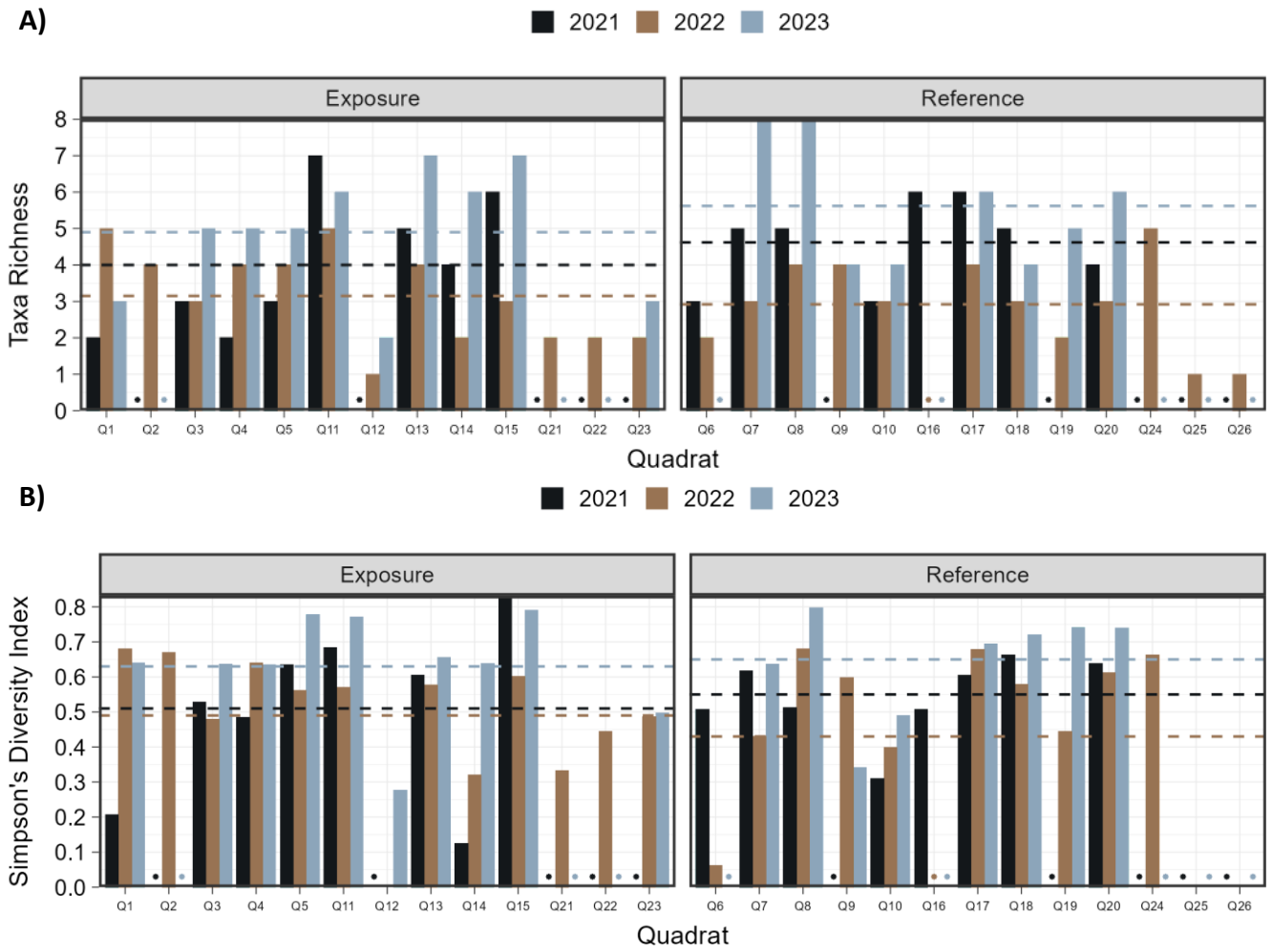
Dashed line in top figure represents the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-7: A) Total Percent Cover and B) Relative Abundance of Macroflora Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023.



Observed (solid points) and estimated marginal mean percent cover (open points) and 95% confidence interval (error bars) are presented for each sampling area and year.

Figure 5-8: Interannual Differences in Macroflora Percent Cover, Taxa Richness, and Simpson's Diversity Index in Milne Port, 2021 – 2023.



Dashed lines represent the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-9: A) Taxa Richness and B) Simpson's Diversity Index of Macroflora Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023.

5.4.3 Benthic Epifauna

Benthic epifauna identified in the quadrats in 2023 belonged to six phyla: Annelida, Arthropoda, Cnidaria, Chordata, Echinodermata, and Mollusca. One new species, a nudibranch, was collected and identified by the taxonomy laboratory as *Dendronotus* sp.[14] (Appendix 5B – Photo 9).

The majority of species identified in the quadrats belonged to the phylum Mollusca, with four taxa identified to species level: wrinkled rock-borer clam (*Hiatella arctica*), blunt gaper clam (*Mya truncata*), Icelandic scallop (*Chlamys islandica*), and discord mussel (*Musculus discors*) (Appendix 5B – Photos 7, 9, and 10). Other unique molluscs included *Dendronotus* nudibranch, margarite snail (*Margarites* sp.), astarte clam (*Astarte* sp.), whelk (Family Buccinidae) (Appendix 5B – Photo 11), and limpet (Subclass Patellogastropoda). Phylum Annelida was represented by three distinct taxa: cone worm (*Cistenides granulata*) (Appendix 5B – Photo 11) and two morphologically distinct sabellid polychaetes (Family Sabellidae)[15] (Appendix 5B – Photos 4 and 12). Phylum Arthropoda (subphylum Crustacea) was represented by amphipods, shrimp of the superfamily Pandaloidea and a single crangon shrimp (Family Crangonidae) (Appendix 5B – Photos 13 and 14). The phylum Echinodermata included brittle stars (Class Ophiuroidea), green urchin (*Strongylocentrotus droebachiensis*), and six-rayed sea star (*Leptasterias* sp.) (Appendix 5B – Photos 15 to 17) and the phylum Cnidaria was represented by a single burrowing anemone (Subclass Ceriantharia) (Appendix 5B – Photo 18). Phylum Chordata included one species of tunicate (*Polycarpa* sp.), and fish from the sculpin family (Family Cottidae; one species), Saddled Eelpout (*Lycodes mucosus*), and juvenile Common Lumpfish (*Cyclopterus lumpus*) (Appendix 5B – Photos 8 and 19).

5.4.3.1 Sessile Epifauna

Wrinkled rock-borer clams (one of the species used for fish health monitoring at Milne Inlet; Chapter 7.0), and cone worms were the dominant sessile epifauna taxa in the majority of quadrats in both areas in 2023, consistent with results from previous years (Table 5-6; Figure 5-10). Blunt gaper clams and sabellid worms were also frequently observed in quadrats in both areas. Two sessile epifaunal taxa observed in previous years (2021 and 2022) were not observed in 2023: scallop *Similipecten greenlandicus* and northern astarte clam *A. borealis* (Appendix 5C; Golder 2022; WSP 2023).

Percent Cover

Total percent cover of sessile epifauna varied among quadrats in both exposure and reference areas but on average was slightly higher in the reference area than in the exposure area (25.5 ± 5.7% and 40.8 ± 6.4%, respectively) (Table 5-6; Figure 5-10). Total percent cover of sessile epifauna was lowest in Q23 within the exposure area with 1% cover (exclusively from small sabellid worm sp. 1), a minor increase from no sessile epifauna observed in the first year of sampling in 2022 (Appendix 5C). The highest percent cover was recorded in Q1 within the exposure area (62%) and Q20 within the reference area (71%; Table 5-6).

For sessile percent cover, the model that included the effect of depth as a covariate was the best supported based on AIC and was selected for interpretation. Percent cover of sessile epifauna varied significantly with depth (P=0.019) but did not differ among sampling years (P=0.050); the area × year interaction (P=0.1) was not significant (Table 5-3). Post hoc comparisons indicated few significant differences (Table 5-4). Within Milne Port,

[14] Possibly *Dendronotus arcticus*, though similar to D. *robustus* or D. *frondosus*.

[15] A large tube casing collected in 2022 was identified by the laboratory as *Pista maculata* (Family Terebellidae); however, since this organism was not observed to be alive in the field, it is not completely linked to the Large sabellid worm sp. 2 that has been observed in all years 2021 to 2023.

no post hoc differences were observed. Within the reference area, mean sessile percent cover was significantly lower in 2023 compared to 2022 (-65%). No other significant differences were observed (Table 5-4). Effect sizes ranged from -40% to 25% in Milne Port, -65% to -24% in the reference area, and was equal to -27% in 2023 between Milne Port and the reference area (Table 5-4; Figure 5-11).

In the analysis of sessile epifauna percent cover, statistical power was not sufficient power at any of the examined effect sizes, ranging from -90% to +400% (Appendix 5E), likely due to the high variability associated with the data (Figure 5-11). The observed effect size in 2023 was -27%, and statistical power to detect the effect was low.

Relative abundance of sessile epifauna also varied between the quadrats but remained within the same ranges between the exposure and reference areas in 2023, as well as being comparable to previous years (2021 and 2022) (Figure 5-10; Appendix 5C). Sabellid worm percent cover increased in 2023 compared to previous years while scallop and clam abundance decreased (Figure 5-10).

Diversity

Mean taxa richness was similar between the exposure area (4.5 ± 0.6 taxa) and reference area (5.6 ± 0.5 taxa) in 2023 (Figure 5-12), with mean taxa richness comparable to 2022 in the exposure area but slightly lower within the reference area compared to 2022; both areas had greater mean taxa richness compared to 2021 (Table 5-6; Figure 5-12). The highest number of taxa was observed in Q7 within the reference area (nine taxa) and Q13 within the exposure area (eight taxa), with both quadrats seeing an increase in taxa richness from 2022 (seven and three taxa, respectively) and 2021 (seven and four taxa, respectively; Appendix 5C).

For sessile richness, the model that included a non-linear effect of depth as a covariate was the best supported based on AIC and was selected for interpretation. Sessile taxa richness varied significantly with depth (P=0.04) and among sampling years (P<0.001) but did not differ between samplings areas (P=0.1); the area × year interaction (P=0.9) was not significant (Table 5-3). Estimated marginal means comparisons indicated sessile taxa richness was significantly greater in 2022 compared to 2021 in both the Milne Port and reference area (75% and 81%, respectively). No other significant differences were observed (Table 5-4). Effect sizes ranged from -40% to 75% in Milne Port, -35% to 81% in the reference area, and was equal to -11% in 2023 between Milne Port and the reference area (Table 5-4; Figure 5-11).

In the analysis of sessile epifauna richness, there was sufficient statistical power to detect a significant interaction at effect sizes of -72% and +71% (Appendix 5E). That is, when the 2023 Milne Port area had mean sessile epifauna richness 72% lower or 71% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was small (-12%; Figure 5-11).

Values of SDI ranged from very low (<0.250) to high (>0.750) in the exposure area and from low (0.250-0.499) to high (>0.750) in the reference area (Figure 5-12), with only minor differences in mean values between areas (exposure = 0.533±0.071; reference = 0.613±0.056) (Table 5-6). SDI was very low (0.000) for Q23 due to very low abundance of only one taxon but high in Q4 within the exposure area and Q7 within the reference area due to even abundance of observed taxa (Table 5-6; Appendix 5C).

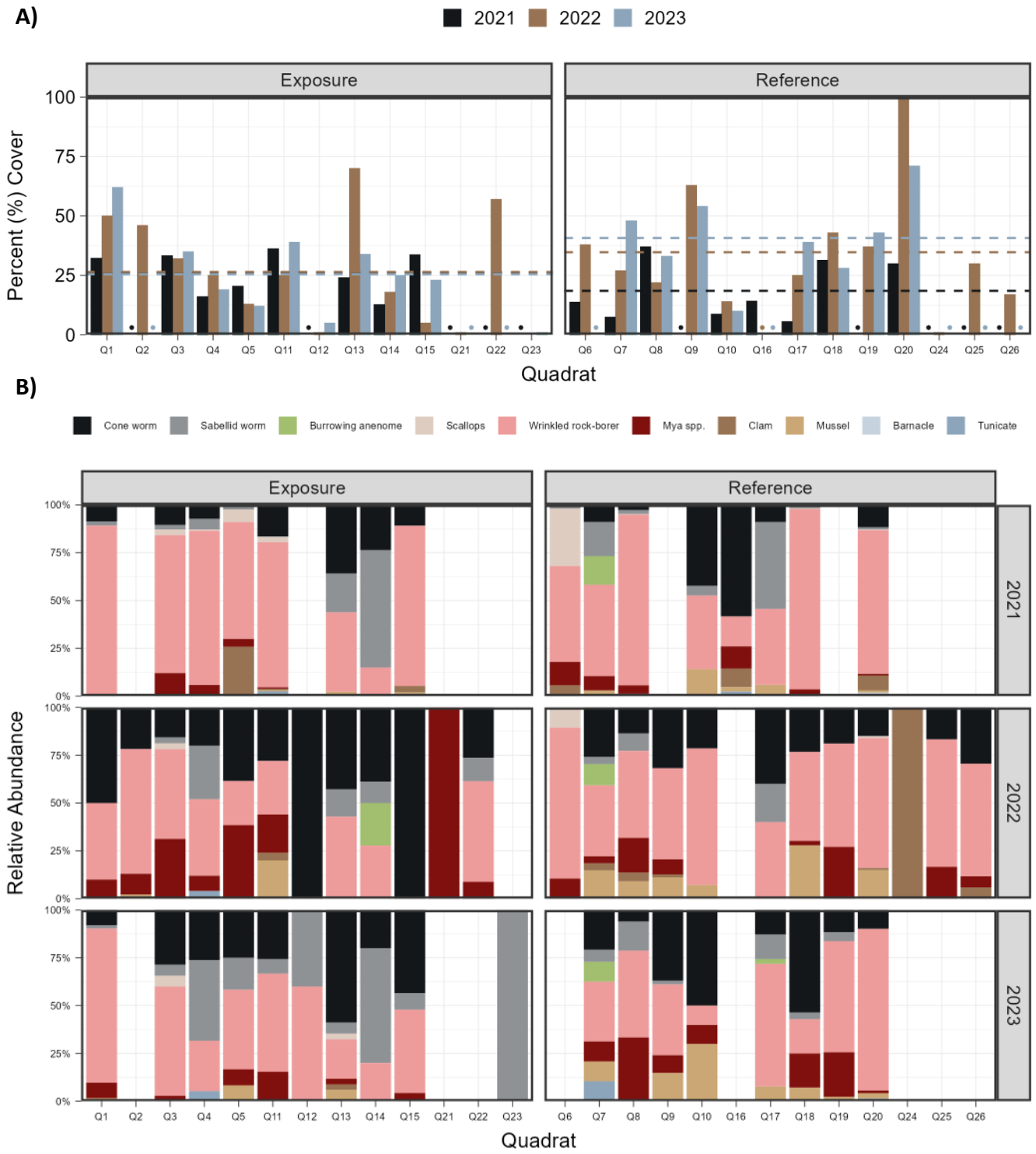
For sessile SDI, the model that included the effect of soft substrate as a covariate was the best supported based on AIC and was selected for interpretation. Sessile SDI varied significantly with soft substrate (P=0.005) but did not differ among sampling years (P=0.06), between sampling area (P=0.2), or the area × year interaction (P=0.7; Table 5-3). Effect sizes ranged from -51% to 52% in Milne Port, -48% to -4.1% in the reference area, and was equal to -40% in 2023 between Milne Port and the reference area (Table 5-4; Figure 5-11).

In the analysis of sessile epifauna SDI, there was sufficient statistical power to detect a significant interaction at an effect size of +213%, but not at any of the examined negative effect sizes, ranging up to -90% (Appendix 5E). The observed effect size in 2023 was -40%, and statistical power to detect the effect was low (<0.3).

Table 5-6: Quadrat Survey Results for Sessile Epifauna in Milne Port (2023)

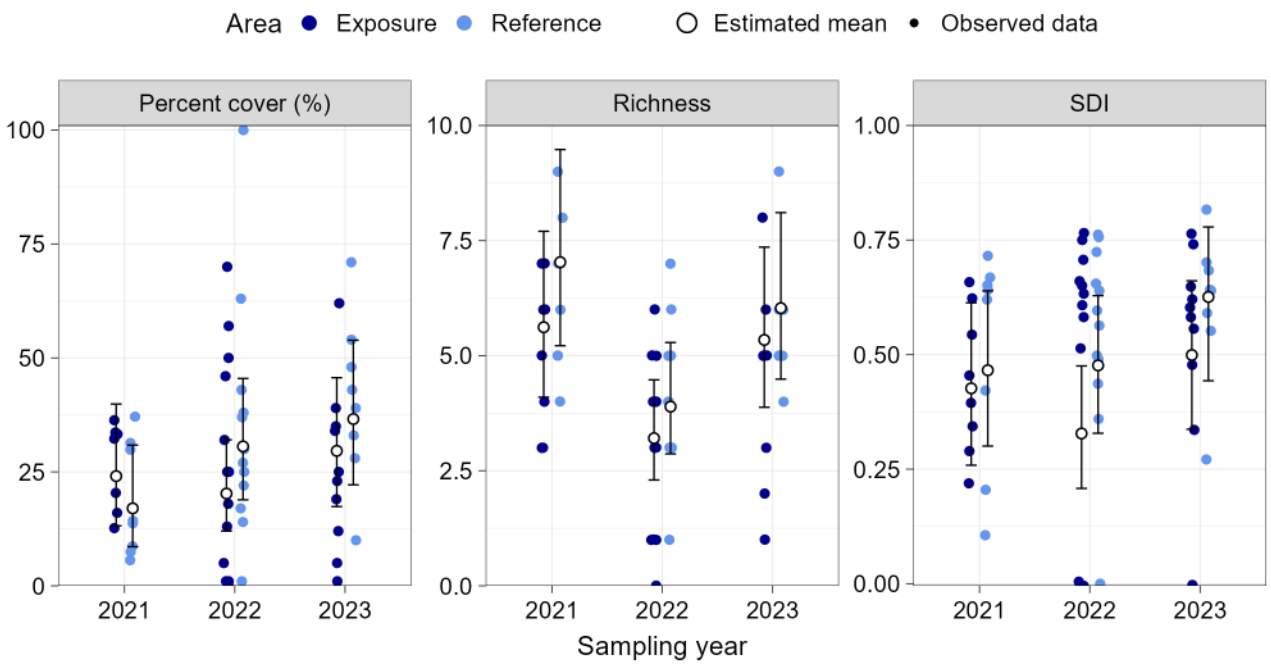
Survey Area	Quadrat	Sessile Epifauna			
		Total Cover (%)	Taxa Richness	SDI	Dominant Taxa
Exposure	Q1	62	5	0.336	Wrinkled rock-borer, cone worm, blunt gaper clam
	Q2	-	-	-	-
	Q3	35	5	0.584	Wrinkled rock-borer, cone worm
	Q4	19	5	0.765	Wrinkled rock-borer, cone worm, large sabellid worm sp. 2
	Q5	12	6	0.736	Wrinkled rock-borer, cone worm
	Q11	39	5	0.652	Wrinkled rock-borer, cone worm
	Q12	5	2	0.480	Wrinkled rock-borer, small sabellid worm sp. 1
	Q13	34	8	0.604	Cone worm, wrinkled rock-borer
	Q14	25	3	0.560	Small sabellid worm sp. 1, wrinkled rock-borer, cone worm
	Q15	23	5	0.616	Wrinkled rock-borer, cone worm
	Q21	-	-	-	-
	Q22	-	-	-	-
	Q23	1	1	<0.001	Small sabellid worm sp. 1
	Mean ± SE	**25.5 ± 5.7**	**4.5 ± 0.6**	**0.533 ± 0.071**	**Wrinkled rock-borer, cone worm**
Reference	Q6	-	-	-	-
	Q7	48	9	0.819	Wrinkled rock-borer, cone worm
	Q8	33	5	0.686	Wrinkled rock-borer, blunt gaper clam
	Q9	54	6	0.700	Wrinkled rock-borer, cone worm
	Q10	10	4	0.640	Cone worm, mussel
	Q16	-	-	-	-
	Q17	39	6	0.552	Wrinkled rock-borer, cone worm
	Q18	28	5	0.643	Cone worm, wrinkled rock-borer, blunt gaper clam
	Q19	43	5	0.592	Wrinkled rock-borer, blunt gaper clam
	Q20	71	5	0.275	Wrinkled rock-borer, cone worm
	Q24	-	-	-	-
	Q25	-	-	-	-
	Q26	-	-	-	-
	Mean ± SE	**40.8 ± 6.4**	**5.6 ± 0.5**	**0.613 ± 0.056**	**Wrinkled rock-borer, cone worm**

Note: '-' indicates the quadrat was not surveyed in 2023. Simpson Diversity Index (SDI) values are color-coded by category, red = very low (<0.250), blue = low (0.250 to 0.499), yellow = moderate (0.500 to 0.750), green = high (>0.750).



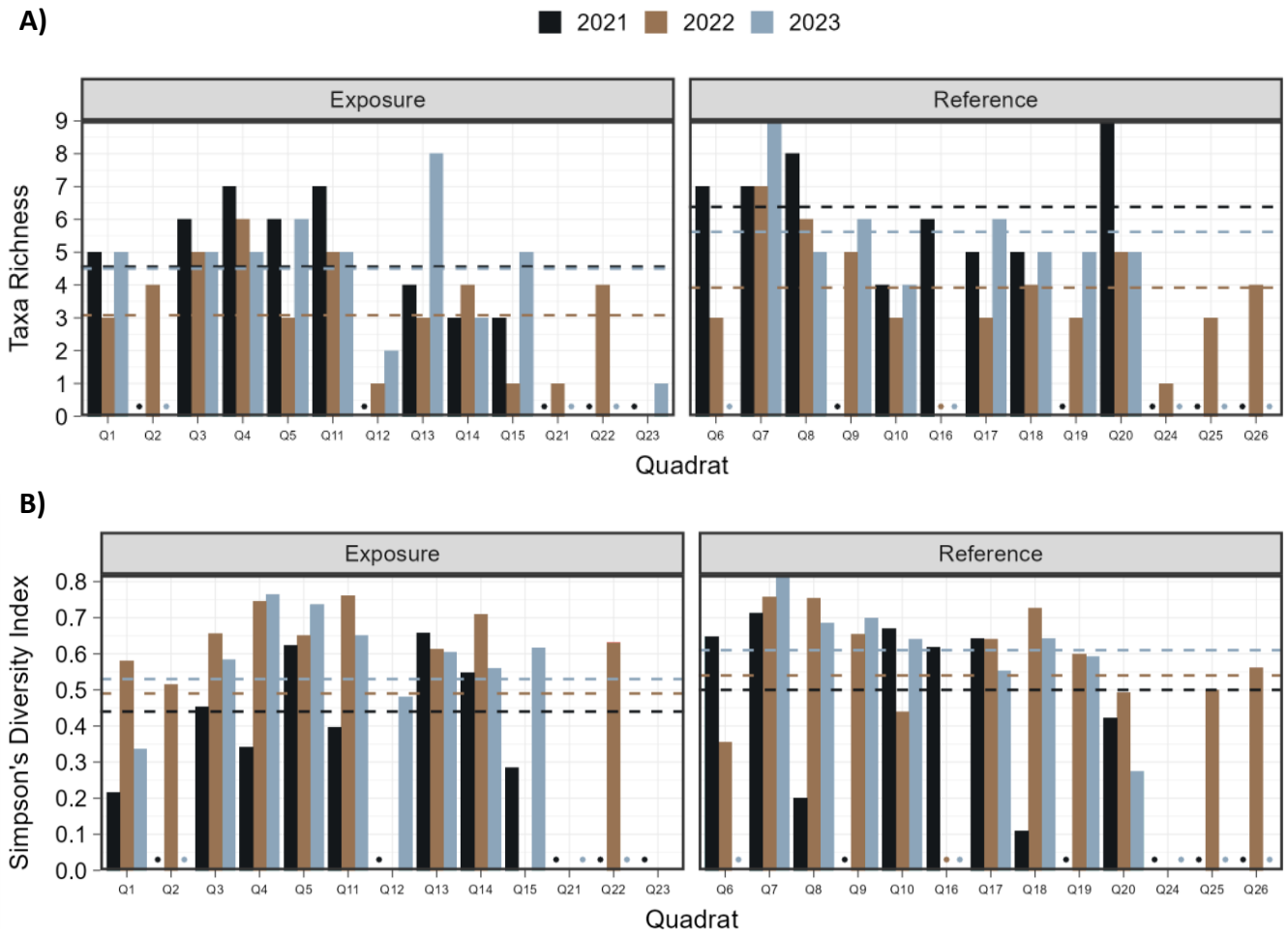
Dashed line in top figure represents the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-10: A) Total Percent Cover and B) Relative Abundance of Sessile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023.



Observed (solid points) and estimated marginal mean percent cover (open points) and 95% confidence interval (error bars) are presented for each sampling area and year.

Figure 5-11: Interannual Differences in Sessile Epifauna Percent Cover, Taxa Richness, and Simpson's Diversity Index in Milne Port, 2021 – 2023.



Dashed lines represent the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-12: A) Taxa Richness and B) Simpson's Diversity Index of Sessile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023.

5.4.3.2 Motile Epifauna

Nudibranchs were the dominant motile epifauna taxa observed in quadrats in both areas in 2023, followed by shrimp and green urchins in the exposure area and Saddled Eelpouts in the reference area (Figure 5-13; Appendix 5C). Brittle stars and green urchins that were observed at high densities in 2022 and 2021 were rarely observed in 2023 (Figure 5-13); the low densities of brittle stars and green urchins may be due to not sampling quadrats that in previous years have had high densities of these taxa (e.g., Q2, Q6, Q22) or interannual variability such as the late ice cover observed in 2023 (Appendix 5C). Several taxa were observed for the first-time during surveys, including a Buccinidae whelk (previously seen in ROV surveys in 2020) and six-rayed sea stars (a genus recorded during benthic sampling [Chapter 4.0] in 2021 and 2022) (Appendix 5C). Seven motile epifauna taxa observed in previous years (2021 and/or 2022) were not observed in 2023, including polychaetes, ribbon worms (Phylum Nemertea), sea cucumbers (Family Holothuroidea), and Fish Doctor (*Gymnelus viridis*) (Appendix 5C; Golder 2022; WSP 2023).

Density

Motile epifauna density was lower in 2023 than in 2022 and 2021 in both areas (Table 5-7). Within the exposure area, mean density decreased to 7.6 ± 1.5 org/m^2 from 12.4 ± 4.4 org/m^2 in 2022 and 16.0 ± 6.2 org/m^2 in 2021 (Table 5-7; Figure 5-13; Appendix 5C). The reference area consistently showed greater variability in mean density but also decreased to 6.9 ± 2.0 org/m^2 from 12.5 ± 9.3 org/m^2 in 2022 and 28.1.0 ± 18.5 org/m^2 in 2021 (Table 5-7; Appendix 5C). Six quadrats (Q4, Q5, Q13, Q15, Q18, and Q18) contained motile epifauna densities greater than 10 org/m^2 and only one quadrat (Q23) contained no motile epifauna (Table 5-7). Most quadrats contained a single organism from two to three taxa (Appendix 5C).

For motile epifauna density, the model that included the effect of depth as a covariate was the best supported based on AIC and was selected for interpretation. Motile density varied significantly with depth (P<0.001), and the area × year interaction (P=0.001) was statistically significant (Table 5-3). A significant interaction indicates that the relationship between year and motile density varied by sampling area. Within Milne Port, motile epifaunal density was significantly higher in 2023 compared to 2021 (80%) but was not different among other sampling years (Table 5-4). Within the reference area, epifaunal density was significantly higher in 2022 compared to 2021 (347%) and 2023 (70%) but did not differ among other sampling years (Figure 5-14; Table 5-4). Effect sizes ranged from 22% to 80% in Milne Port, -70% to 347% in the reference area, and was equal to -16% in 2023 between Milne Port and the reference area (Table 5-4; Figure 5-14).

In the analysis of motile epifauna density, there was sufficient power to detect a significant interaction at effect sizes <+30% and >+172% (Appendix 5E). That is, when the 2023 Milne Port area had mean motile epifauna density that was less than 30% higher or more than 172% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was -16%, and statistical power to detect the effect was high. The power to detect an interaction was >0.7 for all examined effect sizes, due to the large difference between reference and Milne Port in 2022, but not in 2021 (Figure 5-14), which resulted in a high proportion of simulations with a significant interaction between year and area. The estimated statistical power was at its lowest at effect sizes of approximately 60%–120%, since at those effect sizes, the difference between reference and Milne Port areas in 2023 became similar to the difference between reference and Milne Port areas in 2022 (Figure 5-14), and the statistical significance of the interaction decreased; instead, the main effect of area was significant more often.

Diversity

Diversity (taxa richness and SDI) was low overall for motile epifauna in both areas in 2023. Taxa richness was similar between the two survey areas (ranging 0-4 in both), consistent with previous years (Figure 5-15). SDI values were polarized in both areas in 2023, with exposure area quadrats having either very low (0.000) or moderate (0.500-0.750) SDI, while in the reference area SDI was generally very low (0.000) or high (>0.750) with one moderate site (Q18; SDI = 0.720) (Table 5-7). Seven quadrats (39%) had a SDI of zero; these quadrats either lacked any motile epifauna (Q23) or they contained only one or two organisms of a single taxon (Q3, Q7, Q9, Q10, Q13, Q14, Q17, and Q19) (Table 5-7; Figure 5-15).

For motile taxa richness, the model that included a non-linear effect of depth as a covariate was the best supported based on AIC and was selected for interpretation. Motile taxa richness varied significantly with depth but did not differ among sampling years (P=0.05) or between sampling areas (P=0.50); the area × year interaction (*P*=0.40) was not significant (Table 5-3). Effect sizes ranged from -39% to 17% in Milne Port, -40% to 101% in the reference area, and was equal to 32% in 2023 between Milne Port and the reference area (Table 5-4; Figure 5-14).

In the analysis of motile epifauna richness, there was sufficient power to detect a significant interaction at an effect size of +220%, but not any of the examined negative effect sizes, up to -90% (Appendix 5E). That is, when the 2023 Milne Port area had mean motile epifauna richness that was 220% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was +32% (Figure 5-14), and statistical power to detect the effect was low. The low power to detect decreases in richness was likely due to the variability associated with the observed data (Figure 5-14).

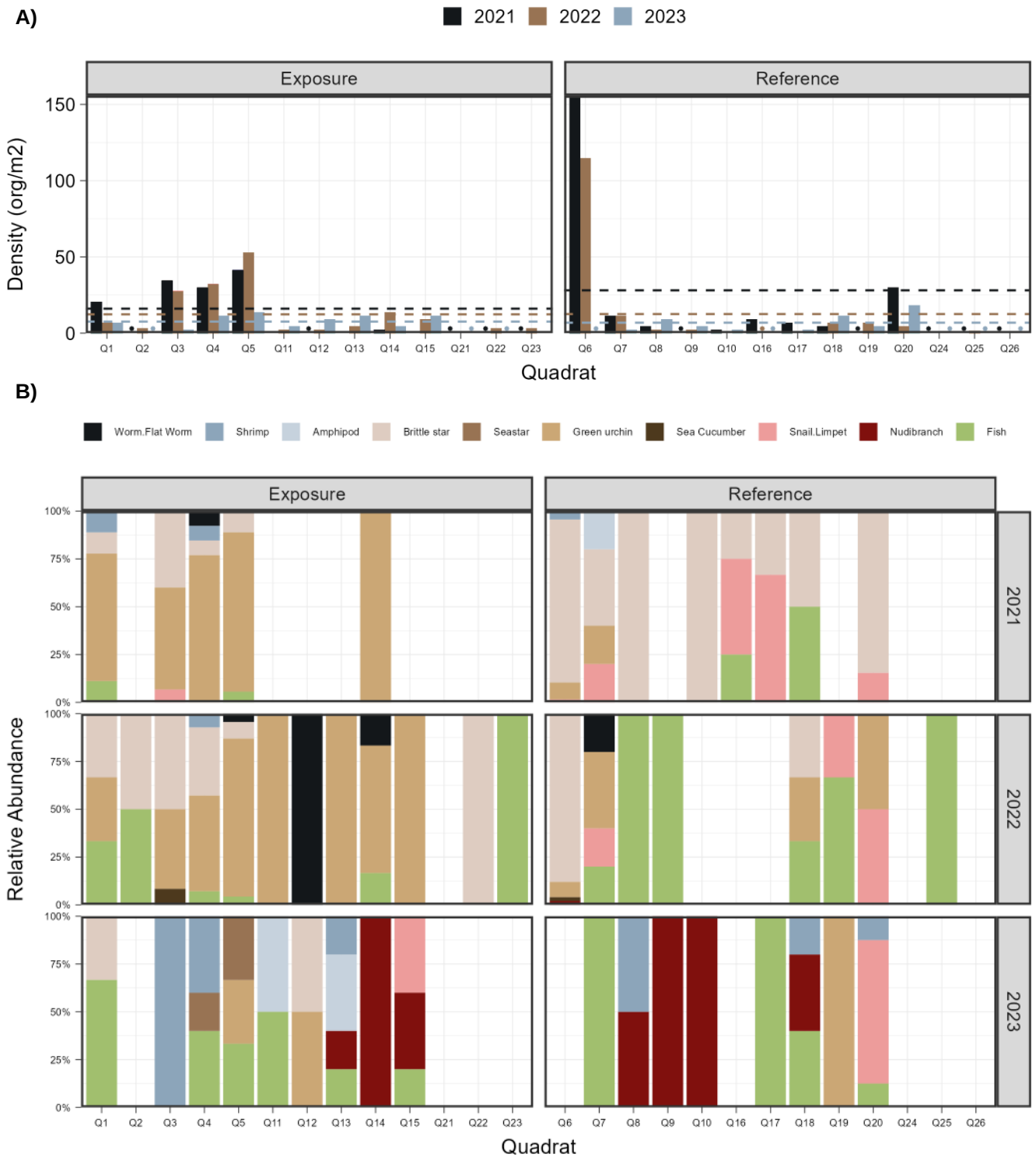
No differences in motile SDI were found between sampling areas (P=0.60), among sampling years (P=0.50), or the area × year interaction (P=0.3; Table 5-3). Some interannual variation was observed in motile SDI (Figure 5-14). Effect sizes ranged from -54% to 63% in Milne Port, 31% to 83% in the reference area, and was equal to 129% in 2023 between Milne Port and the reference area (Table 5-4).

In the analysis of motile epifauna SDI, there was sufficient power to detect a significant interaction at effect sizes of -88%, but not at any of the examined positive effect sizes, up to 400% (Appendix 5E). The observed effect size in 2023 was +129% (Figure 5-14), and statistical power to detect the effect was low. The low power to detect increases in motile epifauna SDI was likely due to the variability associated with the observed data, as well as with the relatively low value of SDI in the reference area in 2023 (Figure 5-14).

Table 5-7: Quadrat Survey Results for Motile Epifauna in Milne Port (2023)

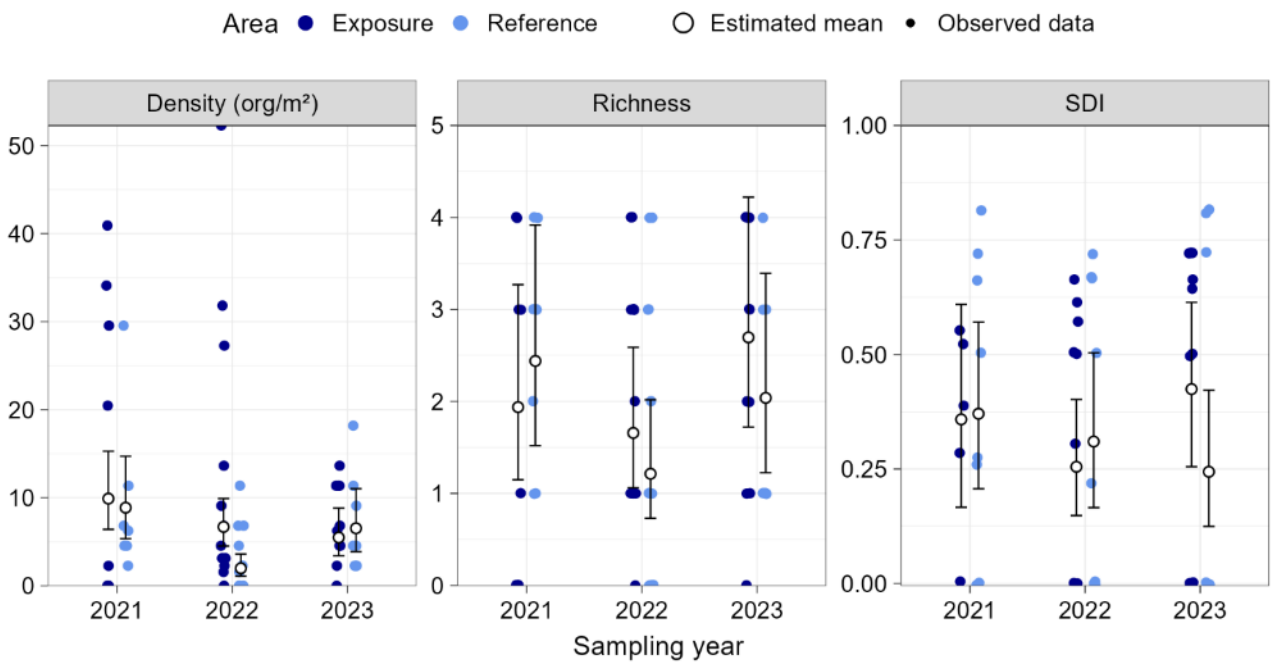
Survey Area	Quadrat	Motile Epifauna			
		Density (org/m^2)	Taxa Richness	SDI	Dominant Taxa
Exposure	Q1	7	3	0.667	Brittle star, Saddled eelpout, Arctic sculpin
	Q2	-	-	-	-
	Q3	2	1	<0.001	Shrimp (Pandaloidea)
	Q4	11	3	0.640	Shrimp (Pandaloidea), Lumpfish
	Q5	14	4	0.722	Green urchin, six-rayed sea star
	Q11	5	2	0.500	Amphipod, Arctic sculpin
	Q12	9	2	0.500	Brittle star, green urchin
	Q13	11	4	0.720	Amphipod, Shrimp (Pandaloidea), *Dendronotus* sp.
	Q14	5	1	<0.001	*Dendronotus* sp.
	Q15	11	4	0.720	*Dendronotus* sp., whelk, Saddled eelpout, Margarite snail
	Q21	-	-	-	-
	Q22	-	-	-	-
	Q23	0	0	NC	No motile epifauna observed
	Mean ± SE	**7.6 ± 1.5**	**2.4 ± 0.5**	**0.497 ± 0.098**	***Dendronotus* sp., shrimp (Pandaloidea), green urchin**
Reference	Q6	-	-	-	-
	Q7	2	1	<0.001	Saddled Eelpout
	Q8	9	3	0.813	*Dendronotus* sp., unid. nudibranch, shrimp (Crandonidae, Pandaloidea),
	Q9	5	1	<0.001	*Dendronotus* sp.
	Q10	2	1	<0.001	*Dendronotus* sp.
	Q16	-	-	-	-
	Q17	2	1	<0.001	Saddled Eelpout
	Q18	11	3	0.720	*Dendronotus* sp., unid. nudibranch, shrimp (Pandaloidea),
	Q19	5	1	<0.001	Green urchin
	Q20	18	4	0.813	Limpet, small black snail (Gastropoda)
	Q24	-	-	-	-
	Q25	-	-	-	-
	Q26	-	-	-	-
	Mean ± SE	**6.9 ± 2.0**	**1.9 ± 0.4**	**0.293 ± 0.143**	***Dendronotus* sp., Saddled Eelpout**

Note: '-' indicates the quadrat was not surveyed in 2023. Simpson Diversity Index (SDI) values are color-coded by category, red = very low (<0.250), blue = low (0.250 to 0.499), yellow = moderate (0.500 to 0.750), green = high (>0.750). NC = Not calculated due to no motile taxa observed.



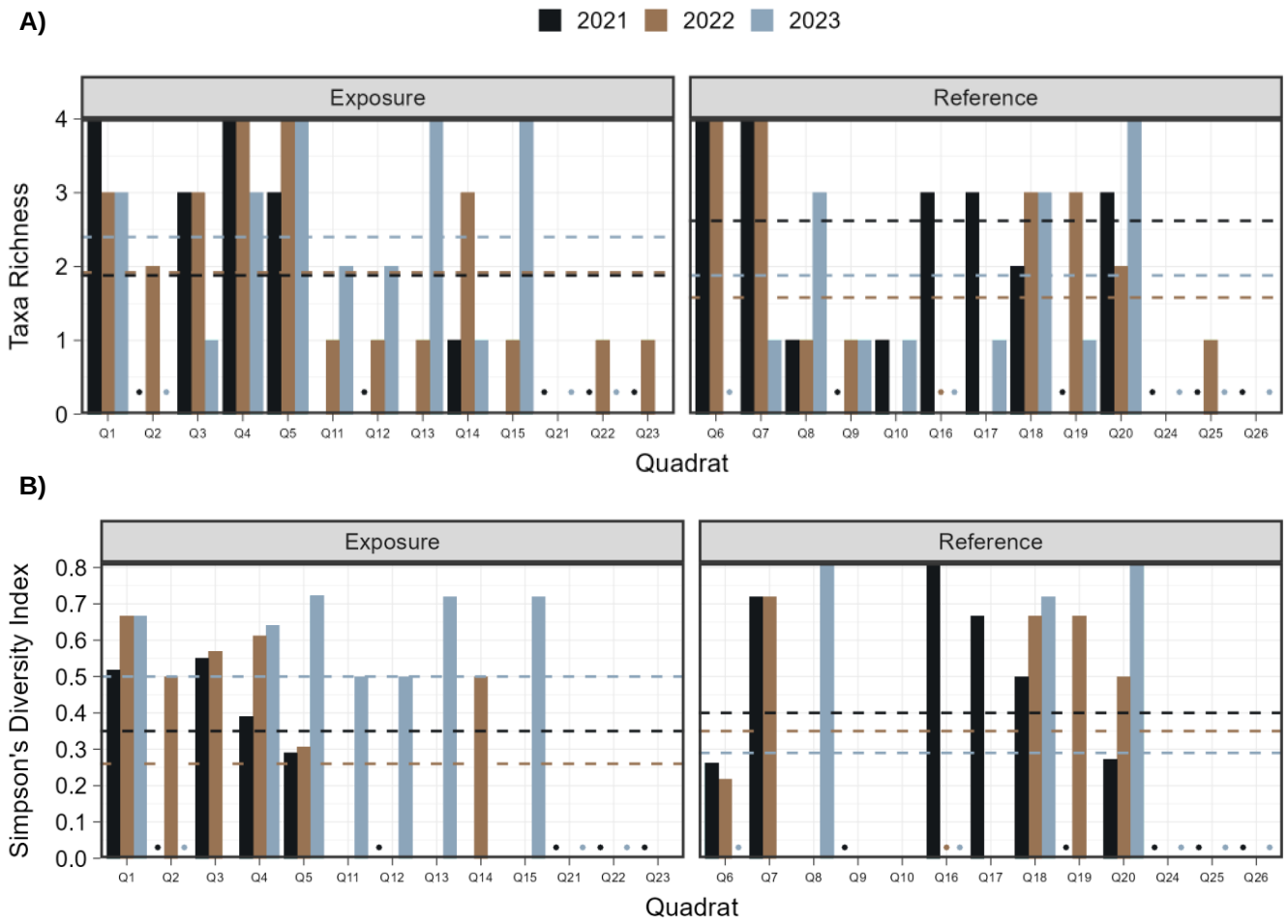
Dashed line in top figure represents the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-13: A) Total Percent Cover and B) Relative Abundance of Motile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023.



Observed (solid points) and estimated marginal mean percent cover (open points) and 95% confidence interval (error bars) are presented for each sampling area and year.

Figure 5-14: Interannual Differences in Motile Epifauna Density, Taxa Richness, and Simpson's Diversity Index in Milne Port, 2021 – 2023.



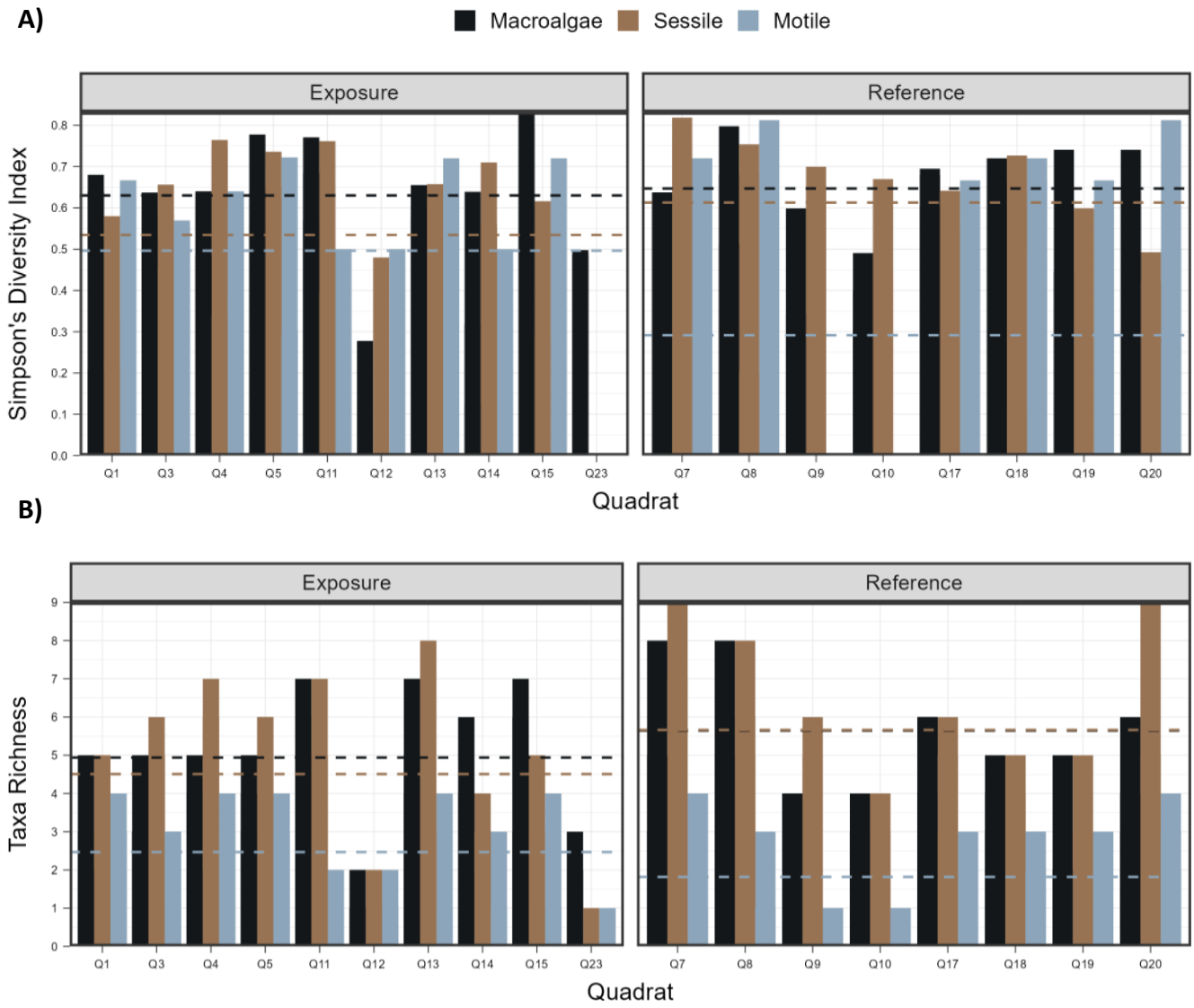
Dashed lines represent the mean percent cover for the exposure and reference quadrats for each year and stars represent years in which individual quadrats were not sampled.

Figure 5-15: A) Taxa Richness and B) Simpson's Diversity Index of Motile Epifauna Recorded in Quadrats Surveyed During Quadrat Surveys in Milne Port, 2021 – 2023.

5.4.4 2023 Relative Diversity

Taxa richness varied among quadrats for all major assemblages (macroflora, sessile epifauna, and motile epifauna) (Figure 5-16A). Generally, mean macroalgae and sessile epifauna taxa richness was similar within and across areas and higher than mean motile taxa richness, which was less than 3 taxa in both areas (Figure 5-12A). Statistical analysis indicated differences in taxa richness for macroflora and sessile epifauna between years but not between areas (Table 5-3). Overall, Q7 in the reference area supports the greatest taxa richness for macroalgae and sessile epifauna while seven quadrats (Q1, Q4, Q5, Q7, Q13, Q15, and Q20) had similarly high taxa richness for motile epifauna (Figure 5-16A). Q12 in the exposure area supports the lowest macroalgae and sessile epifauna taxa richness, consistent with 2022, while Q9, Q10, and Q23 supported the lowest epifauna taxa richness (Figure 5-16A).

SDI for macroflora ranged from low to high while sessile and motile epifauna ranged from very low to high (Figure 5-16B); statistically significant differences in SDI were found for macroflora between years but not among sampling areas (Table 5-3). Overall, Q5, Q8, Q13 (in the exposure area) and Q18 (in the reference area) displayed the greatest universal diversity, where macrofauna, sessile and motile epifauna SDI values were characterized as moderate to high (Figure 5-16B). Q12 and Q23 were the only quadrats to have very to moderate diversity values for the three types of assemblages and Q12 stands out as having the only very low diversity value for macroflora (Figure 5-16B).

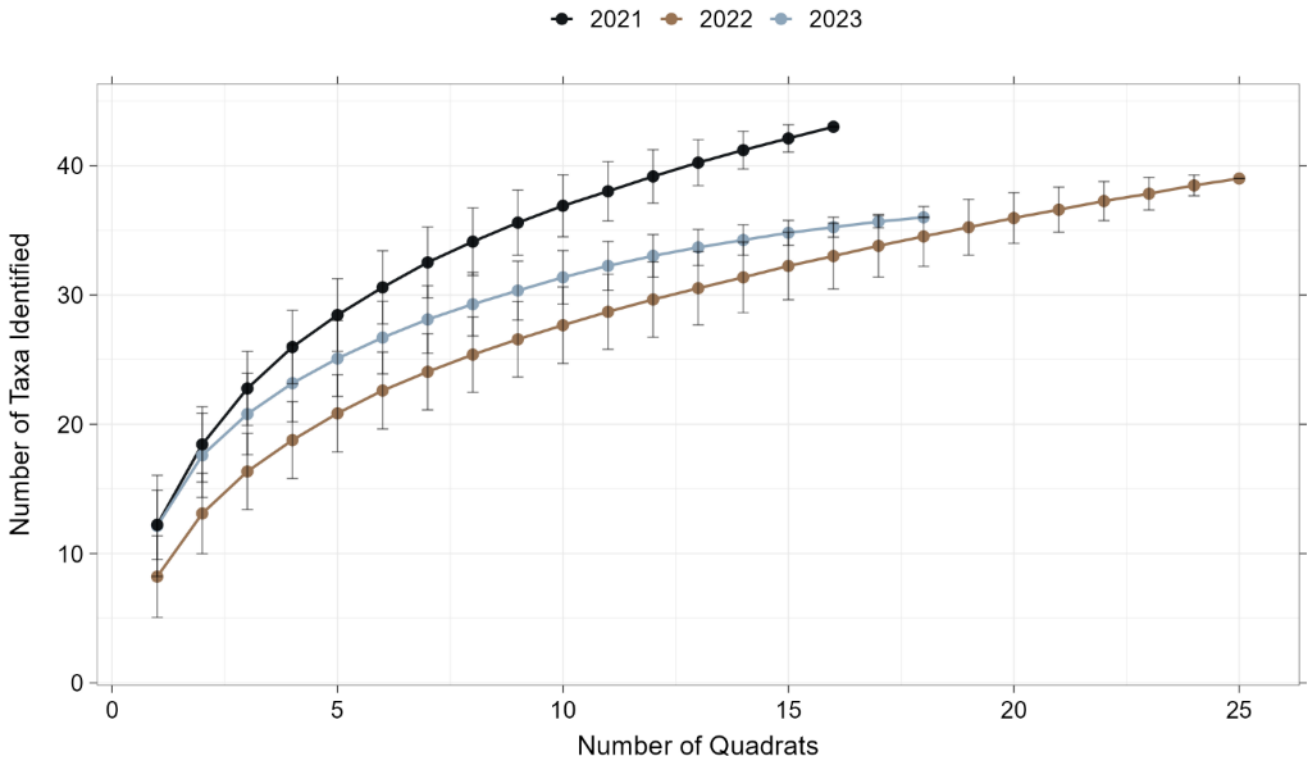


Dashed lines represent the mean percent cover for the exposure and reference quadrats for each year.

Figure 5-16: A) Taxa Richness and B) Simpson's Diversity Index (SDI) for Macroalgae, Sessile Epifauna, and Motile Epifauna in Milne Port (2023)

5.4.5 Species Accumulation Curve and Sampling Effort

A taxa accumulation curve was calculated for quadrats surveyed in 2021 to 2023 to provide an estimate of the effort required to fully characterize the quadrat benthic community assemblage (macroalgae, sessile and motile epifauna) (Figure 5-17). While reaching an asymptote within a subsample of a locality is rare, this would indicate that nearly all species have been detected within the location sampled given the level of sampling effort. For years 2021 to 2023, the three curves approached, but did not reach, an asymptote for the number of quadrats sampled in each year. This indicates that sampling in all three years did not reach levels to fully describe the overall benthic community assemblage.



Mean number of taxa identified (solid circles) and one standard deviation (error bars) are shown for each sampling year. Values were determined using 999 permutations.

Figure 5-17: Mean Taxa Accumulation Curve for Quadrat Benthic Community Assemblage in Milne Port, 2021 – 2023.

5.4.6 Opportunistic Observations

Saddled Eelpouts (Appendix 5B – Photo 20 and 21) were observed residing within the hollow frame of six quadrats: Q12, Q14, and Q15 (exposure area) and Q7, Q17, and Q19 (reference area). Eelpouts were also observed within quadrats Q7 and Q15 in 2022 (Appendix 5C). This is the third year that eelpouts have been observed within the quadrat frames (Q1 in 2021), with identification of the eelpout to species level possible due to one eelpout that came out of the frame during the survey. A Shorthorn Sculpin (*Myoxocephalus scorpius*) was observed on top of the settlement substrate (Chapter 8.0) buoy (Appendix 5B – Photo 22) and an Arctic Sculpin was observed outside of the quadrat at Q9 in the reference area (Appendix 5B – Photo 23). Numerous Fish Doctors were observed coming out of the settlement baskets near the quadrat frames during retrieval (Appendix 5B – Photo 24).

Additionally, nudibranchs and eggs were observed on the chains anchoring the settlement plates, as well as the plates themselves, above the quadrats at Q7, Q8, Q9, Q10, and Q18 (Appendix 5B – Photo 25). A large unidentified nudibranch (Order Nudibranchia) was also observed outside of the quadrat at Q9 (Appendix 5B – Photo 26). Barnacles (Order Balanomorpha) and unidentified tunicates (Subphylum Tunicata) were also observed on the settlement substrates suspended above the quadrat at Q7, Q10 (Appendix 5B – Photo 27).

Brittle stars, blunt gaper clams, and a common sunstar (*Crossaster papposus*) (Appendix 5B – Photo 28) were observed in the area surrounding Q12 in the exposure area. Mysid shrimp (Order Mysida) were observed in abundance in the water column at quadrats Q1 and Q13 in the exposure area and Q7 in the reference area and a sea angel was observed above Q17 in the reference area (Appendix 5B – Photo 29).

There were no observations of deceased bivalves, some with blackened siphon ends, as observed within and outside of survey quadrats in both areas in 2022 (WSP 2023).

5.5 Discussion

Substrate type was similar among quadrats and between the exposure and reference areas. Substrate within the quadrats was dominated by soft substrate (silt and sand), consistent with what has been previously documented (Golder 2022; WSP 2023). Statistically significant interannual differences in soft substrate percent cover were attributed to interannual variations in gravel as well as the 2022-deployed quadrats (Q21-Q26), which generally contained higher percentages of coarse substrate in 2022.

Similar macroflora and benthic epifaunal taxa were observed in 2023 as in previous years (2018 to 2022) and indicators (i.e., percent cover, density, and diversity) were variable among quadrats. Variability is expected for this component of the MEEMP, given the dynamic coastal environment of Milne Inlet: factors such as freshwater input, sediment transport processes, and ice scour influence the percent cover/density and distribution of species in any given year. Indicators were not significantly different between exposure and reference area in 2023; however, interannual differences were observed in macroalgae and sessile taxa richness, as well as macroalgae SDI, with increases observed in these indices in 2023 compared to 2022. Additionally, macroalgae percent cover increased significantly within the reference area in 2023 compared to the previous two years. Motile epifauna density decreased compared to previous years in both areas; however, this decrease was driven by motile densities in Q6, which saw very high (outlier) motile densities in 2021 and 2022 but was not surveyed in 2023. When Q6 was excluded from models, reference area motile density increased in 2023 from 2022 densities. There was, in addition, some shift in taxa composition within the broader categories of organism types that may be attributable

to interannual variability. For example, brittle stars and green urchins that were observed at high densities in 2022 and 2021 were rarely observed in 2023; cooler temperatures and shorter open-water period associated with the late ice cover may have resulted in suboptimal conditions for green urchins (Blicher et al. 2007; Filbee-Dexter et al. 2022).

Overall, there was no evidence of project-related effects on substrate, macroflora, or benthic epifauna, demonstrated by similar temporal variation observed among both sampling areas, suggesting regional-level drivers of interannual variation.

5.6 Conclusions and Recommendations

Overall, macrofloral and benthic epifaunal community assemblages were comparable between exposure and reference areas though some indicators varied interannually, likely driven by natural environmental factors (e.g., temperature, salinity, ice scour, ice cover). Monitoring efforts to date revealed no evidence of overarching spatial or temporal trends that might be associated with Project-induced effects from construction or operation activities and Milne Port. Monitoring of macroflora and benthic epifauna assemblages should continue using the same sampling and statistical design.

In 2024, Q16 should be relocated, and a new time series started for that quadrat under a new name (e.g., Q27). Additionally, it is recommended to continue to monitor for opportunistic observations of deceased bivalves (as seen in 2022) and unknown taxa and that samples should be collected, when possible, for analyses and identification.

The power analyses found sufficient power to detect larger changes in substrate, epifauna and macroflora. Given the low statistical power to detect effect sizes that may be of biological relevance, going forward, it is recommended that conclusions are not made based on strict adherence to statistical significance. Instead, effect size, uncertainty, and statistical significance and power should be considered together before ruling out spatial and temporal changes in benthic infauna.

5.7 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.



Niallan O'Brien, BSc, BIT
Marine Biologist



Andrea Locke, PhD
Senior Marine Biologist



Bart DeFreitas, RPBio
Principal Fisheries Biologist

NOB/AL/BD/lih

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499e-r-rev0-70000/1663724-499e-r-rev0-70000-2023 meemp_5.0 substrate macroflora and epifauna_15mar_24.docx

5.8 References

Baffinland (Baffinland Iron Mines Corporation). 2012. Mary River Project – Final Environmental Impact Statement. February 2012.

Baffinland. 2013. Mary River Project – Addendum to the Final Environmental Impact Statement.

Blicher ME, Rysgaard S, Sejr MK (2007) Growth and production of sea urchin Strongylocentrotus droebachiensis in a high-Arctic fjord, and growth along a climatic gradient (64 to 77˚N). Marine Ecology Progress Series 341: 89-102.

Brooks ME, Kristensen K, van Benthem KJ, Magnusson A, Berg CW, Nielsen A, Skaug HJ, Maechler M, Bolker BM. 2017. “glmmTMB Balances Speed and Flexibility Among Packages for Zero-inflated Generalized Linear Mixed Modeling.” The R Journal, 9(2), 378–400. doi:10.32614/RJ-2017-066.

Coad BW and Reist JD, editors. 2018. Marine Fishes of Arctic Canada. Toronto: University of Toronto Press. 632 p.

Environment Canada. 2012. Metal Mining Technical Guidance for Environmental Effects Monitoring. EN14-61/2012E-PDF

Filbee-Dexter K., MacGregor KA, Lavoie C,, Garrido I, Goldsmit J, Castro de la Guardia L, Howland KL, Johnson LE, Konar B, McKindsey CW, Mundy CJ, Schlegel RW, Archambault P (2022) Sea ice and substratum shape extensive kelp forests in the Canadian Arctic. Frontiers in Marine Science 9: 754074. doi:10.3389/fmars.2022.754074

Golder (Golder Associates Ltd.). 2021. Mary River Project 2020 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, ON. Golder Doc. No. 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Golder. 2022. Mary River Project 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, ON. Golder Doc. No. 1663724-349-R-Rev0-44000; 21 October 2022. 1213 p.

Guiry MD, Guiry GM. 2021. AlgaeBase. World-wide electronic publication, National University of Ireland, Galway; [accessed November 2022]. https://www.algaebase.org

Hartig F. 2022. DHARMa: Residual Diagnostics for Hierarchical (Multi-Level / Mixed) Regression Models. R package version 0.4.6, https://CRAN.R-project.org/package=DHARMa.

Krebs CJ. 1999. Ecological Methodology, 2nd ed. Addison Wesly Longman, Menlo Park.

Küpper FC, Peters AF, Shewring DM, Sayer MDJ, Mystikou A, Brown H, Azzopardi E, Dargent O, Strittmatter M, Brennan D, Asensi AO, van West P, Wilce RT. 2016. Arctic Marine Phytobenthos of Northern Baffin Island. Journal of Phycology 52(4):532-49.

Lenth, R. V. 2020. emmeans: Estimated marginal means. R Package. https://cran.r-project.org/web/packages/emmeans/emmeans.pdf

Mecklenburg CW, Stein DL, Sheiko BA, Chernova NW, Mecklenburg TA, Holladay BA. 2007. Russian-American Long-Term Census of the Arctic: Benthic Fishes Trawled in the Chukchi Sea and Bering Strait, August 2004. Northwestern Naturalist 88:168-187.

R Core Team. 2023. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

Simpson E. 1949. Measurement of Diversity. Nature. 163(4148):688.

SEM (Sikumiut Environmental Management Ltd.). 2014.Marine Baseline Studies Biological and Environmental Baseline Surveys Marine Surveys of Milne Inlet 2013. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario.

Wentworth CK. 1922. A scale of grade and class terms for clastic sediments. J. Geol. 30(5): 377-392.

WoRMS (WoRMS Editorial Board). 2021. World Register of Marine Species. Flanders Belgium: Flanders Marine Institute; [accessed November 2022]. http://www.marinespecies.org/index.php

WSP (WSP Canada Inc.). 2023. Mary River Project 2022 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, ON. WSP Doc. No. 1663724-430-R-Rev0-64000; 27 April 2023. 1167 p.

Zuur AF, Ieno EN, Walker NJ, Saveliev AA, Smith GM. 2009. Mixed Effects Models and Extensions in Ecology with R. Springer, New York. xxii + 574 pp. ISBN: 9780387874579.

APPENDIX 5A

DFO's Marine Foreshore Environmental Assessment Procedures

MARINE FORESHORE ENVIRONMENTAL ASSESSMENT PROCEDURE

Marine development projects have the potential to effect fish[1] and fish habitat[2]. Fisheries and Oceans Canada (DFO) is responsible for the protection and management of fish habitats under the authority of the *Fisheries Act* and may request plans, specifications and environmental assessments specific to marine projects where more detailed information is required. Assessments may be necessary for all types of projects, including, but not limited to aquaculture, log handling, industrial port development, marinas, private moorage facilities, marine repair facilities, pipeline or outfall installations, vessel launches or barge ramps, dredging projects and shoreline protection projects (breakwaters and seawalls). Presented below are standardized, transect-based assessment procedures intended to provide DFO with the basic information required to determine the potential effects of a development project on fish habitat.

Assessment Area

For comparative purposes, the assessment area should include both the foreshore site proposed for development as well as the adjacent foreshore. This will provide a context for the project and may provide data about cumulative effects if similar developments already occur on-site. A large scale site plan, preferably an enlargement of the hydrographic chart, with a small scale insert of the general geographic location will serve as a base map of the study area.

Tidal Height and Water Depth Measurements

The lowest normal tide (0.0 m), or chart datum, will be used as the reference point for the measurement of tidal height and water depth. Tidal height is recorded as positive relative to chart datum, while water depth below chart datum will be recorded as a negative value. For example, if the assessment is made when the tide is at 2 m, and observations are taken at a water depth of 6 m, then the depth will be recorded as -4 m. Tidal height will be corrected using the closest secondary port to the reference port found in the Canadian Tide and Current Tables, with further correction made for daylight savings time as required.

Transect Layout

Transects should be established perpendicular to the shoreline at regular intervals both within and adjacent to the proposed or active development area so as to sample representative fish habitat conditions. A preliminary low water reconnaissance or dive survey may be advisable to establish

---

[1] shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals;

[2] shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals;

appropriate boundaries for the assessment. Transects should begin at the highest high water mark (HHWM: distance referenced as Station 0.0 m) and, at a minimum, extend to a depth of -20 m (–30 m if the development has the potential to effect deeper benthic habitats). Though small-scale intertidal projects may only require intertidal transects, care must be taken to ensure that a representative sample is collected across the proposed development area. Procedural manuals are available from DFO if sampling of intertidal clam or benthic invertebrates is required. To ensure complete assessment of marine plants and animals in the photic zone, deeper transects may be necessary, especially to determine the effects of sunken debris or woodwaste accumulations resulting from existing developments. Transects should be spaced approximately 25 m apart, although this interval may vary depending on the width of the site. The number of transects required will depend on the nature of the foreshore development proposed, anticipated effects of the development, and local site conditions (tides and currents, geography, fetch, geology, etc.). Transects should be individually numbered and indicated on the site plan, and their commencement point referenced to benchmarks, where possible.

Recording Observations

Habitat inventories should be conducted during the more productive spring and summer months. At that time, algae and saltmarsh species are more readily identifiable, enabling a better assessment of the productive capacity of the site.

Observations should be recorded every 5 m along the transect or at significant changes in habitat type. Observations should include substrate type and composition, presence and relative abundance of marine animals and plants, and any other notable features (e.g., debris accumulations) using the following format:

Substrate

Substrate types are to be subdivided into the following size class categories:

- Bedrock
- Boulder (>256 mm diameter)
- Cobble (64-256 mm diameter)
- Gravel (2-64 mm diameter)
- Sand (0.0625-2 mm diameter)
- Silt/Mud/Clay (<0.0625 mm diameter)

Substrate types are recorded cumulatively as percentages out of a total of 100% (e.g., Boulder 5%; Cobble 15%; Gravel 60%, Sand 20%)

Marine Plants

Marine plants include rooted vascular vegetation (e.g., eelgrass, saltmarsh vegetation, etc.) and marine algae (e.g., rockweed, kelp, etc.). Marine plant observations are recorded as percent areal coverage estimated per 5 m × 1 m transect segment. Observations can be recorded as percentages (5%, 10%, 15%, etc.) or by utilizing the following areal coverage classes:

+	<5%
1	5-25%
2	>25-50%
3	>50-75%
4	>75-100%

Sessile Animals

Many marine animals permanently attached to substrates function as important fish habitat (e.g., barnacles, bay mussels, etc.). Sessile animals are recorded as percent areal coverage along the transect line using either estimated percentages or by areal coverage classes, as presented above.

Motile Animals

Motile animals include fish and marine invertebrates such as crabs and snails. These can be individually counted along the transect or, where too numerous, their estimated numbers can be recorded. Population estimates will most likely be applied to species such as herring or mysid shrimp that naturally occur in large numbers.

Other Features

Accumulations of wood bark and debris, sunken logs or other waste materials arising from onsite or nearby development activities should also be recorded. For wood bark and related small size debris, observations are recorded as percent areal coverage estimates per 5 m × 1 m transect segment and estimated deposition depth (e.g., 15% / 10 cm). For larger materials (sunken logs, wood chunks, etc.), observations can be recorded by individual piece count or by estimate of percent areal coverage.

Observations should be correlated to the transect distance from the HHWM and (corrected) tidal height or water depth (e.g., Sta. 0+80 m / +4.5 m), with information compiled in tabular form, by transect. Common names of observed animals and plants are acceptable for the data table; a species list with scientific names should, however, be appended to the report.

General marine plant categories (e.g., rockweed, eelgrass, bull kelp, saltmarsh, etc.) and any other notable features should be sketched to scale directly on a copy of the site plan, drawings or photographs of the site. A site profile should be prepared for each transect showing the slope of the foreshore and the location of indicator marine plants or invertebrates. A sketch of the proposed marine development should be superimposed over the site plan so that any potential effect of the project on fish habitat is clear. Compensatory habitat proposed for offsetting altered habitat should also be sketched on site maps and profiles to enable review of the positioning of replacement habitat relative to the project.

Photographic Documentation

It is essential to produce a photographic record along the intertidal and subtidal transects. A videographic record of subtidal transects is also recommended. Photos and videos provide a real-time record of characteristic fish habitat at the proposed site and can be invaluable to future post-development site monitoring. Photographic records also facilitate comparison of the productivity of natural habitats with any compensatory habitat constructed to offset habitat losses. As visibility may be a problem, careful attention should be given to appropriate tidal levels, and midday lighting conditions are recommended. Aerial photos, taken at low tide, are often useful to put the site into context with the surrounding area and to verify information provided from other sources.

Assessment reports should include photographs of representative fish habitat types. Depending upon the scope of the proposed foreshore development, an unedited, labelled copy of the assessment video may also be required for the report submission. The video footage should be referenced with pertinent information (e.g., time, date, depth, heading, etc.), and a written or recorded interpretation should accompany the video.

Summary of information to be submitted

1. Basemap showing tenure area boundaries, surrounding area, transect locations and sampling stations
2. Shoreline video/photographs of intertidal zone
3. Underwater video/photographs of transects
4. Tabular data for each transect describing substrate type and composition, marine plants, sessile and motile marine animals, and other notable features
5. Habitat map showing location of different substrate types, plants, animals and operational infrastructure
6. Profile diagrams of each transect showing slope, sediment types and the major marine plants or animals observed
7. Photographs of site and aerial photographs if available.

APPENDIX 5B

Photographs

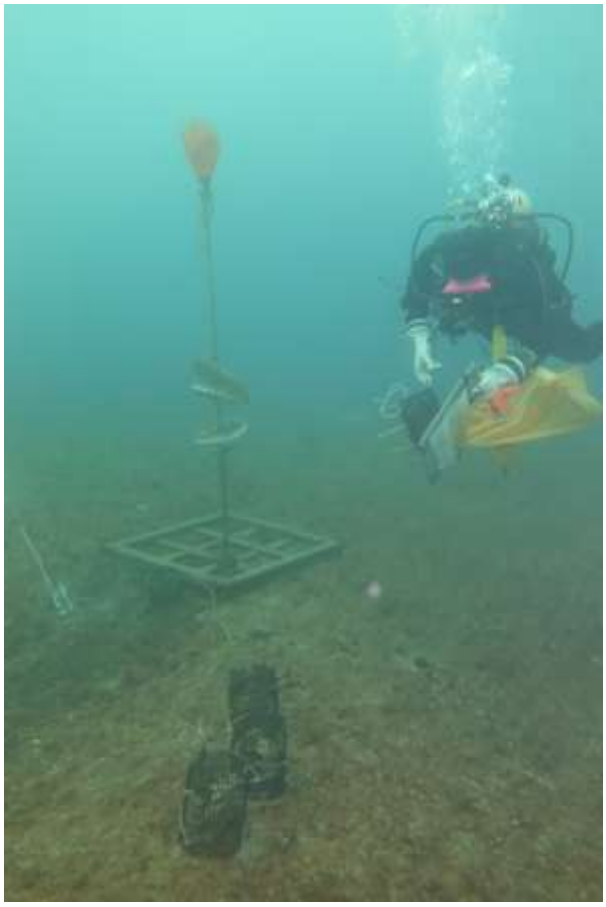


Photo 1: WSP diver surveying Q4 within the exposure area (25 July 2023).



Photo 2: Sugar kelp (*Saccharina latissima*) in Q4 within the exposure area (25 July 2023).



Photo 3: Rockweed (*Fucus distichus*) and green filamentous algae *Chaetomorpha melagonium* in Q8 within the reference area (29 July 2023).



Photo 4: Brown filamentous algae *Pylaiella sp.* (blue arrow), rockweed (*Fucus distichus*; red arrow), green filamentous algae *Chaetomorpha melagonium* (yellow arrow), acid weed (*Desmarestia sp.*; purple arrow), and small sabellid worm sp. 1 (Family Sabellidae) in Q13 within the exposure area (31 July 2023).



Photo 5: Brown filamentous algae *Pylaiella sp.* in Q23 within the exposure area (27 July 2023).



Photo 6: Acid weed (*Desmarestia sp.*) and red foliose algae *Coccotylus truncatus* in Q4 within the exposure area (25 July 2023).



Photo 7: Red filamentous algae *Savoiea arctica* on an Icelandic scallop (*Clamys islandica*) in Q3 within the exposure area (31 July 2023).



Photo 8: Unidentified red branched algae (Phylum Rhodophyta; blue arrow) and a Saddled eelpout *(Lycodes mucosus*) in Q7 within the reference area (29 July 2023).



Photo 9: Nudibranch (*Dendronotus sp.*) collected for laboratory taxonomic identification and wrinkled rock borer clams (*Hiatella arctica*) in Q9 within the reference area (29 July 2023).

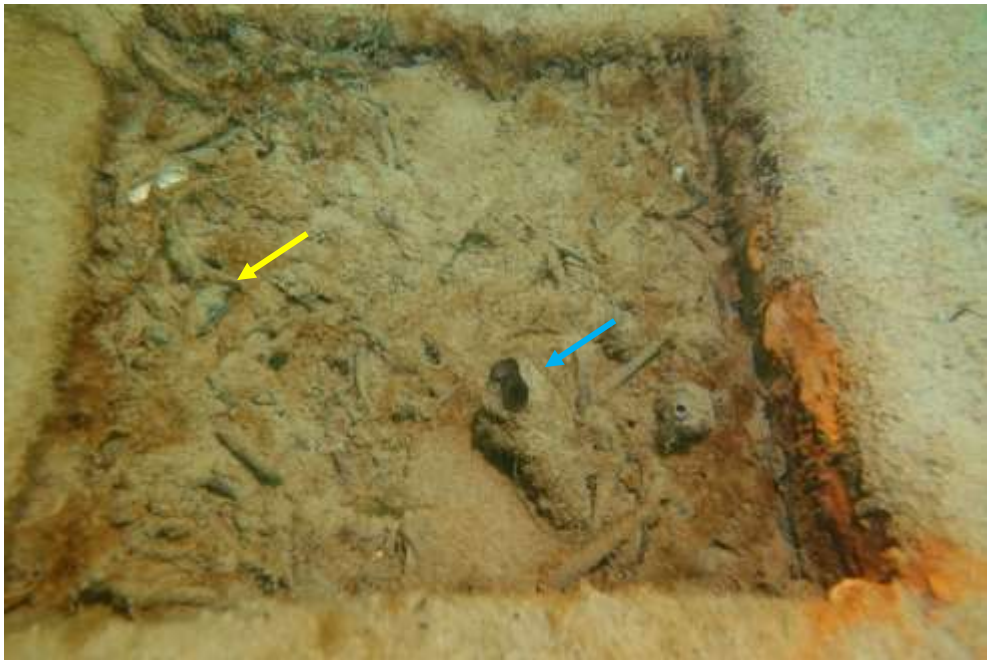


Photo 10: Blunt gaper clam (*Mya truncata*; blue arrow) and a discord mussel (*Musculus discors*; yellow arrow) in Q9 within the reference area (29 July 2023).



Photo 11: Whelk (Family Buccinidae) and cone worm (*Cistenides granulata*) in Q15 within the exposure area (26 July 2023).



Photo 12: Small sabellid worm sp. 1 (Family Sabellidae; blue arrow), large sabellid worm sp. 2 (Family Sabellidae; yellow arrow), and green filamentous algae *Chaetomorpha melagoniumin* in Q4 within the exposure area (25 July 2023).



Photo 13: Shrimp (Superfamily Pandaloidea) in Q20 within the reference area (31 July 2023).



Photo 14: Crangon shrimp (Family Crangonidae) in Q8 within the reference area (29 July 2023).

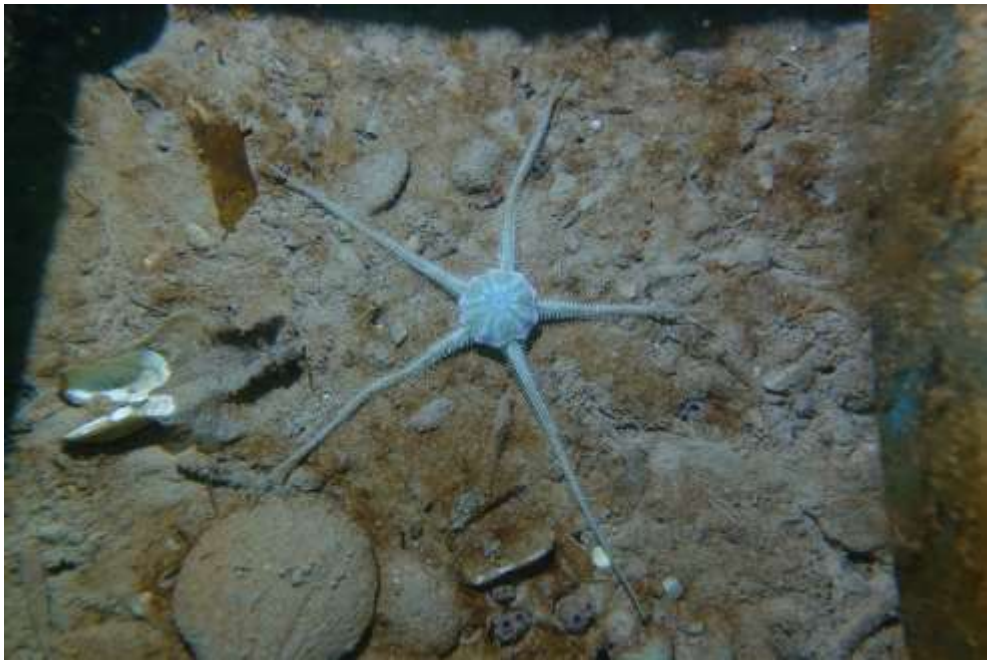


Photo 15: Brittle star (Family Ophiuroidea) in Q3 within the exposure area (31 July 2023).



Photo 16: Green urchin (*Strongylocentrotus droebachiensis*) in Q12 within the exposure area (2 August 2023).



Photo 17: Six-rayed sea star (*Leptasterias sp.*) in Q4 within the exposure area (25 July 2023).



Photo 18: Burrowing anemone (Subclass Ceriantharia; blue arrow) in Q7 within the reference area (29 July 2023).



Photo 19: Juvenile Lumpfish (*Cyclopterus lumpus*) in Q8 within the reference area (29 July 2023).



Photo 20: Opportunistically observed Saddled Eelpout (*Lycodes mucosus*) inside the frame of Q14 within the exposure area (25 July 2023).



Photo 21: Opportunistically observed Saddled Eelpout (*Lycodes mucosus*) coming out of the frame of Q17 within the reference area (29 July 2023).



Photo 22: Opportunistically observed Shorthorn Sculpin (*Myoxocephalus scorpius*) on the settlement substrate buoy above Q9 within the reference area (29 July 2023).

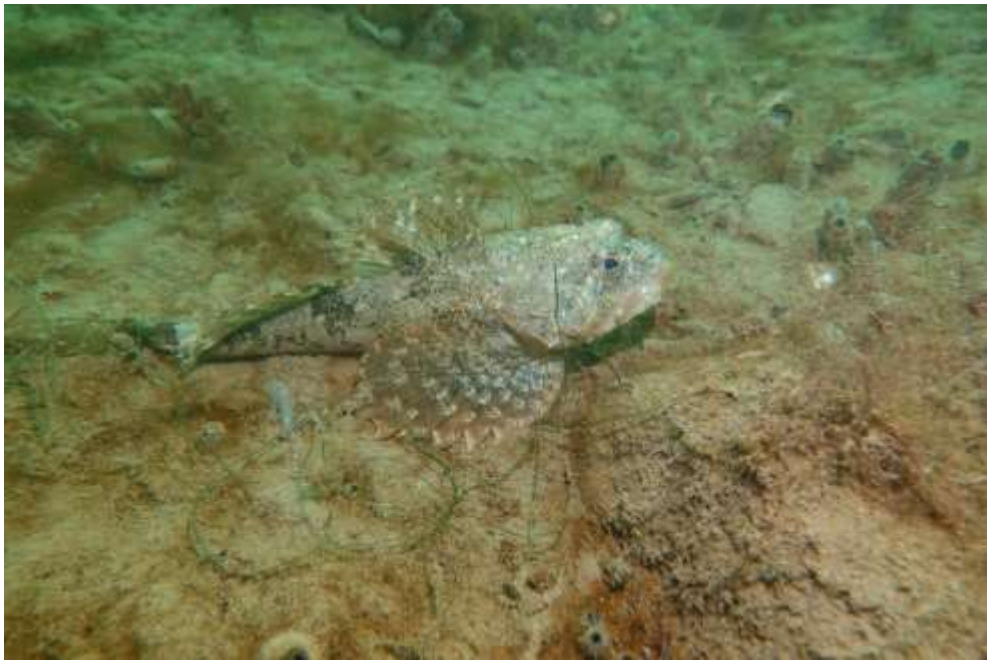


Photo 23: Opportunistically observed Arctic Sculpin (*Myoxocephalus scorpioides*) outside Q9 within the reference area (29 July 2023).



Photo 24: Opportunistically observed Fish Doctor (*Gymnelus viridis*), often observed coming out of settlement baskets, outside Q9 within the reference area (29 July 2023).



Photo 25: Opportunistically observed nudibranch eggs (Order Nudibranchia, potentially from *Dendrotus sp.*) above Q9 within the reference area (29 July 2023).



Photo 26: Opportunistically observed nudibranch (Order Nudibranchia) outside Q9 within the reference area (29 July 2023).



Photo 27: Opportunistically observed tunicates (Subphylum Tunicata) outside of Q7 within the reference area (29 July 2023).



Photo 28: Opportunistically observed common sunstar (*Crossaster papposus*) outside of Q12 within the exposure area (2 August 2023).



Photo 29: Opportunistically observed sea angel (*Clione limacina*) above Q17 within the reference area (29 July 2023).

APPENDIX 5C

Quadrat Survey Data (2021 - 2023)

APPENDIX 5C
Table 1: 2021 Quadrat Survey Data, Milne Inlet

| Quadrat Number | Year of Deployment | Study Area | UTM (17W) Easting (m) | UTM (17W) Northing (m) | Survey Date (DD/MM/YYYY) | Quadrat Multiplier (to standardize to 1 m^2) | Depth (m) Chart Datum | Substrate (% cover) | | | | | | | | Macroalgae (% Cover) | | | | | | | | | | | | | | | | | Invertebrates (Sessile: % cover; Motile: # individuals) | | | | | | | | | | | | | | | | |

APPENDIX 5C
Table 2: 2022 Quadrat Survey Data, Milne Inlet

| Quadrat Number | Year of Deployment | Study Area | UTM (17W) Easting (m) | UTM (17W) Northing (m) | Survey Date (DD/MM/YYYY) | Quadrat Multiplier (to standardize to 1 m^2) | Depth (-m) Chart Datum | Substrate (% cover) | | | | | | | | | Macroalgae (% cover) | | | | | | | | |

APPENDIX 5C
Table 3: 2023 Quadrat Survey Data, Milne Inlet

| | | | | | | | | Substrate (% cover) | | | | | | | | | Macroalgae (% Cover) | | | | | | | | | Invertebrates (Sessile: % cover; Motile: # individuals) | | | | | | | | |

APPENDIX 5D

2023 Taxa List

Taxa Identified During 2023 Quadrat Surveys in Milne Port, NU

Macroflora	
Common Name	**Scientific Name**
Sieve kelp	*Agarum clathratum*
Sugar kelp	*Saccharina latissima*
Acid weed	*Desmarestia sp.*
Rockweed	*Fucus distichus*
Brown filamentous	*Pylaiella sp.*
Green filamentous	*Chaetomorpha melagonium*
Green filamentous	Chlorophyta indet.
Red foliose	*Coccotylus truncatus*
Red filamentous	*Savoiea arctica*
Red filamentous	Rhodophyta indet.
Red branched	
Encrusting coralline	Corallinales indet.

Sessile Epifauna	
Common Name	**Scientific Name**
Barnacle	**Balanomorpha indet.**
Cone worm	*Cistenides granulata*
Small sabellid worm sp. 1	Sabellidae indet.
Large sabellid worm sp. 2	Sabellidae indet.
Burrowing anenome	Ceriantharia indet.
Astarte clam	*Astarte sp.*
Icelandic scallop	*Chlamys islandica*
Wrinkled rock-borer	*Hiatella arctica*
Discord mussel	*Musculus discors*
Blunt gaper	*Mya truncata*
Clam	*Mya sp.*
Mussel	Mytilida indet.
Orange tunicate	*Polycarpa sp.*
Tunicate	**Tunicata indet.**

Motile Epifauna	
Common Name	**Scientific Name**
Amphipod	Amphipoda indet.
Shrimp	Crangonidae indet.
Mysid shrimp	Mysida indet.
Shrimp	Pandaloidea Indet.
Six-rayed sea star	*Leptasterias sp.*
Brittle star	Ophiuroidea indet.
Green urchin	*Strongylocentrotus droebachiensis*
Whelk	Buccinidae indet.
Sea angel	***Clione limacina***
Common sunstar	***Crossaster papposus***
Nudibranch	*Dendronotus sp.*
Black snail	Gastropoda indet.
Limpet	Patellogastropoda indet.
Margarite snail	*Margarites spp.*
Nudibranch	Nudibranchia Indet.

Fishes	
Common Name	**Taxa Name**
Fish Doctor	***Gymnelus hemifasciatus***
Saddled Eelpout	*Lycodes mucosus*
Lumpfish	*Cyclopterus lumpus*
Shorthorn Sculpin	***Myoxocephalus scorpius***
Arctic Sculpin	*Myoxocephalus scorpioides*
Sculpin	Cottidae indet.

Note: taxa in **Bold** indicate opportunistic sighting taxa only, not taxa that was observed within the permanent quadrats.

APPENDIX 5E

Power Analysis

POWER ANALYSIS - METHODS

A Type I error is concluding there is a significant effect when none exists (i.e., a false positive). Alpha (α) is the probability of committing a Type I error. A Type II error is the probability of concluding there is no significant effect when there is a real effect of some specified magnitude (i.e., a false negative). Beta (β) is the probability of committing a Type II error. The power of a statistical test (1 - β) is the probability of detecting a real effect. In this analysis, the Type I error-rate (α), also referred to as the significance level, was set to 0.05. The desired minimum statistical power was 80%, which corresponds to a type II error-rate of 0.2. Power analyses were conducted to assess the power of statistical tests under multiple effect sizes. For each model, a set of effect sizes was created, so that power is assessed at a range of effect sizes. Both negative and positive effect sizes were used, to assess the power of detecting either a reduction or an increase in values of the response variables. Since the analysis focused on assessment of changes to statistical power at different effect sizes, the power analysis used the observed samples sizes from the collected data.

Data Simulation following Effect Size Application

The power to detect statistically significant effects was estimated using residual bootstrapping in R v. 4.3.2 (R 2023), following the approach of Fox and Weisberg (2018). The general approach was to simulate data based on the model selected for interpretation, the observed sample size, and the residuals, and re-run the models that were used for the original analysis using the simulated data. The data simulation and analysis were repeated 2,000 times, and the proportion of repetitions where the *P*-values of interest were significant ($P<0.05$) was interpreted as the statistical power of the test.

To produce simulated data, the original model was used to predict values of the response variable. The predicted values were then adjusted according to the effect size, depending on the analysis (see below for details). The simulated data were then analyzed using the same model structure as the original analysis. Effect sizes and statistical tests were applied differently to different models, as detailed below.

Effect Sizes

In this power analysis, the question of interest was the models' power to detect between-area differences at various effect sizes. To assess the power to detect differences between the reference and exposure areas, given the data collected prior to 2023, the effect size was applied to 2023 data collected at the exposure area only; that is, all other years and all reference area data had an effect size of zero. The effect sizes were calculated relative to the observed values at the reference area in 2023. An example of the effect size application for soft substrate content is provided in Figure 5E-1. The simulated data based on effect sizes applied to values of the response variable from 2023 reference area were combined with simulated data from previous years (with an effect size of zero). This combined dataset was analyzed using the models from the original analysis in the main report.

To estimate the power to detect a difference between reference and exposure areas in 2023, the significance of the interaction between year (as a categorical variable) and area was calculated for each simulation. The proportion of repetitions with *P*-values less than 0.05 was interpreted as the statistical power to detect an effect.

Power Analysis – Reporting of Results

Power curves were produced, showing statistical power as a function of effect size in percentages. Horizontal lines were added to visualize statistical power values of 0.8 (hereafter sufficient power) and 0.9 (hereafter high power), and a vertical line was added to visualize the magnitude of difference that was observed in the original analysis.

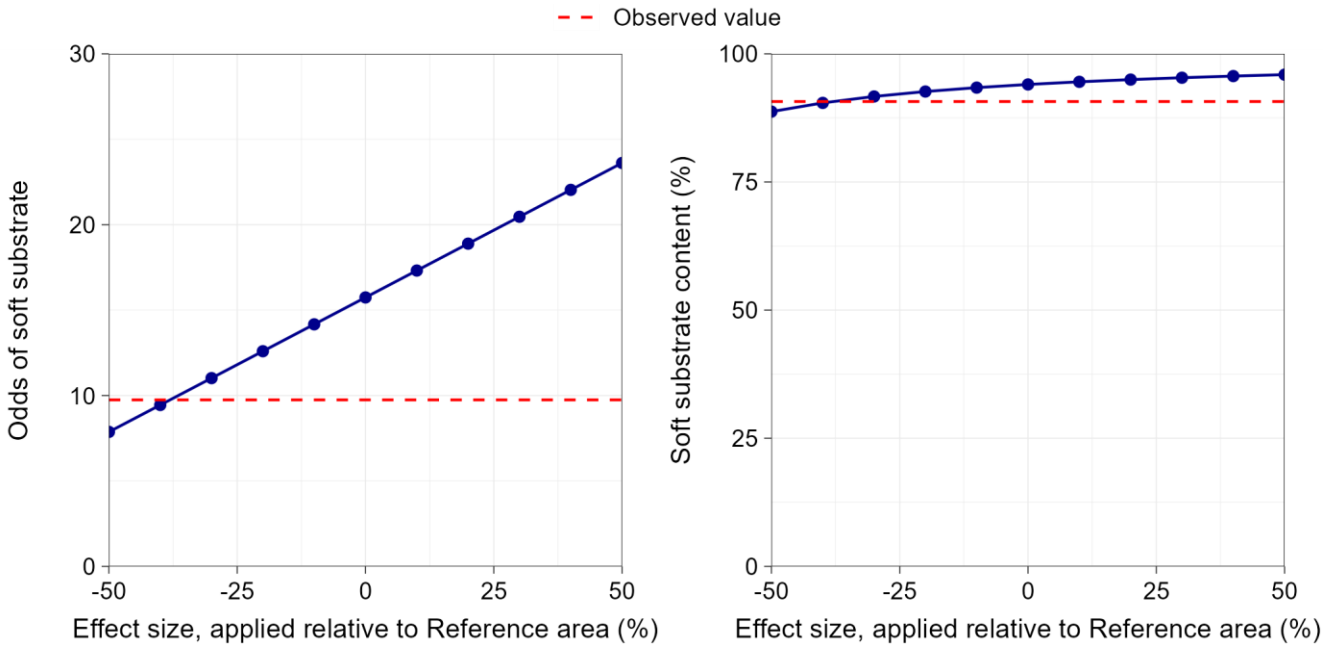


Figure 5E-1: Application of effect sizes to examine effect of area on soft substrate content, illustrating how effect sizes applied on the odds scale (left) are affected by the bounding of soft substrate content by 0% and 100% once effect sizes are expressed on the percent scale (right).

POWER ANALYSIS – RESULTS

Substrate

The analysis of soft substrate content had sufficient power (>0.8) to detect a significant year and area interaction at effect sizes of -50% and +162% Figure 5E-2). That is, when the 2023 exposure area had mean soft substrate content that was 50% lower or 162% higher (on the odds scale) than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was -34%, and statistical power to detect the effect was low (<0.7). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.1 in the 2023 MEEMP main report [WSP 2024]). The model had higher power to detect decreases than increases in soft substrate, due to the high values of soft substrate observed in 2023 (Section 5.4.1 in the 2023 MEEMP main report [WSP 2024]) and the bounding of the variable by 0% and 100% (Figure 5E-2).

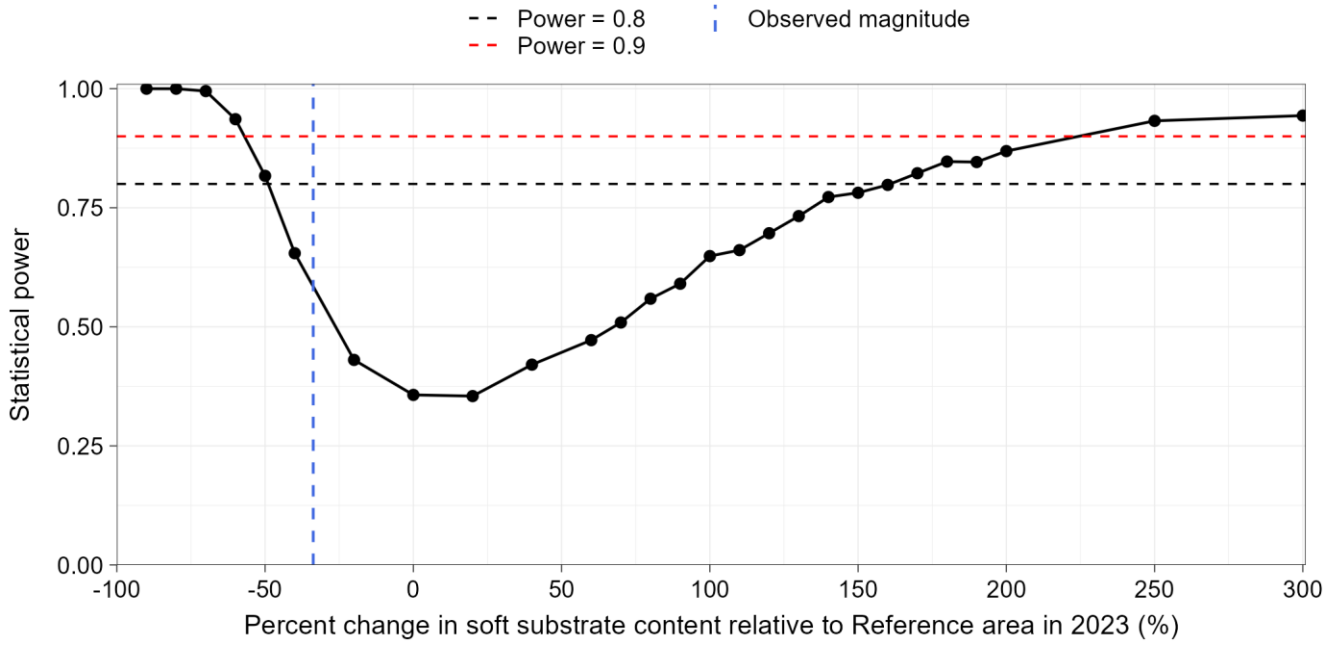


Figure 5E-2: Statistical power of the 2021-2023 soft substrate model to detect a significant interaction between year and area; observed effect size is shown as a vertical line.

Macroflora

The analysis of macroflora percent cover did not have sufficient power to detect a significant interaction at any of the examined effect sizes (Figure 5E-3). The observed effect size in 2023 was -69%, and statistical power to detect the effect was low (<0.3). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.2 in the 2023 MEEMP main report [WSP 2024]). Due to the high variability in percent cover of macroflora, the model had low power to detect both decreases and increases in values relative to the reference area.

The analysis of macroflora species richness had sufficient power (>0.8) to detect a significant year and area interaction at effect sizes of -62% and +102% (Figure 5E-3). That is, when the 2023 exposure area had mean macroflora richness 62% lower or 102% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was -13%, and given this small effect size, statistical power to detect it was low (<0.2). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.2 in the 2023 MEEMP main report [WSP 2024]).

The analysis of macroflora Simpson's Diversity Index had sufficient power (>0.8) to detect a significant year and area interaction at an effect size of +312%, but not at any of the negative effect sizes (Figure 5E-3). That is, when the mean macroflora SDI value in the 2023 exposure area was 312% higher than the 2023 reference area (on the odds scale), the model could detect a significant interaction between year and area. The observed effect size in 2023 was +43%, and statistical power to detect it was low (<0.3). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.2 in the 2023 MEEMP main report [WSP 2024]).

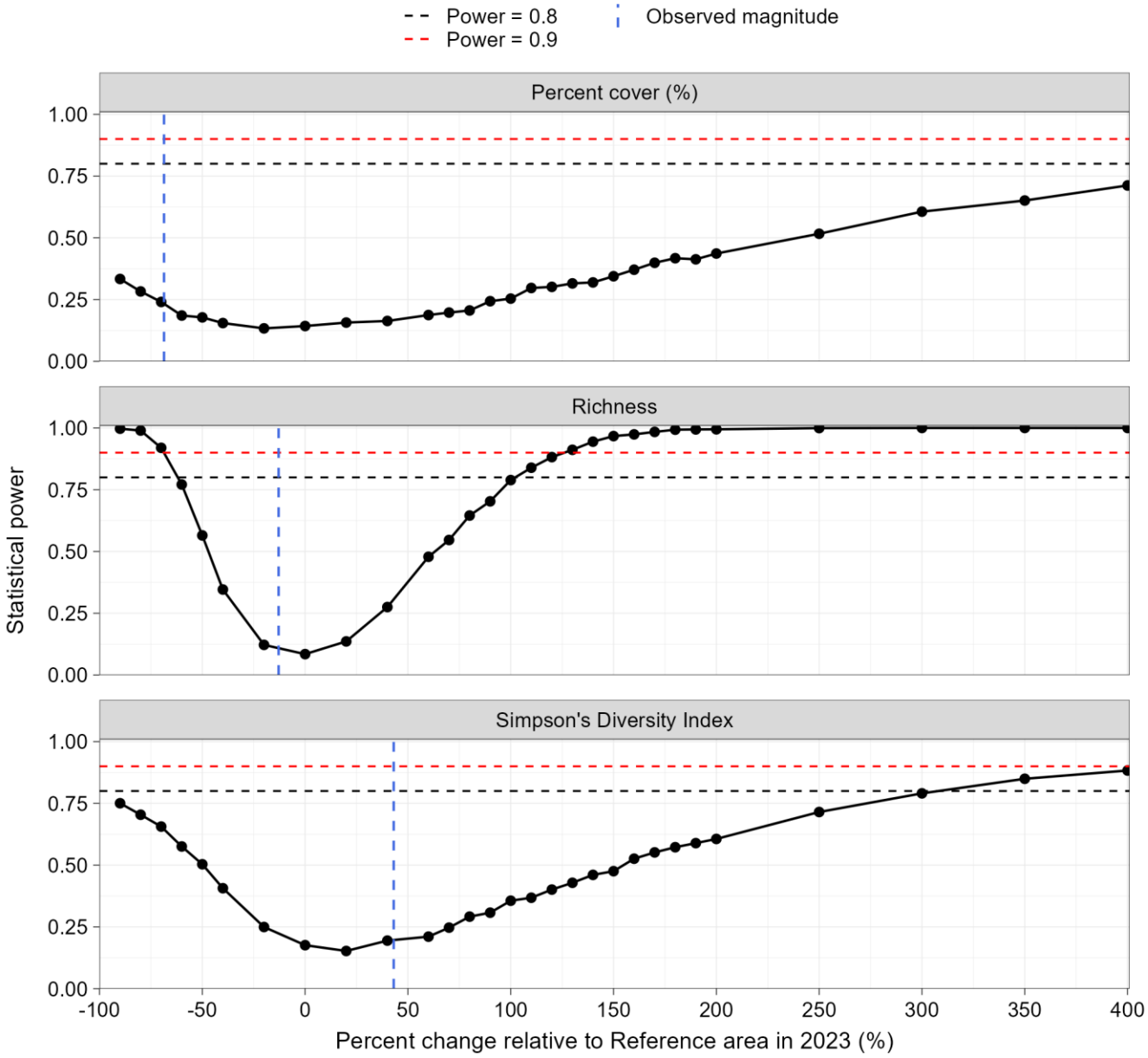


Figure 5E-3: Statistical power of the 2021-2023 macroflora models to detect a significant interaction between year and area; observed effect size is shown as a vertical line for each of the three variables.

Sessile Epifauna

The analysis of sessile epifauna percent cover did not have sufficient power to detect a significant interaction at any of the examined effect sizes (Figure 5E-4). The observed effect size in 2023 was -27%, and statistical power to detect the effect was low (<0.3). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.3.1 in the 2023 MEEMP main report [WSP 2024]). Due to the high variability in percent cover of sessile epifauna, the model had low power to detect both decreases and increases in values relative to the reference area.

The analysis of sessile epifauna richness had sufficient power to detect a significant interaction at effect sizes of -72% and +71% (Figure 5E-4). That is, when the 2023 exposure area had mean sessile epifauna richness 72% lower or 71% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was -12%, and statistical power to detect the effect was low (<0.3). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.3.1 in the 2023 MEEMP main report [WSP 2024]).

The analysis of sessile epifauna Simpson's Diversity Index had sufficient power to detect a significant interaction at an effect size of +213%, but not at any of the examined negative effect sizes (Figure 5E-4). That is, when the 2023 exposure area had mean sessile epifauna SDI that was 213% higher than the 2023 reference area (on the odds scale), the model could detect a significant interaction between year and area. The observed effect size in 2023 was -40%, and statistical power to detect the effect was low (<0.3). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.3.1 in the 2023 MEEMP main report [WSP 2024]).

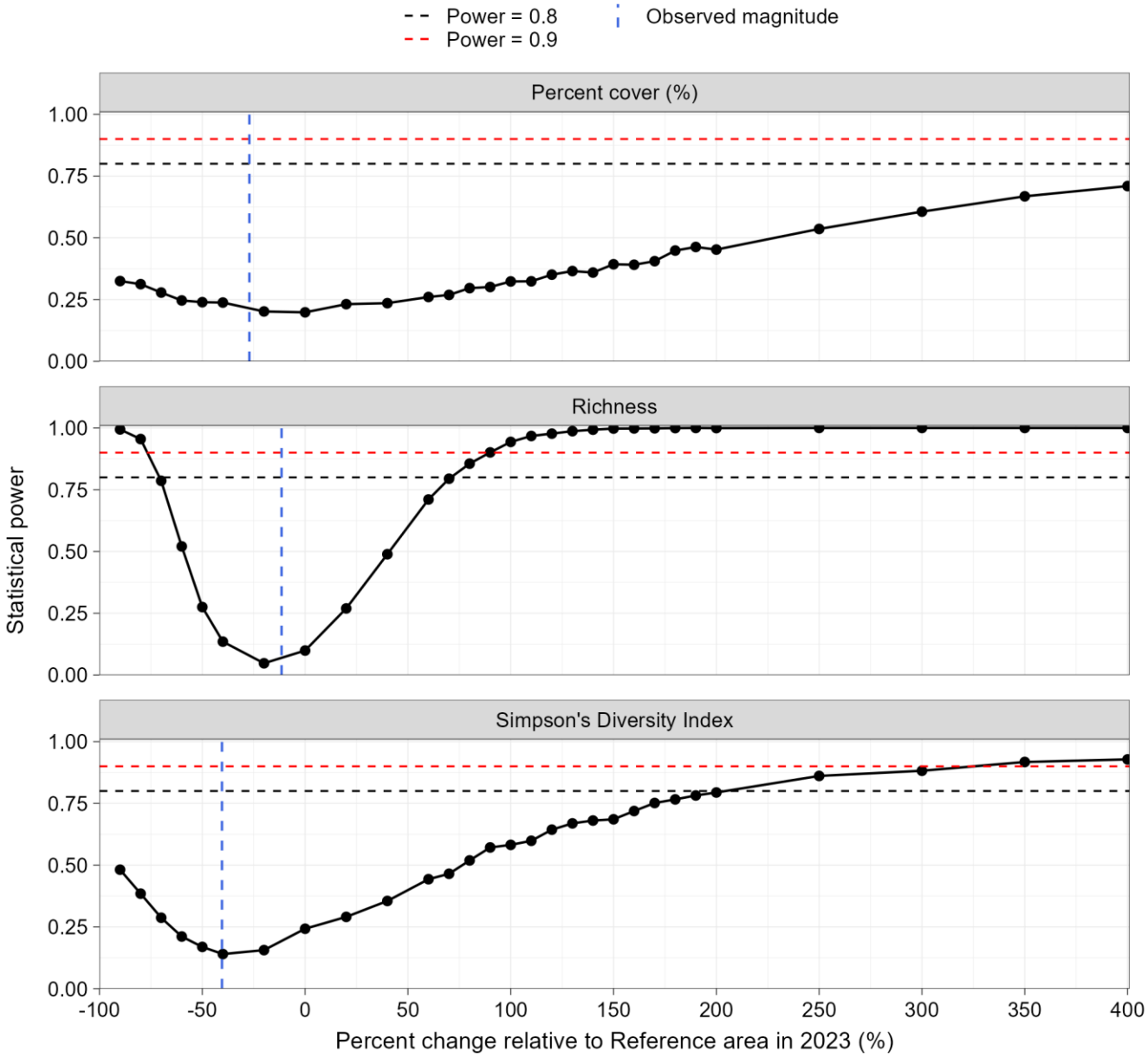


Figure 5E-4: Statistical power of the 2021-2023 sessile epifauna models to detect a significant interaction between year and area; observed effect size is shown as a vertical line for each of the three variables.

Motile Epifauna

The analysis of motile epifauna density had sufficient power to detect a significant interaction at effect sizes <+30% and >+172% (Figure 5E-5). That is, when the 2023 exposure area had mean motile epifauna density that was less than 30% higher or more than 172% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was -16%, and statistical power to detect the effect was high (>0.9). This is consistent with finding a significant interaction in the original analysis (Section 5.4.3.2 in the 2023 MEEMP main report [WSP 2024]). The power to detect an interaction was >0.7 for all examined effect sizes, due to the large difference between reference and exposure in 2022, but not in 2021, which resulted in a high proportion of simulations with a significant interaction between year and area. The estimated statistical power was at its lowest at effect sizes of approximately 60%–120% (Figure 5E-5), since at those effect sizes, the difference between reference and exposure areas in 2023 became similar to the difference between reference and exposure areas in 2022, and the statistical significance of the interaction decreased; instead, the main effect of area was significant more often.

The analysis of motile epifauna richness had sufficient power to detect a significant interaction at an effect size of +220%, but not any of the examined negative effect sizes (Figure 5E-5). That is, when the 2023 exposure area had mean motile epifauna richness that was 220% higher than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was +32%, and statistical power to detect the effect was low (<0.3). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.3.2 in the 2023 MEEMP main report [WSP 2024]). The low power to detect decreases in richness was likely due to the variability associated with the observed data.

The analysis of motile epifauna Simpson's Diversity Index had sufficient power to detect a significant interaction at effect sizes of -88%, but not at any of the examined positive effect sizes (Figure 5E-5). That is, when the 2023 exposure area had mean motile epifauna SDI that was 88% lower (on the odds scale) than the 2023 reference area, the model could detect a significant interaction between year and area. The observed effect size in 2023 was +129%, and statistical power to detect the effect was low (<0.5). This is consistent with the lack of a significant interaction in the original analysis (Section 5.4.3.2 in the 2023 MEEMP main report [WSP 2024]). The low power to detect increases in motile epifauna SDI was likely due to the variability associated with the observed data, as well as with the relatively low value of SDI in the reference area in 2023.

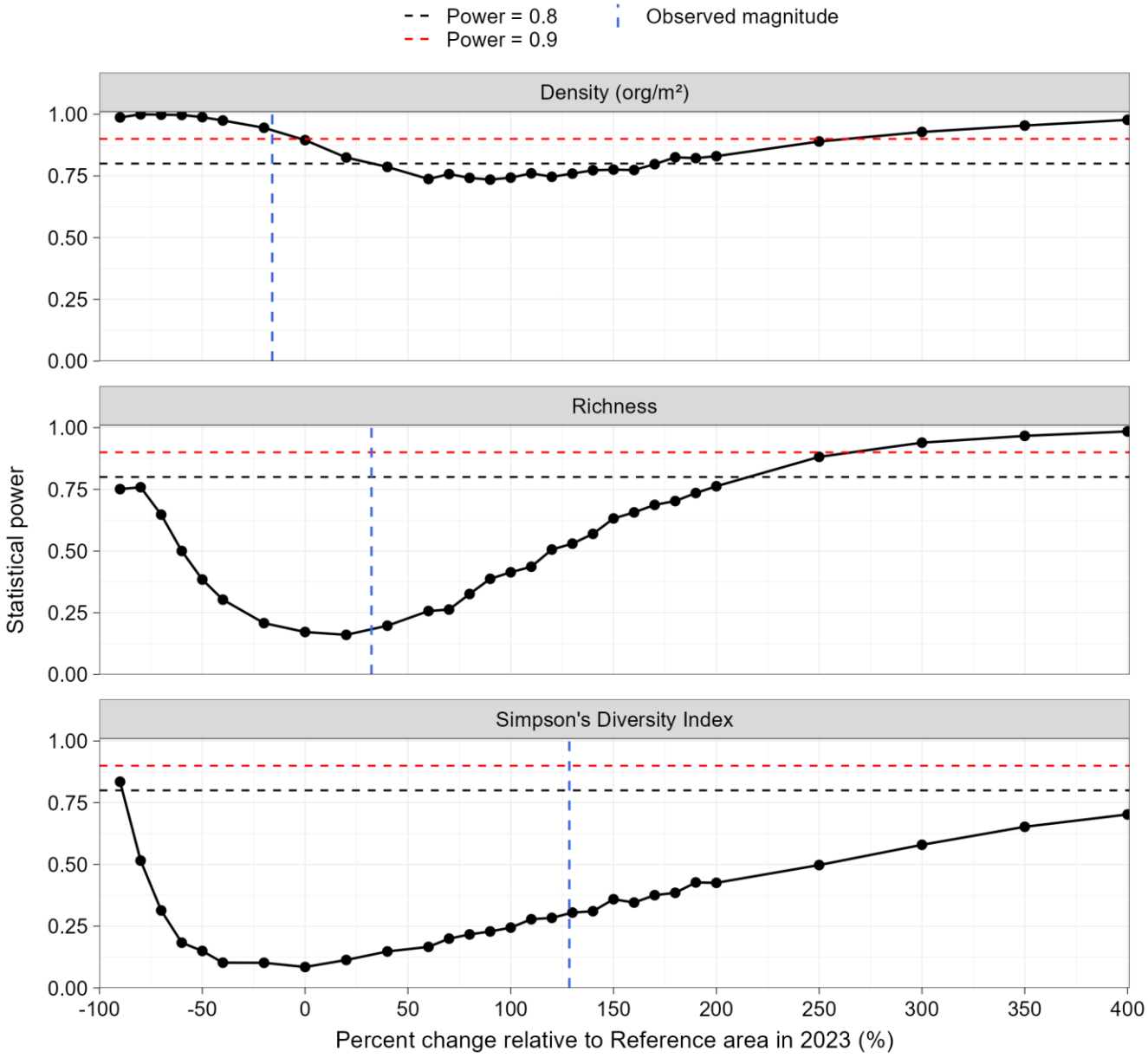


Figure 5E-5: Statistical power of the 2021-2023 motile epifauna models to detect a significant interaction between year and area; observed effect size is shown as a vertical line for each of the three variables.

POWER ANALYSIS – SUMMARY

Summary of Findings

- Substrate
  - Sufficient power to detect a significant year and area interaction in the analysis of soft substrate content at effect sizes of -50% and +162%.
- Macroflora
  - Percent cover: no sufficient power to detect a significant interaction at any of the examined effect sizes
  - Richness: sufficient power (>0.8) to detect a significant year and area interaction at effect sizes of -62% and +102%
  - Simpson's Diversity Index: sufficient power (>0.8) to detect a significant year and area interaction at an effect size of +312%, but not at any of the negative effect sizes
- Sessile epifauna
  - Percent cover: no sufficient power to detect a significant interaction at any of the examined effect sizes
  - Richness: sufficient power to detect a significant interaction at effect sizes of -72% and +71%
  - Simpson's Diversity Index: sufficient power to detect a significant interaction at an effect size +213%, but not at any of the examined negative effect sizes
- Motile epifauna
  - Density: had sufficient power to detect a significant interaction at effect sizes <+30% and >+172
  - Richness: had sufficient power to detect a significant interaction at an effect size of +220%, but not any of the examined negative effect sizes
  - Simpson's Diversity Index: sufficient power to detect a significant interaction at effect sizes of -88%, but not at any of the examined positive effect sizes

Implications of Power Analysis Results

Given the low statistical power to detect effect sizes that may be of biological relevance, going forward, it is recommended that conclusions are not made based on strict adherence to statistical significance. Instead, effect size, uncertainty, and statistical significance and power should be considered together before ruling out spatial and temporal changes in epifauna and macroalgal communities.

References

Fox, J. and Weisberg, S. 2018. Bootstrapping Regression Models in R. An Appendix to An R Companion to Applied Regression – 3rd Edition. https://socialsciences.mcmaster.ca/jfox/Books/Companion/appendices/Appendix-Bootstrapping.pdf.

Golder. 2018. Baffinland Iron Mines Corporation, Mary River Project – Phase 2 Proposal. TSD #22: Ship Wake and Propeller Wash Assessment. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-030-R-Rev3; 13 July 2019. 33 pp + appendices.

Golder. 2021. 2020 Milne Inlet Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program: Mary River Project. Submitted to Baffinland Iron Mines Corporation, Oakville, ON. Golder Associates Ltd. Golder Report Number 1663724-281-R-Rev1-34000; 18 August 2021. 1581 p.

Lenth R.2019. emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.4. https://CRAN.R-project.org/package=emmeans

R Core Team. 2023. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/



wsp.com

REPORT

Chapter 6.0 Marine Fish Community Program

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario
Canada
L6H 6K8

Submitted by:

WSP Canada Inc.

1663724-499f-R-Rev0-70000

15 March 2024

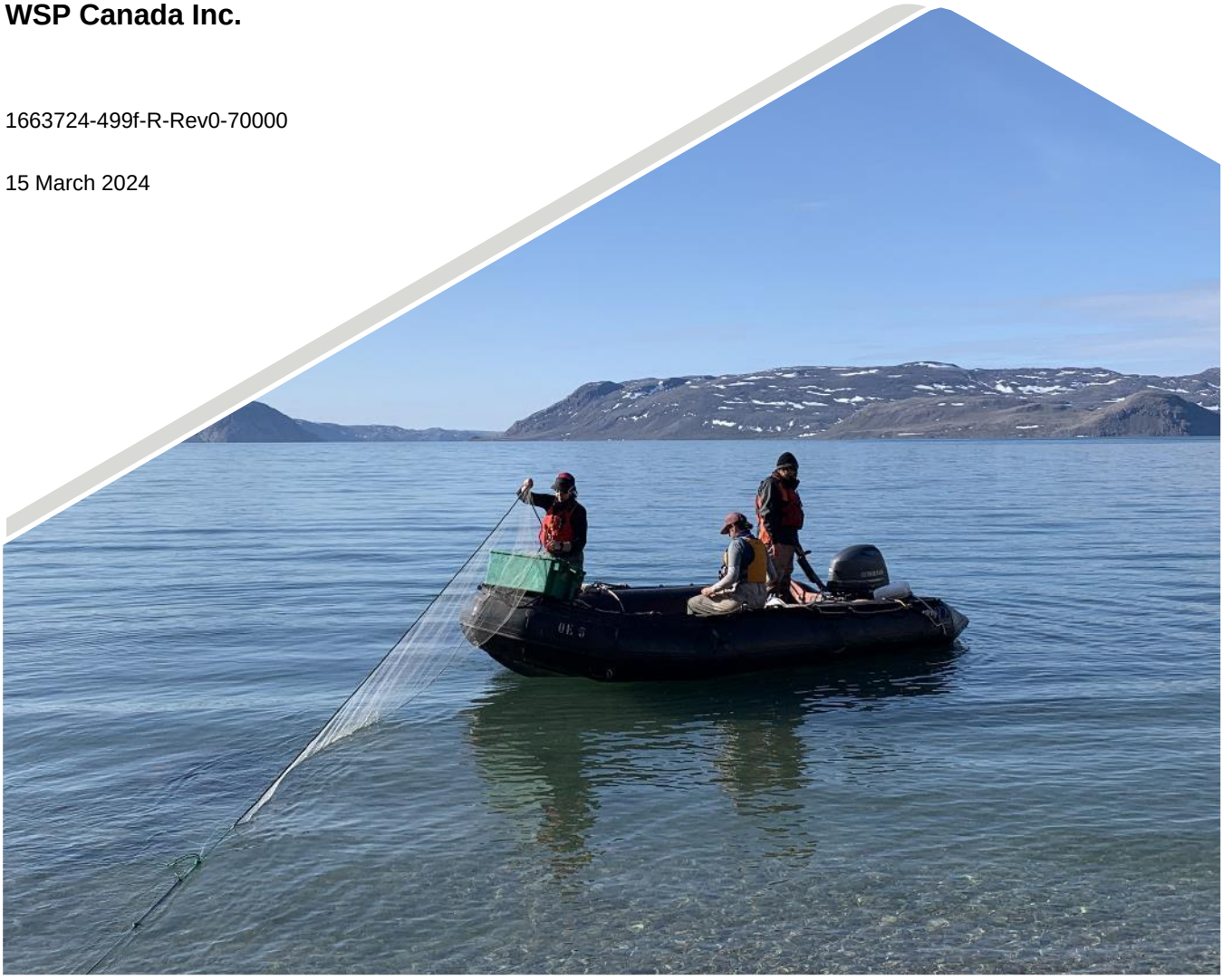


Table of Contents

6.0 MARINE FISH COMMUNITY PROGRAM 1

6.1 Introduction 1

6.2 Objectives 1

6.3 Study Design 1

6.3.1 Modifications to the Program (2023) 3

6.3.2 Endpoints 9

6.4 Materials and Methods 9

6.4.1 Field Methodology 9

6.4.1.1 Permitting 9

6.4.1.2 Fishing Areas 9

6.4.1.3 Fishing Methods 10

6.4.1.3.1 Angling (Jigging and Trolling) 11

6.4.1.3.2 Fukui Traps 11

6.4.1.3.3 Gill Nets 11

6.4.1.3.4 Hoop Nets 12

6.4.1.3.5 Trawling 12

6.4.1.4 Fish Health Reference Site – Exploratory Fishing 13

6.4.2 Data Analysis 13

6.4.3 Field Quality Assurance and Quality Control 14

6.5 Results 15

6.5.1 2023 Summary 15

6.5.2 Interannual Comparisons 17

6.5.2.1 Fish Community 17

6.5.2.2 Catch by Fishing Method 20

6.6 Discussion 31

6.7 Conclusions and Recommendations 32

6.8 Closure 33

6.9 References 34

TABLES

Table 6-1: MEEMP Fish Capture Methods per Year (2010-2023) 2

Table 6-2: Fishing Areas (FAs) of Milne Port 10

Table 6-3: Summary of 2023 Fish Sampling Efforts in Milne Port 10

Table 6-4: Catch Per Unit Effort Units for each Fishing Method 13

Table 6-5: Total Number of Fish Caught by Taxon and Fishing Method (2023) 15

Table 6-6: Total Number of Efforts and Fish Captured by Fishing Method and Fishing Area (Direct Project Footprint [DPF] and Indirect Project Footprint [IDF]) (2023) 16

Table 6-7: Catch Per Unit Effort Summary Statistics (Mean±SD across sites) by Taxon and Fishing Method (2023) 17

Table 6-8: Relative Abundances of Grouped Taxa by Fishing Method and Year (2020-2023) 18

Table 6-9: Taxa Richness by Fishing Method (2020-2023) 20

Table 6-10: Catch Per Unit Effort Summary Statistics by Fishing Area (Direct Project Footprint [DPF], Indirect Project Footprint [IPF]) Fishing Method and Year, All Fish Species Combined 21

Table 6-11: Statistical Significance (*P*-Values) from Analysis of Catch Per Unit Effort relative to Year and Fishing Area, for each Fishing Method (2020-2023), All Fish Species Combined 23

Table 6-12: Grouped Taxa Mean Catch Per Unit Effort by Fishing Method and Fishing Area (2020-2023) 25

FIGURES

Figure 6-1: Angling (Jigging and Trolling) Locations in Milne Port (2023) (ANJ = Angling-Jigging; ANT = Angling-Trolling) 4

Figure 6-2: Fukui Trap Sampling Locations in Milne Port (2023) 5

Figure 6-3: Gill Net Sampling Locations in Milne Port (2023) 6

Figure 6-4: Hoop Net Sampling Locations in Milne Port (2023) 7

Figure 6-5: Trawling Sampling Locations in Milne Port (2023) 8

Figure 6-6: Relative Abundances of Grouped Taxa per Fishing Method and by Year (2020-2023) and Fishing Area (Direct Project Footprint [DPF] and Indirect Project Footprint [IPF]) 19

Figure 6-7: Observed (black points) and modeled estimates (red points and blue error bars) for CPUE of All Fish Species Combined (2020-2023) for A) Angling-Jigging; B) Angling-Trolling; C) Fukui Traps; D) Gill Nets; and E) Hoop Nets. Error bars are 95% confidence intervals. 24

Figure 6-8: Grouped Taxa Mean Catch Per Unit Effort by Fishing Method (2020-2023) 28

Figure 6-9: Observed (black points) and modeled estimates (red points and blue error bars) for CPUE (2020-2023) of A) Fourhorn Sculpin for Angling-Jigging; B) Fourhorn Sculpin for Gill Nets; and C) Arctic Char for Gill Nets. Error bars are 95% confidence intervals. 30

APPENDICES

APPENDIX A
Permits

APPENDIX B
2020 to 2023 Effort Data

APPENDIX C
Photographs

APPENDIX D
Supplementary Figures and Tables

APPENDIX E
Power Analysis

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
CD	Chart datum
cm	Centimeter
CPUE	Catch-Per-Unit-Effort
DFO	Fisheries and Oceans Canada
DPF	Direct Project Footprint
ERP	Early Revenue Phase
FA	Fishing Area
FEIS	Final Environmental Impact Statement
GPS	Global Positioning System
hr	Hour
IPF	Indirect Project Footprint
km	Kilometer
m	Meter
m^2	Square-meter
mm	millimeter
MEEMP	Marine Environmental Effects Monitoring Program
MEWG	Marine Environment Working Group
n	Number of individuals
N	Number of fishing efforts
NIS/AIS	Non-Indigenous Species/Aquatic Invasive Species
No.	Number
NRI	Nunavut Research Institute
p	P-value
PC	Project Certificate
QA/QC	Quality Assurance and Quality Control
QIA	Qikiqtani Inuit Association
SD	Standard Deviation
%	Percent
<	Less than
≤	Less than or equal to
=	Equal to

6.0 MARINE FISH COMMUNITY PROGRAM

6.1 Introduction

This chapter presents the results of the marine fish community program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted in Milne Inlet during the 2023 open-water season. This chapter was developed in consideration of the potential Project-related effects on marine fish and fish habitat as identified in the 2012 Final Environmental Impact Statement (FEIS) and subsequent addenda, as well as monitoring requirements outlined in the Project Certificate (PC) Conditions described in Chapter 1.0, Table 1-2. PC Conditions related to the monitoring of marine fish habitat include PC Conditions No. 99(b)(ii), 99(c), 113, and 114. This chapter complements Chapter 7.0 (Fish Health and Tissue Chemistry), which focuses on the health of the marine fish community in Milne Port, including length-frequency distributions, length-weight relationships, visual assessment of internal and external abnormalities, and tissue chemistry.

6.2 Objectives

The objectives of the MEEMP are outlined in Section 1.3 of Chapter 1.0 (Program Overview). The objectives specific to the marine fish community program component are as follows:

- Characterize the marine fish community at Milne Port in terms of species presence, number of fish caught, and relative abundance.
- Provide species-specific and overall Catch Per Unit Effort (CPUE) for each fishing method for 2023 catch data to better understand the efficacy of fishing methods at Milne Port.
- Compare 2023 catch statistics (total abundance and species composition) to previous years using annual data plots from 2020 to 2023.
- Test for differences in overall CPUE between 2020 to 2023 while accounting for differences in the location and number of sampling locations to better understand trends at Milne Port.

6.3 Study Design

The current study design for fishing reflects feedback from the Marine Environment Working Group (MEWG), while maintaining consistency with the design used during previous monitoring years to facilitate comparisons of results over time. For the period of 2014 to 2017, the study design remained largely unaltered except for the addition of angling (jigging and trolling) and a trial of minnow traps in 2017; from 2014 to 2017, sampling was conducted over a two-week period in August. In 2018, sampling duration was extended to four weeks of the open-water season instead of two weeks to provide greater sampling effort to better understand the fish community. During this extended sampling period, beach seining (“seine net”) was added as a supplemental fishing method (Table 6-1).

In 2019, the sampling duration was extended to five weeks of the open water season to continue to understand and represent the fish community. Hoop net traps (also known as fyke nets) were trialled during the 2019 MEEMP fish sampling program and fully added to the program in 2020 to be trialled for a minimum of three years as a potential replacement method for Fukui traps (Table 6-1). This addition was made following input from the MEWG regarding low capture efficiency in Fukui traps (DFO, QIA; 2018 MEEMP/AIS report comments, M-23042019,

M-21062019). The three-year trial comparing catches of hoop nets and Fukui traps was completed in 2022. It was decided to continue the comparison in 2023 with greater attention to matching fishing effort to ensure that conclusions about the catches of the two techniques were not biased by uneven sample size and soak times.

In 2020, the MEEMP fish sampling program was reduced to three weeks during the open water season (continued in 2021); however, unlike in previous years where fishing was conducted alongside other MEEMP program components over the four- to five-week program, a dedicated fish sampling team was created to increase efficiency and catch opportunities in the limited available open water season. Additionally in 2020, trawling was trialled as a fishing method in Milne Port to improve detection of rarely sampled fish species (i.e., bottom-associated taxa); trawling has been continued since 2021. Changes were also made to angling efforts in 2020 to target specific areas for species of interest (e.g., Arctic Char [*Salvelinus alpinus*] and Fourhorn Sculpin [*Myoxocephalus quadricornis*]) and to better support the objectives of the MEEMP Fish Health program (see Chapter 7.0 Fish Health and Tissue Chemistry). In 2021, longlining was trialled as a fishing method in Milne Port to improve capture efficiency and community detection of deeper benthic species; however, as no fish were caught, the method was discontinued for 2022.

In 2021, a brief reconnaissance survey was undertaken near the Tugaat River estuary to identify a suitable reference area for the fish health and tissue chemistry component of the MEEMP. Exploratory fishing efforts were continued in 2022 in two general locations: southwest of the Tugaat River outflow, approximately 15 km northeast of Milne Port, and on the northern shore of the mouth of Koluktoo Bay, approximately 23 km northeast of Milne Port. Exploratory fishing continued in 2023 at these two locations (reported in Chapter 7.0 – Fish Health and Tissue Chemistry).

In 2022, CPUE calculations were revised for two fishing methods (hoop nets and Fukui traps) to better account for field variability. Previously, CPUE was assessed for these methods as number of fish per 24 hours of effort per trap. For the 2022 and 2023 reports, CPUE metrics were modified to the number of fish per hour of effort per trap. Data from 2020 and 2021 were recalculated with the modified CPUE calculations.

Table 6-1: MEEMP Fish Capture Methods per Year (2010-2023)

Sampling Method	2010	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Angling - Jigging						√	√	√	√	√	√	√
Angling - Trolling						√	√	√	√	√	√	√
Fukui Trap		√	√	√	√	√	√	√	√	√	√	√
Gill Net	√	√	√	√	√	√	√	√	√	√	√	√
Hoop Net								√*	√	√	√	√
Longlining										√*		
Minnow Trap						√*						
Beach Seine Net							√	√	√			
Trawling									√*	√	√	√

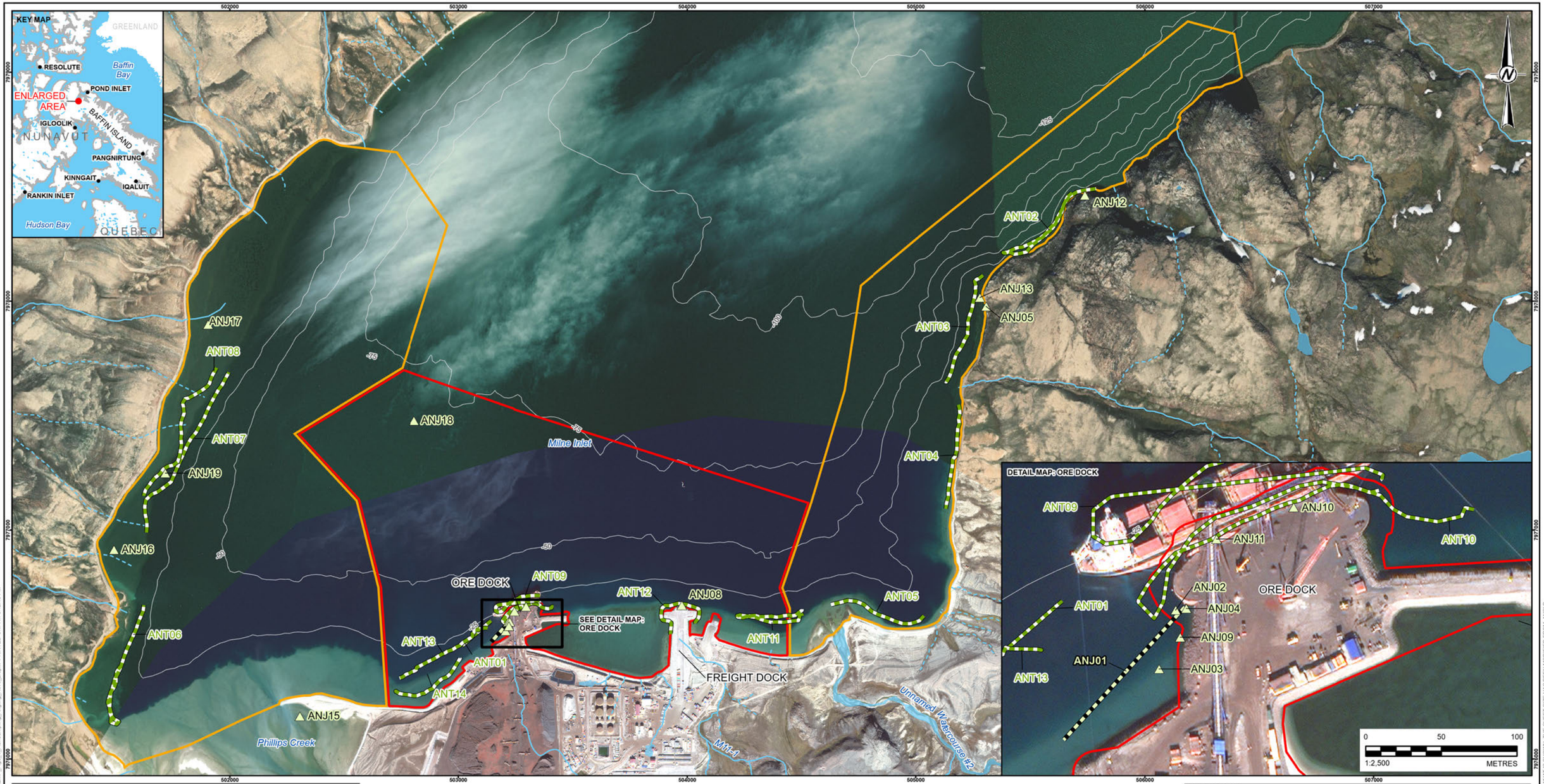
*Limited sampling events to trial the method.

6.3.1 Modifications to the Program (2023)

In 2023, fishing methods were modified by decreasing the number of Fukui traps within sets from three to one. This adjustment aimed to synchronize Fukui trap deployment hours with those of hoop nets, facilitating a more accurate comparison between fish sampling methods and their respective results in the fourth trial year. Increased fishing efforts (e.g., angling (jigging and trolling), Fukui traps, gill nets, and hoop nets) on the western shore near Phillips Creek were conducted in 2023 to further characterize the marine fish community in Milne Port.

Continued exploratory fishing to identify a suitable reference area for the MEEMP fish health sampling program was conducted over three days in 2023 on the northern shore of the mouth of Koluktoo Bay, approximately 23 km northeast of Milne Port. Exploratory fishing results, including locations for the 2023 fish sampling undertaken to identify a favourable reference site, are presented in Chapter 7.0 (Fish Health and Tissue Chemistry).

Figure 6-1 through Figure 6-5 illustrate the 2023 deployment locations for each fishing method and identify the boundaries of the two fishing areas in Milne Port. Figures 1 through 5 in Appendix 6D illustrate the 2020 to 2023 deployment locations for each fishing method.



LEGEND

- 2023 ANGLING (JIGGING) SAMPLING LOCATION
- 2023 ANGLING (JIGGING) SAMPLING LOCATION
- 2023 ANGLING (TROLLING) SAMPLING LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500
1:16,500 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
ANGLING SAMPLE LOCATIONS IN MILNE PORT; MEEMP 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-1

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig6_1_FishSampling_Angling_Rev0_2 авгу. PRINTED ON: AT: 5:12:46 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm



LEGEND

- 2023 FUKUI TRAP DEPLOYMENT LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500

1:10,000 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
FUKUI TRAP DEPLOYMENT LOCATIONS IN MILNE PORT; MEEMP 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig6_2_FishSampling_FukuiTrap_Rev0.apx PRINTED ON: AT: 5:11:33 PM



LEGEND

- 2023 GILLNET DEPLOYMENT LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500

1:12,500 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
GILLNET DEPLOYMENT LOCATIONS IN MILNE PORT; MEEMP 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig6_3_FishSampling_GillNet_Rev0.aprx, PRINTED ON: Fri 5/11/40 PM



LEGEND

- 2023 HOOP NET DEPLOYMENT LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500

1:10,000 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

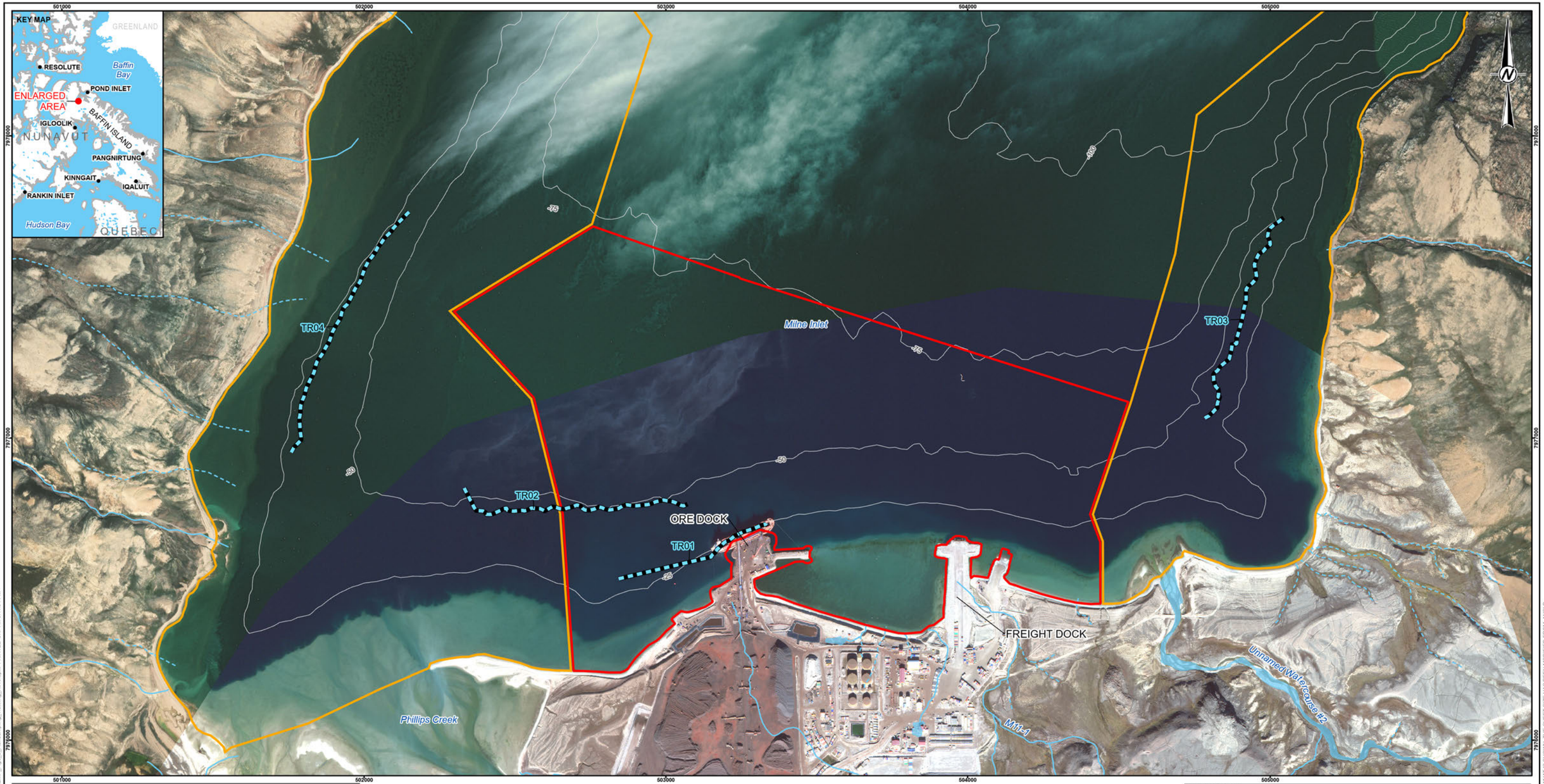
CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
HOOP NET DEPLOYMENT LOCATIONS IN MILNE PORT; MEEMP 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-4

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig6_4_FishSampling_HoopSet_Rev0.aprx PRINTED ON: AT: 5:11:47 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0



LEGEND

- 2023 TRAWLING SAMPLE LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500
1:12,500 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
TRAWLING SAMPLE LOCATIONS IN MILNE PORT; MEEMP 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: I:\2016\166372\4\Mapproj\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig6_5_FishSampling_Trawling_Rev0.aprx PRINTED ON: AT 5:11:54 PM

6.3.2 Endpoints

CPUE is the primary metric used for characterization of the fish catch data, in addition to total number of fish caught, taxa richness, and relative abundance of taxa. Comparison using these metrics is only meaningful within a fishing method and this report does not make statistical comparisons between methods. Statistical comparisons of CPUE data within methods, from 2020 to 2023 and contrasting the two fishing areas (DPF and IPF), were completed for this report. A statistical analysis of CPUE over the course of the entire MEEMP program (2015 to 2023) was not feasible due to the limited sample sizes and inconsistent fishing effort data for sampling events conducted prior to 2020.

6.4 Materials and Methods

6.4.1 Field Methodology

Fish sampling was conducted in the Milne Port area from 28 July to 14 August 2023 using both active (angling [jigging and trolling], gill net, and trawling) and passive (Fukui trap and hoop net) capture methods (Figure 6-1 to Figure 6-5). Fish sampling locations were consistent with those used in previous years, including exploratory reference site sampling in Koluktoo Bay for the fish health program. Fishing effort in 2023 occurred over a three-week period during the open-water season. When possible, fish species were identified in the field and released alive. All fish mortalities were retained and processed as described in Chapter 7.0 (Fish Health and Tissue Chemistry).

6.4.1.1 Permitting

The following scientific data collection permits were obtained prior to the start of the 2023 fish sampling program:

- Fisheries and Oceans Canada (DFO) Licence to Fish for Scientific Purposes Permit # S-23/24-1027-NU-A1
- DFO Animal Use Protocol Permit # OPA-ACC-2023-05
- Nunavut Research Institute (NRI) Scientific Research Licence # 02 012 23R-M

Copies of permits are provided in Appendix 6A.

6.4.1.2 Fishing Areas

Recognizing that the marine fish community may differ across the Milne Port area and differences may or may not stem from potential Project-related effects, two distinct Fishing Areas (FAs) were identified for Milne Port; one encompassing waters directly in or adjacent to the terminal infrastructure footprint (Direct Project Footprint area; DPF) and one encompassing waters outside (west and east) of the terminal infrastructure footprint (Indirect Project Footprint; IPF). The two FAs reflected different exposure levels relative to terminal operations and marine berthing activities. The integration of FAs in the study design provided an opportunity to better characterize variability in Milne Port area fish communities and standardize sampling locations among years. Coverage and effort across the FAs were determined, in part, by the effectiveness of a particular method in characterizing the fish community within an FA, consequently each FA may have included a range of sampling efforts and methods. A description of the FAs is provided in Table 6-2 and their spatial arrangement is shown in Figure 6-1 to Figure 6-5.

Table 6-2: Fishing Areas (FAs) of Milne Port

Fishing Area	Area (ha)	Description
Direct Project Footprint (DPF)	192.14	The Direct Project Footprint FA (DPF) includes the immediate Area of Influence adjacent to Project infrastructure, and includes shoreline in the vicinity of the Ore Dock, Ore Pile, Freight dock, and Fuel Farm. The DPF is also an area of relatively high marine traffic compared to the Indirect Project Footprint (see below). Habitat in the DPF is characterized by mixed (sand/gravel to cobble/boulder)[1] shoreline including coarse rock offsetting habitat along the Ore Dock and Freight Dock. The DPF FA extends 1.38 km from shore at its western boundary, and 0.98 km from shore at its eastern boundary.
Indirect Project Footprint (IPF)	405.64	The Indirect Project Footprint[2] FA (IPF) includes areas along the shorelines to the east and west of the DPF, outside of the immediate Area of Influence. The IPF includes the mouth of Philips Creek, which is characterized by soft substrate (sand and gravel) and brackish water, as well as the shoreline to the east of the DPF, which is also characterized by brackish water due to input from Unnamed Watercourse #2, as well as substrate ranging from soft sand to mixed gravel and cobble. The IPF FA extends 2.63 km from shore at the mouth of Philips Creek at its western boundary, and 2.77 km from the southern shore of Milne Inlet at its western boundary.

[1] See Chapters 3.0 and 5.0 for definitions of substrate size categories.

[2] Note: IPF does not include fishing areas around Tugaat River or Koluktoo Bay. See Chapter 7.0 (Fish Health and Tissue Chemistry) for more information on reference area fish capture results.

6.4.1.3 Fishing Methods

A total of 82 fishing efforts (i.e., sampling events) comprising six methodologies were completed in Milne Port in 2023. A summary of the fishing efforts is presented in Table 6-3 with summaries of each method found in Sections 6.4.1.3.1 to 6.4.1.3.5. Full details for each fishing sampling effort can be found in Appendix 6B.

Table 6-3: Summary of 2023 Fish Sampling Efforts in Milne Port

Fishing Method	Area	Number of Fishing Efforts (N)	Total Effort (hours)
Angling – Jigging	DPF	8	3.6
	IPF	8	4.6
Angling – Trolling	DPF	7	1.7
	IPF	7	2.2
Fukui Trap[1]	DPF	7	388.7
	IPF	7	322.8
Gill Net	DPF	10	26.2
	IPF	10	23.9
Hoop Net	DPF	7	391.7
	IPF	7	328.9
Trawling	DPF	2	0.8
	IPF	2	0.9

[1] Unlike in previous years when sets were comprised of three traps, sets in 2023 were only comprised of one trap each to better align with hoop net deployment hours.

6.4.1.3.1 Angling (Jigging and Trolling)

Angling (jigging and trolling) was conducted between 28 July and 13 August 2023 to characterize the demersal and pelagic fish community in Milne Port (Appendix 6B). Jigging occurred from a stationary position or during vessel movement with two to three rods and lines deployed from the field vessel (Appendix 6C – Photo 1). Hooks or spoon lures were allowed to hit the bottom, then flicked upward to attract bottom fish. For trolling, lines with lures were cast over the side of the field vessel and spooled in towards the vessel to attract pelagic fish (Appendix 6C – Photo 2).

A total of 30 angling events (fishing efforts) were undertaken across the two FAs with 15 events in each FA (Table 6-3; Figure 6-1). The total effort for both angling methods for Milne Port was 33.84 rod-hours. The duration of sampling was activity-dependent, with jigging ranging between 0.53 and 7.00 rod-hours (N=15) and trolling ranging between 0.33 and 1.25 rod-hours (N=15). Start and end coordinates of angling efforts were recorded using a Garmin GPS (global positioning system) and logged in a field notebook.

6.4.1.3.2 Fukui Traps

Fukui traps were used to sample demersal fish in nearshore habitat at Milne Port between 29 July and 14 August 2023 (Appendix 6B). Each Fukui trap event, referred to as a ‘set’, consisted of a single trap measuring 61 cm x 46 cm x 20 cm, with 1.25 cm stretch mesh, and equipped with a bait container. Since 2019, Fukui traps have been deployed using the ‘sinker’ method described in Bergshoeff et al. (2019), following a recommendation made by the MEWG (QIA; 2018 MEEMP/AIS report comments; M-23042019; M-21062019). Traps were baited with Arctic Char (accidental mortalities, see Chapter 7.0 Fish Health and Tissue Chemistry for details) prior to being deployed for two to three days at each station. Traps were checked every 1-2 days and bait containers were refilled, if necessary, prior to redeployment. Fishing locations and depths were recorded using a Garmin GPS and Hummingbird depth sounder and logged in a field notebook.

A total of 14 Fukui trap sampling events were undertaken with seven sets in each of the FAs (Table 6-3; Figure 6-2). Deployment time was calculated by trap-hours (i.e., number of traps deployed multiplied by time deployed) and ranged from 25.47 to 73.00 trap-hours, with a mean deployment time of 50.80 trap-hours. Due to consistently low CPUE in Fukui traps in all years of the program, hoop nets (Section 6.4.1.3.4) were used starting in 2020 to assess their potential as a replacement for Fukui traps. Use of Fukui traps has continued through 2023 to meet existing commitments to the MEWG to continue both methodologies for a minimum of three years to allow for a comparison between fish sampling methods and results.

6.4.1.3.3 Gill Nets

Standardized monofilament gill nets were deployed between 28 July to 13 August 2023 to sample shallow (i.e., subtidal areas to a maximum depth of -15 m CD [chart datum]) for characterization of pelagic fish communities present in the Milne Port area. The gill net sampling events were divided evenly between the two FAs (Table 6-3; Figure 6-3). Each gill net consisted of six panels with each panel measuring 15.2 m in length and 2.4 m in width, with panel mesh sizes (stretch) of 2.5 cm, 3.8 cm, 5.1 cm, 6.4 cm, 7.6 cm, and 10.2 cm. The gill nets were deployed in a shore-perpendicular orientation (smallest mesh size closest to shore) and were either suspended just below the water surface or were weighted to run along the seabed (Appendix 6C – Photo 3). Nets were examined for fish presence at least once every two hours for the duration of deployment (soak duration was at most four hours). Sampling locations were recorded using a Garmin GPS and logged in a field notebook.

A total of ten gill net sets in each of the two FA were performed from 28 July and 13 August 2023 (Appendix 6B). Total soak times ranged from 0.92 hour to 4.92 hours, with an average soak time of 2.51 hours. End times of efforts were recorded as the time when the net is fully out of the water. The planned maximum soak time of gill nets was four hours, but this was exceeded in one case due to large numbers (over 80 fish) captured in one set, requiring extra handling time to extract each fish safely. Total soak time for all gill net sampling combined was 50.12 hours.

6.4.1.3.4 Hoop Nets

Hoop nets were used to sample demersal fish in nearshore habitat at Milne Port between 29 July and 14 August 2023. Sampling was conducted using a single 5 m-long dual-chamber hoop net with 32 mm (stretch) mesh (Appendix 6C – Photo 4). Orientation of the hoop nets varied by deployment type. Shore-based nets were set in the subtidal zone during low tide with the wing panels running from a water depth of +2 m CD to -1 m CD. Nets were checked every 1-2 days after deployment. Shore-based nets were either placed ‘perpendicular’, so the 1 m-diameter mouth was perpendicular to the shore and the 10 m-length wing panels were oriented in a wide V-shape extending towards shore, targeting fish moving through the subtidal, or ‘parallel’, so the 5 m-long body of the net was parallel to shore targeting fish moving in and out of sources of freshwater input. The end of the hoop net wings and body were weighted to lay flat on the seabed, targeting demersal species.

A total of 14 hoop net sampling events (referred to as ‘sets’ consisting of a single net per set) were undertaken with seven sets in each of the two FAs (Table 6-3, Figure 6-4). Fishing locations were recorded using a Garmin GPS and logged in a field notebook. Total sampling effort was 720.58 hours with an average sampling effort per net of 51.5 hours (Appendix 6B).

6.4.1.3.5 Trawling

Trawl sampling, conducted on 2 and 3 August 2023, consisted of towing an otter trawl from a vessel for a set time (between 0.40 and 0.50 hours) and trawl distance (between 530 and 910 m). The otter trawl comprised a cone shaped net composed of a 4.9 m wide diameter mouth held open by two wooden doors on either side of the opening (Appendix 6C – Photo 5). The front section of the net was composed of 38 mm stretched nylon mesh. The rear of the net (cod end) was composed of 32 mm stretched mesh. The otter trawl was deployed from the vessel’s hydraulic A-frame system, with the net towed slowly off the bow while the vessel slowly reversed at a speed of one knot. Once the net reached the seafloor, it was raised slightly (to ~2 to 3 m above bottom) to minimize impacts on the sea floor and to target benthic/demersal fish species. Sampling locations were selected based on water depth and bottom morphology using bathymetric charts. Sample contours ranged from 30 to 52 m in depth. Start and end waypoints for otter trawl sampling were recorded using the onboard navigation system (Raymarine Axiom Hybrid Touch Pro with Navionics+ Bundle) and logged in a field notebook (Appendix 6B).

In 2023, four trawl sampling events were conducted in the Milne Port area, two in each FA (Table 6-3; Figure 6-5).

6.4.1.4 Fish Health Reference Site – Exploratory Fishing

On 1, 8, and 12 August 2023, exploratory fishing was conducted at two sites on the northern edge of Koluktoo Bay to assess area suitability as a potential fish health program reference site, expanding upon exploratory efforts in 2021 and 2022 during which no favourable site was identified. Fishing efforts included gill netting and angling (jigging). Further details of each exploratory site and fishing effort are presented in Chapter 7.0 (Fish Health and Tissue Chemistry).

6.4.2 Data Analysis

Consistent with previous years, figures were prepared for visualization of the fish catch data by sampling method. Descriptive summary statistics (e.g., mean, standard deviation [SD], CPUE) were also used to compare total catch and catch data among common taxa, sampling method and survey year. To remain consistent with the 2020 to 2022 reports, descriptive summary statistics were also provided for length and weight data in Appendix 6D – Tables 1 and 2.

Catch data, specifically CPUE, for each fishing method were reported according to the units in Table 6-4.

Table 6-4: Catch Per Unit Effort Units for each Fishing Method

Fishing Method	Unit	Description
Angling (Jigging/Trolling)	Fish*hr^{-1}*rods^{-1}	Relative to 1 hour of effort and the number of rods
Fukui Trap	Fish*hr^{-1}*traps^{-1}	Relative to 1 hour of deployment and the number of traps
Gill Net	Fish*hr^{-1}*100 m^{-1}	Relative to 1 hour of effort and for the length of the net adjusted via correction factor to 100 m
Hoop Net	Fish/hr	Relative to 1 hour of deployment
Longlining	Fish*hr^{-1}*rods^{-1}	Relative to 1 hour of deployment and the number of hooks per line
Seine Net	Fish/haul area	Relative to total area covered (m^2)
Trawling	Fish/hr	Relative to 1 hour of deployment

As was done in 2022, longlining, seine net, and trawling were excluded from statistical analysis as longlining was conducted only in 2021, seine netting was conducted only in 2020, and trawling in 2020 was limited to a single effort to trial the method. Sample size of trawling efforts was low (1-2 efforts per FA per year) in all years 2021-2023, as the purpose of trawling in this study was to augment the biodiversity of fish captures within the Port area rather than to conduct statistically comparable sampling.

For angling (jigging and trolling), Fukui trap, gill net, and hoop net datasets, trends in CPUE as a function of sampling year and sampling location (i.e., FA) were assessed using a generalized linear model with a negative binomial distribution. The response variable in the model was the number of fish caught, and to account for differences in effort, each model used an offset that depended on the type of sampling effort; for angling (both jigging and trolling), the offset was calculated by multiplying the number of rods by the duration of fishing period. For Fukui traps, the offset was calculated by multiplying the number of traps in each cluster by the duration of trap set. For gill nets, the offset was calculated by multiplying the duration of set period by the gill net correction factor, which standardized fishing to 100 m of net. For hoop nets, the offset was simply the duration of set period. The

models included the main effects of year (as a categorical variable) and sampling location (i.e., FA), as well as the interaction between the two. Trolling was only conducted once in 2021, in the IPF; therefore, this single data point was removed from data analysis, resulting in only 2020 and 2022 data being analysed for the trolling catch dataset.

A significance level (α) of 0.05 was used to interpret results. If the interaction between year and sampling area was significant, or if the interaction was not significant but the main effect of year was significant, multiple comparisons with familywise error corrections were used to assess specific differences between individual sampling years (except for trolling where only two years were available) or between locations within year (for a significant interaction term). If the interaction was not significant but the main effect of location was statistically significant, a multiple comparison was not performed, since there were only two sampling locations, and hence a significant main effect of location indicated a significant difference between the locations. *P*-values <0.05 were considered to indicate significance between groups. Analyses were conducted using R software version 4.3.2 (R Core Team 2023).

Power Analysis

A power analysis was conducted using the 2020 to 2023 data to estimate the sample size needed to detect Project-related change based on levels of observed variability between FAs. The power analysis was conducted to evaluate the number of efforts required to achieve 80% statistical power to detect 20%, 30% and 40% reductions in CPUE in the DPF relative to the IPF in 2023 (for models with a significant interaction between year and area) or in 2023 relative to 2022 (for models without a significant interaction). A full description of the power analysis methodology is provided in Appendix 6E.

6.4.3 Field Quality Assurance and Quality Control

Quality assurance and quality control (QA/QC) measures for quantitative and qualitative data collected during fishing surveys included the following:

- Prior to fishing activities, field team members were briefed on sampling protocols and each individual's role in data collection. Fishing methodologies were standardized to minimize the introduction of sampling error during sample collection.
- Nets and traps were cleaned between efforts and checked for breakages or failures to maintain consistency in efforts. Broken nets and traps were repaired or replaced before being put back into use.
- Field notes were taken during surveys using prepared field sheets to provide a comprehensive data collection process and a consistent record of sampling effort. A second team member reviewed data from field sheets and entered them into a spreadsheet while checking for inconsistencies or missing information. A third team member reviewed the entered data for inconsistencies and completeness.
- Scans of the field datasheets and GPS waypoints were saved to a laptop computer and external hard drive at the end of each workday. Fish were identified to lowest practicable level (species, where possible). Any identification that was questionable in the field was verified using fish field guides. Fish that could not be identified to species level in the field were retained for subsequent identification by Biologica Environmental Services Ltd., an accredited taxonomic laboratory.

6.5 Results

Details of fish catch data from 2020 to 2023 are presented in Appendix 6B and shown in figures in Appendix 6D. Field photographs are presented in Appendix 6C. Supplemental results figures and tables are provided in Appendix 6D, and power analysis to evaluate the number of efforts required to detect reduction in CPUE in the DPF of 20%, 30% and 40% compared to the IPF, with 80% statistical power, is detailed in Appendix 6E.

6.5.1 2023 Summary

A total of 422 fish representing 12 known taxa were recorded in the DPF and IPF from 82 fishing efforts using a combination of methods during the 2023 open water survey season in Milne Port (Table 6-5; Table 6-6). Similar to previous sampling years (SEM 2016, 2017; Golder 2018, 2019, 2020, 2021, 2022), Fourhorn Sculpin (75%; Appendix 6C – Photo 6) and Arctic Char (12% of catch; Appendix 6C – Photo 7) were the two most common fish species captured (all sampling methods combined), comprising 87% of the total catch (all methods combined) in 2023 (Table 6-5). The remaining 13% of the total catch was composed of: Shorthorn Sculpin (*Myoxocephalus scorpius*, 4%; Appendix 6C – Photo 8); Arctic Staghorn Sculpin (*Gymnocanthus tricuspis*, 4%; Appendix 6C – Photo 9); Ribbed Sculpin (*Triglops pingelii*, 2%; Appendix 6C – Photo 10); Pacific Cod (*Gadus macrocephalus*[1], 1%; Appendix 6C – Photo 11); Arctic Alligatorfish (*Aspidophoroides olrikii*, 1%; Appendix 6C – Photo 12); Arctic Sculpin (*Myoxocephalus scorpioides*, <1%; Appendix 6C – Photo 13); Spatulate Sculpin (*Icelus spatula*; <1%; Appendix 6C – Photo 14); and single instances of juvenile Polar Cod (*Boreogadus saida*; <1%), Saddled Eelpout (*Lycodes mucosus*; <1%), and a juvenile cod identified only to genus (*Gadus* sp.; <1%; Appendix 6C – Photo 15; Table 6-5). One species was captured for the first time during fishing efforts in Milne Port: a single Atlantic Spiny Lumpsucker (*Eumicrotremus spinosus*; <1%; Appendix 6C – Photo 16), but was visually detected in Milne Port during the freight dock offsetting habitat surveys in 2021 (Golder 2022).

Table 6-5: Total Number of Fish Caught by Taxon and Fishing Method (2023)

Taxa	Angling - Jigging		Angling - Trolling		Fukui Trap		Gill Net		Hoop Net		Trawling		Total
	DFP	IPF	DPF	IPF	DPF	IPF	DFP	IPF	DFP	IPF	DFP	IPF	
Arctic Alligatorfish	0	0	0	0	0	0	0	0	0	0	1	3	**4**
Arctic Char	1	0	0	0	0	0	33	15	0	0	0	0	**49**
Arctic Sculpin	0	0	0	0	1	0	0	1	0	0	0	0	**2**
Arctic Staghorn Sculpin	0	0	0	0	0	0	0	0	0	0	4	11	**15**
Atlantic Spiny Lumpsucker	0	0	0	0	0	0	0	0	0	0	0	1	**1**
Fourhorn Sculpin	34	16	0	1	0	2	180	43	35	4	0	0	**315**
Pacific Cod[1]	5	1	0	0	0	0	0	0	0	0	0	0	**6**
Polar Cod	0	0	0	0	0	1	0	0	0	0	0	0	**1**
Ribbed Sculpin	0	0	0	0	0	0	0	0	0	0	7	2	**9**
Saddled Eelpout	0	0	0	0	0	0	0	0	0	0	0	1	**1**
Shorthorn Sculpin	5	7	0	2	0	0	1	0	1	0	0	0	**16**
Spatulate Sculpin	0	0	0	0	0	0	0	0	0	0	1	1	**2**
Unidentified Cod	0	0	0	0	0	0	0	0	0	0	0	1	**1**
Total	**45**	**24**	**0**	**3**	**1**	**3**	**214**	**59**	**36**	**4**	**13**	**20**	**422**

[1] Taxonomic nomenclature changes have adopted Greenland Cod under the name Pacific Cod (FishBase 2023; GBIF 2023).

[1] Recent taxonomic changes to the genus *Gadus* have combined species *G. ogac* (Greenland Cod) and *G. macrocephalus* (Pacific or Alaska Cod) under the umbrella term *G. macrocephalus* (FishBase 2023; GBIF 2023). A universal edit has been made to change Greenland cod (*G. ogac*) to Pacific Cod (*G. macrocephalus*).

Unlike in previous years, trawling had the highest taxa diversity of captured fish (six known taxa, not counting the juvenile *Gadus* sp.) but overall low numbers of each taxon (Table 6-5). None of the taxa captured by the trawling were represented in any other sampling method. Jigging and gill nets captured four taxa each, but 72% and 82%, respectively, of the fish recorded were Fourhorn Sculpin. Fukui traps captured three taxa, including a juvenile Polar Cod. Trolling and hoop nets each captured two taxa: Fourhorn and Shorthorn Sculpin (Table 6-5).

As in previous years, gill nets captured higher numbers of fish than any other method in 2023, with 214 fish in the DPF and 59 fish in the IPF (Table 6-6). Hoop nets and trawling methods captured fewer than 60 fish each, with hoop nets having higher total catch within the DPF than IPF but the opposite seen for trawling total catch. Trolling and Fukui traps were the least successful fishing methods utilized in 2023, capturing only three and four fish in total, respectively (Table 6-6).

Table 6-6: Total Number of Efforts and Fish Captured by Fishing Method and Fishing Area (Direct Project Footprint [DPF] and Indirect Project Footprint [IDF]) (2023)

Fishing Method	Number of Efforts		Total Number of Fish Captured	
	DPF	IPF	DPF	IPF
Angling - Jigging	8	8	45	24
Angling - Trolling	7	7	0	3
Fukui Trap	7	7	1	3
Gill Net	10	10	214	59
Hoop Net	7	7	36	4
Trawling	2	2	13	20
Total	**41**	**41**	**309**	**113**

Mean CPUE of the three dominant taxa captured (Arctic Char, Fourhorn Sculpin, and Shorthorn Sculpin) was low for all fishing methods with large variability in CPUE rates (Table 6-7). Of these three species, Fourhorn Sculpin (and Arctic Char, opportunistically) were assessed as indicators of fish health in Milne Inlet (see Chapter 7.0 Fish Health and Tissue Chemistry); examining their catch rates by gear type demonstrated they were most effectively captured using different methods. Arctic Char were most effectively caught by gill nets with a mean CPUE of 0.99±1.39 fish*hr^{-1}*100 m^{-1} (Table 6-7). Jigging also captured a single Arctic Char with a CPUE value of 0.05±0.19 fish*hr^{-1}*rod^{-1} (Table 6-7). Fourhorn Sculpin were most efficiently caught via jigging with a mean CPUE of 1.83±3.49 fish*hr^{-1}*rod^{-1} and via gill nets (mean CPUE = 3.77±5.36 fish*hr^{-1}*100 m^{-1}; Table 6-7). CPUE was low for trolling, Fukui traps, and hoop nets, with mean CPUE <0.20 for all taxa. Trawling captured fish that were not represented in any other fishing method, with CPUE rates of 3.14 ± 6.74 fish/hr for sculpins other than the dominant taxa (largely driven by Arctic Staghorn Sculpin) and 0.38±1.02 fish/hr for non-sculpins (driven by Arctic Alligatorfish; Table 6-7).

Table 6-7: Catch Per Unit Effort Summary Statistics (Mean±SD across sites) by Taxon and Fishing Method (2023)

Taxa[1]	Angling – Jigging (fish*hr^{-1}*rod^{-1})	Angling – Trolling (fish*hr^{-1}*rod^{-1})	Fukui Trap (fish*hr^{-1}*trap^{-1})	Gill Net (fish*hr^{-1}*100m^{-1})	Hoop Net (fish/hr)	Trawling (fish/hr)
Arctic Char	0.05±0.19	0.00±0.00	0.00±0.00	0.99±1.39	0.00±0.00	0.00±0.00
Fourhorn Sculpin	1.83±3.49	0.10±0.36	<0.01±0.01	3.77±5.60	0.06±0.13	0.00±0.00
Pacific Cod	0.27±0.64	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Shorthorn Sculpin	0.35±1.01	0.14±0.53	0.00±0.00	0.01±0.06	<0.01±<0.01	0.00±0.00
Other Sculpins	0.00±0.00	0.00±0.00	<0.01±<0.01	<0.01±0.02	0.00±0.00	15.70±14.57
Other Fish	0.00±0.00	0.00±0.00	<0.01±<0.01	0.00±0.00	0.00±0.00	4.13±5.36
All Fish	**2.50±3.50**	**0.24±0.62**	**0.01±0.01**	**4.78±5.46**	**0.06±0.14**	**19.83±19.04**

[1] Fish taxa were grouped based on relative abundance percentages from 2020 to 2023 catch data. Taxa with abundances <5% were grouped as follows: other sculpin (Arctic Sculpin, Arctic Staghorn Sculpin, Ribbed Sculpin, Spatulate Sculpin) and other fish (Arctic Alligatorfish, Atlantic Spiny Lumpsucker, Polar Cod, Saddled Eelpout, Unidentified Cod). Pacific cod (*G. macrocephalus*) is the new taxonomically accepted name of Greenland Cod (*G. ogac*).

6.5.2 Interannual Comparisons

6.5.2.1 Fish Community

From 2020 to 2023, a total of 2,361 fish were caught within Milne Inlet during open-water surveys (Appendix 6B, Appendix 6D – Tables 3 and 4). The dominant fish taxon caught over the three-year period was Fourhorn Sculpin (55%) followed by Arctic Char (17%) across all methods combined.

Gear-specific relative abundances of fish species across years (2020 to 2023) remained fairly consistent (Table 6-8; Figure 6-6). Angling-jigging predominantly caught Fourhorn Sculpin, Shorthorn Sculpin and Pacific Cod (average relative abundance 2020–2023 = 68%, 15%, and 13%, respectively) while angling-trolling predominantly caught Shorthorn Sculpin and Fourhorn Sculpin (average relative abundance 2020–2023 = 66% and 26%, respectively; Table 6-8; Figure 6-6). Relative abundances of fishes captured by angling-trolling fluctuated among years with the number of efforts and associated catch; between 2020 and 2021 seven efforts were completed with only a single fish caught, while in 2022 seven[2] efforts captured 16 fish, and in 2023 eight efforts captured three fish (Appendix 6B).

Fukui traps caught mainly Fourhorn Sculpin and non-dominant sculpin taxa (e.g., Arctic Sculpin) (average relative abundance 2020–2023 = 42% and 37%, respectively; Table 6-8; Figure 6-6). Fukui trap catches in 2023 were similar to that in 2022 compared to 2020 and 2021 with increased relative abundances of non-dominant fish (e.g., Polar Cod in 2023 and eelpouts in 2022); however, unlike in 2022, no Shorthorn Sculpin or Pacific Cod were captured via Fukui traps (Table 6-8). Hoop nets almost exclusively caught Fourhorn Sculpin (average relative abundance 2020–2023 = 95%; Table 6-8; Figure 6-6).

[2] One angling-jigging effort was erroneously labelled as angling-trolling in the 2022 report. The error has been corrected in the 2023 report.

Gill nets almost exclusively caught Fourhorn Sculpin and Arctic Char (average relative abundance 2020–2023 = 57% and 38% of gill net captures, respectively; Table 6-8; Figure 6-6). In 2023, the relative abundances of Arctic Char and Fourhorn Sculpin were 18% and 82%, respectively (Table 6-8). Longlines, only utilized in 2021, did not catch any fish. Seine nets, only utilized in 2020, mainly captured juvenile unidentified sculpins (61%) and Fourhorn Sculpin (30%; Table 6-8; Figure 6-6). From 2020-2023, trawling consistently caught only non-dominant sculpin species (e.g., Arctic Staghorn Sculpin, Ribbed Sculpin, Spatulate Sculpin, and unidentified sculpins) and several rarely caught fish taxa (e.g., Atlantic Poacher, Atlantic Spiny Lumpsucker, Polar Cod, unidentified cod, and unidentified snailfish; average relative abundance 2020–2023 = 64% and 36%, respectively; Table 6-8; Figure 6-6).

Table 6-8: Relative Abundances of Grouped Taxa by Fishing Method and Year (2020-2023)

Method[1]	Year	Arctic Char	Fourhorn Sculpin	Pacific Cod	Shorthorn Sculpin	Other Sculpin	Other Fish
Angling - Jigging	**2020**	1%	58%	22%	18%	2%	0%
	2021	2%	58%	18%	11%	12%	0%
	2022	0%	84%	3%	13%	0%	0%
	2023	1%	72%	9%	17%	0%	0%
Angling - Trolling	**2020**	0%	0%	0%	100%	0%	0%
	2021	0%	0%	0%	0%	0%	0%
	2022	6%	44%	12%	31%	6%	0%
	2023	0%	33%	0%	67%	0%	0%
Fukui Trap	**2020**	0%	42%	0%	7%	44%	7%
	2021	0%	41%	0%	0%	59%	0%
	2022	0%	36%	9%	18%	18%	18%
	2023	0%	50%	0%	0%	25%	25%
Gill Net	**2020**	47%	42%	0%	7%	4%	0%
	2021	41%	52%	0%	4%	2%	0%
	2022	46%	52%	0%	1%	0%	0%
	2023	18%	82%	0%	0%	0%	0%
Hoop Net	**2020**	1%	87%	4%	4%	5%	0%
	2021	0%	100%	0%	0%	0%	0%
	2022	0%	96%	0%	2%	2%	0%
	2023	0%	98%	0%	2%	0%	0%
Seine Net	**2020**	1%	30%	0%	0%	65%	4%
Trawling	**2020**	0%	0%	0%	0%	21%	79%
	2021	0%	0%	0%	0%	78%	22%
	2022	0%	0%	0%	0%	79%	21%
	2023	0%	0%	0%	0%	79%	21%

Note: Pacific Cod (*G. macrocephalus*) is the new taxonomically accepted name of Greenland Cod (*G. ogac*). Grey highlighting indicated relative abundances >40%. Fish taxa were grouped based on relative abundance percentages from 2020 to 2023 catch data. Taxa with abundances <5% were grouped as follows: other sculpins (Arctic Sculpin, Arctic Staghorn Sculpin, Ribbed Sculpin, Spatulate Sculpin, and unidentified sculpins) and other fishes (Arctic Alligatorfish, Arctic Cod, Atlantic Poacher, Atlantic Spiny Lumpsucker, Fourline Snakeblenny, Halfbarred Pout, Northern Sand Lance, Polar Cod, Saddled Eelpout, unidentified cods, and unidentified snailfish).

[1] Longlining was discontinued in 2022 as no fish were caught during any effort in 2021.

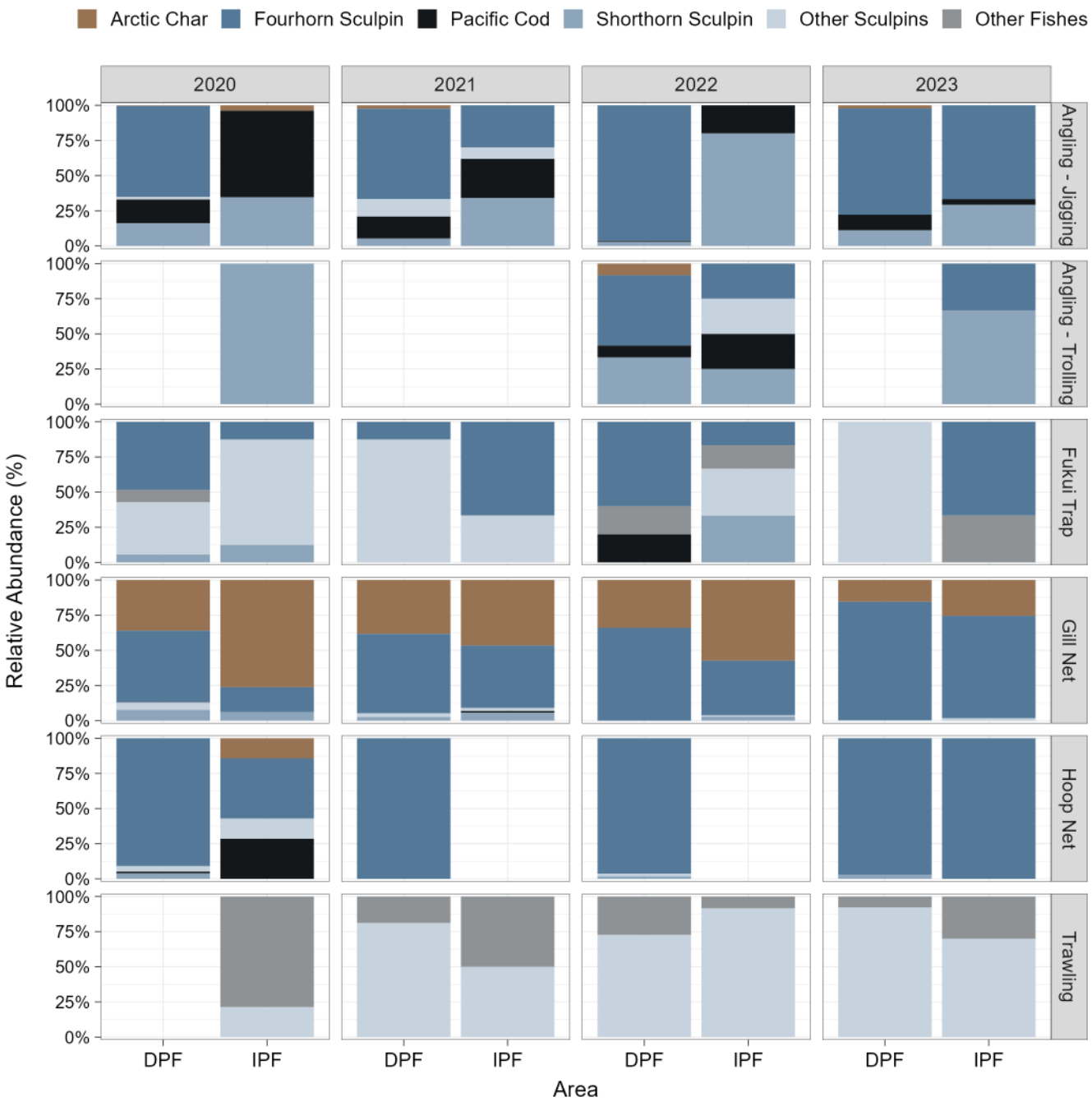


Figure 6-6: Relative Abundances of Grouped Taxa per Fishing Method and by Year (2020-2023) and Fishing Area (Direct Project Footprint [DPF] and Indirect Project Footprint [IPF])

Note: Pacific Cod (*G. macrocephalus*) is the new taxonomically accepted name of Greenland Cod (*G. ogac*). Fish taxa were grouped based on relative abundance percentages from 2020 to 2023 catch data. Taxa with abundances <5% were grouped as follows: other sculpins (Arctic Sculpin, Arctic Staghorn Sculpin, Ribbed Sculpin, Spatulate Sculpin, and unidentified sculpins) and other fishes (Arctic Alligatorfish, Arctic Cod, Atlantic Poacher, Atlantic Spiny Lumpsucker, Fourline Snakeblenny, Halfbarred Pout, Northern Sand Lance, Polar Cod, Saddled Eelpout, unidentified cods, and unidentified snailfish). Seine nets were excluded due to only one year of data (2020) collected.

6.5.2.2 Catch by Fishing Method

Trawling was a major driver in differences in taxa richness between 2020 and 2023; trawling taxa richness increased from three taxa in 2020 to seven taxa in 2021 with an increased number of trawling efforts resulting in catches of previously unrecorded fish in Milne Port (e.g., Atlantic Alligatorfish, Atlantic Poacher, Ribbed Sculpin, Spatulate Sculpin, and unidentified snailfish; Table 6-9; Appendix 6B). Trawling taxa richness decreased to four taxa in 2022, possibly due to fewer trawling efforts and increased efforts to prevent the trawl touching the seabed during deployment in 2022 (Table 6-9); however, taxa richness increased for trawling in 2023, possibly due to more trawling efforts than 2022 while maintaining efforts to prevent the trawl touching the seabed during deployment. While this shallower operation of the net may have allowed some demersal fishes to evade capture, the practice avoided potential environmental impacts of contact between the trawl and the seabed (e.g., disturbance of seabed and benthic biota).

Overall, taxa richness was higher in 2023 compared to all previous years but was only increased by one taxon compared to 2021 and 2022, suggesting that taxa richness had remained effectively stable over the years 2021 through 2023 (Table 6-9; Appendix D – Table 3). There were no strong trends in taxa richness by gear type over time. Taxa richness was one to two taxa lower in 2022 and 2023 relative to 2020 and 2021 for gill nets and jigging but showed no clear trend for other methods. Annual changes in taxa richness may be due to adjustments of sampling effort to achieve a balanced sampling of the two gear types and of two Fishing Areas, increased time devoted to exploratory fishing for a reference site in 2023, and/or interannual variation in catch.

Table 6-9: Taxa Richness by Fishing Method (2020-2023)

Fishing Method	Number of Taxa			
	2020	2021	2022	2023
Angling - Jigging	5	5	3	4
Angling - Trolling	1	0	5	2
Fukui Trap	5	2	6	3
Gill Net	6	5	4	4
Hoop Net	5	1	3	2
Long Line	-	0	-	-
Seine Net	3	-	-	-
Trawling	2	7	4	6
Total	9	11	11	12

Note: Only unique taxa are included – unidentified cods and sculpin were removed as they may be of an identified taxon. Longlining was excluded in 2022 as no fish were caught in 2021. Trolling did not catch fish in 2021. Seine nets were not deployed after 2020.

All Species Catch-Per-Unit-Effort

Mean CPUE of fishing methods was highly variable among fishing areas and years (Table 6-10; Appendix 6D – Figure 6). Mean CPUE of most fishing methods tended to be higher in the DPF compared to the IPF for all years, with the exception of trolling in 2020 and 2023, Fukui traps in all years, gill nets in 2020, and trawling in 2023 (Table 6-10).

Table 6-10: Catch Per Unit Effort Summary Statistics by Fishing Area (Direct Project Footprint [DPF], Indirect Project Footprint [IPF]) Fishing Method and Year, All Fish Species Combined

Method (CPUE Unit)	Year	Area	Sampling Events	CPUE Summary Statistic				
				Mean	Median	SD	Min	Max
Angling – Jigging (fish*hr^{-1}*rod^{-1})	2020	DPF	17	5.52	2.60	5.81	0.00	17.07
		IPF	7	3.02	2.94	1.28	1.07	5.14
	2021	DPF	19	6.60	4.00	7.52	0.75	31.58
		IPF	7	5.45	4.00	5.71	0.00	16.80
	2022	DPF	9	8.92	9.58	8.18	0.00	22.00
		IPF	5	3.63	2.00	4.67	0.00	11.14
	2023	DPF	8	4.04	3.15	4.29	0.00	13.08
		IPF	8	0.96	0.00	1.55	0.00	4.00
Angling – Trolling (fish*hr^{-1}*rod^{-1})	2020	DPF	3	0.00	0.00	0.00	0.00	0.00
		IPF	3	0.24	0.00	0.42	0.00	0.73
	2021	IPF	1	0.00	0.00	0.00	0.00	0.00
	2022	DPF	5	3.63	2.31	5.17	0.00	12.50
		IPF	2	1.74	1.74	0.11	1.67	1.82
	2023	DPF	7	0.00	0.00	0.00	0.00	0.00
		IPF	7	0.48	0.00	0.84	0.00	2.00
Fukui Trap (fish*hr^{-1}*trap^{-1})	2020	DPF	24	0.01	0.00	0.01	0.00	0.03
		IPF	3	0.01	0.00	0.01	0.00	0.03
	2021	DPF	9	0.00	0.00	0.00	0.00	0.01
		IPF	5	0.01	0.01	0.01	0.00	0.01
	2022	DPF	15	0.00	0.00	0.00	0.00	0.01
		IPF	15	0.00	0.00	0.00	0.00	0.01
	2023	DPF	7	0.00	0.00	0.01	0.00	0.01
		IPF	7	0.01	0.00	0.02	0.00	0.04
Gill Net (fish*hr^{-1}*100m^{-1})	2020	DPF	16	3.34	2.98	2.69	0.42	11.57
		IPF	9	7.14	1.70	15.60	0.00	48.49
	2021	DPF	11	5.20	3.55	4.54	0.44	15.06
		IPF	10	2.62	2.31	1.50	0.24	5.03
	2022	DPF	10	3.94	4.00	3.26	0.00	10.49
		IPF	12	3.83	4.16	1.89	0.00	5.90
	2023	DPF	10	6.91	5.72	6.88	0.00	22.27
		IPF	10	2.65	2.80	2.36	0.00	6.97
Hoop Net (fish/hr)	2020	DPF	7	0.12	0.05	0.17	0.00	0.44
		IPF	4	0.01	0.01	0.00	0.01	0.01
	2021	DPF	6	0.03	0.02	0.03	0.00	0.07
		IPF	1	0.00	0.00	-	0.00	0.00
	2022	DPF	6	0.16	0.08	0.20	0.01	0.55
		IPF	3	0.00	0.00	0.00	0.00	0.00
	2023	DPF	7	0.10	0.04	0.18	0.00	0.51
		IPF	7	0.02	0.00	0.06	0.00	0.16

Method (CPUE Unit)	Year	Area	Sampling Events	CPUE Summary Statistic				
				Mean	Median	SD	Min	Max
Longlining (fish*hr^{-1}*hook^{-1})	**2021**	**IPF**	3	0.00	0.00	0.00	0.00	0.00
Seine Net (fish/haul area)	**2020**	**DPF**	16	0.01	0.00	0.01	0.00	0.03
Trawling (fish/hr)	**2020**	**IPF**	1	333.75	333.75	-	333.75	333.75
	2021	**DPF**	1	116.36	116.36	-	116.36	116.36
		IPF	3	4.76	4.29	5.02	0.00	10.00
	2022	**DPF**	1	32.20	32.20	-	32.20	32.20
		IPF	1	25.71	25.71	-	25.71	25.71
	2023	**DPF**	2	16.06	16.06	16.18	4.62	27.50
		IPF	2	23.60	23.60	27.72	4.00	43.20

Overall, CPUE for angling by jigging differed significantly among sampling areas (p=0.012) but did not differ among sampling years (p=0.063) and there was no significant interaction (p=0.529; Table 6-11). Angling by jigging CPUE was higher in the DPF than in the IPF sampling area (effect size = 105%). Mean CPUE in both the DPF and IPF in 2023 was lower than in previous years, although observed differences were not significant (Figure 6-7A; Table 6-10).

In contrast to jigging, CPUE for angling by trolling differed among sampling years (p<0.001) but did not differ among sampling areas (p=0.470; Table 6-11). Interannual differences reflected natural variability with no obvious trends over time. Mean CPUE pooled among sampling areas was highest in 2022 (3.09±4.32 fish*hr^{-1}*rod^{-1}), differing from 2020 (p=0.031, effect size = -93%) and from 2023 (p=0.007, effect size = 637%). Pooled mean CPUE in 2020 was similar to 2023 (p=0.841; effect size = -48%).

Mean CPUE of Fukui traps remained low in 2023 for both fishing areas (≤0.01 fish*hr*trap^{-1}), consistent with mean values from previous years (Figure 6-7D). CPUE did not differ among sampling areas (p=0.336) or sampling years (p=0.079), and there was no significant interaction (p=0.429; Table 6-11).

As observed with angling by jigging, gill net CPUE differed significantly among sampling areas (p=0.003) but did not differ among years (p=0.161), with no significant interaction (p=0.324; Table 6-11). Pooled across sampling years, gill net CPUE was 78% higher in the DPF than in the IPF sampling area. Mean gill net CPUE in the DPF varied among years, whereas mean CPUE in the IPF showed little variation (Figure 6-7E; Table 6-10).

Mean CPUE values of hoop net fishing were consistently below 0.2 fish/hr among all sampling areas and years (Table 6-10; Figure 6-7). As with gill net and angling by jigging methods, CPUE of hoop nets differed significantly among sampling areas (p<0.001) but did not differ among sampling years (p=0.101; Table 6-11). Hoop net CPUE was 1,578% higher in the DPF compared to the IPF across sampling years.

Statistical power was low to detect up to 40% reduction in CPUE in the DPF relative to the IPF in 2023 for analyses where an interaction between year and area was included (angling-jigging, Fukui traps, and gill nets; Appendix 6E). The power to detect a 40% reduction in CPUE in 2023 relative to 2022 was also low for analyses that did not include an interaction in the model structure (angling-trolling and hoop nets). The significant effect of year found for hoop nets (Table 6-11) was due to the observed effect sizes, ranging from -93% to +637%, being considerably larger than the effect sizes assessed in the power analysis.

Trends in trawling CPUE were not evaluated statistically due to low sample sizes (Table 6-10). Trawling exhibited considerable variability in mean CPUE across different years and efforts (Table 6-10). In the DPF, mean CPUE ranged from 16.1 fish/hr in 2023 to 116.0 fish/hr in 2021 (Table 6-10). In the IPF, mean CPUE ranged from 4.76 fish/hr in 2021 to 333.00 fish/hr in 2020. Recently, in 2022 and 2023, CPUE by trawling appeared similar between sampling areas. Observed variability in CPUE of trawling may be attributed to interannual differences in trawling methods among sampling years, including trawling depths and efforts to avoid seabed contact during trawl deployment. The highest CPUE values were generally associated with interceptions of schools of juvenile fishes.

Table 6-11: Statistical Significance (*P*-Values) from Analysis of Catch Per Unit Effort relative to Year and Fishing Area, for each Fishing Method (2020-2023), All Fish Species Combined

Statistical Test	Angling – Jigging	Angling – Trolling	Fukui Trap	Gill Net	Hoop Net
Area	**0.012**	0.470	0.336	**0.003**	**<0.001**
Year	0.063	**<0.001**	0.079	0.161	0.101
Interaction	0.529	-	0.429	0.324	-

Note: Cells highlighted in blue and **bolded** indicate significance levels <0.05. '-' indicates not included in model. Long line, seine net, and trawling were excluded from this comparative analysis as longlines were not used in 2020, seine netting was not conducted in 2021 or 2022, and trawling in 2020 was limited to a single test of methods effort. Full analysis results are presented in Appendix 6D – Table 5.

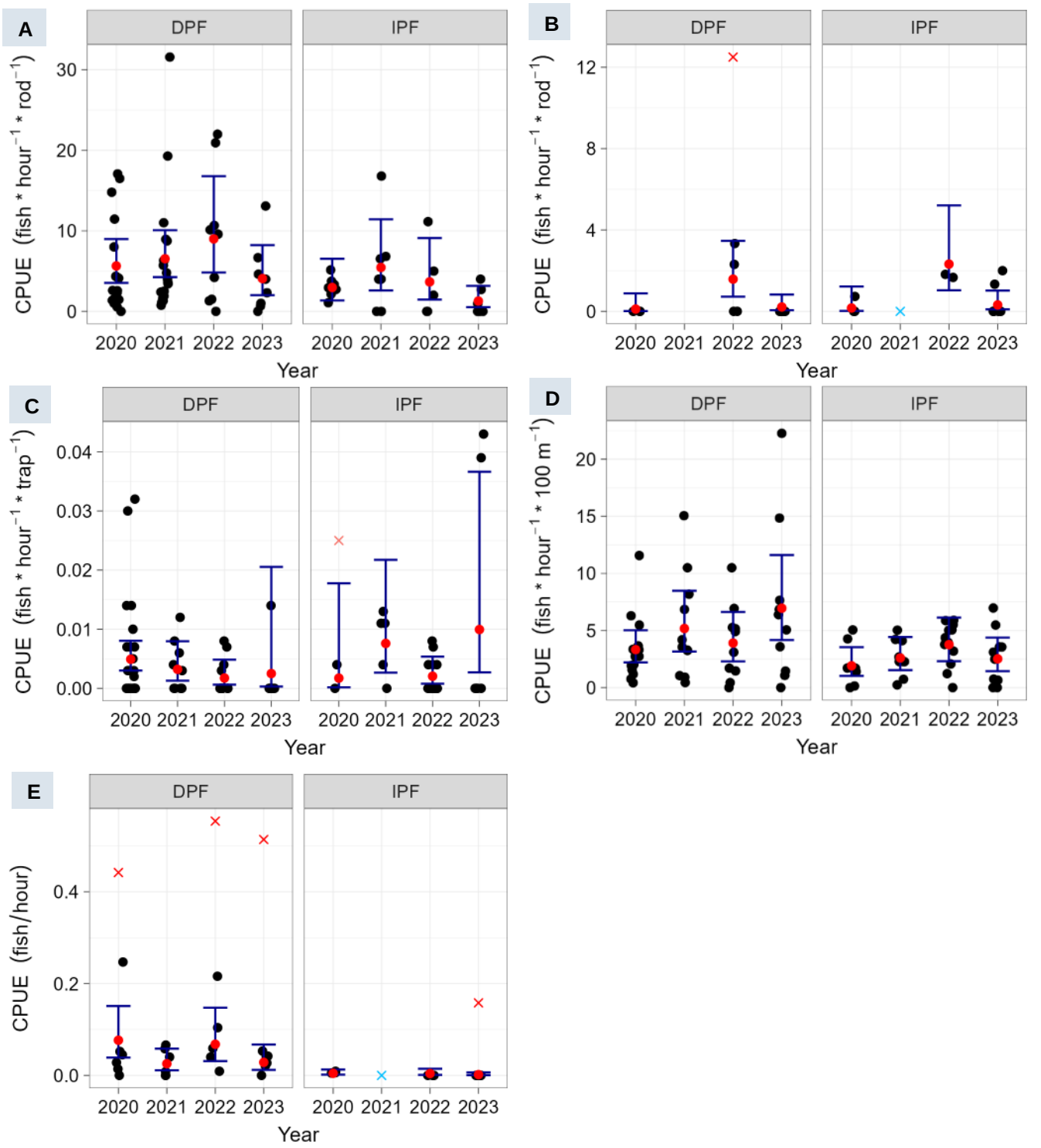


Figure 6-7: Observed (black points) and modeled estimates (red points and blue error bars) for CPUE of All Fish Species Combined (2020-2023) for A) Angling-Jigging; B) Angling-Trolling; C) Fukui Traps; D) Gill Nets; and E) Hoop Nets. Error bars are 95% confidence intervals.

Note: Red crosses = outliers/influential points. Blue crosses = data excluded from analysis.

Grouped Taxa Catch Per Unit Effort

Parallel trends were observed in the average CPUEs of taxonomic groups (specifically, groups with <5% relative abundance in totalled catches from 2020 to 2023 were consolidated). This trend aligned with the variations observed in the relative abundance of catch counts across different fishing methods and areas (Table 6-12; Figure 6-8).

Table 6-12: Grouped Taxa Mean Catch Per Unit Effort by Fishing Method and Fishing Area (2020-2023)

c	Year	Area	Arctic Char	Fourhorn Sculpin	Pacific Cod	Shorthorn Sculpin	Other sculpins	Other fishes
Angling – Jigging (fish*hr^{-1}*rod^{-1})	2020	DPF	0.04	2.62	0.97	1.76	0.13	0.00
		IPF	0.15	0.00	1.26	1.61	0.00	0.00
	2021	DPF	0.18	4.09	1.12	0.39	0.81	0.00
		IPF	0.00	0.95	2.46	1.79	0.25	0.00
	2022	DPF	0.00	8.31	0.12	0.50	0.00	0.00
		IPF	0.00	0.00	0.80	2.83	0.00	0.00
	2023	DPF	0.10	2.95	0.41	0.58	0.00	0.00
		IPF	0.00	0.71	0.12	0.13	0.00	0.00
Angling – Trolling (fish*hr^{-1}*rod^{-1})	2020	DPF	0.00	0.00	0.00	0.00	0.00	0.00
		IPF	0.00	0.00	0.00	0.24	0.00	0.00
	2021	IPF	0.00	0.00	0.00	0.00	0.00	0.00
	2022	DPF	0.23	2.63	0.23	0.53	0.00	0.00
		IPF	0.00	0.42	0.45	0.45	0.42	0.00
	2023	DPF	0.00	0.00	0.00	0.00	0.00	0.00
		IPF	0.00	0.19	0.00	0.29	0.00	0.00
Fukui Trap (fish*hr^{-1}*trap^{-1})	2020	DPF	0.00	<0.01	0.00	0.00	<0.01	0.00
		IPF	0.00	<0.01	0.00	<0.01	0.01	0.00
	2021	DPF	0.00	0.00	0.00	0.00	<0.01	0.00
		IPF	0.00	<0.01	0.00	0.00	<0.01	0.00
	2022	DPF	0.00	<0.01	0.00	0.00	0.00	0.00
		IPF	0.00	<0.01	0.00	<0.01	<0.01	0.00
	2023	DPF	0.00	0.00	0.00	0.00	<0.01	0.00
		IPF	0.00	0.01	0.00	0.00	0.00	0.01
Gill Net (fish*hr^{-1}*100m^{-1})	2020	DPF	1.10	1.82	0.00	0.24	0.17	0.01
		IPF	5.36	1.37	0.00	0.42	0.00	0.00
	2021	DPF	2.13	2.75	0.00	0.20	0.13	0.00
		IPF	1.29	1.13	0.02	0.13	0.05	0.00
	2022	DPF	1.22	2.72	0.00	0.00	0.00	0.00
		IPF	2.08	1.50	0.00	0.20	0.05	0.00
	2023	DPF	1.23	5.66	0.00	0.03	0.00	0.00
		IPF	0.76	1.87	0.00	0.00	0.02	0.00

c	Year	Area	Arctic Char	Fourhorn Sculpin	Pacific Cod	Shorthorn Sculpin	Other sculpins	Other fishes
Hoop Net (fish/hr)	2020	DPF	0.00	0.11	<0.01	0.01	<0.01	0.00
		IPF	<0.01	<0.01	<0.01	0.00	<0.01	0.00
	2021	DPF	0.00	0.03	0.00	0.00	0.00	0.00
		IPF	0.00	0.00	0.00	0.00	0.00	0.00
	2022	DPF	0.00	0.15	0.00	0.01	<0.01	0.00
		IPF	0.00	0.00	0.00	0.00	0.00	0.00
	2023	DPF	0.00	0.10	0.00	<0.01	0.00	0.00
		IPF	0.00	0.02	0.00	0.00	0.00	0.00
Longlining (fish*hr^{-1}*hook^{-1})	2021	IPF	0.00	0.00	0.00	0.00	0.00	0.00
Seine Net (fish/haul area)	2020	DPF	0.00	<0.01	0.00	0.00	0.01	0.00
Trawling (fish/hr)	2020	IPF	0.00	0.00	0.00	0.00	71.25	262.50
	2021	DPF	0.00	0.00	0.00	0.00	94.55	21.82
		IPF	0.00	0.00	0.00	0.00	2.29	2.48
	2022	DPF	0.00	0.00	0.00	0.00	23.41	8.78
		IPF	0.00	0.00	0.00	0.00	23.57	2.14
	2023	DPF	0.00	0.00	0.00	0.00	14.81	1.25
		IPF	0.00	0.00	0.00	0.00	16.60	7.00

Note: Fish taxa were grouped based on relative abundance percentages from 2020 to 2023 catch data. Taxa with abundances <5% were grouped as follows: other sculpins (Arctic, Arctic Staghorn, Ribbed, Spatulate, and unidentified sculpins) and other fishes (Arctic Alligatorfish, Arctic Cod, Atlantic Poacher, Atlantic Spiny Lumpsucker, Fourline Snakeblenny, Halfbarred Pout, Northern Sand Lance, Polar Cod, Saddled Eelpout, unidentified cods, and unidentified snailfish). Pacific Cod (*G. macrocephalus*) is the new taxonomically accepted name of Greenland Cod (*G. ogac*).

Mean CPUE for angling by jigging in 2023 was similar to that of previous years' (Figure 6-8). Fourhorn Sculpin were the dominant fish caught by jigging in the DPF in all sampling years, with mean CPUE values ranging from 2.61 to 8.31 fish*hr^{-1}*rod^{-1} (Table 6-12). In the IPF, fish species abundance varied by year: in 2020 and 2022, Shorthorn Sculpin were dominant (2020: 1.61 fish*hr^{-1}*rod^{-1}; 2022: 2.83 fish*hr^{-1}*rod^{-1}), whereas in 2021, Pacific Cod were dominant (2.46 fish*hr^{-1}*rod^{-1}), and in 2023, Fourhorn Sculpin were dominant (0.71 fish*hr^{-1}*rod^{-1}; Table 6-12).

When evaluated by taxon grouping, mean CPUE for angling by jigging varied by group (Table 6-12). For Fourhorn Sculpin, CPUE varied significantly among both sampling areas and years (p=0.004, respectively; Table 6-13)[3]. Mean Fourhorn Sculpin CPUE in the DPF was 597% higher than in the IPF (p=0.002; Table 6-13). Mean CPUE in 2020 was significantly lower than in all subsequent years across both sampling areas, with mean CPUE differing from 94% to 96% lower when compared to 2023 and 2022, respectively (p=0.003; Table 6-13; Figure 6-9A). Mean CPUE for Pacific Cod and Shorthorn Sculpin captured by jigging varied among sampling areas and years but was not evaluated statistically due to low total catch numbers. Mean CPUE for Pacific Cod was generally higher in the DPF compared to the IPF, with the exception of 2023 (Table 6-12). In contrast, mean CPUE for Shorthorn Sculpin was generally lower in the DPF compared to the IPF, with the exception of 2020 and 2023 (Table 6-12). Mean

[3] In the analysis of Fourhorn Sculpin CPUE, the model for angling-jigging did not include the interaction between area and year due to lack of model convergence.

CPUE values for other taxon groupings captured by jigging were generally low (<1 fish*hr^{-1}*rod^{-1}) for in 2020 and 2021, with none of these fishes captured in 2022 and 2023 (Table 6-12; Figure 6-8).

Mean CPUE values for angling by trolling were generally low (i.e., <0.5 fish*hr^{-1}*rod^{-1}) for all taxon groupings across each sampling area and year, with the exception of Fourhorn Sculpin captured in the DPF in 2022 (mean CPUE: 2.63 fish*hr^{-1}*rod^{-1}; Table 6-12; Figure 6-8). Variation in the CPUE of Fourhorn Sculpin captured by trolling could not be analyzed due to a high frequency of zeroes in the data.

Fukui traps generally had a low success of capturing fish: mean CPUE values were consistently low for all taxon groupings across all sampling areas and years (i.e., <0.01 fish*hr^{-1}*trap^{-1}; Table 6-12; Figure 6-8). As with trolling, CPUE for Fourhorn Sculpin could not be analyzed due to a high frequency of zeroes in the data.

Mean CPUE of gill nets in 2023 was greatest for Fourhorn Sculpin (DPF: 5.66 fish*hr^{-1}*100m^{-1}; IPF: 0.76 fish*hr^{-1}*100m^{-1}) followed by Arctic Char (DPF: 1.23 fish*hr^{-1}*100m^{-1}; IPF: 0.76 fish*hr^{-1}*100m^{-1}; Table 6-12; Figure 6-8). Mean CPUE for Fourhorn Sculpin was consistently higher in the DPF compared to the IPF between 2020 and 2023, with the highest CPUE occurring in 2020 in the IPF and the lowest CPUE in 2023 in the IPF (Table 6-12; Figure 6-8). Arctic Char CPUE varied between sampling areas across years: in the IPF, the highest CPUE occurred in 2023 while the lowest CPUE occurred in 2021 (Table 6-12; Figure 6-8). Mean CPUE values for other taxon groupings captured using gill nets were low (i.e., <0.5 fish*hr^{-1}*100m^{-1}) in all sampling areas across years (Table 6-12; Figure 6-8).

Differences in gill net CPUE for Fourhorn Sculpin and Arctic Char were analyzed statistically (Table 6-13); differences in CPUE for other taxon groupings could not be analyzed due to the high frequency of zeroes in the data. For Fourhorn Sculpin captured using gill nets, CPUE varied significantly among sampling areas and across years (p=<0.001, p=0.008, respectively; Table 6-13). Mean CPUE in the DPF was 219% higher than in the IPF (p=<0.001; Table 6-13) across years. Mean CPUE in 2020 in both sampling area combined was 76% lower than in 2023 (p=0.002; Table 6-13; Figure 6-9B). Statistical power was low to detect up to 40% reduction between 2022 and 2023 for Fourhorn Sculpin (Appendix 6E); the original analysis was able to detect significant effects due to considerably larger observed effect sizes. For Arctic Char, the interaction between year and area was significant (p=0.011; Table 6-13), indicating differences in trends of CPUE between the two areas over time. Pairwise comparisons between sampling areas by year indicated that CPUE differed significantly between sampling areas in 2023 (p=0.006; effect size = 415%) but did not differ in other years. Within the DPF, no significant pairwise differences were observed among years; in contrast, within the IPF, mean CPUE in 2023 was significantly lower than previous years (2020: p=0.012, effect size = 531%; 2021: p=0.024, effect size = 427%; 2022: p=0.001, effect size = 721%; Table 6-13; Figure 6-9C). Statistical power was low to detect up to 40% reduction between the IPF and DPF in 2023 for Arctic Char (Appendix 6E) due to data variability, low CPUE in the IPF, and lack of differences between areas in preceding years. The significant interaction for Arctic Char gill net data and the significant effects of year for Fourhorn Sculpin jigging and gill net data (Table 6-13) was due to the observed effect sizes, ranging from +73% to +597%, being considerably larger than the effect sizes assessed in the power analysis.

Mean CPUE using hoop nets in 2023 was similar to mean values in previous years (Table 6-12). Overall, mean CPUE was greater in the DPF compared with the IPF; Fourhorn Sculpin were most frequently caught by hoop nets, compared with other taxon groupings (Table 6-12; Figure 6-8). For other taxon groups, mean CPUE values were low (i.e., <0.1 fish/hr) among sampling areas and years (Table 6-12; Figure 6-8).

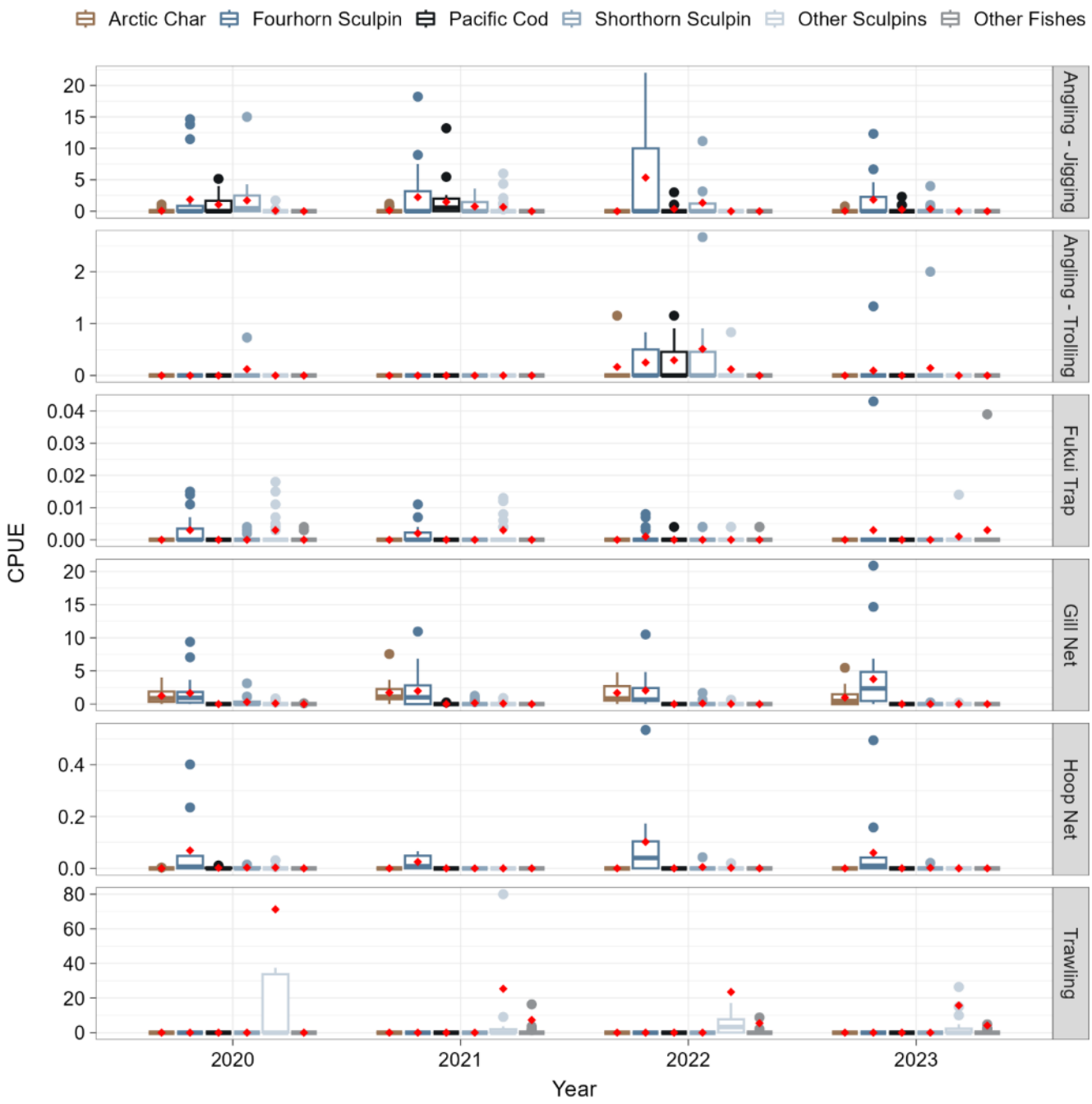


Figure 6-8: Grouped Taxa Mean Catch Per Unit Effort by Fishing Method (2020-2023)

Note: Pacific Cod (*G. macrocephalus*) is the new taxonomically accepted name of Greenland Cod (*G. ogac*). Red diamonds indicate mean values. Fish taxa were grouped based on relative abundance percentages from 2020 to 2023 catch data. Taxa with abundances <5% were grouped as follows: other sculpin (Arctic Sculpin, Arctic Staghorn Sculpin, Ribbed Sculpin, Spatulate Sculpin, and unidentified sculpin) and other fish (Arctic Alligatorfish, Arctic Cod, Atlantic Poacher, Atlantic Spiny Lumpsucker, Fourline Snakeblenny, Halfbarred Pout, Northern Sand Lance. Polar Cod, Saddled Eelpout, unidentified cod, and unidentified snailfish). Seine nets were excluded from the figure as there was only one year of data, which is presented in Table 6-12. Longlining was also excluded from the figure as no fish were caught in the single year of sampling, 2021, which resulted in discontinuation of the program in 2022. High outlier values were removed from jigging in 2021 DPF, gill net 2020 IPF, and trawling 2020 IPF for better visualization. See Table 6-10 for excluded values.

Fish catches when trawling often comprised rarely observed taxon groups, with taxa frequently captured using other fishing methods rarely being captured using this method. In the IPF, the highest CPUE value occurred in 2020 (262.50 fish/hr), for the 'other fish' grouping (i.e., Arctic Alligatorfish, Arctic Cod, Atlantic Spiny Lumpsucker, Atlantic Poacher, Fourline Snakeblenny, Halfbarred Pout, Northern Sand Lance, Polar Cod, Saddled Eelpout, unidentified cods, and unidentified snailfish). CPUE in 2021 was also relatively high, with 94.55 fish/hr for 'other sculpin' (i.e., Arctic, Arctic Staghorn, Ribbed, Spatulate, and unidentified sculpins; Table 6-12). Mean CPUE values for all taxon groupings in 2023 were slightly lower than those in 2022 (Table 6-12). 'Other fish' showed larger ranges between areas than 'other sculpin' between 2022 and 2023, but trends were variable between years in terms of which area had higher CPUE. The mean CPUE for both sampling areas decreased from 2022 to 2023 for 'other sculpin' (23.49 fish/hr and 15.70 fish/hr, respectively), but was similar for 'other fish' (5.46 fish/hr and 4.13 fish/hr, respectively; Table 6-12); Figure 6-8).

Table 6-13: Statistical P-Value Results from ANOVA of Catch Per Unit Effort for Arctic Char and Fourhorn Sculpin by Fishing Method, Year, and Fishing Area (2020-2023)

Statistical Test	Angling – Jigging	Angling – Trolling	Fukui Trap	Gill Net	Hoop Net
Arctic Char					
Area	Not analyzed	Not analyzed	Not analyzed	0.427	Not analyzed
Year				**0.045**	
Interaction				**0.011**	
Fourhorn Sculpin					
Area	**0.004**	Not analyzed	Not analyzed	**<0.001**	Not analyzed
Year	**0.004**			**0.008**	
Interaction	No interaction included in model			0.697	

Note: Cells highlighted in blue and bolded indicate significance levels <0.05. Longlining, seine net, and trawling were excluded from this comparative analysis as longlines were not used in 2020 or 2022, seine netting was not conducted in 2021 or 2022, and trawling in 2020 was limited to a single proof of concept effort. Full analytical results are presented in Appendix 6D – Tables 6 and 7.

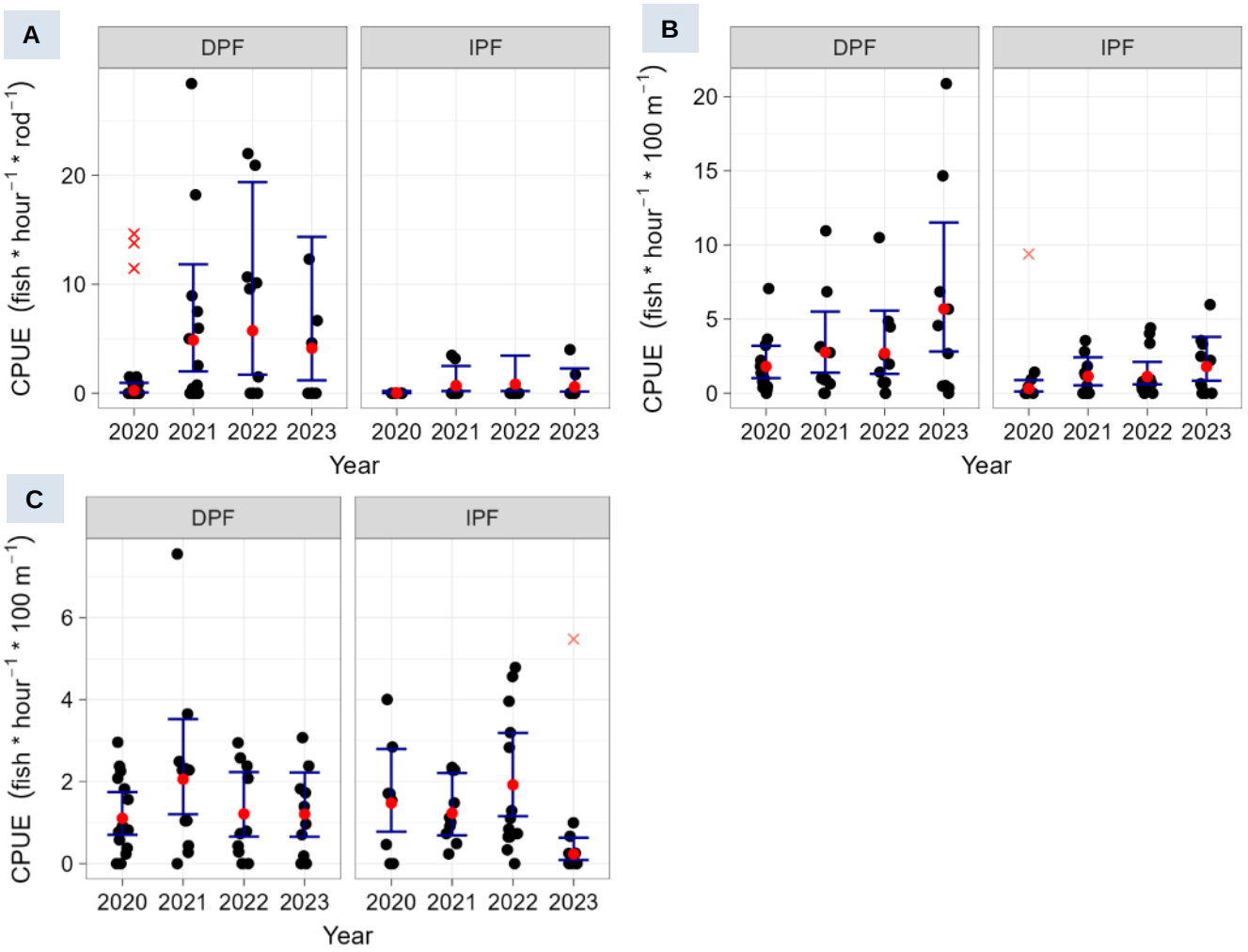


Figure 6-9: Observed (black points) and modeled estimates (red points and blue error bars) for CPUE (2020-2023) of A) Fourhorn Sculpin for Angling-Jigging; B) Fourhorn Sculpin for Gill Nets; and C) Arctic Char for Gill Nets. Error bars are 95% confidence intervals.

Note: Red crosses = outliers/influential points.

6.6 Discussion

In total, 422 individual fish, representing 12 known taxa were recorded in the DPF and IPF from 82 fishing efforts using several gear types during the 2023 open water survey season in Milne Port. Species richness in 2023 was the highest in the 2020-2023 time series, although total catch was the lowest. No new records of fish taxa were reported in Milne Inlet in 2023. An Atlantic Spiny Lumpsucker was captured for the first time during fishing efforts, however, this species was observed in Milne Port previously during the freight dock offsetting habitat surveys in 2021 (Golder 2022).

It is likely that the spatial redistribution of fishing effort within the study area contributed to the lower catch numbers. In order to identify a suitable reference area for the MEEMP fish health sampling program (see Chapter 7.0 Fish Health and Tissue Chemistry), the fish team spent more time sampling outside of Milne Port and there were fewer days of Milne Port fish sampling in 2023 than in 2022. Within Milne Port, more time than usual was spent fishing the western shore near Phillips Creek, where previously very few efforts were located. This was intended to further characterize the marine fish community in Milne Port, but few fish were captured during efforts on the western shore.

Statistical analyses of CPUE evaluated separately for each fishing method, which provided a more valid approach to compare changes in catch rate rather than considering catch numbers unadjusted for effort, indicated there was no reduction of the fish community by activity at the Port. Analyses of total CPUE (all fish species combined) indicated higher CPUE in the DPF compared to the IPF for angling-jigging, gill net, and hoop net catches and no effect of fishing area for angling-trolling and Fukui trap catches. For Arctic Char, there was no significant difference in CPUE between the DPF and IPF for gill netting, the only fishing method that could be analyzed. For Fourhorn Sculpin, analysis was conducted for two fishing methods (angling-jigging and gill net, the major methods by which Fourhorn Sculpin was captured) and both indicated CPUE was higher in the DPF compared to the IPF. This may relate to the use of constructed rocky reef habitat around the ore and freight docks by Fourhorn Sculpin.

Annual comparisons of CPUE for all fish species combined, by fishing method, were significantly different only for angling-trolling, for which the 2023 catch rates were lower than those in 2022. There was a significant effect of year and a significant interaction of year and FA for Arctic Char; similar CPUEs were observed in the IPF vs. DPF in years 2020 through 2022, but in 2023 the mean CPUE in the DPF (CPUE of 1.23) was almost double that in the IPF (CPUE of 0.76), as was also the case in 2021. In 2020 and 2022, the CPUE of Arctic Char was higher in the IPF. The CPUE of Arctic Char has been highly variable over time, particularly in the IPF. While the CPUE of Arctic Char in the DPF in 2023 was comparable to observed CPUEs in 2020 through 2022, the CPUE in the IPF was the lowest in the 2020-2023 time series. For Fourhorn Sculpin, angling-jigging and gill net CPUEs were both significantly higher in the DPF than in the IPF, continuing the trend seen from 2020 to 2023.

Overall, the results support the interpretation that existing mitigation measures were functioning as intended and that current Project activities were not resulting in adverse effects on the local marine fish communities in Milne Port.

Modifications to the monitoring program for the fish community over the past several years have focused on improving the statistical power of the monitoring. One approach to do so would be the elimination of sampling methods that yield relatively lower catches of fish, so as to focus on increasing the number of efforts conducted for more effective fishing methods. To that end, a comparison of hoop net versus Fukui trap catches was conducted from 2020-2022, and for an additional year in 2023 with closer matching of fishing effort and deployment location of the two methods.

Over the four-year trial study period, hoop net efforts yielded over twice as many captured fish (n=191) compared to Fukui traps (n=75), despite hoop nets having half the number of total efforts and half the number of total hours fished than the Fukui traps, totalled over all years. In 2023, when Fukui trap and hoop net efforts were standardized to match the location of deployments and the total number of set hours, hoop nets captured ten times the number of fish compared to Fukui traps with an average CPUE six times greater than that of Fukui traps. Fukui trap efforts in 2023 caught only four individuals from three taxa (Arctic Sculpin, Fourhorn Sculpin, and Polar Cod), with no significant differences in Fukui trap efficiency over time (<0.05 fish*hr^{-1}*trap^{-1}). As a result of the four-year comparison, it is recommended that the use of Fukui traps be discontinued in 2024, and efforts be increased for hoop net fishing.

The effectiveness of angling-trolling versus angling-jigging was also reviewed to determine if one of these methods could also be discontinued. Over the years 2020 to 2023 and between the two FA, the CPUE of angling-trolling ranged from zero to 3.63 fish*hr^{-1}*rod^{-1} (with three occurrences of zero catch rates) whereas CPUE of angling-jigging ranged from 0.96 to 8.92 fish*hr^{-1}*rod^{-1}. High occurrences of zero catch rates limits the ability to statistically analyse the angling-trolling data (e.g., Table 6-13). Taxa captured by angling-trolling are commonly caught via other fishing methods during open-water surveys. It is therefore recommended that the use of angling-trolling be discontinued in 2024a, and efforts be increased for angling-jigging.

It is possible that increasing sampling effort for angling-jigging and hoop nets would increase statistical power, but there remains a possibility the resulting statistical power might still not be sufficient. If that were to occur, it is advisable to focus interpretation on effect sizes (rather than statistical significance) which can provide a route to interpret trends even in cases where statistical power is not sufficient to capture changes in fish CPUE.

Overall, fishing methods were deemed effective in characterizing the marine fish community in terms of species presence and relative abundance. Fish sampling from 2020 to 2023 generally yielded comparable representation of the dominant fish species in Milne Port (Arctic Char, Fourhorn Sculpin and Shorthorn Sculpin) relative to previous years. The delineation of FAs and the standardization of fishing methods established in 2021 should continue as they appear to be effective means of assessing interannual change in relative fish abundance and distribution at Milne Port.

6.7 Conclusions and Recommendations

This chapter addresses 2023 program objectives, including the characterization of species composition and relative abundance of fish at Milne Port. Total catch and diversity of fish species were generally comparable to 2020 to 2022 results. Importantly, higher fish catches have been recorded closer to Project infrastructure than further away, indicating that the Project has not adversely affected the local marine fish community. Monitoring data from 2023 aligned with FEIS predictions, and subsequent ERP (Early Revenue Phase) addendums, which predicted the potential for minor and localized effects on fish and fish habitat.

Recommendations for the 2024 MEEMP sampling program include maintaining standardized fishing efforts as was done from 2020 to 2023 and continuing to remain consistent in the level of effort between the FAs so significant changes in the Milne Port area fish community can be identified. Fishing gear efficiencies were also evaluated, with a recommendation to continue to utilize gill nets, angling-jigging, hoop nets, and trawls while discontinuing the use of Fukui traps and angling-trolling due to consistently low catch numbers over the past four years. With the removal of Fukui traps and angling-trolling from the program, it may be feasible to increase the number of efforts per area of the remaining fishing methods (i.e., angling-jigging, gill nets, hoop nets, and trawling) in 2024 to increase the statistical power to detect effect sizes of interest. However, because of high variability in the fish catch data, power may still not be sufficient to reliably identify significant differences; in this case, it may be advisable to assess differences between areas using effect sizes rather than a strict adherence to statistical significance.

6.8 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.



Bryce Gunning, BSc, BIT
Marine Biologist



Niallan O'Brien, BSc, BIT
Marine Biologist



Andrea Locke, PhD
Senior Marine Biologist



Bart DeFreitas, RPBio
Principal Fisheries Biologist

BG/NOB/AL/BDF/asd

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499f-r-rev0-70000/1663724-499f-r-rev0-70000-2023 meemp_6.0 fish community 15mar_24.docx

6.9 References

Bergshoeff J, McKenzie CH, Favaro B. 2019. Improving the Efficiency of the Fukui Trap as a Capture Tool for the Invasive European Green Crab (*Carcinus maenas*) in Newfoundland, Canada. PeerJ. 2019;7:e6308. Published 29 January 2019.

FishBase. 2023. *Gadus ogac* Richardson, 1836. https://www.fishbase.se/Nomenclature/SynonymSummary.php?ID=29395&GSID=31827&Status=synonym&Synonymy=junior%20synonym&Combination=original%20combination&GenusName=Gadus&SpeciesName=ogac&SpecCode=308&SynonymsRef=114903&Author=Richardson,%201836&Misspelling=0

GBIF (Global Biodiversity Information Facility). 2023. *Gadus macrocephalus* Tilesius, 1810. https://www.gbif.org/species/2415853

Golder (Golder Associates Ltd.). 2021. Mary River Project 2020 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-281-R-Rev1; 18 August 2021. 1581 p.

Golder. 2022. Mary River Project Year 2 Freight Dock Offsetting Habitat Monitoring Report (Fisheries Act Authorization 18-HCAA-00160). Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-350-R-Rev0-44000; 16 March 2022. 145 p.

Laidre KL, Heide-Jørgensen MP. 2005. Winter Feeding Intensity of Narwhals (Monodon monoceros). Marine Mammal Science 21(1): 45-57.

Mueter FJ, Nahrgang J, Nelson RJ, Berge J. 2016. The ecology of gadid fishes in the circumpolar Arctic with a special emphasis on the polar cod (Boreogadus saida). Polar Biology 39:961-967.

R Core Team. 2023. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. https://www.R-project.org/.

WSP (WSP Canada Inc.). 2023. Mary River Project 2022 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. WSP Doc. No. 1663724-430-R-Rev0-64000; 28 April 2023. 1167 p.

APPENDIX A

Permits

Nunavut Research Institute / ᓄᓇᕗᑦ ᖃᐅᔨᓴᖅᑐᑦᑎᐊᖅᑐᑦ
Box 1720, Iqaluit, NU X0A 0H0 phone:(867) 979-7279 fax: (867) 979-7109 e-mail: mosha.cote@arcticcollege.ca

SCIENTIFIC RESEARCH LICENSE

LICENSE NUMBER 02 012 23R-M

ISSUED TO: Megan-Lord Hoyle
Baffinland Iron Mines Corporation
2275 Upper Middle Road East, Suite 300
Oakville, Ontario
L6H 0C3 Canada

TEAM MEMBERS: Please see attached

TITLE: Mary River Project

OBJECTIVES OF RESEARCH:
Baffinland Iron Mines Corporation (Baffinland) was issued Scientific Research Licence 02 030 22R-M (the Licence) on April 26, 2022, by the Nunavut Research Institute (NRI). The Licence, along with other permits and approvals, allowed Baffinland to conduct select monitoring programs for the Mary River Project in 2022 as prescribed by Project Certificate No. 005 – Amendment 4 and Type "A" Water Licence No. 2AM-MRY1325 – Amendment 1. Baffinland requests the renewal of this multi-year licence to continue monitoring programs in 2023.

TERMS & CONDITIONS:
The holder of the licence will be bound by the terms and conditions of the Nunavut Impact Review Board Screening Decision Report and the Department of Culture & Heritage archaeological sites terms and conditions. These terms and conditions will form part of this licence.

DATA COLLECTION IN NU:
DATES: February 7,2023 to December 31,2023
LOCATION: Steensby Port, Mary River, Milne Port/Road

Scientific Research License 02 012 23R-M expires on December 31,2023
Issued at Iqaluit, NU on February 24,2023

Per
Jamal Shirley
Science Advisor

SCIENTIFIC RESEARCH LICENCE

Fisheries and Oceans Canada | Pêches et Océans Canada

Date: January 9th 2023

To: Phil Rouget, WSP Golder

Subject: Animal Use Protocol - Letter of Approval

Dear Phil,

Your 2022 Animal Use Protocol (AUP) "Baffinland Iron Mines Corp, Mary River Project, 2022 Marine Environmental Effects Monitoring Program (MEEMP) and Marine Habitat Offset Monitoring Program." received a multiyear approval last year by the Ontario, Prairie and Arctic Animal Care Committee (OPA-ACC) and has now been assigned number OPA-ACC-2023-05 for this year.

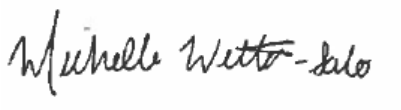
Keep this signed letter of approval as well as the signed AUP application form for your records. Please be advised that should there be a need to revise the protocol you are requested to contact the OPA-ACC and obtain approval prior to proceeding.

The Canadian Council on Animal Care requires post approval monitoring of AUPs. The OPA-ACC will be randomly choosing AUPs and asking for photographs or video that shows the handling or interaction of animals for these projects.

In addition, you are required to submit a brief report annually within 30 days of completion of the project outlining the unexpected changes to the protocol, the number of animals used and any unanticipated results. If injuries or mortalities occur, an incident report must be provided.

Feel free to contact me if you have any questions or concerns.

Sincerely,



Michelle Wetton-Salo

Chairperson of OPA-ACC

Ontario, Prairie and Arctic Animal Care Committee
Ontario and Prairie Region / région de l'Ontario et des Prairies
Fisheries and Oceans Canada / Pêches et Océans Canada
501 University Crescent
Winnipeg, Manitoba R3T 2N6
Phone:204-983-5238
DFO.OPAAnimalCareCommittee-ComitedeprotectiondesanimauxOPA.MPO@dfo-mpo.gc.ca



Licence #: S-23/24-1027-NU

Philippe Rouget
3795 Carey Road 2nd floor
Victoria, BC, CA V8Z 6T8

Dear Philippe Rouget,

Enclosed is your amended Licence to Fish for Scientific Purposes issued pursuant to Section 52 of the Fishery (General) Regulations.

Failure to comply with any of the conditions specified on the attached licence may result in a contravention of the Fishery (General) Regulations.

Please be advised that this licence only permits those activities stated on your licence. Any other activity may require approval under the Fisheries Act or other legislation. It is the Project Authority's responsibility to obtain any other approvals.

Please ensure that you include the licence number and project title in any future correspondence and that you complete the Summary Harvest Report upon completion of activities under this licence.

Yours truly,

Colin Charles
Fisheries Management
Arctic Region
Fisheries and Oceans Canada

Date

Enclosure

LICENCE TO FISH FOR SCIENTIFIC PURPOSES

S-23/24-1027-NU

Pursuant to Section 52 of the Fishery (General) Regulations, the Minister of Fisheries and Oceans hereby authorizes the individual(s) listed below to fish for scientific purposes, subject to the conditions specified.

Project Authority: Philippe Rouget — Golder Associates Ltd.
3795 Carey Road 2nd floor
Victoria, BC, CA V8Z 6T8

Other Personnel: Phil Rouget, Andrea Locke, Patricia Tomliens, Ronnie Komangapik, Niallan O'Brien, Daniel Vicente, Kristin Westman, Paul Hinton, Josephee Macpa, Stephanie Davis, Alison Loeppky, Marie-Claire Robitaille, Rob Hollingshead, Frikkie VanDerVy

Objectives: Baffinland Iron Mines Corp. - Mary River Project - 2023 Marine Environmental Effects Monitoring Program (MEEMP) and Marine Habitat Offset Monitoring Program, Baffin Island, Nunavut

The Project objectives are to conduct sampling to adhere to the terms and conditions of Baffinland to operate theexisting Mary River Mine and Port Facility in Milne Inlet (North Baffin Island) through the implementation of the2023 monitoring programs for the Marine Environment in accordance with the Project Certificate terms and
Conditions issued for the Mary River Project. The 2023 programs for the Marine Environment include the following program components:
- 2023 Marine Environmental Effects Monitoring Program (MEEMP)
- 2023 Non-Indigenous and Aquatic Invasive Species (NIS/AIS) Monitoring Program

CONDITIONS

Specified Conditions:

See Appendix A for map of authorized sampling areas

Other Species Encountered may include: Snakeblenny, Slender (Lumpenus fabricii); Cod, Polar (Arctogadus glacialis); Lumpsucker, Spiny (Eumicrotremus orbis); Lumpsucker, Atlantic Spiny (Eumicrotremus spinosus);

Sample Size for species listed above: 500 LIVE, 100 DEAD

All weights are listed in kilograms (kg)

Waters:

Water Body: Milne Inlet
Point A: 72° 20' N, 80° 30' W

Species: Benthos

Gear: Ponar dredge
Van Veen Grab

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
	200.00	100.00						

Water Body: **Milne Inlet**
Point A: 72° 20' N, 80° 30' W

Species: Gastropods/Shellfish

Gear: Ponar dredge
Van Veen Grab

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
			500	120				

Water Body: **Milne Inlet**
Point A: 72° 20' N, 80° 30' W

Species: Arctic Alligatorfish
Arctic Char (Searun)
Atlantic Poacher
Capelin
Cod
Cod, Greenland
Eelpout
Eelpout, Saddled
Fish Doctor
Fourline Snakeblenny
Lumpfish (Lumpsucker)
Sand Lance
Sand Lance, Pacific
Sculpin, Arctic
Sculpin, Arctic Staghorn
Sculpin, Atlantic Hookear
Sculpin, Longhorn
Sculpin, Ribbed
Sculpin, Shorthorn
Sculpins Spp.
Snailfish
Stickleback, Ninespine

Gear: 10 MM Mesh Gillnets and Larger
Angling
Fish Trap
Fyke Nets
Jigging
Longline
Seine
Trolling

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
			500	100				

Water Body: **Milne Inlet**
Point A: 72° 20' N, 80° 30' W

Species: Cod, Arctic
Sculpin, Fourhorn
Sculpin, Longhorn

Gear: 10 MM Mesh Gillnets and Larger
Angling
Fish Trap
Fyke Nets
Longline
Seine
Trolling

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
			500	120				

Fishing Period: July 21, 2023 to September 01, 2023

A copy of this licence must be available at the study site and produced at the request of a fishery officer.

Live fish may not be retained unless specified in the conditions of this licence.

The licence holder shall immediately cease fishing when the total fish killed or live sampled reaches any of the maximums set for any of the species listed.

Transportation:

Other approvals/permits may be necessary to collect or transport certain species, such as Marine Mammal Transportation Permits. For marine mammal parts, products and derivatives a Marine Mammal Transportation Licence is required for domestic transport and, for international transport a Canadian CITES Export Permit is also required.

Report on Activities:

The Project Authority will submit to the License Delivery Officer, Department of Fisheries and Oceans, within one month of the expiry date, a report stating:

i) whether or not the field work was conducted; and if conducted

ii) waterbody location, fishing coordinates, gear types used at each coordinate, numbers or amount of fish (by species) collected and/or marked and the date or period of collection.

A Summary Harvest Report template is provided by the License Delivery Officer at time of issuance of this licence .

The Project Authority also will provide a copy of any published or public access documents which result from the project . Information supplied will be used for population management purposes by the Department of Fisheries and Oceans and becomes part of the public record.

All documents should be sent to:

Fisheries and Oceans Canada
Fisheries Management
Arctic Region
P.O. Box 358
Iqaluit, NU X0A 0H0

Attention: Licence Delivery Officer

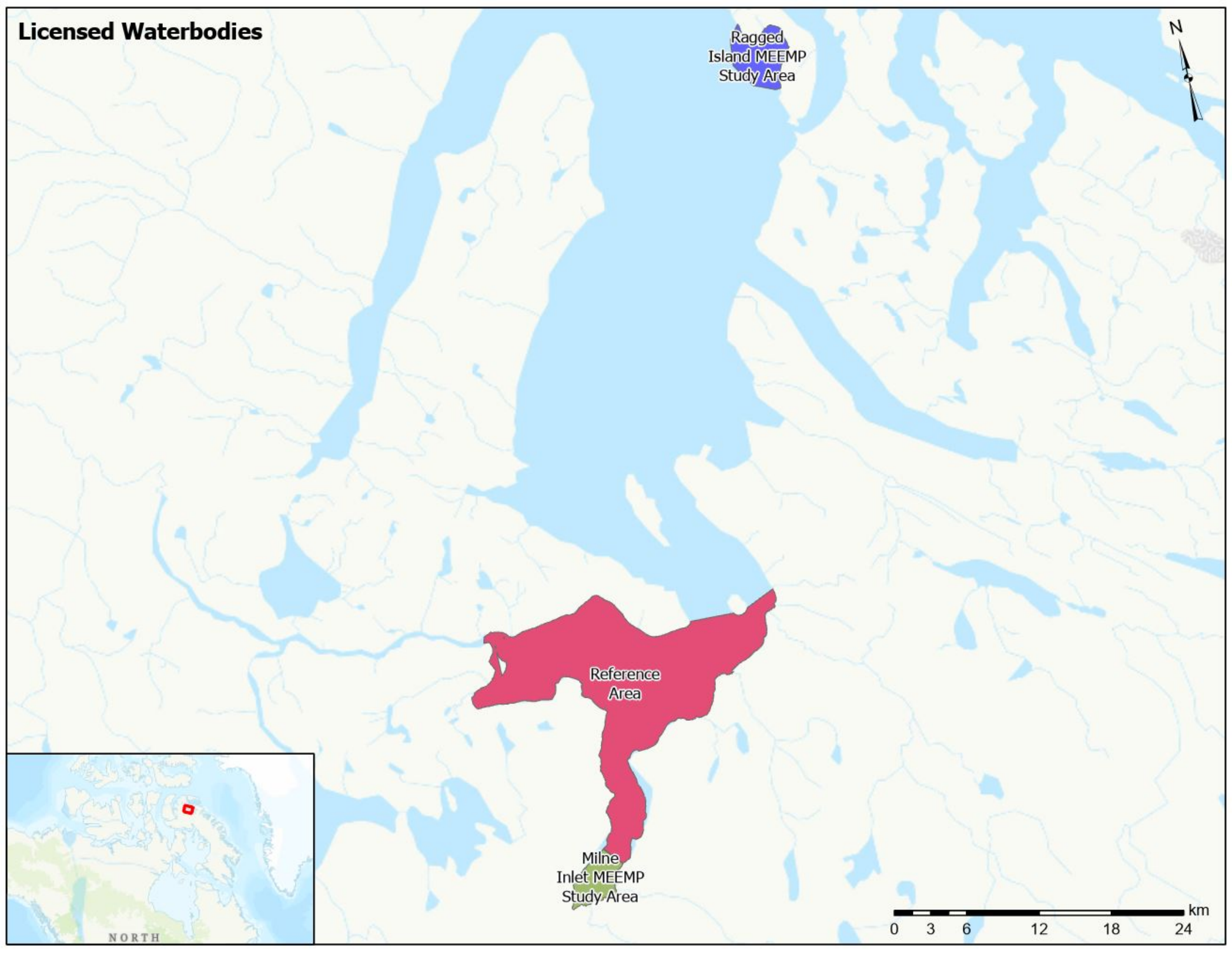
Telephone: (867) 979-8005
Fax: (867) 979-8039
E-mail: XCNA-NT-NUpermit@dfo-mpo.gc.ca

Kevin Tallon
A/ Regional Director, Fisheries Management
Arctic Region
Fisheries and Oceans Canada

Date

For the Minister of Fisheries and Oceans.

Pursuant to Section 52 of the Fishery (General) Regulations.


Licensed Waterbodies
Ragged Island MEEMP Study Area
N
Reference Area
Milne Inlet MEEMP Study Area
NORTH
km
0 3 6 12 18 24

APPENDIX B

2020 to 2023 Effort Data

Table 1. 2022 Fishing Effort Summary, Milne Inlet

Capture Method	Site	Area[1]	Set Date	Pull Date	Start UTM (NAD 83)	End UTM (NAD 83)	Total Hours
Angling - Jigging	ANJ01	DPF	28-07-2023	2023-07-28	0503224 7976600	0503144 7976512	0.75
Angling - Jigging	ANJ02	DPF	29-07-2023	2023-07-29	0503218 7976598	-	0.43
Angling - Jigging	ANJ03	DPF	29-07-2023	2023-07-29	0503207 7976559	-	0.43
Angling - Jigging	ANJ04	DPF	30-07-2023	2023-07-30	0503225 7976599	-	0.67
Angling - Jigging	ANJ05	IPF	31-07-2023	2023-07-31	0505307 7977977	-	2.33
Angling - Jigging	ANJ06	REF - K	01-08-2023	2023-08-01	0509017 8000858	-	1.17
Angling - Jigging	ANJ07	REF - K	01-08-2023	2023-08-01	0508861 8000848	-	0.95
Angling - Jigging	ANJ08	DPF	02-08-2023	2023-08-02	0503976 7976671	-	0.33
Angling - Jigging	ANJ09	DPF	02-08-2023	2023-08-02	0503221 7976580	-	0.22
Angling - Jigging	ANJ10	DPF	06-08-2023	2023-08-06	0503296 7976666	-	0.50
Angling - Jigging	ANJ11	DPF	06-08-2023	2023-08-06	0503245 7976645	-	0.28
Angling - Jigging	ANJ12	IPF	06-08-2023	2023-08-06	0505738 7978462	-	0.35
Angling - Jigging	ANJ13	IPF	06-08-2023	2023-08-06	0505280 7978016	-	0.27
Angling - Jigging	ANJ14	REF - K	08-08-2023	2023-08-08	0509105 8000811	-	0.33
Angling - Jigging	ANJ15	IPF	10-08-2023	2023-08-10	0502306 7976187	-	0.25
Angling - Jigging	ANJ16	IPF	10-08-2023	2023-08-10	0501494 7976914	-	0.28
Angling - Jigging	ANJ17	IPF	13-08-2023	2023-08-13	0501905 7977898	-	0.33
Angling - Jigging	ANJ18	IPF	13-08-2023	2023-08-13	0502806 7977478	-	0.27
Angling - Jigging	ANJ19	IPF	13-08-2023	2023-08-13	0501718 7977249	-	0.50
Angling - Trolling	ANT01	DPF	29-07-2023	2023-07-29	0503143 7976604	0503017 7976495	0.33
Angling - Trolling	ANT02	IPF	04-08-2023	2023-08-04	0505692 7978486	0505778 7978488	0.42
Angling - Trolling	ANT03	IPF	04-08-2023	2023-08-04	0505291 7978113	0505128 7977652	0.33
Angling - Trolling	ANT04	IPF	04-08-2023	2023-08-04	0505183 7977558	0505124 7977096	0.25
Angling - Trolling	ANT05	IPF	04-08-2023	2023-08-04	0505034 7976623	0504629 7976673	0.17
Angling - Trolling	ANT06	IPF	05-08-2023	2023-08-05	0501529 7976416	0501629 7976673	0.37
Angling - Trolling	ANT07	IPF	05-08-2023	2023-08-05	0501637 7976990	0501995 7977690	0.33
Angling - Trolling	ANT08	IPF	05-08-2023	2023-08-05	0501940 7977707	0501624 7977149	0.35
Angling - Trolling	ANT09	DPF	06-08-2023	2023-08-06	0503411 7976668	0503349 7976678	0.23
Angling - Trolling	ANT10	DPF	06-08-2023	2023-08-06	0503411 7976668	0503349 7976678	0.25
Angling - Trolling	ANT11	DPF	13-08-2023	2023-08-13	0504503 7976625	0504493 7976646	0.25
Angling - Trolling	ANT12	DPF	13-08-2023	2023-08-13	0504038 7976594	0503927 7976547	0.18
Angling - Trolling	ANT13	DPF	13-08-2023	2023-08-13	0503124 7976573	0502741 7976355	0.28
Angling - Trolling	ANT14	DPF	13-08-2023	2023-08-13	0502725 7976303	0503005 7976436	0.17
Fukui Trap	FT01	DPF	29-07-2023	2023-07-31	0504496 7976588	-	47.07
Fukui Trap	FT02	IPF	29-07-2023	2023-07-31	0502948 7976384	-	46.37
Fukui Trap	FT02	IPF	29-07-2023	2023-07-31	0502948 7976384	-	46.37
Fukui Trap	FT03	DPF	31-07-2023	2023-08-02	0503114 7976517	-	49.60
Fukui Trap	FT04	IPF	31-07-2023	2023-08-02	0504771 7976712	-	49.65
Fukui Trap	FT05	DPF	02-08-2023	2023-08-04	0503175 7976572	-	46.22
Fukui Trap	FT06	IPF	02-08-2023	2023-08-04	0504957 7976590	-	45.78
Fukui Trap	FT07	DPF	04-08-2023	2023-08-06	0503877 7976698	-	49.83
Fukui Trap	FT08	DPF	04-08-2023	2023-08-06	0503577 7976664	-	50.02
Fukui Trap	FT09	DPF	06-08-2023	2023-08-09	0503442 7976657	-	73.00
Fukui Trap	FT10	DPF	06-08-2023	2023-08-09	0504034 7976682	-	72.93
Fukui Trap	FT11	IPF	10-08-2023	2023-08-13	0504711 7976719	-	65.02
Fukui Trap	FT12	IPF	10-08-2023	2023-08-13	0504624 7976720	-	65.03
Fukui Trap	FT13	IPF	13-08-2023	2023-08-14	0501561 7976478	-	25.50
Fukui Trap	FT14	IPF	13-08-2023	2023-08-14	0501530 7976417	-	25.47
Hoop Net	HN01	DPF	29-07-2023	2023-07-31	0503015 7976396	-	47.25
Hoop Net	HN02	IPF	29-07-2023	2023-07-31	0504564 7976605	-	52.08
Hoop Net	HN03	DPF	31-07-2023	2023-08-02	0503140 7976453	-	49.53
Hoop Net	HN04	IPF	31-07-2023	2023-08-02	0504559 7976603	-	49.55
Hoop Net	HN05	DPF	02-08-2023	2023-08-04	0503132 7976473	-	47.60
Hoop Net	HN06	IPF	02-08-2023	2023-08-04	0504575 7976638	-	46.00
Hoop Net	HN07	DPF	04-08-2023	2023-08-06	0503866 7976662	-	48.60
Hoop Net	HN08	DPF	04-08-2023	2023-08-06	0503515 7976631	-	49.33
Hoop Net	HN09	DPF	06-08-2023	2023-08-09	0503509 7976609	-	73.93
Hoop Net	HN10	DPF	06-08-2023	2023-08-09	0503866 7976603	-	75.42
Hoop Net	HN11	IPF	10-08-2023	2023-08-13	0504722 7976651	-	65.28
Hoop Net	HN12	IPF	10-08-2023	2023-08-13	0504674 7976642	-	65.23
Hoop Net	HN13	IPF	13-08-2023	2023-08-14	0501503 7976519	-	25.35
Hoop Net	HN14	IPF	13-08-2023	2023-08-14	0501462 7976504	-	25.35
Gill Net	GN01	DPF	28-07-2023	2023-07-28	503145 7976456	503120 7976527	3.07
Gill Net	GN02	DPF	29-07-2023	2023-07-29	502600 7976233	502637 7976299	2.58
Gill Net	GN03	DPF	29-07-2023	2023-07-29	502970 7976481	502899 7976405	1.42
Gill Net	GN04	DPF	29-07-2023	2023-07-29	503199 7976526	503104 7976510	1.97
Gill Net	GN05	DPF	30-07-2023	2023-07-30	505196 7977513	505156 7977446	1.00
Gill Net	GN06	IPF	30-07-2023	2023-07-30	505167 7977257	505127 7977178	0.92
Gill Net	GN07	IPF	31-07-2023	2023-07-31	505308 7977983	505264 7977879	2.83
Gill Net	GN08	REF - K	01-08-2023	2023-08-01	509012 8000879	508921 8000866	2.88
Gill Net	GN09	IPF	05-08-2023	2023-08-05	501568 7976609	501610 7976688	1.28
Gill Net	GN10	IPF	05-08-2023	2023-08-05	501409 7976428	501490 7976454	2.58
Gill Net	GN11	IPF	05-08-2023	2023-08-05	501456 7977010	501534 7976975	1.50
Gill Net	GN12	IPF	06-08-2023	2023-08-06	504527 7976452	504505 7976537	1.58
Gill Net	GN13	IPF	06-08-2023	2023-08-06	504745 7976614	504763 7976702	1.83
Gill Net	GN14	DPF	07-08-2023	2023-08-07	503840 7476648	503807 7476673	4.92
Gill Net	GN15	DPF	07-08-2023	2023-08-07	504145 7976606	504227 7976621	1.78
Gill Net	GN16	DPF	07-08-2023	2023-08-07	503915 7976538	503889 7976600	2.00
Gill Net	GN17	REF - K	08-08-2023	2023-08-08	508925 8000885	508843 8000856	3.00
Gill Net	GN18	REF - K	08-08-2023	2023-08-08	508614 8000826	508697 8000826	3.02
Gill Net	GN19	IPF	09-08-2023	2023-08-09	505164 7976909	505121 7976842	3.58
Gill Net	GN20	IPF	09-08-2023	2023-08-09	505003 7976567	504916 7976596	3.67
Gill Net	GN21	DPF	10-08-2023	2023-08-10	503153 7976492	503059 7976496	3.70
Gill Net	GN22	DPF	10-08-2023	2023-08-10	502920 7976268	502828 7976268	3.78
Gill Net	GN23	REF - K	12-08-2023	2023-08-12	507636 8000296	507502 8000249	2.52
Gill Net	GN24	REF - K	12-08-2023	2023-08-12	507559 8000262	507990 8000201	2.75
Gill Net	GN25	REF - K	12-08-2023	2023-08-12	504415 8000078	507377 8000094	2.73
Gill Net	GN26	IPF	13-08-2023	2023-08-13	501775 7977672	501852 7977630	4.12
Trawling	TR01	DPF	02-08-2023	2023-08-02	0502844 7976534	0503332 7976717	0.40
Trawling	TR02	DPF	03-08-2023	2023-08-03	0502332 7976834	0503069 7976781	0.43
Trawling	TR03	IPF	03-08-2023	2023-08-03	0504784 7977067	0505038 7977723	0.50
Trawling	TR04	IPF	03-08-2023	2023-08-03	0501763 7976863	0502121 7977721	0.42

[1] DPF = Direct Project Footprint; IPF = Indirect Project Footprint; REF-K = Chapter 7.0 fish health reference exploration in Koluktoo Bay

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
NFC	-	-	-	-	-	2020-07-29	Angling - Trolling	AN01	DPF	17W	504151 7976631	504559 7976658	AN01S	AN01E	2020-07-29	12:54	2020-07-29	13:07	0.22	5	-
320	FHSC	170.0	45.0	U	-	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
321	FHSC	172.0	45.5	U	-	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
313	GRCD	456.0	1130.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
314	GRCD	468.0	1220.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
315	GRCD	455.0	1180.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
316	GRCD	440.0	1000.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
317	GRCD	478.0	1390.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
318	GRCD	398.0	670.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
319	GRCD	454.0	1180.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Released
322	GRCD	450.0	980.0	U	A	2020-07-31	Angling - Jigging	AN02	DPF	17W	503192 7976573	-	AN02	-	2020-07-31	9:41	2020-07-31	10:50	1.15	10	Euthanized
329	ARCH	400.0	260.0	U	U	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
323	GRCD	621.0	2570.0	U	A	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
324	GRCD	434.0	940.0	M	A	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
327	GRCD	434.0	970.0	U	U	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
325	SHSC	412.0	930.0	U	A	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
326	SHSC	169.0	80.0	M	U	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
328	SHSC	241.0	150.0	U	U	2020-07-31	Angling - Jigging	AN03	DPF	17W	503207 7976619	-	AN03	-	2020-07-31	11:19	2020-07-31	12:10	0.85	15	Released
330	GRCD	498.0	1320.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
331	GRCD	518.0	1790.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
332	GRCD	480.0	1230.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
333	GRCD	440.0	990.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
334	GRCD	534.0	1540.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
335	GRCD	518.0	1490.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
336	GRCD	408.0	690.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
337	GRCD	636.0	3060.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
338	GRCD	482.0	1410.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Euthanized
339	GRCD	564.0	1930.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
340	GRCD	442.0	1020.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
341	GRCD	504.0	1580.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
342	GRCD	569.0	2900.0	-	-	2020-07-31	Angling - Jigging	AN04	DPF	17W	503214 7976583	-	AN04	-	2020-07-31	12:30	2020-07-31	14:10	1.67	12	Released
343	GRCD	670.0	3700.0	M	A	2020-07-31	Angling - Jigging	AN05	DPF	17W	503209 7976585	-	AN05	-	2020-07-31	16:15	2020-07-31	17:10	0.92	15	Released
344	GRCD	446.0	1100.0	U	A	2020-07-31	Angling - Jigging	AN05	DPF	17W	503209 7976585	-	AN05	-	2020-07-31	16:15	2020-07-31	17:10	0.92	15	Released
345	SHSC	366.0	680.0	U	A	2020-07-31	Angling - Jigging	AN05	DPF	17W	503209 7976585	-	AN05	-	2020-07-31	16:15	2020-07-31	17:10	0.92	15	Released
346	SHSC	374.0	730.0	U	A	2020-07-31	Angling - Jigging	AN05	DPF	17W	503209 7976585	-	AN05	-	2020-07-31	16:15	2020-07-31	17:10	0.92	15	Released
347	GRCD	484.0	1170.0	U	U	2020-08-01	Angling - Jigging	AN06	DPF	17W	503220 7976562	-	AN06	-	2020-08-01	13:15	2020-08-01	13:45	0.50	-	Released
348	GRCD	520.0	1700.0	U	U	2020-08-01	Angling - Jigging	AN06	DPF	17W	503220 7976562	-	AN06	-	2020-08-01	13:15	2020-08-01	13:45	0.50	-	Released
349	SHSC	185.0	93.2	U	U	2020-08-01	Angling - Jigging	AN07	DPF	17W	503342 7976668	-	AN07	-	2020-08-01	13:53	2020-08-01	14:20	0.45	15	Released
350	SHSC	189.0	110.0	U	U	2020-08-02	Angling - Jigging	AN08	IPF	17W	504872 7976647	-	AN08	-	2020-08-02	13:03	2020-08-02	13:14	0.20	5	Released
351	SHSC	377.0	700.0	U	A	2020-08-02	Angling - Jigging	AN08	IPF	17W	504872 7976647	-	AN08	-	2020-08-02	13:03	2020-08-02	13:14	0.20	5	Released
352	SHSC	396.0	1020.0	U	A	2020-08-02	Angling - Jigging	AN09	DPF	17W	503978 7976676	-	AN09	-	2020-08-02	14:14	2020-08-02	14:35	0.35	5	Released
353	SHSC	327.0	440.0	U	A	2020-08-02	Angling - Jigging	AN09	DPF	17W	503978 7976676	-	AN09	-	2020-08-02	14:14	2020-08-02	14:35	0.35	5	Released
354	SHSC	232.0	180.0	U	U	2020-08-02	Angling - Jigging	AN09	DPF	17W	503978 7976676	-	AN09	-	2020-08-02	14:14	2020-08-02	14:35	0.35	5	Released
355	SHSC	261.0	280.0	U	A	2020-08-02	Angling - Jigging	AN09	DPF	17W	503978 7976676	-	AN09	-	2020-08-02	14:14	2020-08-02	14:35	0.35	5	Released
356	SHSC	186.0	80.0	U	U	2020-08-02	Angling - Jigging	AN09	DPF	17W	503978 7976676	-	AN09	-	2020-08-02	14:14	2020-08-02	14:35	0.35	5	Released
357	SHSC	218.0	160.0	U	U	2020-08-02	Angling - Jigging	AN09	DPF	17W	503978 7976676	-	AN09	-	2020-08-02	14:14	2020-08-02	14:35	0.35	5	Released
NFC	-	-	-	-	-	2020-08-02	Angling - Trolling	AN10	IPF	17W	504606 7976681	505320 7977499	AN10	-	2020-08-02	14:47	2020-08-02	15:20	0.55	5	-
358	FHSC	144.0	24.0	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
359	FHSC	189.0	60.0	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
360	FHSC	194.0	64.2	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
361	FHSC	201.0	64.8	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
362	FHSC	195.0	70.4	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
364	FHSC	172.0	40.4	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
365	FHSC	167.0	38.1	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
366	FHSC	183.0	59.6	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
367	FHSC	175.0	56.6	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
368	FHSC	180.0	55.6	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
370	FHSC	184.0	54.4	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
371	FHSC	156.0	32.3	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
374	FHSC	170.0	39.3	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
376	FHSC	177.0	46.6	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
377	FHSC	148.0	29.8	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
378	FHSC	179.0	49.4	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
379	FHSC	215.0	109.3	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
380	FHSC	203.0	66.8	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
381	FHSC	203.0	82.6	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
382	FHSC	230.0	115.5	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
383	FHSC	209.0	98.6	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
384	FHSC	210.0	74.0	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
385	FHSC	242.0	110.0	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
386	FHSC	210.0	99.2	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
387	FHSC	221.0	114.3	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
388	FHSC	194.0	64.1	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
389	FHSC	220.0	116.7	F	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Euthanized
390	FHSC	215.0	81.8	M	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Euthanized
391	FHSC	205.0	75.4	M	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Euthanized
392	FHSC	197.0	85.0	M	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Euthanized
363	SHSC	159.0	38.3	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
369	SHSC	142.0	25.1	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
372	SHSC	164.0	44.7	U	A	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
373	SHSC	122.0	13.5	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
375	SHSC	140.0	21.3	U	U	2020-08-02	Angling - Jigging	AN11	DPF	17W	503185 7976522	-	AN11	-	2020-08-02	15:49	2020-08-02	16:30	0.68	2	Released
469	ARSC	145.0	36.3	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
434	FHSC	173.0	48.3	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
435	FHSC	174.0	51.4	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
436	FHSC	176.0	54.9	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
437	FHSC	191.0	78.6	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
438	FHSC	172.0	44.3	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
439	FHSC	179.0	52.7	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
440	FHSC	163.0	43.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
441	FHSC	204.0	75.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
442	FHSC	130.0	19.0	U	J	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
443	FHSC	156.0	31.0	U	J	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
444	FHSC	160.0	38.7	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
445	FHSC	185.0	53.1	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
446	FHSC	157.0	30.0	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
447	FHSC	213.0	97.2	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
448	FHSC	228.0	113.9	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
449	FHSC	207.0	95.4	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
450	FHSC	170.0	38.7	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
451	FHSC	234.0	120.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
452	FHSC	160.0	34.4	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
453	FHSC	182.0	62.4	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
454	FHSC	167.0	45.3	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
455	FHSC	194.0	70.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
456	FHSC	169.0	40.3	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
457	FHSC	150.0	29.5	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
458	FHSC	175.0	48.8	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
459	FHSC	165.0	38.9	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
460	FHSC	163.0	43.1	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
461	FHSC	169.0	37.4	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
462	FHSC	163.0	38.6	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
463	FHSC	173.0	46.7	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
464	FHSC	164.0	37.2	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
465	FHSC	140.0	21.1	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
466	FHSC	175.0	47.6	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
467	FHSC	150.0	26.6	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
468	FHSC	157.0	37.7	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
470	FHSC	140.0	21.7	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
471	FHSC	159.0	35.2	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
472	FHSC	163.0	36.1	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
473	FHSC	136.0	17.7	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
474	FHSC	148.0	30.2	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
475	FHSC	127.0	19.0	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
476	FHSC	129.0	15.7	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
477	FHSC	134.0	18.9	U	U	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
478	FHSC	310.0	380.0	F	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
479	FHSC	236.0	147.7	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
480	FHSC	212.0	78.1	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
481	FHSC	226.0	103.8	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
482	FHSC	190.0	65.5	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
483	FHSC	220.0	104.0	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
484	FHSC	250.0	150.0	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
485	FHSC	198.0	70.6	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
486	FHSC	197.0	70.4	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
487	FHSC	235.0	118.8	F	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
488	FHSC	214.0	86.3	F	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
489	FHSC	276.0	230.0	M	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Euthanized
490	FHSC	244.0	140.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
491	FHSC	263.0	200.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
492	FHSC	263.0	160.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
493	FHSC	200.0	68.4	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
494	FHSC	229.0	120.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
495	FHSC	191.0	60.0	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
496	FHSC	209.0	90.9	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
497	FHSC	204.0	74.8	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
498	FHSC	200.0	74.7	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
499	FHSC	196.0	72.1	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
500	FHSC	196.0	71.5	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
501	FHSC	184.0	54.3	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
502	FHSC	210.0	81.6	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
430	SHSC	190.0	71.1	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
431	SHSC	174.0	53.3	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
432	SHSC	219.0	102.5	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
433	SHSC	200.0	73.1	U	A	2020-08-03	Angling - Jigging	AN12	DPF	17W	503213 7976562	-	AN12	-	2020-08-03	11:21	2020-08-03	12:35	1.23	-	Released
584	ARSC	178.0	60.0	-	-	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released
585	GRCD	378.0	710.0	-	-	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released
587	GRCD	436.0	830.0	U	A	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released
588	GRCD	636.0	2980.0	U	A	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released

Table 2. 2020 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
589	GRCD	441.0	1100.0	U	A	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released
590	GRCD	610.0	2470.0	U	A	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released
586	SHSC	408.0	740.0	U	A	2020-08-05	Angling - Jigging	AN13	DPF	17W	503213 7976610	-	AN13	-	2020-08-05	11:13	2020-08-05	12:45	1.53	10	Released
NFC	-	-	-	-	-	2020-08-05	Angling - Jigging	AN14	DPF	17W	503214 7976572	502775 7976251	AN14A	AN14B	2020-08-05	10:44	2020-08-05	10:54	0.17	-	-
506	FHSC	201.0	73.4	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
507	FHSC	236.0	190.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
508	FHSC	243.0	130.0	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
509	FHSC	243.0	150.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
510	FHSC	272.0	180.0	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
511	FHSC	220.0	95.6	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
512	FHSC	213.0	97.2	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
513	FHSC	251.0	130.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
514	FHSC	203.0	72.0	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
515	FHSC	254.0	190.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
516	FHSC	232.0	95.8	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
517	FHSC	235.0	130.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
518	FHSC	241.0	130.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
519	FHSC	233.0	118.4	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
520	FHSC	208.0	83.3	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
521	FHSC	217.0	83.4	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
522	FHSC	231.0	130.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
523	FHSC	253.0	150.0	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
524	FHSC	205.0	82.7	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
525	FHSC	228.0	100.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
526	FHSC	200.0	71.9	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
527	FHSC	199.0	79.4	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
528	FHSC	197.0	68.5	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
529	FHSC	195.0	69.1	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
530	FHSC	208.0	78.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
531	FHSC	204.0	77.2	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
532	FHSC	192.0	64.4	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
533	FHSC	211.0	86.0	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
534	FHSC	207.0	80.4	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
535	FHSC	181.0	56.3	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
536	FHSC	209.0	86.7	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
537	FHSC	191.0	70.4	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
538	FHSC	179.0	48.7	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
539	FHSC	210.0	88.8	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
540	FHSC	219.0	96.3	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
541	FHSC	194.0	52.4	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
542	FHSC	175.0	51.8	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
543	FHSC	193.0	71.3	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
544	FHSC	242.0	120.0	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
545	FHSC	148.0	29.5	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
546	FHSC	189.0	65.0	M	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
547	FHSC	162.0	37.1	F	A	2020-08-05	Angling - Jigging	AN15	DPF	17W	503391 7976593	-	AN15	-	2020-08-05	16:10	2020-08-05	17:05	0.92	2	Released
591	GRCD	598.0	2400.0	U	A	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
592	GRCD	414.0	830.0	U	U	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
593	GRCD	548.0	1880.0	U	A	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
594	GRCD	454.0	1000.0	U	U	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
595	GRCD	506.0	1610.0	U	A	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
596	GRCD	497.0	1310.0	U	U	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
597	GRCD	444.0	480.0	U	U	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released

Table 2. 2020 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
598	GRCD	446.0	1010.0	U	U	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
599	GRCD	520.0	1490.0	U	A	2020-08-06	Angling - Jigging	AN16	IPF	17W	505726 7978486	-	AN16	-	2020-08-06	16:25	2020-08-06	17:00	0.58	15	Released
600	GRCD	474.0	1210.0	U	U	2020-08-07	Angling - Jigging	AN17	IPF	17W	505710 7978466	-	AN17	-	2020-08-07	10:00	2020-08-07	10:34	0.57	15	Released
601	GRCD	490.0	1370.0	U	U	2020-08-07	Angling - Jigging	AN17	IPF	17W	505710 7978466	-	AN17	-	2020-08-07	10:00	2020-08-07	10:34	0.57	15	Released
602	GRCD	494.0	1470.0	U	U	2020-08-07	Angling - Jigging	AN17	IPF	17W	505710 7978466	-	AN17	-	2020-08-07	10:00	2020-08-07	10:34	0.57	15	Euthanized
603	GRCD	628.0	2980.0	U	A	2020-08-07	Angling - Jigging	AN17	IPF	17W	505710 7978466	-	AN17	-	2020-08-07	10:00	2020-08-07	10:34	0.57	15	Released
604	GRCD	510.0	1420.0	U	A	2020-08-07	Angling - Jigging	AN17	IPF	17W	505710 7978466	-	AN17	-	2020-08-07	10:00	2020-08-07	10:34	0.57	15	Released
605	GRCD	440.0	1120.0	U	A	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
606	GRCD	470.0	1140.0	U	U	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
607	GRCD	451.0	1040.0	U	U	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
608	GRCD	485.0	1330.0	U	U	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
609	SHSC	375.0	610.0	U	A	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
610	SHSC	421.0	1060.0	U	A	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
611	SHSC	286.0	260.0	U	A	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
612	SHSC	351.0	480.0	U	A	2020-08-08	Angling - Jigging	AN18	DPF	17W	503210 7976609	-	AN18	-	2020-08-08	10:50	2020-08-08	11:20	0.50	15	Released
NFC	-	-	-	-	-	2020-08-08	Angling - Trolling	AN19	DPF	17W	504197 7976632	504054 7976893	AN19S	AN19E	2020-08-08	14:23	2020-08-08	15:40	1.28	2	-
613	GRCD	513.0	1040.0	U	A	2020-08-09	Angling - Jigging	AN20	IPF	17W	506244 7978922	-	AN20	-	2020-08-09	10:41	2020-08-09	12:05	1.40	20	Released
614	GRCD	517.0	1710.0	U	A	2020-08-09	Angling - Jigging	AN20	IPF	17W	506244 7978922	-	AN20	-	2020-08-09	10:41	2020-08-09	12:05	1.40	20	Released
615	SHSC	270.0	330.0	U	A	2020-08-09	Angling - Jigging	AN20	IPF	17W	506244 7978922	-	AN20	-	2020-08-09	10:41	2020-08-09	12:05	1.40	20	Released
616	SHSC	362.0	640.0	U	A	2020-08-09	Angling - Jigging	AN21	IPF	17W	505263 797877	-	AN21	-	2020-08-09	12:44	2020-08-09	13:00	0.27	3	Released
617	SHSC	211.0	110.0	U	A	2020-08-09	Angling - Jigging	AN21	IPF	17W	505263 797877	-	AN21	-	2020-08-09	12:44	2020-08-09	13:00	0.27	3	Released
618	SHSC	155.0	60.0	U	A	2020-08-09	Angling - Trolling	AN22	IPF	17W	505316 7978102	505140 7977163	AN22S	AN22	2020-08-09	15:39	2020-08-09	16:20	0.68	3	Released
619	FHSC	192.0	68.9	F	A	2020-08-09	Angling - Jigging	AN23	DPF	17W	504040 7976628	-	AN23	-	2020-08-09	16:50	2020-08-09	17:10	0.33	2	Released
NFC	-	-	-	-	-	2020-08-09	Angling - Trolling	AN24	IPF	17W	504123 7976633	505138 7977193	AN24S	AN24E	2020-08-09	15:23	2020-08-09	15:44	0.35	2	-
NFC	-	-	-	-	-	2020-08-11	Angling - Jigging	AN25	DPF	17W	503072 7976373	-	AN25	-	2020-08-11	10:27	2020-08-11	10:37	0.17	25	-
652	GRCD	475.0	1240.0	U	U	2020-08-11	Angling - Jigging	AN26	DPF	17W	503207 7976594	-	AN26	-	2020-08-11	15:23	2020-08-11	15:45	0.37	15	Released
NFC	-	-	-	-	-	2020-08-11	Angling - Trolling	AN27(a)	DPF	17W	504059 7976674	504545 7976652	AN27	-	2020-08-11	16:31	2020-08-11	16:45	0.23	3	-
710	ARCH	325.0	420.0	U	J	2020-08-14	Angling - Jigging	AN27(b)	IPF	17W	505301 7978060	-	AN27	-	2020-08-14	9:32	2020-08-14	10:00	0.47	-	Released
711	SHSC	290.0	340.0	-	-	2020-08-14	Angling - Jigging	AN27(b)	IPF	17W	505301 7978060	-	AN27	-	2020-08-14	9:32	2020-08-14	10:00	0.47	-	Released
720	FHSC	260.0	250.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
712	SHSC	344.0	650.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
713	SHSC	373.0	760.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
714	SHSC	342.0	480.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
715	SHSC	289.0	290.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
716	SHSC	292.0	360.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
717	SHSC	250.0	180.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
718	SHSC	278.0	270.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
719	SHSC	217.0	100.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
721	SHSC	277.0	290.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
722	SHSC	232.0	170.0	U	A	2020-08-14	Angling - Jigging	AN28	DPF	17W	503955 7976671	-	AN28	-	2020-08-14	10:40	2020-08-14	11:00	0.33	4	Released
723	SHSC	368.0	630.0	U	A	2020-08-14	Angling - Jigging	AN29	IPF	17W	505036 7976854	-	AN29	-	2020-08-14	14:05	2020-08-14	14:38	0.55	30	Released
724	SHSC	234.0	210.0	U	A	2020-08-14	Angling - Jigging	AN29	IPF	17W	505036 7976854	-	AN29	-	2020-08-14	14:05	2020-08-14	14:38	0.55	30	Released
725	SHSC	200.0	90.0	U	A	2020-08-14	Angling - Jigging	AN29	IPF	17W	505036 7976854	-	AN29	-	2020-08-14	14:05	2020-08-14	14:38	0.55	30	Released
726	ARSC	130.0	32.8	-	-	2020-08-15	Angling - Jigging	AN30	DPF	17W	503364 7976586	-	AN30	-	2020-08-15	9:45	2020-08-15	10:20	0.58	2	Released
727	ARSC	131.0	28.5	-	-	2020-08-15	Angling - Jigging	AN30	DPF	17W	503364 7976586	-	AN30	-	2020-08-15	9:45	2020-08-15	10:20	0.58	2	Released
728	FHSC	151.0	31.1	F	-	2020-08-15	Angling - Jigging	AN30	DPF	17W	503364 7976586	-	AN30	-	2020-08-15	9:45	2020-08-15	10:20	0.58	2	Released
301	SHSC	200.0	11.7	M	A	2020-07-27	Fukui Trap	FT01	DPF	17W	502887 7976396	-	FT01	-	2020-07-27	15:31	2020-08-01	10:22	114.85	10	Released
NFC	-	-	-	-	-	2020-07-28	Fukui Trap	FT02	DPF	17W	502706 7976270	-	176/177	-	2020-07-28	10:45	2020-08-01	9:55	95.17	8	-
308	FHSC	217.0	88.9	F	A	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Euthanized
302	SHSC	124.0	22.3	U	J	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Released
303	UNSC	75.0	4.4	U	J	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Released
304	UNSC	61.0	2.7	U	J	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Released
305	UNSC	72.0	4.3	U	J	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Released

Table 2. 2020 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
306	UNSC	68.0	4.2	U	J	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Released
307	UNSC	60.0	2.8	U	J	2020-07-28	Fukui Trap	FT03	IPF	17W	502260 7976451	-	178/179	-	2020-07-28	11:44	2020-08-01	9:40	93.93	5	Released
309	UNSC	65.0	4.1	U	J	2020-07-28	Fukui Trap	FT04	IPF	17W	501484 7976207	-	180/181	-	2020-07-28	12:01	2020-08-01	10:15	94.23	10	Released
NFC	-	-	-	-	-	2020-07-28	Fukui Trap	FT05	DPF	17W	502734 7976422	-	FT05	-	2020-07-28	12:07	2020-08-01	9:50	93.72	20	-
NFC	-	-	-	-	-	2020-07-28	Fukui Trap	FT06	DPF	17W	502995 7976409	-	FT06	-	2020-07-28	12:10	2020-08-01	10:00	93.83	20	-
565	FHSC	166.0	47.2	U	U	2020-08-01	Fukui Trap	FT07	DPF	17w	503177 7976521	-	FT07	-	2020-08-01	10:08	2020-08-05	9:05	94.95	2	Released
566	FHSC	168.0	39.9	U	U	2020-08-01	Fukui Trap	FT07	DPF	17w	503177 7976521	-	FT07	-	2020-08-01	10:08	2020-08-05	9:05	94.95	2	Released
567	UNSC	141.0	21.2	U	J	2020-08-01	Fukui Trap	FT07	DPF	17w	503177 7976521	-	FT07	-	2020-08-01	10:08	2020-08-05	9:05	94.95	2	Released
568	UNSC	123.0	12.7	U	J	2020-08-01	Fukui Trap	FT07	DPF	17w	503177 7976521	-	FT07	-	2020-08-01	10:08	2020-08-05	9:05	94.95	2	Released
564	ARSC	127.0	26.6	U	U	2020-08-01	Fukui Trap	FT08	DPF	17W	503195 7976534	-	FT08	-	2020-08-01	9:11	2020-08-05	9:10	95.98	2	Released
563	FHSC	220.0	92.2	M	A	2020-08-01	Fukui Trap	FT08	DPF	17W	503195 7976534	-	FT08	-	2020-08-01	9:11	2020-08-05	9:10	95.98	2	Euthanized
559	FHSC	224.0	118.8	F	A	2020-08-01	Fukui Trap	FT09	DPF	17W	503212 7976554	-	FT09	-	2020-08-01	10:14	2020-08-05	9:15	95.02	2	Released
560	FHSC	223.0	108.1	F	A	2020-08-01	Fukui Trap	FT09	DPF	17W	503212 7976554	-	FT09	-	2020-08-01	10:14	2020-08-05	9:15	95.02	2	Released
561	FHSC	196.0	66.4	F	A	2020-08-01	Fukui Trap	FT09	DPF	17W	503212 7976554	-	FT09	-	2020-08-01	10:14	2020-08-05	9:15	95.02	2	Released
562	UNSC	149.0	29.2	U	J	2020-08-01	Fukui Trap	FT09	DPF	17W	503212 7976554	-	FT09	-	2020-08-01	10:14	2020-08-05	9:15	95.02	2	Released
762	ARSC	112.0	20.6	U	U	2020-08-01	Fukui Trap	FT10	DPF	17W	503394 7976642	-	FT10	-	2020-08-01	10:31	2020-08-02	8:42	22.18	3	Released
763	FHSC	202.0	66.4	F	A	2020-08-01	Fukui Trap	FT10	DPF	17W	503394 7976642	-	FT10	-	2020-08-01	10:31	2020-08-02	8:42	22.18	3	Euthanized
551	ARSC	119.0	20.7	U	U	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
552	FHSC	214.0	84.5	F	A	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
554	FHSC	196.0	67.6	F	A	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
555	FHSC	195.0	68.2	F	A	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
557	FHSC	186.0	54.2	F	A	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
550	NRSL	170.0	16.2	U	U	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
553	UNSC	130.0	18.7	U	J	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
556	UNSC	140.0	21.8	U	J	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
558	UNSC	134.0	19.3	U	J	2020-08-01	Fukui Trap	FT11	DPF	17W	503494 7976629	-	FT11	-	2020-08-01	10:30	2020-08-05	9:30	95.00	3	Released
549	ARSC	200.0	117.8	U	A	2020-08-01	Fukui Trap	FT12	DPF	17W	503464 7976592	-	FT12	-	2020-08-01	10:34	2020-08-05	9:35	95.02	3	Released
548	FHSC	177.0	47.5	M	A	2020-08-01	Fukui Trap	FT12	DPF	17W	503464 7976592	-	FT12	-	2020-08-01	10:34	2020-08-05	9:35	95.02	3	Released
657	FHSC	235.0	111.9	F	A	2020-08-05	Fukui Trap	FT13	DPF	17W	503922 7976599	-	FT13	-	2020-08-05	9:23	2020-08-11	10:55	121.53	5	Released
656	NRSL	168.0	16.8	U	A	2020-08-05	Fukui Trap	FT13	DPF	17W	503922 7976599	-	FT13	-	2020-08-05	9:23	2020-08-11	10:55	121.53	5	Released
654	ARSC	132.0	30.9	U	U	2020-08-05	Fukui Trap	FT14	DPF	17W	503889 7976626	-	FT14	-	2020-08-05	9:25	2020-08-11	11:05	145.67	5	Released
655	ARSC	90.0	8.8	U	U	2020-08-05	Fukui Trap	FT14	DPF	17W	503889 7976626	-	FT14	-	2020-08-05	9:25	2020-08-11	11:05	145.67	5	Released
653	SHSC	181.0	40.0	U	U	2020-08-05	Fukui Trap	FT14	DPF	17W	503889 7976626	-	FT14	-	2020-08-05	9:25	2020-08-11	11:05	145.67	5	Released
658	FHSC	194.0	20.0	U	U	2020-08-05	Fukui Trap	FT15	DPF	17W	503900 7976672	-	FT15	-	2020-08-05	9:26	2020-08-11	11:15	145.82	5	Released
NFC	-	-	-	-	-	2020-08-05	Fukui Trap	FT16	DPF	17W	504049 7976642	-	FT16	-	2020-08-05	9:56	2020-08-11	11:25	145.48	5	-
NFC	-	-	-	-	-	2020-08-05	Fukui Trap	FT17	DPF	17W	504005 7976663	-	FT17	-	2020-08-05	9:58	2020-08-11	11:30	145.53	5	-
751	FLSB	280.0	-	U	U	2020-08-11	Fukui Trap	FT18	DPF	17W	503903 7976750	-	FT18	-	2020-08-11	11:00	2020-08-15	15:55	100.92	20	Released
NFC	-	-	-	-	-	2020-08-11	Fukui Trap	FT19	DPF	17W	503960 7976771	-	FT19	-	2020-08-11	11:07	2020-08-15	16:05	100.97	20	-
753	ARSC	138.0	37.2	U	U	2020-08-11	Fukui Trap	FT20	DPF	17W	504140 7976580	-	FT20	-	2020-08-11	11:14	2020-08-15	16:15	101.02	5	Released
752	FHSC	189.0	55.6	M	A	2020-08-11	Fukui Trap	FT20	DPF	17W	504140 7976580	-	FT20	-	2020-08-11	11:14	2020-08-15	16:15	101.02	5	Released
754	FHSC	150.0	29.6	-	-	2020-08-11	Fukui Trap	FT20	DPF	17W	504140 7976580	-	FT20	-	2020-08-11	11:14	2020-08-15	16:15	101.02	5	Released
NFC	-	-	-	-	-	2020-08-11	Fukui Trap	FT21	DPF	17W	504304 7976730	-	FT21	-	2020-08-11	11:21	2020-08-15	16:25	101.07	20	-
NFC	-	-	-	-	-	2020-08-11	Fukui Trap	FT22	IPF	17W	504609 7976678	-	FT22	-	2020-08-11	11:44	2020-08-15	16:30	100.77	2	-
NFC	-	-	-	-	-	2020-08-15	Fukui Trap	FT23	DPF	17W	503980 7976881	-	FT23	-	2020-08-15	16:00	2020-08-20	8:00	112.00	50	-
NFC	-	-	-	-	-	2020-08-15	Fukui Trap	FT24	DPF	17W	504179 7976704	-	FT24	-	2020-08-15	16:07	2020-08-20	8:10	112.05	20	-
NFC	-	-	-	-	-	2020-08-15	Fukui Trap	FT25	DPF	17W	503824 7976635	-	FT25	-	2020-08-15	16:13	2020-08-20	13:35	117.37	2	-
761	FHSC	159.0	37.8	U	U	2020-08-15	Fukui Trap	FT26	DPF	17W	503706 7976518	-	FT26	-	2020-08-15	16:30	2020-08-20	13:30	117.00	2	Released
NFC	-	-	-	-	-	2020-08-15	Fukui Trap	FT27	DPF	17W	503535 7976530	-	FT27	-	2020-08-15	16:35	2020-08-20	13:25	116.83	2	-
128	ARCH	505.0	1020.0	U	A	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
129	ARCH	599.0	1960.0	M	A	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
130	ARCH	441.0	910.0	U	A	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
131	ARCH	272.0	120.0	U	U	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
132	FHSC	216.0	91.2	U	A	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
133	FHSC	198.0	61.2	U	A	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
134	FHSC	209.0	71.8	U	A	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
135	FHSC	164.0	36.2	U	U	2020-07-27	Gill Net	GN01	DPF	17W	502979 7976335	502938 7976419	GN01A	GN01B	2020-07-27	15:45	2020-07-27	17:45	2.00	5	Mortality
136	ARCH	602.0	2320.0	F	A	2020-07-27	Gill Net	GN02	DPF	17W	502717 7976229	502740 7976321	GN02A	GN02B	2020-07-27	15:59	2020-07-27	17:59	2.00	-	Mortality
137	ARCH	512.0	1320.0	F	A	2020-07-27	Gill Net	GN02	DPF	17W	502717 7976229	502740 7976321	GN02A	GN02B	2020-07-27	15:59	2020-07-27	17:59	2.00	-	Mortality
139	FHSC	173.0	41.0	U	U	2020-07-27	Gill Net	GN02	DPF	17W	502717 7976229	502740 7976321	GN02A	GN02B	2020-07-27	15:59	2020-07-27	17:59	2.00	-	Released
140	FHSC	174.0	45.7	U	A	2020-07-27	Gill Net	GN02	DPF	17W	502717 7976229	502740 7976321	GN02A	GN02B	2020-07-27	15:59	2020-07-27	17:59	2.00	-	Released
141	FHSC	227.0	114.0	U	A	2020-07-27	Gill Net	GN02	DPF	17W	502717 7976229	502740 7976321	GN02A	GN02B	2020-07-27	15:59	2020-07-27	17:59	2.00	-	Released
138	UNSC	120.0	16.4	U	U	2020-07-27	Gill Net	GN02	DPF	17W	502717 7976229	502740 7976321	GN02A	GN02B	2020-07-27	15:59	2020-07-27	17:59	2.00	-	Released
NFC	-	-	-	-	-	2020-07-28	Gill Net	GN03	IPF	17W	501830 7976071	501894 7976184	GN03A	GN03B	2020-07-28	10:23	2020-07-28	13:30	3.12	-	-
142	SHSC	188.0	52.1	U	U	2020-07-28	Gill Net	GN04	DPF	17W	502787 7976222	502809 7976340	GN04A	GN04B	2020-07-28	11:06	2020-07-28	17:40	6.57	-	Released
143	UNSC	135.0	19.5	U	J	2020-07-28	Gill Net	GN04	DPF	17W	502787 7976222	502809 7976340	GN04A	GN04B	2020-07-28	11:06	2020-07-28	17:40	6.57	-	Released
144	UNSC	131.0	18.6	U	J	2020-07-28	Gill Net	GN04	DPF	17W	502787 7976222	502809 7976340	GN04A	GN04B	2020-07-28	11:06	2020-07-28	17:40	6.57	-	Released
145	FHSC	247.0	150.0	U	U	2020-07-28	Gill Net	GN05	IPF	17W	502495 7976268	502565 7976342	GN05A	GN05B	2020-07-28	11:17	2020-07-28	17:55	6.63	-	Released
146	ARCH	640.0	2980.0	U	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
147	ARCH	395.0	610.0	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
148	ARCH	348.0	480.0	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Euthanized
154	ARCH	558.0	1980.0	F	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Euthanized
155	ARCH	491.0	1300.0	U	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
156	ARCH	139.0	24.9	U	J	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Mortality
157	ARCH	134.0	21.9	U	J	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
158	ARCH	142.0	30.1	U	J	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Mortality
149	FHSC	261.0	240.0	U	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
150	FHSC	192.0	66.6	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
151	FHSC	201.0	67.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
160	FHSC	294.0	310.0	U	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
161	FHSC	243.0	110.0	U	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
162	FHSC	211.0	79.2	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
163	FHSC	230.0	110.0	U	A	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
164	FHSC	215.0	86.9	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
165	FHSC	214.0	93.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
166	FHSC	238.0	112.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
167	FHSC	193.0	71.8	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
168	FHSC	194.0	67.0	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
169	FHSC	199.0	82.6	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
171	FHSC	185.0	65.2	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
172	FHSC	191.0	73.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
173	FHSC	180.0	53.2	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
175	FHSC	189.0	65.8	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
176	FHSC	184.0	59.6	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
177	FHSC	166.0	43.5	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
178	FHSC	196.0	57.1	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
180	FHSC	175.0	46.4	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
181	FHSC	149.0	25.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
182	FHSC	157.0	35.6	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
183	FHSC	166.0	39.9	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
186	FHSC	187.0	56.5	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
153	SHSC	152.0	27.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
174	SHSC	188.0	62.9	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
179	SHSC	153.0	29.5	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
185	SHSC	130.0	19.2	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
159	STSC	168.0	90.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
152	UNSC	150.0	28.7	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
170	UNSC	153.0	28.1	U	J	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
184	UNSC	128.0	18.2	U	U	2020-07-28	Gill Net	GN06	DPF	17W	502999 7976400	502971 7976482	GN06A	GN06B	2020-07-28	14:01	2020-07-28	17:15	3.23	-	Released
187	ARCH	652.0	3400.0	M	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Released
188	ARCH	542.0	1650.0	U	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Released
189	ARCH	528.0	1420.0	U	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Mortality
190	ARCH	516.0	1400.0	U	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Mortality
191	FHSC	226.0	96.0	U	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Released
192	FHSC	252.0	130.0	U	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Released
193	FHSC	232.0	925.0	U	A	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Released
194	FHSC	182.0	48.3	-	-	2020-07-29	Gill Net	GN07	DPF	17W	503889 7976639	503833 7976711	GN07A	GN07B	2020-07-29	9:46	2020-07-29	14:30	4.73	-	Released
195	ARCH	440.0	900.0	U	A	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Mortality
202	ARCH	142.0	22.2	-	-	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
204	ARCH	368.0	600.0	-	-	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
196	FHSC	172.0	44.5	U	U	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
197	FHSC	202.0	77.0	U	A	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
198	FHSC	170.0	42.4	U	U	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
199	FHSC	160.0	35.3	U	U	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
200	FHSC	160.0	36.6	U	U	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
201	FHSC	162.0	35.9	U	U	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
203	FHSC	118.0	13.2	-	-	2020-07-29	Gill Net	GN08	DPF	17W	503722 7976368	503761 7976464	GN08A	GN08B	2020-07-29	10:01	2020-07-29	14:45	4.73	-	Released
205	FHSC	218.0	101.3	U	A	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
206	FHSC	166.0	41.1	U	U	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
207	FHSC	184.0	59.1	U	U	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
208	FHSC	156.0	35.7	U	U	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
209	FHSC	160.0	37.2	U	U	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
210	FHSC	192.0	57.9	U	A	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
211	FHSC	170.0	47.2	-	-	2020-07-29	Gill Net	GN09	DPF	17W	503722 7976368	-	GN08A	GN08B	2020-07-29	10:01	2020-07-29	12:00	1.98	-	Released
212	ARCH	638.0	3260.0	U	A	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Euthanized
213	ARCH	422.0	720.0	U	A	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
214	ARCH	338.0	340.0	U	A	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
215	ARCH	378.0	460.0	U	A	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Mortality
216	ARCH	420.0	830.0	U	A	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Mortality
217	ARCH	352.0	490.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Mortality
218	ARCH	411.0	860.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Mortality
219	ARCH	480.0	1380.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Euthanized
220	ARCH	355.0	450.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Euthanized
221	ARCH	412.0	880.0	F	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Euthanized
222	ARCH	528.0	1660.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Euthanized
223	ARCH	427.0	870.0	F	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Mortality
224	ARCH	313.0	360.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Euthanized
225	ARCH	314.0	400.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Mortality
231	ARCH	414.0	890.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
232	ARCH	326.0	450.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
233	ARCH	326.0	350.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
226	FHSC	244.0	130.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
227	FHSC	260.0	180.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
228	FHSC	268.0	210.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
229	FHSC	200.0	74.4	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
230	FHSC	198.0	61.3	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
234	FHSC	314.0	400.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
235	FHSC	304.0	310.0	-	-	2020-07-29	Gill Net	GN10	DPF	17W	504084 7976589	504114 7976676	GN10A	GN10B	2020-07-29	7:43	2020-07-29	14:15	6.53	-	Released
236	ARCH	623.0	2760.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
237	ARCH	447.0	1100.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
238	ARCH	400.0	740.0	U	U	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
239	ARCH	282.0	260.0	U	U	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
246	ARCH	512.0	1700.0	M	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
247	ARCH	430.0	870.0	-	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
251	ARCH	668.0	4040.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
252	ARCH	459.0	1310.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
253	ARCH	478.0	1260.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
254	ARCH	460.0	1320.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Mortality
255	ARCH	462.0	1240.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
256	ARCH	432.0	1070.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
257	ARCH	439.0	940.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
258	ARCH	409.0	780.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
259	ARCH	456.0	1370.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
260	ARCH	366.0	690.0	U	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
261	ARCH	268.0	230.0	U	J	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
240	FHSC	216.0	89.3	F	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
241	FHSC	168.0	37.5	U	U	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
242	FHSC	180.0	52.1	U	U	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
243	FHSC	201.0	86.6	M	A	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
245	FHSC	199.0	76.1	-	-	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
250	FHSC	252.0	170.0	-	-	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Euthanized
248	NRSL	168.0	16.7	-	-	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
244	SHSC	150.0	25.8	U	U	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
249	SHSC	144.0	22.4	U	J	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
262	SHSC	129.0	15.3	U	J	2020-07-30	Gill Net	GN11	DPF	17W	503026 7976388	502918 7976365	GN11A	GN11B	2020-07-30	8:41	2020-07-30	16:08	7.45	-	Released
263	ARCH	636.0	2910.0	U	A	2020-07-30	Gill Net	GN12	DPF	17W	503055 7976426	502979 7976504	GN12A	GN12B	2020-07-20	12:27	2020-07-30	16:20	3.88	-	Released
266	FHSC	295.0	260.0	A	F	2020-07-30	Gill Net	GN12	DPF	17W	503055 7976426	502979 7976504	GN12A	GN12B	2020-07-20	12:27	2020-07-30	16:20	3.88	-	Euthanized
264	SHSC	164.0	40.2	U	J	2020-07-30	Gill Net	GN12	DPF	17W	503055 7976426	502979 7976504	GN12A	GN12B	2020-07-20	12:27	2020-07-30	16:20	3.88	-	Released
267	SHSC	290.0	370.0	U	A	2020-07-30	Gill Net	GN12	DPF	17W	503055 7976426	502979 7976504	GN12A	GN12B	2020-07-20	12:27	2020-07-30	16:20	3.88	-	Released
265	UNSC	134.0	18.1	U	J	2020-07-30	Gill Net	GN12	DPF	17W	503055 7976426	502979 7976504	GN12A	GN12B	2020-07-20	12:27	2020-07-30	16:20	3.88	-	Released
272	ARCH	302.0	270.0	U	J	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
281	ARCH	509.0	1920.0	U	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
282	ARCH	366.0	610.0	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
283	ARCH	414.0	760.0	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
284	ARCH	374.0	720.0	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
268	FHSC	175.0	47.6	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
269	FHSC	125.0	13.6	U	J	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
270	FHSC	161.0	33.2	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
273	FHSC	219.0	102.0	-	-	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
274	FHSC	199.0	70.9	-	-	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
275	FHSC	185.0	55.9	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
277	FHSC	185.0	55.1	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
279	FHSC	170.0	51.2	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
280	FHSC	160.0	35.4	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
286	FHSC	184.0	64.6	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
287	FHSC	188.0	58.3	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
288	FHSC	175.0	52.9	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
290	FHSC	182.0	57.0	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
291	FHSC	168.0	36.7	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
292	FHSC	161.0	34.8	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
293	FHSC	183.0	67.0	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
295	FHSC	137.0	23.2	U	J	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
296	FHSC	198.0	65.8	F	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
297	FHSC	210.0	69.6	F	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
298	FHSC	194.0	79.7	F	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
299	FHSC	223.0	110.8	M	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
300	FHSC	211.0	90.0	F	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Euthanized
271	SHSC	191.0	67.3	U	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
276	SHSC	186.0	51.9	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
285	SHSC	366.0	720.0	U	A	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
294	SHSC	194.0	63.4	U	U	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
278	UNSC	122.0	17.6	U	J	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
289	UNSC	129.0	17.3	U	J	2020-08-01	Gill Net	GN13	DPF	17W	503147 7976494	503061 7976545	087	088	2020-08-01	11:00	2020-08-01	16:30	5.50	-	Released
393	ARCH	526.0	1620.0	U	A	2020-08-02	Gill Net	GN14	IPF	17W	504832 7976584	504815 7976671	GN014S	GN014E	2020-08-02	12:13	2020-08-02	13:30	1.28	-	Released
394	ARCH	380.0	510.0	U	J	2020-08-02	Gill Net	GN14	IPF	17W	504832 7976584	504815 7976671	GN014S	GN014E	2020-08-02	12:13	2020-08-02	13:30	1.28	-	Released
395	ARCH	850.0	6110.0	U	A	2020-08-02	Gill Net	GN14	IPF	17W	504832 7976584	504815 7976671	GN014S	GN014E	2020-08-02	12:13	2020-08-02	13:30	1.28	-	Released
396	ARCH	425.0	520.0	U	U	2020-08-02	Gill Net	GN14	IPF	17W	504832 7976584	504815 7976671	GN014S	GN014E	2020-08-02	12:13	2020-08-02	13:30	1.28	-	Euthanized
397	FHSC	257.0	170.0	F	A	2020-08-02	Gill Net	GN14	IPF	17W	504832 7976584	504815 7976671	GN014S	GN014E	2020-08-02	12:13	2020-08-02	13:30	1.28	-	Euthanized
398	FHSC	221.0	104.8	F	A	2020-08-02	Gill Net	GN14	IPF	17W	504832 7976584	504815 7976671	GN014S	GN014E	2020-08-02	12:13	2020-08-02	13:30	1.28	-	Euthanized
399	ARCH	350.0	300.0	U	U	2020-08-02	Gill Net	GN15	IPF	17W	504675 7976589	504589 7976625	GN015A	GN015B	2020-08-02	12:32	2020-08-02	15:30	2.97	-	Released
400	ARCH	381.0	600.0	U	U	2020-08-02	Gill Net	GN15	IPF	17W	504675 7976589	504589 7976625	GN015A	GN015B	2020-08-02	12:32	2020-08-02	15:30	2.97	-	Released
401	ARCH	342.0	410.0	U	U	2020-08-02	Gill Net	GN15	IPF	17W	504675 7976589	504589 7976625	GN015A	GN015B	2020-08-02	12:32	2020-08-02	15:30	2.97	-	Released
402	ARCH	361.0	520.0	U	U	2020-08-02	Gill Net	GN15	IPF	17W	504675 7976589	504589 7976625	GN015A	GN015B	2020-08-02	12:32	2020-08-02	15:30	2.97	-	Released
403	ARCH	354.0	490.0	U	U	2020-08-02	Gill Net	GN15	IPF	17W	504675 7976589	504589 7976625	GN015A	GN015B	2020-08-02	12:32	2020-08-02	15:30	2.97	-	Euthanized
503	ARCH	424.0	940.0	U	U	2020-08-06	Gill Net	GN16	IPF	17W	505229 7977692	505108 7977629	GN16A	GN16B	2020-08-06	15:52	2020-08-06	17:28	1.60	-	Released
504	ARCH	496.0	1570.0	U	U	2020-08-06	Gill Net	GN16	IPF	17W	505229 7977692	505108 7977629	GN16A	GN16B	2020-08-06	15:52	2020-08-06	17:28	1.60	-	Released
505	ARCH	350.0	460.0	U	U	2020-08-06	Gill Net	GN16	IPF	17W	505229 7977692	505108 7977629	GN16A	GN16B	2020-08-06	15:52	2020-08-06	17:28	1.60	-	Euthanized
569	ARCH	859.0	6710.0	M	A	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
570	ARCH	568.0	2430.0	U	A	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
571	ARCH	638.0	3990.0	U	A	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
572	ARCH	321.0	380.0	U	U	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
573	ARCH	594.0	2550.0	U	U	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
576	ARCH	452.0	1240.0	-	-	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Euthanized
577	ARCH	398.0	750.0	-	-	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Euthanized
574	FHSC	184.0	70.6	M	A	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
575	FHSC	169.0	44.5	M	A	2020-08-08	Gill Net	GN17	DPF	17W	504355 7976465	504369 7976566	GN17S	GN17E	2020-08-08	12:30	2020-08-08	16:35	4.08	-	Released
580	ARCH	674.0	3910.0	U	A	2020-08-08	Gill Net	GN18	IPF	17W	504520 7976478	504468 7976557	GN19S	GN19E	2020-08-08	12:44	2020-08-08	16:40	3.93	-	Euthanized
581	ARCH	453.0	1140.0	U	A	2020-08-08	Gill Net	GN18	IPF	17W	504520 7976478	504468 7976557	GN19S	GN19E	2020-08-08	12:44	2020-08-08	16:40	3.93	-	Euthanized
578	FHSC	226.0	80.0	F	A	2020-08-08	Gill Net	GN18	IPF	17W	504520 7976478	504468 7976557	GN19S	GN19E	2020-08-08	12:44	2020-08-08	16:40	3.93	-	Released
579	FHSC	219.0	70.0	F	A	2020-08-08	Gill Net	GN18	IPF	17W	504520 7976478	504468 7976557	GN19S	GN19E	2020-08-08	12:44	2020-08-08	16:40	3.93	-	Released
582	FHSC	211.0	90.0	M	A	2020-08-08	Gill Net	GN18	IPF	17W	504520 7976478	504468 7976557	GN19S	GN19E	2020-08-08	12:44	2020-08-08	16:40	3.93	-	Released
583	FHSC	212.0	107.9	M	A	2020-08-08	Gill Net	GN18	IPF	17W	504520 7976478	504468 7976557	GN19S	GN19E	2020-08-08	12:44	2020-08-08	16:40	3.93	-	Released
620	ARCH	832.0	3830.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
621	ARCH	443.0	1190.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
622	ARCH	380.0	590.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
623	ARCH	403.0	770.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
624	ARCH	414.0	840.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
631	ARCH	435.0	950.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Euthanized
632	ARCH	372.0	570.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Mortality
633	ARCH	581.0	2500.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
634	ARCH	348.0	510.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
635	ARCH	326.0	320.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
636	ARCH	410.0	810.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
637	ARCH	312.0	340.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
638	ARCH	318.0	380.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
639	ARCH	287.0	250.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
640	ARCH	425.0	740.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
641	ARCH	291.0	270.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
642	ARCH	319.0	360.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
643	ARCH	274.0	260.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
644	ARCH	312.0	340.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
645	ARCH	320.0	210.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
648	ARCH	415.0	900.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Euthanized
649	ARCH	383.0	630.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Euthanized
650	ARCH	342.0	460.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Euthanized
625	FHSC	228.0	120.0	F	A	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
627	FHSC	263.0	210.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
628	FHSC	201.0	40.0	F	A	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
630	FHSC	209.0	60.0	F	A	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
646	FHSC	189.0	30.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
647	FHSC	212.0	70.0	F	A	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
626	SHSC	234.0	180.0	-	-	2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
629	SHSC	209.0	120.0			2020-08-09	Gill Net	GN19	IPF	17W	505308 7977985	505247 7977912	GN19S	-	2020-08-09	14:40	2020-08-09	15:15	0.58	-	Released
659	ARCH	542.0	1780.0	U	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
660	ARCH	556.0	2060.0	U	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
662	ARCH	445.0	790.0	U	U	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Euthanized
663	ARCH	310.0	320.0	U	U	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Euthanized
664	ARCH	472.0	1230.0	U	U	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Euthanized
673	ARCH	409.0	740.0	U	U	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Euthanized
674	ARCH	373.0	500.0	U	U	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Euthanized
675	ARCH	387.0	690.0	U	U	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Euthanized
661	FHSC	216.0	110.0	F	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
668	FHSC	232.0	120.0	F	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
669	FHSC	291.0	310.0	F	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
670	FHSC	264.0	210.0	F	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
671	FHSC	197.0	50.0	F	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
672	FHSC	220.0	110.0	F	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
665	SHSC	234.0	170.0	U	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
666	SHSC	310.0	400.0	U	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
667	SHSC	249.0	200.0	U	A	2020-08-11	Gill Net	GN20	DPF	17W	504052 7976620	504077 7976705	GN20S	GN20E	2020-08-11	14:42	2020-08-11	17:10	2.47	-	Released
677	ARCH	314.0	290.0	U	U	2020-08-13	Gill Net	GN21	DPF	17W	503931 7976573	503844 7976573	GN21S	GN21E	2020-08-13	11:20	2020-08-13	13:45	2.42	-	Released
676	FHSC	149.0	25.0	U	A	2020-08-13	Gill Net	GN21	DPF	17W	503931 7976573	503844 7976573	GN21S	GN21E	2020-08-13	11:20	2020-08-13	13:45	2.42	-	Released
678	ARCH	636.0	3920.0	-	A	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
679	ARCH	463.0	1240.0	-	A	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
680	ARCH	468.0	1230.0	-	-	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
681	ARCH	281.0	280.0	-	-	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
682	ARCH	346.0	470.0	-	-	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
683	ARCH	309.0	340.0	-	-	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
684	ARCH	382.0	530.0	-	-	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
685	ARCH	515.0	1680.0	-	-	2020-08-14	Gill Net	GN22	IPF	17W	504764 7976620	504777 7976709	GN22S	GN22E	2020-08-14	11:35	2020-08-14	15:52	4.28	-	Released
686	ARCH	395.0	760.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
687	ARCH	424.0	1100.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
688	ARCH	352.0	520.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
693	ARCH	436.0	1120.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Euthanized
694	ARCH	587.0	2430.0	-	A	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
695	ARCH	359.0	540.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
696	ARCH	420.0	1020.0		-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
697	ARCH	409.0	820.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
699	ARCH	160.0	10.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
700	ARCH	449.0	1200.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Euthanized
701	ARCH	266.0	130.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Euthanized
702	ARCH	275.0	110.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Euthanized
703	ARCH	318.0	140.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
704	ARCH	340.0	230.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
705	ARCH	475.0	1240.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
706	ARCH	330.0	420.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
707	ARCH	360.0	510.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
708	ARCH	308.0	310.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
709	ARCH	298.0	250.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Euthanized
689	FHSC	241.0	200.0	F	A	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
691	FHSC	245.0	170.0	F	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
690	SHSC	264.0	280.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
692	SHSC	262.0	280.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
698	SHSC	126.0	40.0	-	-	2020-08-14	Gill Net	GN23A	IPF	17W	505158 7976925	505078 7976930	GN23S	GN23E	2020-08-14	11:40	2020-08-14	16:00	4.33	-	Released
729	FHSC	177.0	40.0	F	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
730	FHSC	181.0	40.0	F	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
731	FHSC	257.0	170.0	F	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
732	FHSC	179.0	40.0	M	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
733	FHSC	214.0	90.0	M	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
734	FHSC	178.0	40.0	M	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
735	FHSC	145.0	20.0	M	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
736	FHSC	224.0	130.0	F	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
737	FHSC	178.0	40.0	M	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
738	FHSC	158.0	30.0	F	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
739	FHSC	202.0	89.7	F	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
740	FHSC	163.0	40.9	M	-	2020-08-15	Gill Net	GN23B	DPF	17W	503501 7976433	503500 7976516	GN23S	GN23E	2020-08-15	9:10	2020-08-15	12:30	3.33	-	Released
741	ARCH	542.0	2120.0	-	A	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
742	ARCH	548.0	2160.0	-	A	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Euthanized
745	ARCH	175.0	65.2	-	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
749	ARSC	143.0	39.4	-	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
743	FHSC	210.0	90.0	F	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
744	FHSC	208.0	90.0	M	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
746	FHSC	162.0	37.1	M	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
747	FHSC	207.0	80.5	F	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
748	FHSC	201.0	73.5	M	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
750	FHSC	146.0	32.7	M	-	2020-08-15	Gill Net	GN24	DPF	17W	503291 7976526	503373 7976516	GN24S	GN24E	2020-08-15	9:15	2020-08-15	12:35	3.33	-	Released
81	FHSC	186.0	52.6	U	U	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
82	FHSC	190.0	72.5	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
83	FHSC	178.0	49.5	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
84	FHSC	172.0	43.8	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
85	FHSC	205.0	91.5	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
86	FHSC	230.0	100.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
87	FHSC	160.0	33.4	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
88	FHSC	204.0	92.5	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
89	FHSC	235.0	106.7	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
90	FHSC	-	340.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Mortality
91	FHSC	307.0	290.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
92	FHSC	268.0	200.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
93	FHSC	261.0	130.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
94	FHSC	214.0	84.9	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
95	FHSC	231.0	110.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
96	FHSC	190.0	65.3	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
97	FHSC	231.0	130.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
98	FHSC	174.0	62.5	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
99	FHSC	146.0	26.6	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
100	FHSC	180.0	54.4	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
101	FHSC	139.0	24.4	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
102	FHSC	214.0	99.1	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
104	FHSC	182.0	58.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Mortality
105	FHSC	248.0	120.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
106	FHSC	178.0	51.7	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
107	FHSC	290.0	270.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
108	FHSC	230.0	120.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
110	FHSC	232.0	112.5	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
111	FHSC	192.0	67.9	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
112	FHSC	270.0	250.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
113	FHSC	238.0	130.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
114	FHSC	230.0	150.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
115	FHSC	198.0	79.7	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
116	FHSC	242.0	140.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
117	FHSC	246.0	160.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
118	FHSC	284.0	220.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
119	FHSC	276.0	250.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
120	FHSC	244.0	140.0	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
121	FHSC	198.0	66.2	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
109	SHSC	184.0	64.1	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
80	UNSC	97.0	6.2	U	U	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
103	UNSC	153.0	31.0	U	A	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
122	UNSC	150.0	30.9	-	-	2020-07-24	Hoop Net	HN01	DPF	17W	503013 7976410	-	HN01	-	2020-07-24	12:56	2020-07-28	14:10	97.23	-	Released
123	FHSC	151.0	28.3	-	-	2020-07-24	Hoop Net	HN02	DPF	17W	503050 7976438	-	HN02	-	2020-07-24	13:05	2020-07-28	14:05	97.00	-	Released
124	FHSC	170.0	42.6	-	-	2020-07-24	Hoop Net	HN02	DPF	17W	503050 7976438	-	HN02	-	2020-07-24	13:05	2020-07-28	14:05	97.00	-	Released
125	FHSC	160.0	34.4	-	-	2020-07-24	Hoop Net	HN02	DPF	17W	503050 7976438	-	HN02	-	2020-07-24	13:05	2020-07-28	14:05	97.00	-	Mortality
126	FHSC	165.0	43.1	-	-	2020-07-24	Hoop Net	HN02	DPF	17W	503050 7976438	-	HN02	-	2020-07-24	13:05	2020-07-28	14:05	97.00	-	Mortality
127	FHSC	174.0	67.1	-	-	2020-07-24	Hoop Net	HN02	DPF	17W	503050 7976438	-	HN02	-	2020-07-24	13:05	2020-07-28	14:05	97.00	-	Mortality
311	FHSC	190.0	56.4	U	A	2020-07-28	Hoop Net	HN03	DPF	17W	504015 7976580	-	HN03	-	2020-07-28	16:08	2020-07-31	15:12	71.07	-	Released
310	SHSC	159.0	32.9	U	J	2020-07-28	Hoop Net	HN03	DPF	17W	504015 7976580	-	HN03	-	2020-07-28	16:08	2020-07-31	15:12	71.07	-	Released
312	SHSC	177.0	36.1	-	-	2020-07-28	Hoop Net	HN04	DPF	17W	504128 7976549	-	HN04	-	2020-07-28	16:19	2020-07-31	15:02	70.72	1	Released
408	FHSC	180.0	46.9	U	U	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
409	FHSC	147.0	23.6	U	J	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
410	FHSC	210.0	81.2	F	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
412	FHSC	175.0	48.7	U	U	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
413	FHSC	211.0	89.1	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
414	FHSC	194.0	65.4	F	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
415	FHSC	209.0	79.0	F	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
416	FHSC	174.0	42.1	U	U	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
417	FHSC	182.0	59.0	U	U	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
418	FHSC	189.0	80.2	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
419	FHSC	276.0	230.0	F	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
420	FHSC	190.0	70.7	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
421	FHSC	230.0	125.9	F	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
422	FHSC	216.0	91.2	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Euthanized
423	FHSC	229.0	120.0	F	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
424	FHSC	217.0	101.1	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
425	FHSC	274.0	190.0	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
426	FHSC	219.0	102.2	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
427	FHSC	231.0	130.0	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
428	FHSC	166.0	36.5	U	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
429	FHSC	225.0	107.6	M	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
411	GRCD	472.0	1260.0	U	A	2020-07-31	Hoop Net	HN05	DPF	17W	503012 7976410	-	HN05	0	2020-07-31	15:36	2020-08-04	8:50	89.23	-	Released
404	FHSC	172.0	46.5	U	U	2020-07-31	Hoop Net	HN06	DPF	17W	503138 7976474	-	HN06	-	2020-07-31	15:50	2020-08-04	8:50	89.00	1	Released
405	FHSC	161.0	41.2	U	U	2020-07-31	Hoop Net	HN06	DPF	17W	503138 7976474	-	HN06	-	2020-07-31	15:50	2020-08-04	8:50	89.00	1	Euthanized
406	FHSC	223.0	113.9	F	A	2020-07-31	Hoop Net	HN06	DPF	17W	503138 7976474	-	HN06	-	2020-07-31	15:50	2020-08-04	8:50	89.00	1	Euthanized
407	FHSC	179.0	50.2	U	A	2020-07-31	Hoop Net	HN06	DPF	17W	503138 7976474	-	HN06	-	2020-07-31	15:50	2020-08-04	8:50	89.00	1	Released
NFC	-	-	-	-	-	2020-08-01	Hoop Net	HN07	DPF	17W	503004 7976372	-	HN07	-	2020-08-01	10:19	2020-08-04	8:50	70.52	1	-
651	GRCD	459.0	2300.0	U	A	2020-08-02	Hoop Net	HN08	IPF	17W	504939 7976888	-	HN08	-	2020-08-02	12:09	2020-08-11	11:20	215.18	30	Released
755	FHSC	180.0	45.3	U	U	2020-08-06	Hoop Net	HN09	IPF	17W	504566 7976653	-	HN09	-	2020-08-06	9:12	2020-08-20	13:05	339.88	1	Released
756	FHSC	161.0	38.5	-	-	2020-08-06	Hoop Net	HN09	IPF	17W	504566 7976653	-	HN09	-	2020-08-06	9:12	2020-08-20	13:05	339.88	1	Released
757	ARCH	191.0	79.6	U	J	2020-08-06	Hoop Net	HN10	IPF	17W	504588 7976654	-	HN10	-	2020-08-06	9:25	2020-08-20	13:00	339.58	1	Euthanized
758	FHSC	163.0	33.2	U	U	2020-08-06	Hoop Net	HN10	IPF	17W	504588 7976654	-	HN10	-	2020-08-06	9:25	2020-08-20	13:00	339.58	1	Released
760	ARSC	274.0	200.0	U	A	2020-08-11	Hoop Net	HN11	IPF	17W	505362 7978186	-	HN11	-	2020-08-11	12:10	2020-08-20	8:50	212.67	30	Released
759	GRCD	488.0	1180.0	U	A	2020-08-11	Hoop Net	HN11	IPF	17W	505362 7978186	-	HN11	-	2020-08-11	12:10	2020-08-20	8:50	212.67	30	Released
1	FHSC	134.0	20.3	U	U	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
2	FHSC	134.0	16.6	U	U	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
4	FHSC	130.0	18.9	U	U	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
3	UNSC	90.0	5.2	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
5	UNSC	87.0	5.1	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
6	UNSC	91.0	6.0	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
7	UNSC	95.0	7.0	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
8	UNSC	113.0	9.0	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
9	UNSC	95.0	6.2	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
10	UNSC	89.0	5.2	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
11	UNSC	80.0	3.3	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
12	UNSC	80.0	3.4	U	J	2020-07-24	Seine Net	SN01	DPF	17W	503009 7976382	502986 7976340	SN01A	SN01B	2020-07-24	13:34	2020-07-24	13:43	0.15	-	Released
13	FHSC	187.0	65.0	U	A	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
14	FHSC	193.0	54.0	U	A	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
15	UNSC	135.0	19.6	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
16	UNSC	125.0	15.3	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
17	UNSC	127.0	17.2	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
18	UNSC	81.0	3.9	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
19	UNSC	80.0	4.0	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
20	UNSC	71.0	2.9	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
21	UNSC	78.0	3.1	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
22	UNSC	80.0	3.6	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
23	UNSC	80.0	3.8	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
24	UNSC	81.0	4.0	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
25	UNSC	72.0	2.6	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
26	UNSC	65.0	2.4	U	J	2020-07-24	Seine Net	SN02	DPF	17W	502973 7976348	502937 7976296	SN02A	SN02B	2020-07-24	14:31	2020-07-24	14:40	0.15	-	Released
27	FHSC	177.0	37.9	U	U	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
30	FHSC	142.0	22.3	U	U	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
28	UNSC	131.0	17.7	U	J	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
29	UNSC	94.0	5.9	U	J	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
31	UNSC	91.0	5.6	U	J	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
32	UNSC	88.0	4.9	U	J	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
33	UNSC	106.0	9.3	U	J	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
34	UNSC	133.0	17.8	U	J	2020-07-24	Seine Net	SN03	DPF	17W	502924 7976300	502896 7976256	SN03A	SN03B	2020-07-24	14:43	2020-07-24	14:49	0.10	-	Released
NFC	-	-	-	-	-	2020-07-24	Seine Net	SN04	DPF	17W	502885 7976257	502841 7976218	SN04A	SN04B	2020-07-24	15:13	2020-07-24	15:18	0.08	-	-
35	UNSC	80.0	3.3	U	J	2020-07-24	Seine Net	SN05	DPF	17W	502830 7976228	502775 7976222	SN05A	SN05B	2020-07-24	15:20	2020-07-24	15:25	0.08	-	Released
36	UNSC	79.0	2.9	U	J	2020-07-24	Seine Net	SN05	DPF	17W	502830 7976228	502775 7976222	SN05A	SN05B	2020-07-24	15:20	2020-07-24	15:25	0.08	-	Released

Table 2. 2020 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
37	UNSC	71.0	2.6	U	J	2020-07-24	Seine Net	SN05	DPF	17W	502830 7976228	502775 7976222	SN05A	SN05B	2020-07-24	15:20	2020-07-24	15:25	0.08	-	Released
38	UNSC	128.0	16.6	U	J	2020-07-24	Seine Net	SN05	DPF	17W	502830 7976228	502775 7976222	SN05A	SN05B	2020-07-24	15:20	2020-07-24	15:25	0.08	-	Released
39	FHSC	163.0	46.5	U	U	2020-07-24	Seine Net	SN06	DPF	17W	502769 7976233	502716 7976225	SN06A	SN06B	2020-07-24	15:32	2020-07-24	15:37	0.08	-	Released
40	UNSC	115.0	11.4	U	U	2020-07-24	Seine Net	SN06	DPF	17W	502769 7976233	502716 7976225	SN06A	SN06B	2020-07-24	15:32	2020-07-24	15:37	0.08	-	Released
41	UNSC	84.0	5.4	U	U	2020-07-24	Seine Net	SN06	DPF	17W	502769 7976234	502716 7976226	SN06A	SN06B	2020-07-24	15:32	2020-07-24	15:37	0.08	-	Released
44	FHSC	144.0	23.4	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
45	FHSC	126.0	15.9	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
46	FHSC	92.0	6.0	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
47	FHSC	93.0	5.8	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
48	FHSC	87.0	5.1	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
50	FHSC	85.0	3.9	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
51	FHSC	84.0	3.9	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
52	FHSC	78.0	3.3	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
53	FHSC	84.0	3.7	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
54	FHSC	86.0	4.6	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
55	FHSC	72.0	2.6	U	J	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
56	FHSC	73.0	2.8	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
42	NRSL	132.0	6.3	U	A	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
43	NRSL	140.0	6.6	U	A	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
49	UNSC	80.0	3.8	U	U	2020-07-24	Seine Net	SN07	DPF	17W	503058 7976461	503137 7976466	SN07A	SN07B	2020-07-24	10:01	2020-07-24	10:10	0.15	-	Released
57	FHSC	123.0	14.1	U	A	2020-07-25	Seine Net	SN08	DPF	17W	503007 7976428	503041 7976434	SN08A	SN08B	2020-07-25	11:18	2020-07-25	11:29	0.18	-	Released
58	FHSC	115.0	11.1	U	A	2020-07-25	Seine Net	SN08	DPF	17W	503007 7976428	503041 7976434	SN08A	SN08B	2020-07-25	11:18	2020-07-25	11:29	0.18	-	Released
59	FHSC	83.0	4.1	U	A	2020-07-25	Seine Net	SN08	DPF	17W	503007 7976428	503041 7976434	SN08A	SN08B	2020-07-25	11:18	2020-07-25	11:29	0.18	-	Released
60	FHSC	87.0	4.8	U	A	2020-07-25	Seine Net	SN08	DPF	17W	503007 7976428	503041 7976434	SN08A	SN08B	2020-07-25	11:18	2020-07-25	11:29	0.18	-	Released
61	NRSL	-	-	-	J	2020-07-25	Seine Net	SN08	DPF	17W	503007 7976428	503041 7976434	SN08A	SN08B	2020-07-25	11:18	2020-07-25	11:29	0.18	-	Mortality
NFC	-	-	-	-	-	2020-07-26	Seine Net	SN09	DPF	17W	504126 7976538	504166 7976515	SN09S	SN09E	2020-07-26	13:22	2020-07-26	13:26	0.07	-	-
62	UNSC	11.0	<0.5	U	J	2020-07-26	Seine Net	SN10	DPF	17W	504173 7976520	504223 7976496	SN10S	SN10E	2020-07-26	13:28	2020-07-26	13:31	0.05	-	Released
63	ARCH	132.0	18.7	U	J	2020-07-26	Seine Net	SN11	DPF	17W	504224 7976499	504277 7976480	SN11S	SN11E	2020-07-26	13:42	2020-07-26	13:46	0.07	-	Released
64	UNSC	118.0	13.0	U	J	2020-07-26	Seine Net	SN12	DPF	17W	504064 7976542	504006 7976560	SN12S	SN12E	2020-07-26	14:06	2020-07-26	14:10	0.07	-	Released
65	UNSC	113.0	11.3	U	J	2020-07-26	Seine Net	SN12	DPF	17W	504064 7976542	504006 7976560	SN12S	SN12E	2020-07-26	14:06	2020-07-26	14:10	0.07	-	Released
66	UNSC	31.0	0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
67	UNSC	22.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
68	UNSC	27.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
69	UNSC	30.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
70	UNSC	25.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
71	UNSC	30.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
72	UNSC	23.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Released
73	UNSC	-	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Mortality
74	UNSC	-	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Mortality
75	UNSC	27.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Mortality
76	UNSC	28.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Mortality
77	UNSC	24.0	<0.5	U	J	2020-07-29	Seine Net	SN13	DPF	17W	503930 7976441	503889 7976374	SN13S	SN13E	2020-07-29	9:55	2020-07-29	10:10	0.08	-	Mortality
NFC	-	-	-	-	-	2020-07-29	Seine Net	SN14	DPF	17W	503883 7976374	503815 7976343	SN14S	SN14E	2020-07-29	10:08	2020-07-29	10:12	0.07	-	-
78	UNSC	80.0	3.4	U	J	2020-07-29	Seine Net	SN15	DPF	17W	503807 7976346	503729 7976350	SN15S	SN15E	2020-07-29	10:14	2020-07-29	10:20	0.10	-	Released
79	UNSC	91.0	6.5	U	J	2020-07-29	Seine Net	SN16	DPF	17W	503716 7976364	503647 7976378	SN16S	SN16E	2020-07-29	10:43	2020-07-29	10:47	0.07	-	Released
NFC	-	-	-	-	-	2020-07-29	Seine Net	SN17	DPF	17W	503640 7976387	503569 7976405	SN17S	SN17E	2020-07-29	11:16	2020-07-29	11:21	0.08	-	-
NFC	-	-	-	-	-	2020-07-29	Seine Net	SN18	DPF	17W	503568 7976404	503470 7976434	SN18S	SN18E	2020-07-29	11:38	2020-07-29	11:47	0.15	-	-
843	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
844	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
845	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
846	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
847	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
848	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
849	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
850	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
851	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
852	STSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
764	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
765	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
766	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
767	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
768	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
769	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
770	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
771	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
772	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
773	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
774	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
775	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
776	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
777	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
778	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
779	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
780	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
781	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
782	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
783	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
784	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
785	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
786	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
787	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
788	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
789	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
790	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
791	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
792	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
793	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
794	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
795	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
796	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
797	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
798	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
799	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
800	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
801	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
802	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
803	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
804	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
805	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
806	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
807	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
808	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
809	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
810	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
811	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
812	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
813	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
814	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
815	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
816	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
817	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
818	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
819	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
820	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
821	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
822	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
823	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
824	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
825	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
826	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
827	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
828	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
829	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
830	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
831	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
832	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
833	ARCD	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
834	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
835	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Mortality
836	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
837	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
838	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
839	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
840	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
841	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released
842	UNSC	-	-	U	J	2020-08-13	Trawling	TRL01	IPF	17W	501962 7976503	502402 7976580	TR01S	TR01E	2020-08-13	16:11	2020-08-13	16:27	0.27	23-27 m	Released

[1] NFC = no fish caught
[2] ARCD = Arctic Cod; ARCH = Arctic Char; ARSC = Arctic Sculpin; FHSC = Fourhorn Sculpin; FLSB = Fourline Snakeblenny; GRCD = Greenland Cod; NRSL = Sandlance; SHSC = Shorthorn Sculpin; STSC = Arctic Staghorn Sculpin; UNSC = Unknown sculpin
[3] M = Male; F = Female; U = Unknown
[4] A = Adult; J = Juvenile; F = Fry; U = Uknown
[5] DPF = Direct Project Footprint; IPF = Indirect Project Footprint

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
1	GRCD	532.0	1690.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
2	GRCD	475.0	1352.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
3	GRCD	554.0	1876.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
4	GRCD	476.0	1173.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
5	GRCD	590.0	2890.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
6	GRCD	691.0	4075.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
7	SHSC	400.0	825.0	U	A	06-Aug-21	Angling - Jigging	AN01	DPF	17W	503217 7976600	-	AN01	-	2021-08-06	12:28	2021-08-06	12:50	0.37	15	Released
NFC	-	-	-	-	-	07-Aug-21	Angling - Jigging	AN02	IPF	17W	505732 7978481	-	AN02	-	2021-08-07	13:39	2021-08-07	14:10	0.52	30	-
NFC	-	-	-	-	-	07-Aug-21	Angling - Jigging	AN03	IPF	17W	504883 7976683	504934 7976601	AN03	AN03B	2021-08-07	14:22	2021-08-07	14:54	0.53	10	-
1	FHSC	210.0	70.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
2	FHSC	149.0	30.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
3	FHSC	204.0	110.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
4	FHSC	219.0	100.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
5	FHSC	186.0	60.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
6	FHSC	233.0	120.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
7	FHSC	203.0	70.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
8	FHSC	195.0	55.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
9	FHSC	169.0	40.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
10	FHSC	154.0	40.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
11	ARSC	134.0	15.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
12	ARSC	237.0	120.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
13	ARSC	246.0	180.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
14	ARSC	222.0	100.0	U	U	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Released
15	FHSC	265.0	185.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
16	FHSC	256.0	155.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
17	FHSC	281.0	190.0	M	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
18	FHSC	273.0	187.0	M	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
19	FHSC	228.0	103.0	M	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
20	FHSC	266.0	199.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
21	FHSC	205.0	79.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
22	FHSC	267.0	183.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
23	FHSC	211.0	83.0	M	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
24	FHSC	259.0	161.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
25	FHSC	214.0	87.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
26	FHSC	245.0	127.0	F	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
27	FHSC	216.0	100.0	M	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
28	FHSC	256.0	120.0	M	A	08-Aug-21	Angling - Jigging	AN04	DPF	17W	503220 7976558	503167 7976507	AN04	AN04B	2021-08-08	10:41	2021-08-08	11:45	1.07	3	Euthanized
1	SHSC	229.0	160.0	U	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
2	FHSC	172.0	60.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
3	FHSC	187.0	70.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
4	FHSC	167.0	45.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
5	FHSC	197.0	80.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
6	FHSC	178.0	50.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
7	FHSC	197.0	80.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
8	FHSC	180.0	75.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
9	ARSC	105.0	40.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
10	ARSC	114.0	20.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
11	FHSC	175.0	60.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
12	FHSC	188.0	65.0	U	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
13	FHSC	198.0	90.0	U	U	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
14	FHSC	169.0	50.0	U	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
15	FHSC	184.0	65.0	U	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
16	FHSC	178.0	50.0	U	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released
17	FHSC	172.0	60.0	U	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
18	FHSC	250.0	158.0	M	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
19	FHSC	228.0	106.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
20	FHSC	309.0	336.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
21	FHSC	206.0	84.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
22	FHSC	253.0	150.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
23	FHSC	211.0	91.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
24	FHSC	257.0	145.0	M	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
25	FHSC	211.0	91.0	M	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
26	FHSC	209.0	82.0	M	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
27	FHSC	228.0	115.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
28	FHSC	214.0	74.0	M	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
29	FHSC	251.0	129.0	M	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
30	FHSC	233.0	115.0	F	A	09-Aug-21	Angling - Jigging	AN05	DPF	17W	503161 7976510	-	AN05	-	2021-08-09	8:36	2021-08-09	8:55	0.32	2	Euthanized
1	ARCH	630.0	2750.0	U	A	10-Aug-21	Angling - Jigging	AN06	DPF	17W	503209 7976608	-	AN06	-	10-Aug-21	9:35	2021-08-10	10:00	0.42	15	Released
2	GRCD	510.0	1730.0	U	A	10-Aug-21	Angling - Jigging	AN06	DPF	17W	503209 7976608	-	AN06	-	10-Aug-21	9:35	2021-08-10	10:00	0.42	15	Released
3	GRCD	531.0	1890.0	U	A	10-Aug-21	Angling - Jigging	AN06	DPF	17W	503209 7976608	-	AN06	-	10-Aug-21	9:35	2021-08-10	10:00	0.42	15	Released
1	FHSC	211.0	110.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
2	FHSC	249.0	150.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
3	FHSC	221.0	130.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
4	FHSC	168.0	40.0	U	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
5	FHSC	237.0	120.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
6	FHSC	194.0	80.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
7	FHSC	178.0	40.0	F	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
8	FHSC	224.0	100.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
9	FHSC	255.0	190.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
10	FHSC	213.0	100.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
11	FHSC	170.0	40.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
12	FHSC	198.0	70.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
13	FHSC	179.0	60.0	F	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
14	FHSC	162.0	50.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
15	FHSC	177.0	60.0	F	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
16	FHSC	156.0	40.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
17	FHSC	190.0	100.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
18	FHSC	179.0	80.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
19	FHSC	176.0	60.0	F	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
20	FHSC	159.0	40.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
21	ARSC	129.0	30.0	U	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
22	FHSC	196.0	80.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
23	FHSC	179.0	50.0	M	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
24	FHSC	148.0	50.0	F	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
25	ARSC	130.0	20.0	U	U	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Released
26	FHSC	230.0	114.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
27	FHSC	312.0	250.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
28	FHSC	280.0	197.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
29	FHSC	215.0	82.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
30	FHSC	325.0	321.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
31	FHSC	216.0	95.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
32	FHSC	249.0	143.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
33	FHSC	248.0	148.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
34	FHSC	225.0	109.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
35	FHSC	239.0	116.0	F	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
36	FHSC	214.0	86.0	M	A	10-Aug-21	Angling - Jigging	AN07	DPF	17W	503168 7976510	503078 7976456	AN07	AN07B	10-Aug-21	10:20	2021-08-10	11:16	0.93	7	Euthanized
1	GRCD	570.0	2350.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
2	ARCH	522.0	1620.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
3	GRCD	504.0	1750.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
4	GRCD	512.0	1650.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
5	GRCD	455.0	1210.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
6	GRCD	540.0	1760.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
7	GRCD	474.0	1070.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
8	GRCD	572.0	1390.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
9	ARCH	700.0	4600.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
10	FHSC	250.0	168.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
11	FHSC	276.0	240.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
12	FHSC	263.0	160.0	U	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
13	FHSC	276.0	240.0	F	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
14	FHSC	215.0	80.0	M	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
15	FHSC	212.0	80.0	M	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
16	ARSC	120.0	20.0	U	U	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
17	FHSC	174.0	50.0	U	U	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
18	FHSC	193.0	50.0	F	A	10-Aug-21	Angling - Jigging	AN08	DPF	17W	503197 7976533	503227 7976602	AN08	AN08B	2021-08-10	15:50	2021-08-10	16:53	1.05	15	Released
1	SHSC	341.0	400.0	U	A	11-Aug-21	Angling - Jigging	AN09	DPF	17W	503975 7976671	-	AN09	-	2021-08-11	15:04	2021-08-11	15:29	0.42	10	Released
2	SHSC	365.0	530.0	U	A	11-Aug-21	Angling - Jigging	AN09	DPF	17W	503975 7976671	-	AN09	-	2021-08-11	15:04	2021-08-11	15:29	0.42	10	Released
3	ARCH	559.0	1890.0	U	A	11-Aug-21	Angling - Jigging	AN09	DPF	17W	503975 7976671	-	AN09	-	2021-08-11	15:04	2021-08-11	15:29	0.42	10	Released
1	GRCD	570.0	2510.0	U	A	11-Aug-21	Angling - Jigging	AN10	DPF	17W	503219 7976597	-	AN10	-	2021-08-11	16:18	2021-08-11	17:00	0.70	15	Released
2	GRCD	619.0	3200.0	U	A	11-Aug-21	Angling - Jigging	AN10	DPF	17W	503219 7976597	-	AN10	-	2021-08-11	16:18	2021-08-11	17:00	0.70	15	Released
3	GRCD	515.0	1510.0	U	A	11-Aug-21	Angling - Jigging	AN10	DPF	17W	503219 7976597	-	AN10	-	2021-08-11	16:18	2021-08-11	17:00	0.70	15	Released
4	SHSC	272.0	300.0	U	A	11-Aug-21	Angling - Jigging	AN10	DPF	17W	503219 7976597	-	AN10	-	2021-08-11	16:18	2021-08-11	17:00	0.70	15	Released
1	GRCD	568.0	2520.0	U	A	12-Aug-21	Angling - Jigging	AN11	DPF	17W	503196 7976607	-	AN11	-	2021-08-12	11:10	2021-08-12	12:30	1.33	12	Released
2	GRCD	481.0	1120.0	U	A	12-Aug-21	Angling - Jigging	AN11	DPF	17W	503196 7976607	-	AN11	-	2021-08-12	11:10	2021-08-12	12:30	1.33	12	Released
3	GRCD	467.0	1100.0	U	A	12-Aug-21	Angling - Jigging	AN11	DPF	17W	503196 7976607	-	AN11	-	2021-08-12	11:10	2021-08-12	12:30	1.33	12	Released
NFC	-	-	-	-	-	12-Aug-21	Angling - Trolling	AN12	IPF	17W	503103 7976563	502074 7976769	AN12A	AN12B	2021-08-12	16:03	2021-08-12	16:18	0.25	8	-
1	GRCD	580	2690.0	U	A	12-Aug-21	Angling - Jigging	AN13	DPF	17W	503205 7976617	-	AN13	-	2021-08-12	16:36	2021-08-12	16:59	0.38	15	Released
1	FHSC	221.0	80.0	M	A	14-Aug-21	Angling - Jigging	AN14	DPF	17W	503367 7976582	503439 7976600	AN14A	AN14B	2021-08-14	14:12	2021-08-14	15:32	1.33	1.5	Released
2	FHSC	181.0	50.0	F	A	14-Aug-21	Angling - Jigging	AN14	DPF	17W	503367 7976582	503439 7976600	AN14A	AN14B	2021-08-14	14:12	2021-08-14	15:32	1.33	1.5	Released
1	ARCH	268.0	230.0	U	U	15-Aug-21	Angling - Jigging	AN15	REF - T	17W	522102 7996232	522088 7995960	AN15A	AN15B	2021-08-15	11:10	2021-08-15	11:32	0.37	3	Released
2	ARSC	183.0	70.0	U	U	15-Aug-21	Angling - Jigging	AN15	REF - T	17W	522102 7996232	522088 7995960	AN15A	AN15B	2021-08-15	11:10	2021-08-15	11:32	0.37	3	Released
3	ARSC	115.0	30.0	U	U	15-Aug-21	Angling - Jigging	AN15	REF - T	17W	522102 7996232	522088 7995960	AN15A	AN15B	2021-08-15	11:10	2021-08-15	11:32	0.37	3	Released
4	ARSC	104.0	15.0	U	U	15-Aug-21	Angling - Jigging	AN15	REF - T	17X	522102 7996232	522088 7995960	AN15A	AN15B	2021-08-15	11:10	2021-08-15	11:32	0.37	3	Released
NFC	-	-	-	-	-	15-Aug-21	Angling - Jigging	AN16	REF - T	17X	521736 7996932	-	AN16A	-	2021-08-15	11:37	2021-08-15	11:40	0.05	30	-
NFC	-	-	-	-	-	15-Aug-21	Angling - Jigging	AN17	REF - T	17X	522287 7996483	-	AN17	-	2021-08-15	11:57	2021-08-15	12:30	0.55	5	-
NFC	-	-	-	-	-	15-Aug-21	Angling - Jigging	AN18	REF - T	17X	520689 7996776	-	AN18	-	2021-08-15	13:50	2021-08-15	14:03	0.22	4	-
NFC	-	-	-	-	-	15-Aug-21	Angling - Trolling	AN19	REF - T	17X	523032 7996890	523181 7996769	AN19A	AN19B	2021-08-15	14:39	2021-08-15	15:00	0.35	2	-
1	GRCD	491.0	1490.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
2	GRCD	405.0	780.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
3	GRCD	518.0	1760.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
4	GRCD	447.0	970.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
5	GRCD	495.0	1370.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
6	GRCD	696.0	4930.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
7	GRCD	642.0	3420.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
8	GRCD	440.0	1040.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
9	GRCD	512.0	1320.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
10	GRCD	470.0	1210.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
11	GRCD	444.0	1170.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
12	SHSC	329.0	500.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
13	SHSC	300.0	340.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
14	SHSC	410.0	1020.0	U	U	16-Aug-21	Angling - Jigging	AN20	IPF	17W	505749 7978496	-	AN20	-	2021-08-16	11:05	2021-08-16	11:30	0.42	20	Released
1	GRCD	568.0	2180.0	U	A	16-Aug-21	Angling - Jigging	AN21	IPF	17W	505728 7978489	-	AN21	-	2021-08-16	16:10	2021-08-16	16:25	0.25	20	Released
2	SHSC	232.0	140.0	U	U	16-Aug-21	Angling - Jigging	AN21	IPF	17W	505728 7978489	-	AN21	-	2021-08-16	16:10	2021-08-16	16:25	0.25	20	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
1	FHSC	239.0	150.0	F	A	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
2	FHSC	234.0	130.0	M	A	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
3	FHSC	241.0	140.0	F	A	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
4	FHSC	210.0	90.0	M	A	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
5	FHSC	184.0	45.0	M	A	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
6	ARSC	129.0	40.0	U	U	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
7	ARSC	105.0	20.0	U	U	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
8	ARSC	113.0	30.0	U	U	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
9	ARSC	134.0	30.0	U	U	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
10	ARSC	121.0	30.0	U	U	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
11	ARSC	122.0	35.0	U	U	16-Aug-21	Angling - Jigging	AN22	DPF	17W	504054 7976663	504011 7976606	AN22A	AN22B	2021-08-16	16:35	2021-08-16	17:05	0.50	3	Released
1	GRCD	529.0	1990.0	U	A	16-Aug-21	Angling - Jigging	AN23	DPF	17W	503202 7976607	-	AN23	-	2021-08-16	17:10	2021-08-16	17:45	0.58	15	Released
2	ARCH	552.0	2030.0	U	A	16-Aug-21	Angling - Jigging	AN23	DPF	17W	503202 7976607	-	AN23	-	2021-08-16	17:10	2021-08-16	17:45	0.58	15	Released
3	GRCD	454.0	1120.0	U	U	16-Aug-21	Angling - Jigging	AN23	DPF	17W	503202 7976607	-	AN23	-	2021-08-16	17:10	2021-08-16	17:45	0.58	15	Released
4	GRCD	504.0	810.0	U	A	16-Aug-21	Angling - Jigging	AN23	DPF	17W	503202 7976607	-	AN23	-	2021-08-16	17:10	2021-08-16	17:45	0.58	15	Released
1	GRCD	702.0	4130.0	U	U	17-Aug-21	Angling - Jigging	AN24	IPF	17W	505720 7978481	-	AN24	-	2021-08-17	8:35	2021-08-17	8:55	0.33	20	Released
2	GRCD	441.0	1100.0	U	U	17-Aug-21	Angling - Jigging	AN24	IPF	17W	505720 7978481	-	AN24	-	2021-08-17	8:35	2021-08-17	8:55	0.33	20	Released
3	SHSC	363.0	610.0	U	U	17-Aug-21	Angling - Jigging	AN24	IPF	17W	505720 7978481	-	AN24	-	2021-08-17	8:35	2021-08-17	8:55	0.33	20	Released
4	SHSC	345.0	600.0	U	U	17-Aug-21	Angling - Jigging	AN24	IPF	17W	505720 7978481	-	AN24	-	2021-08-17	8:35	2021-08-17	8:55	0.33	20	Released
1	FHSC	294.0	280.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
2	ARSC	213.0	150.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
3	SHSC	265.0	270.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
4	FHSC	287.0	270.0	F	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
5	ARSC	212.0	150.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
6	SHSC	203.0	110.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
7	SHSC	296.0	380.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
8	SHSC	255.0	230.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
9	FHSC	247.0	180.0	F	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
10	FHSC	272.0	200.0	F	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
11	FHSC	260.0	210.0	F	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
12	FHSC	239.0	130.0	F	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
13	FHSC	264.0	200.0	M	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
14	FHSC	240.0	180.0	F	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
15	ARSC	185.0	100.0	U	A	17-Aug-21	Angling - Jigging	AN25	IPF	17W	505185 7977668	505159 797793	AN25A	AN25B	2021-08-17	9:03	2021-08-17	9:49	0.77	2	Released
1	GRCD	489.0	1340.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Mortality
2	GRCD	477.0	1410.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Released
3	SHSC	415.0	1010.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Released
4	SHSC	278.0	360.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Released
5	SHSC	384.0	720.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Released
6	SHSC	335.0	600.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Released
7	SHSC	390.0	970.0	U	U	17-Aug-21	Angling - Jigging	AN26	DPF	17W	503333 7976681	-	AN26	-	2021-08-17	10:35	2021-08-17	11:10	0.58	30	Released
1	SHSC	233.0	140.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
2	FHSC	318.0	370.0	M	A	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
3	ARSC	233.0	140.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
4	SHSC	264.0	260.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
5	FHSC	260.0	170.0	M	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
6	SHSC	247.0	220.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
7	SHSC	237.0	150.0	F	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
8	SHSC	233.0	130.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
9	SHSC	214.0	150.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
10	FHSC	211.0	100.0	M	A	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
11	FHSC	244.0	230.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
12	SHSC	223.0	210.0	U	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
13	FHSC	275.0	240.0	F	U	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
14	FHSC	326.0	330.0	F	A	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
15	FHSC	303.0	320.0	F	A	17-Aug-21	Angling - Jigging	AN27	IPF	17W	505147 7977215	505090 7976907	AN27A	AN27B	2021-08-17	13:29	2021-08-17	14:13	0.73	4	Released
1	FHSC	201.0	80.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
2	FHSC	295.0	300.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
3	FHSC	245.0	160.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
4	FHSC	275.0	180.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
5	FHSC	272.0	220.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
6	FHSC	313.0	320.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
7	FHSC	275.0	220.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
8	FHSC	283.0	170.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
9	FHSC	251.0	160.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
10	FHSC	240.0	120.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
11	FHSC	286.0	220.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
12	FHSC	262.0	170.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
13	FHSC	238.0	150.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
14	FHSC	256.0	140.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
15	FHSC	216.0	100.0	F	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
16	FHSC	213.0	90.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
17	FHSC	187.0	50.0	M	A	17-Aug-21	Angling - Jigging	AN28	DPF	17W	503139 7976515	503106 7976496	AN28A	AN28B	2021-08-17	15:06	2021-08-17	15:44	0.63	3	Released
1	FHSC	239.0	150.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
2	FHSC	223.0	100.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
3	FHSC	220.0	110.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
4	FHSC	229.0	130.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
5	FHSC	214.0	100.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
6	FHSC	236.0	150.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
7	FHSC	197.0	80.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
8	FHSC	231.0	140.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
9	FHSC	239.0	170.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
10	FHSC	194.0	80.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
11	FHSC	191.0	70.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
12	FHSC	204.0	90.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
13	FHSC	220.0	120.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
14	FHSC	198.0	70.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
15	FHSC	209.0	90.0	F	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
16	FHSC	200.0	80.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
17	FHSC	179.0	60.0	M	A	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
18	ARSC	128.0	30.0	U	U	18-Aug-21	Angling - Jigging	AN29	DPF	17W	503913 7976488	503907 7976600	AN29A	AN29B	2021-08-18	8:47	2021-08-18	9:44	0.95	1	Released
1	GRCD	404.0	780.0	U	A	18-Aug-21	Angling - Jigging	AN30	DPF	17W	503350 7976667	-	AN30	-	2021-08-18	11:00	2021-08-18	11:40	0.67	25	Released
2	GRCD	515.0	1800.0	U	A	18-Aug-21	Angling - Jigging	AN30	DPF	17W	503350 7976667	-	AN30	-	2021-08-18	11:00	2021-08-18	11:40	0.67	25	Released
3	GRCD	530.0	1960.0	U	A	18-Aug-21	Angling - Jigging	AN30	DPF	17W	503350 7976667	-	AN30	-	2021-08-18	11:00	2021-08-18	11:40	0.67	25	Released
4	GRCD	590.0	2510.0	U	A	18-Aug-21	Angling - Jigging	AN30	DPF	17W	503350 7976667	-	AN30	-	2021-08-18	11:00	2021-08-18	11:40	0.67	25	Released
5	SHSC	363.0	560.0	U	A	18-Aug-21	Angling - Jigging	AN30	DPF	17W	503350 7976667	-	AN30	-	2021-08-18	11:00	2021-08-18	11:40	0.67	25	Released
1	FHSC	261.0	160.0	F	A	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
2	ARSC	122.0	10.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
3	ARSC	131.0	30.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
4	ARSC	127.0	30.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
5	ARSC	145.0	20.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
6	ARSC	120.0	20.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
7	ARSC	124.0	50.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
8	ARSC	128.0	20.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
9	ARSC	147.0	40.0	F	A	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
10	ARSC	129.0	30.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
11	ARSC	139.0	20.0	U	U	18-Aug-21	Angling - Jigging	AN31	DPF	17W	504096 7976617	504006 7976600	AN31A	AN31B	2021-08-18	13:47	2021-08-18	14:33	0.77	1	Released
1	GRCD	469.0	1220.0	U	A	18-Aug-21	Angling - Jigging	AN32	DPF	17W	503218 7976603	-	AN32	-	2021-08-18	15:50	2021-08-18	16:15	0.42	15	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
2	GRCD	522.0	1710.0	U	A	18-Aug-21	Angling - Jigging	AN32	DPF	17W	503218 7976603	-	AN32	-	2021-08-18	15:50	2021-08-18	16:15	0.42	15	Released
NFC	-	-	-	-	-	07-Aug-21	Fukui Trap	FT01	DPF	17W	502897 7976383		FT01		2021-08-07	10:42	2021-08-11	8:25	93.72	-	-
1	FHSC	210.0	110.0	M	A	07-Aug-21	Fukui Trap	FT02	IPF	17W	502660 7976305		FT02		2021-08-07	10:47	2021-08-11	8:32	93.75	-	Released
2	FHSC	191.0	80.0	U	U	07-Aug-21	Fukui Trap	FT02	IPF	17W	502660 7976305		FT02		2021-08-07	10:47	2021-08-11	8:32	93.75	-	Released
3	ARSC	128.0	20.0	U	U	07-Aug-21	Fukui Trap	FT02	IPF	17W	502660 7976305		FT02		2021-08-07	10:47	2021-08-11	8:32	93.75	-	Released
1	FHSC	125.0	15.0	U	U	07-Aug-21	Fukui Trap	FT03	IPF	17W	502268 7976436		FT03		2021-08-07	10:50	2021-08-11	8:38	93.80	-	Released
1	FHSC	195.0	75.0	M	A	07-Aug-21	Fukui Trap	FT04	IPF	17W	501468 7976188		FT04		2021-08-07	10:54	2021-08-11	8:45	93.85	-	Released
2	FHSC	171.0	47.0	F	A	07-Aug-21	Fukui Trap	FT04	IPF	17W	501468 7976188		FT04		2021-08-07	10:54	2021-08-11	8:45	93.85	-	Released
3	FHSC	262.0	150.0	M	A	07-Aug-21	Fukui Trap	FT04	IPF	17W	501468 7976188		FT04		2021-08-07	10:54	2021-08-11	8:45	93.85	-	Released
1	ARSC	111.0	14.0	U	U	07-Aug-21	Fukui Trap	FT05	DPF	17W	502725 7976384		FT05		2021-08-07	11:03	2021-08-11	8:28	93.42	-	Released
NFC	-	-	-	-	-	11-Aug-21	Fukui Trap	FT06	DPF	17W	503487 7976650		FT06		2021-08-11	8:54	2021-08-16	9:25	120.52	-	-
1	ARSC	164.0	50.0	U	U	11-Aug-21	Fukui Trap	FT07	DPF	17W	503435 7976594		FT07		2021-08-11	9:00	2021-08-16	9:35	120.58	-	Released
2	ARSC	124.0	30.0	U	U	11-Aug-21	Fukui Trap	FT07	DPF	17W	503435 7976594		FT07		2021-08-11	9:00	2021-08-16	9:35	120.58	-	Released
3	ARSC	112.0	25.0	U	U	11-Aug-21	Fukui Trap	FT07	DPF	17W	503435 7976594		FT07		2021-08-11	9:00	2021-08-16	9:35	120.58	-	Released
1	FHSC	271.0	190.0	F	A	11-Aug-21	Fukui Trap	FT08	DPF	17W	503476 7976593		FT08		2021-08-11	9:02	2021-08-11	9:30	120.47	-	Released
NFC	-	-	-	-	-	11-Aug-21	Fukui Trap	FT09	DPF	17W	503375 7976642		FT09		2021-08-11	9:09	2021-08-16	9:20	120.18	-	-
NFC	-	-	-	-	-	11-Aug-21	Fukui Trap	FT10	DPF	17W	503838 7976679		FT10		2021-08-11	9:16	2021-08-16	9:45	120.48	-	-
1	ARSC	221.0	150.0	U	U	16-Aug-21	Fukui Trap	FT11	DPF	17W	504051 7976629		FT11		2021-08-16	9:46	2021-08-18	15:25	53.65	-	Released
2	ARSC	181.0	100.0	U	U	16-Aug-21	Fukui Trap	FT11	DPF	17W	504051 7976629		FT11		2021-08-16	9:46	2021-08-18	15:25	53.65	-	Released
1	ARSC	110.0	60.0	U	U	16-Aug-21	Fukui Trap	FT12	DPF	17W	504154 7976587		FT12		2021-08-16	9:49	2021-08-18	15:23	53.57	-	Released
NFC	-	-	-	-	-	16-Aug-21	Fukui Trap	FT13	IPF	17W	504549 7976635		FT13		2021-08-16	9:53	2021-08-18	15:05	53.20	-	-
1	ARSC	156.0	80.0	U	U	16-Aug-21	Fukui Trap	FT14	IPF	17W	504611 7976704		FT14		2021-08-16	9:56	2021-08-18	15:10	53.23	-	Released
2	ARSC	137.0	50.0	U	U	16-Aug-21	Fukui Trap	FT14	IPF	17W	504611 7976704		FT14		2021-08-16	9:56	2021-08-18	15:10	53.23	-	Released
1	ARCH	610.0	2330.0	U	A	03-Aug-21	Gill Net	GN01	DPF	17W	502785 7976226	502818 7976314	GN01A	GN01B	2021-08-03	14:29	2021-08-03	16:14	1.75	1.75	Released
2	ARCH	620.0	2656.0	U	A	03-Aug-21	Gill Net	GN01	DPF	17W	502785 7976226	502818 7976314	GN01A	GN01B	2021-08-03	14:29	2021-08-03	16:14	1.75	1.75	Released
1	ARCH	339.0	375.0	U	U	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
2	ARCH	503.0	1227.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
3	ARCH	400.0	640.0	U	U	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
4	ARCH	489.0	1222.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
5	ARCH	540.0	1601.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
6	ARCH	703.0	2433.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
7	ARCH	440.0	825.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
8	ARCH	413.0	639.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
9	ARCH	494.0	1172.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
10	ARCH	355.0	412.0	U	U	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
11	ARCH	400.0	619.0	U	U	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
12	ARCH	486.0	1047.0	U	A	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
13	FHSC	170.0	40.0	M	J	03-Aug-21	Gill Net	GN02	DPF	17W	502982 7976335	502924 7976414	GN02A	GN02B	2021-08-03	15:03	2021-08-03	16:30	1.45	3.5	Released
1	ARCH	549.0	1348.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
2	ARCH	528.0	1374.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
3	ARCH	649.0	2139.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Mortality
4	ARCH	345.0	394.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Mortality
5	FHSC	236.0	159.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
6	FHSC	262.0	169.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
7	FHSC	181.0	56.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
8	FHSC	224.0	112.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
9	FHSC	220.0	105.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
10	FHSC	168.0	45.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
11	FHSC	189.0	77.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
12	FHSC	181.0	66.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
13	FHSC	181.0	66.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
14	SHSC	280.0	278.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
15	ARCH	479.0	822.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
16	FHSC	220.0	98.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
17	FHSC	262.0	159.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
18	FHSC	252.0	166.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
19	FHSC	260.0	168.0	-	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
20	FHSC	239.0	141.0	M	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
21	FHSC	231.0	139.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
22	FHSC	192.0	64.0	M	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
23	FHSC	262.0	179.0	M	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
24	FHSC	169.0	42.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
25	FHSC	185.0	54.0	M	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
26	SHSC	132.0	18.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
27	FHSC	190.0	150.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
28	FHSC	187.0	66.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
29	FHSC	191.0	61.0	M	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
30	ARSC	130.0	25.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
31	ARSC	125.0	25.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
32	FHSC	172.0	46.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
33	FHSC	167.0	39.0	U	-	06-Aug-21	Gill Net	GN03	DPF	17W	502890 7976249	502832 7976323	GN03A	GN03B	2021-08-06	11:28	2021-08-06	13:28	2.00	1.75	Released
1	ARCH	491.0	865.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
2	ARCH	379.0	467.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
3	ARCH	352.0	498.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
4	ARCH	391.0	576.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
5	ARCH	384.0	479.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
6	ARCH	533.0	1388.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
7	ARCH	486.0	1003.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
8	ARCH	451.0	742.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
9	ARCH	491.0	1030.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
10	ARCH	214.0	105.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
11	FHSC	262.0	189.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
12	FHSC	276.0	251.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
13	FHSC	271.0	195.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
14	FHSC	168.0	46.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
15	FHSC	271.0	176.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
16	FHSC	245.0	143.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
17	FHSC	246.0	191.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
18	FHSC	210.0	100.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
19	FHSC	249.0	167.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
20	FHSC	239.0	130.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
21	FHSC	281.0	262.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
22	FHSC	210.0	95.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
23	FHSC	243.0	158.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
24	FHSC	115.0	16.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
25	FHSC	161.0	29.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
26	FHSC	181.0	40.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
27	FHSC	222.0	98.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
28	FHSC	186.0	57.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
29	FHSC	171.0	60.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
30	ARCH	522.0	1192.0	U	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
31	ARCH	396.0	520.0	U	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
32	ARCH	535.0	1226.0	U	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
33	ARCH	337.0	339.0	U	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
34	ARCH	359.0	397.0	U	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
35	FHSC	224.0	99.0	M	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
36	FHSC	290.0	217.0	M	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
37	FHSC	249.0	132.0	M	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
38	FHSC	249.0	154.0	F	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
39	FHSC	180.0	46.0	U	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
40	FHSC	246.0	143.0	M	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
41	FHSC	189.0	60.0	U	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
42	FHSC	252.0	165.0	M	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
43	FHSC	210.0	71.0	U	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
44	FHSC	206.0	89.0	M	U	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
45	FHSC	262.0	228.0	U	A	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Released
46	ARCH	479.0	822.0	-	-	06-Aug-21	Gill Net	GN04	DPF	17W	503020 7976384	502970 7976461	GN04A	GN04B	2021-08-06	12:08	2021-08-06	16:08	4.00	3.5	Mortality
1	ARCH	464.0	1110.0	U	A	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Released
2	ARCH	294.0	310.0	U	U	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Released
3	ARCH	509.0	1220.0	U	A	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Mortality
4	ARCH	355.0	500.0	U	U	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Mortality
5	ARCH	321.0	370.0	U	J	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Mortality
6	FHSC	240.0	150.0	U	U	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Released
7	FHSC	206.0	120.0	U	U	07-Aug-21	Gill Net	GN05	DPF	17W	504373 7976453	504337 7976543	GN05A	GN05B	2021-08-07	13:00	2021-08-07	14:58	1.97	1.75	Released
1	ARCH	664.0	2510.0	-	A	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
2	ARCH	437.0	750.0	-	U	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
3	ARCH	142.0	27.2	-	-	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
4	ARCH	136.0	22.9	-	-	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
5	FHSC	117.0	11.1	-	-	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
6	FHSC	199.0	100.0	U	U	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
7	FHSC	195.0	90.0	U	U	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
8	FHSC	230.0	130.0	U	U	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Released
9	ARCH	145.0	24.5	-	-	07-Aug-21	Gill Net	GN06	IPF	17W	504515 7976457	504417 7976547	GN06A	GN06B	2021-08-07	13:12	2021-08-07	15:12	2.00	2	Mortality
1	ARCH	574.0	2400.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
2	ARCH	613.0	2770.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
3	ARCH	630.0	3490.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
4	FHSC	195.0	60.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
5	FHSC	168.0	60.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
6	FHSC	178.0	50.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
7	FHSC	175.0	50.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
8	FHSC	195.0	90.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
9	FHSC	305.0	320.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
10	FHSC	270.0	210.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
11	FHSC	257.0	195.0	U	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Released
12	FHSC	344.0	352.0	F	A	08-Aug-21	Gill Net	GN07	DPF	17W	502960 7976323	502922 7976403	GN07A	GN07B	2021-08-08	8:13	2021-08-08	10:50	2.62	5.5	Euthanized
1	ARCH	645.0	2730.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
2	ARCH	557.0	1980.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
3	ARCH	474.0	1170.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Mortality
4	ARCH	403.0	610.0	U	U	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
5	SHSC	394.0	790.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
6	SHSC	244.0	180.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
7	FHSC	194.0	45.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
8	FHSC	177.0	30.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
9	FHSC	200.0	80.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
10	FHSC	186.0	80.0	U	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Released
11	FHSC	298.0	124.0	F	A	09-Aug-21	Gill Net	GN08	DPF	17W	503099 7976436	503061 7976511	GN08A	GN08B	2021-08-09	7:32	2021-08-09	9:00	1.47	6.75	Euthanized
1	ARCH	584.0	2510.0	U	A	10-Aug-21	Gill Net	GN09	IPF	17W	502602 7976235	502624 7976319	GN09A	GN09B	2021-08-10	7:30	2021-08-10	8:40	1.17	2	Released
2	ARCH	398.0	660.0	U	A	10-Aug-21	Gill Net	GN09	IPF	17W	502602 7976235	502624 7976319	GN09A	GN09B	2021-08-10	7:30	2021-08-10	8:40	1.17	2	Released
3	ARCH	465.0	1110.0	F	A	10-Aug-21	Gill Net	GN09	IPF	17W	502602 7976235	502624 7976319	GN09A	GN09B	2021-08-10	7:30	2021-08-10	8:40	1.17	2	Mortality
1	ARCH	314.0	340.0	U	U	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
2	ARCH	319.0	390.0	U	U	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
3	ARCH	427.0	760.0	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
4	ARCH	384.0	620.0	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
5	ARCH	470.0	1110.0	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
6	ARCH	379.0	-	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
7	ARCH	559.0	-	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
8	ARCH	750.0	-	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
9	ARCH	485.0	-	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Released
10	ARCH	439.0	-	U	A	11-Aug-21	Gill Net	GN10	IPF	17W	504760 7976619	504755 7976706	GN10A	GN10B	2021-08-11	12:09	2021-08-11	16:09	4.00	2.5	Mortality
1	FHSC	234.0	120.0	F	A	14-Aug-21	Gill Net	GN11	DPF	17W	503366 7976479	503426 7976550	GN11A	GN11B	2021-08-14	14:03	2021-08-14	16:03	2.00	1.5	Released
2	FHSC	188.0	50.0	F	A	14-Aug-21	Gill Net	GN11	DPF	17W	503366 7976479	503426 7976550	GN11A	GN11B	2021-08-14	14:03	2021-08-14	16:03	2.00	1.5	Released
1	ARCH	375.0	470.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
2	ARCH	243.0	120.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
3	ARCH	305.0	270.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
4	ARCH	484.0	1250.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
5	ARCH	501.0	1440.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
6	ARCH	533.0	1990.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
7	ARCH	433.0	870.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Mortality
8	ARCH	510.0	1270.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
9	ARCH	615.0	2490.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
10	ARCH	410.0	570.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
11	ARCH	289.0	150.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
12	ARCH	333.0	410.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
13	ARCH	271.0	240.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
14	ARCH	299.0	270.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
15	ARCH	280.0	220.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
16	ARCH	291.0	280.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
17	ARCH	294.0	260.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
18	ARCH	255.0	190.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
19	ARCH	128.0	10.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Released
20	ARCH	470.0	1020.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Mortality
21	ARCH	290.0	270.0	U	A	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Mortality
22	ARCH	254.0	200.0	U	-	15-Aug-21	Gill Net	GN12	REF - T	17X	522147 7995861	522054 7995887	GN12A	GN12B	2021-08-15	10:45	2021-08-15	12:45	2.00	1.5	Mortality
1	ARCH	392.0	500.0	U	A	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Released
2	ARCH	281.0	230.0	U	-	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Released
3	ARCH	520.0	1590.0	U	A	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Released
4	ARCH	575.0	2300.0	U	A	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Released
5	ARCH	260.0	200.0	U	-	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Released
6	FHSC	-	224.0	F	A	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Euthanized
7	FHSC	-	234.0	F	A	15-Aug-21	Gill Net	GN13	REF - T	17X	522182 7996077	522089 7996100	GN13A	GN13B	2021-08-15	11:00	2021-08-15	13:00	2.00	1.5	Euthanized
1	ARCH	462.0	1170.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
2	ARCH	402.0	520.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
3	ARCH	375.0	580.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
4	ARCH	400.0	710.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
5	ARCH	418.0	750.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
6	ARCH	475.0	1310.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
7	ARCH	336.0	410.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
8	ARCH	434.0	950.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
9	ARCH	521.0	760.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
10	ARCH	285.0	280.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
11	ARCH	442.0	920.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
12	ARCH	409.0	690.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
13	ARCH	314.0	300.0	U	-	15-Aug-21	Gill Net	GN14	REF - T	17X	523116 7996895	523021 7996932	GN14A	GN14B	2021-08-15	14:20	2021-08-15	15:05	0.75	2.65	Released
1	ARCH	248.0	160.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
2	ARCH	374.0	490.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
3	ARCH	416.0	740.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
4	ARCH	370.0	700.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
5	ARCH	490.0	1590.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
6	ARCH	409.0	800.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
7	ARCH	487.0	1420.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
8	ARCH	428.0	910.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
9	ARCH	365.0	500.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
10	ARCH	402.0	740.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
11	ARCH	430.0	930.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
12	ARCH	422.0	760.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
13	ARCH	334.0	410.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
14	ARCH	348.0	560.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
15	ARCH	385.0	640.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
16	ARCH	305.0	350.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
17	ARCH	333.0	390.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
18	ARCH	404.0	800.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Released
19	ARCH	460.0	1030.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Mortality
20	ARCH	421.0	890.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Mortality
21	ARCH	351.0	510.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Mortality
22	ARCH	304.0	270.0	U	U	15-Aug-21	Gill Net	GN15	REF - T	17X	523133 7996676	523068 7996739	GN15A	GN15B	2021-08-15	14:35	2021-08-15	15:35	1.00	0.1	Mortality
1	ARCH	472.0	1070.0	U	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
2	SHSC	249.0	180.0	U	U	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
3	FHSC	223.0	180.0	F	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
4	ARCH	737.0	4430.0	U	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
5	ARCH	440.0	960.0	U	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
6	ARCH	352.0	490.0	U	U	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
7	FHSC	238.0	150.0	M	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
8	FHSC	187.0	70.0	F	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
9	FHSC	235.0	150.0	M	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
10	FHSC	210.0	100.0	M	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
11	FHSC	248.0	190.0	M	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
12	FHSC	243.0	200.0	M	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
13	FHSC	245.0	190.0	F	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
14	FHSC	275.0	270.0	F	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
15	FHSC	301.0	350.0	F	A	16-Aug-21	Gill Net	GN16	IPF	17W	505148 7976959	505061 7976967	GN16A	GN16B	2021-08-16	9:00	2021-08-16	12:15	3.25	5.25	Released
1	ARCH	452.0	920.0	U	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
2	ARCH	335.0	390.0	U	U	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
3	ARCH	289.0	270.0	U	U	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
4	ARCH	343.0	510.0	U	U	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
5	ARCH	434.0	810.0	U	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
6	FHSC	246.0	200.0	M	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
7	FHSC	247.0	210.0	M	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
8	FHSC	234.0	160.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
9	FHSC	180.0	100.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
10	FHSC	236.0	170.0	M	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
11	FHSC	298.0	360.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
12	FHSC	256.0	210.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
13	FHSC	240.0	160.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
14	FHSC	217.0	130.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
15	FHSC	186.0	80.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
16	FHSC	189.0	80.0	M	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
17	FHSC	210.0	120.0	F	A	16-Aug-21	Gill Net	GN17	IPF	17W	505080 7979223	505080 7977223	GN17A	GN17B	2021-08-16	9:20	2021-08-16	12:25	3.08	5.5	Released
1	ARCH	187.0	50.0	-	-	17-Aug-21	Gill Net	GN18	DPF	17W	504274 7976478	504304 7976549	GN18A	GN18B	2021-08-17	8:10	2021-08-17	12:10	4.17	2.5	Released
2	ARCH	340.0	470.0	-	-	17-Aug-21	Gill Net	GN18	DPF	17W	504274 7976478	504304 7976549	GN18A	GN18B	2021-08-17	8:10	2021-08-17	12:10	4.17	2.5	Released
1	ARCH	691.0	4990.0	U	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
2	ARCH	594.0	2500.0	U	U	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
3	ARCH	627.0	3280.0	U	U	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
4	ARCH	290.0	300.0	U	U	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
5	FHSC	291.0	280.0	F	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
6	FHSC	216.0	80.0	M	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
7	FHSC	234.0	100.0	F	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
8	FHSC	239.0	120.0	F	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
9	FHSC	219.0	100.0	F	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
10	FHSC	189.0	60.0	M	A	17-Aug-21	Gill Net	GN19	IPF	17W	504573 7976595	504541 7976668	GN19A	GN19B	2021-08-17	8:25	2021-08-17	12:25	4.00	-	Released
1	ARCH	303.0	290.0	U	U	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977496	505111 7977501	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
2	ARCH	387.0	610.0	U	U	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977497	505111 7977502	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Mortality
3	SHSC	323.0	410.0	U	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977498	505111 7977503	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
4	SHSC	269.0	220.0	U	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977499	505111 7977504	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
5	FHSC	249.0	140.0	F	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977500	505111 7977505	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
6	FHSC	345.0	160.0	F	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977501	505111 7977506	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
7	FHSC	218.0	90.0	F	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977502	505111 7977507	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
8	FHSC	191.0	50.0	M	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977503	505111 7977508	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
9	FHSC	194.0	50.0	F	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977504	505111 7977509	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
10	ARSC	216.0	150.0	U	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977505	505111 7977510	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
11	GRCD	449.0	890.0	U	A	17-Aug-21	Gill Net	GN20	IPF	17W	505191 7977506	505111 7977511	GN20A	GN20B	2021-08-17	12:50	2021-08-17	16:35	3.75	8	Released
1	ARCH	283.0	270.0	-	-	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
2	ARCH	226.0	130.0	-	-	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
3	ARCH	380.0	540.0	-	-	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
4	ARCH	332.0	430.0	-	-	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Mortality
5	SHSC	237.0	150.0	-	-	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
6	FHSC	251.0	230.0	F	A	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
7	FHSC	247.0	190.0	F	A	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
8	SHSC	242.0	230.0	U	A	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
9	ARSC	89.0	20.0	U	U	17-Aug-21	Gill Net	GN21	IPF	17W	505264 7977779	505201 7977808	GN21A	GN21B	2021-08-17	12:43	2021-08-17	16:20	3.62	8	Released
1	ARCH	228.0	110.0	U	U	18-Aug-21	Gill Net	GN22	IPF	17W	502249 7976266	502215 7976347	GN22A	GN22B	2021-08-18	8:15	2021-08-18	12:08	3.88	-	Released
1	ARCH	470.0	1250.0	U	U	18-Aug-21	Gill Net	GN23	IPF	17W	502432 7976273	502457 7976361	GN23A	GN23B	2021-08-18	8:30	2021-08-18	12:15	3.75	1.5	Mortality
2	ARCH	354.0	450.0	U	U	18-Aug-21	Gill Net	GN23	IPF	17W	502432 7976273	502457 7976361	GN23A	GN23B	2021-08-18	8:30	2021-08-18	12:15	3.75	1.5	Released
3	ARCH	465.0	1110.0	U	U	18-Aug-21	Gill Net	GN23	IPF	17W	502432 7976273	502457 7976361	GN23A	GN23B	2021-08-18	8:30	2021-08-18	12:15	3.75	1.5	Released
1	ARCH	528.0	1880.0	U	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
2	FHSC	235.0	150.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
3	FHSC	230.0	140.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
4	FHSC	124.0	120.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
5	FHSC	200.0	80.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
6	FHSC	229.0	120.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
7	FHSC	160.0	130.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
8	FHSC	206.0	120.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
9	FHSC	188.0	80.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
10	ARSC	135.0	50.0	U	U	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
11	FHSC	148.0	50.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
12	FHSC	159.0	60.0	F	A	18-Aug-21	Gill Net	GN24	DPF	17W	503721 7976365	503721 7976453	GN24A	GN24B	2021-08-18	13:20	2021-08-18	16:40	3.33	1.5	Released
1	ARCH	191.0	110.0	U	U	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
2	ARCH	430.0	750.0	U	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
3	ARCH	282.0	260.0	U		18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Mortality
4	ARCH	285.0	260.0	U	U	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Mortality
5	ARCH	266.0	160.0	U	U	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Mortality
6	ARCH	490.0	1240.0	U	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Mortality
7	ARCH	324.0	350.0	U	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
8	FHSC	195.0	90.0	M	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
9	FHSC	179.0	80.0	F	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released

Table 3. 2021 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
10	FHSC	212.0	110.0	M	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
11	FHSC	223.0	110.0	M	A	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
12	ARCH	615.0	3220.0	U	U	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
13	ARCH	398.0	710.0	-	-	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Mortality
14	ARSC	108.0	10.0	U	U	18-Aug-21	Gill Net	GN25	DPF	17W	504141 7976594	504230 7976604	GN25A	GN25B	2021-08-18	13:44	2021-08-18	17:20	3.60	2	Released
1	FHSC	280.0	250.0	M	A	02-Aug-21	Hoop Net	HN01	DPF	17W	503021 7976416	503017 7976420	157	-	2021-08-02	10:45	2021-08-04	14:50	52.08	1	Released
2	FHSC	247.0	184.0	M	A	02-Aug-21	Hoop Net	HN01	DPF	17W	503021 7976416	503017 7976420	157	-	2021-08-02	10:45	2021-08-04	14:50	52.08	1	Released
3	FHSC	293.0	204.0	M	A	02-Aug-21	Hoop Net	HN01	DPF	17W	503021 7976416	503017 7976420	157	-	2021-08-02	10:45	2021-08-04	14:50	52.08	1	Released
1	FHSC	189.0	72.0	U	U	02-Aug-21	Hoop Net	HN02	DPF	17W	503145 7976480	503137 7976480	HN02	-	2021-08-02	11:03	2021-08-07	12:34	121.52	1	Released
1	FHSC	157.0	40.0	M	U	08-Aug-21	Hoop Net	HN03	DPF	17W	503003 7976400	-	HN03	-	2021-08-08	8:30	2021-08-11	10:40	74.17	0.9	Released
2	FHSC	160.0	40.0	F	U	08-Aug-21	Hoop Net	HN03	DPF	17W	503003 7976400	-	HN03	-	2021-08-08	8:30	2021-08-11	10:40	74.17	0.9	Released
3	FHSC	138.0	10.0	U	U	08-Aug-21	Hoop Net	HN03	DPF	17W	503003 7976400	-	HN03	-	2021-08-08	8:30	2021-08-11	10:40	74.17	0.9	Released
1	FHSC	248.0	150.0	M	A	08-Aug-21	Hoop Net	HN04	DPF	17W	504028 7976600	-	-	-	2021-08-08	8:40	2021-08-11	12:13	75.55	0.95	Released
2	FHSC	178.0	50.0	U	U	08-Aug-21	Hoop Net	HN04	DPF	17W	504028 7976600	-	-	-	2021-08-08	8:40	2021-08-11	12:13	75.55	0.95	Released
3	FHSC	145.0	45.0	U	U	08-Aug-21	Hoop Net	HN04	DPF	17W	504028 7976600	-	-	-	2021-08-08	8:40	2021-08-11	12:13	75.55	0.95	Released
4	FHSC	166.0	50.0	U	U	08-Aug-21	Hoop Net	HN04	DPF	17W	504028 7976600	-	-	-	2021-08-08	8:40	2021-08-11	12:13	75.55	0.95	Released
5	FHSC	186.0	60.0	M	A	08-Aug-21	Hoop Net	HN04	DPF	17W	504028 7976600	-	-	-	2021-08-08	8:40	2021-08-11	12:13	75.55	0.95	Released
NFC	-	-	-	-	-	11-Aug-21	Hoop Net	HN05	DPF	17W	504136 7976559	-	HN05	-	2021-08-11	11:31	2021-08-16	14:00	122.48	1.25	-
NFC	-	-	-	-	-	11-Aug-21	Hoop Net	HN06	DPF	17W	504068 7976564	-	HN06	-	2021-08-11	11:51	2021-08-16	14:15	122.40	0.9	-
NFC	-	-	-	-	-	16-Aug-21	Hoop Net	HN07	IPF	17W	504563 7976634	-	-	-	2021-08-16	14:35	2021-08-16	15:00	48.42	1	-
NFC	-	-	-	-	-	09-Aug-21	Long Line	LL01	IPF	17W	502570 7976487	502680 7976630	LL01A	LL01B	2021-08-09	16:00	2021-08-10	7:30	15.50	-	-
NFC	-	-	-	-	-	09-Aug-21	Long Line	LL02	IPF	17W	504720 7976812	504740 7977008	LL02A	LL02B	2021-08-10	8:15	2021-08-11	12:13	27.97	-	-
NFC	-	-	-	-	-	09-Aug-21	Long Line	LL03	IPF	17W	502193 7976782	502359 7976919	LL03A	LL03	2021-08-11	14:30	2021-08-12	8:00	17.50	-	-
NFC	-	-	-	-	-	19-Aug-21	Trawling	TR01	IPF	17W	502222 7977862	501962 7977448	TR01A	TR01B	2021-08-19	8:53	2021-08-19	9:10	0.28	31	-
1	UNSN	102.0	-	U	U	19-Aug-21	Trawling	TR02	IPF	17W	501699 7976664	501981 7977507	TR02A	TR02B	2021-08-19	9:37	2021-08-19	10:07	0.50	32.5	Euthanized
2	UNCD	63.0	-	U	U	19-Aug-21	Trawling	TR02	IPF	17W	501699 7976664	501981 7977507	TR02A	TR02B	2021-08-19	9:37	2021-08-19	10:07	0.50	32.5	Released
3	RBSC	71.0	-	U	U	19-Aug-21	Trawling	TR02	IPF	17W	501699 7976664	501981 7977507	TR02A	TR02B	2021-08-19	9:37	2021-08-19	10:07	0.50	32.5	Released
4	UNSC	93.0	-	U	U	19-Aug-21	Trawling	TR02	IPF	17W	501699 7976664	501981 7977507	TR02A	TR02B	2021-08-19	9:37	2021-08-19	10:07	0.50	32.5	Released
5	ATPO	47.0	-	U	U	19-Aug-21	Trawling	TR02	IPF	17W	501699 7976664	501981 7977507	TR02A	TR02B	2021-08-19	9:37	2021-08-19	10:07	0.50	32.5	Euthanized
1	RBSC	134.0	-	U	U	19-Aug-21	Trawling	TR03	IPF	17W	502407 7978007	502720 7978457	TR03A	TR03B	2021-08-19	10:58	2021-08-19	11:40	0.70	50	Released
2	RBSC	82.0	-	U	U	19-Aug-21	Trawling	TR03	IPF	17W	502407 7978007	502720 7978457	TR03A	TR03B	2021-08-19	10:58	2021-08-19	11:40	0.70	50	Released
3	UNCD	58.0	-	U	U	19-Aug-21	Trawling	TR03	IPF	17W	502407 7978007	502720 7978457	TR03A	TR03B	2021-08-19	10:58	2021-08-19	11:40	0.70	50	Released
1	STSC	101.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
2	STSC	145.0	30.0	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
3	STSC	150.0	30.0	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
4	SAEP	121.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
5	RBSC	118.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Euthanized
6	ARSC	108.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
7	UNCD	99.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
8	STSC	122.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
9	RBSC	74.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Euthanized
10	RBSC	114.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
11	RBSC	109.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
12	RBSC	92.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
13	RBSC	93.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
14	RBSC	99.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
15	RBSC	95.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
16	RBSC	87.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
17	RBSC	95.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
18	RBSC	88.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
19	RBSC	92.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
20	RBSC	95.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
21	RBSC	96.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
22	RBSC	91.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
23	RBSC	108.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
24	RBSC	98.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
25	RBSC	117.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
26	RBSC	91.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
27	RBSC	98.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
28	RBSC	93.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
29	RBSC	96.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
30	RBSC	116.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
31	RBSC	94.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
32	RBSC	94.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
33	RBSC	110.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
34	RBSC	110.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
35	RBSC	97.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
36	RBSC	91.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
37	RBSC	94.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
38	RBSC	87.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
39	RBSC	99.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
40	RBSC	96.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
41	RBSC	102.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
42	RBSC	97.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
43	RBSC	89.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
44	RBSC	93.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
45	RBSC	94.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
46	RBSC	89.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
47	RBSC	80.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
48	RBSC	99.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
49	RBSC	88.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
50	RBSC	84.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
51	RBSC	100.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
52	AALG	72.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Euthanized
53	AALG	69.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Euthanized
54	UNCD	59.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
55	UNCD	69.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
56	UNCD	72.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
57	UNCD	73.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
58	UNCD	72.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
59	UNCD	63.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
60	UNCD	66.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
61	UNCD	70.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Mortality
62	STSC	90.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released
63	UNSC	86.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Euthanized
64	UNSC	90.0	-	U	U	19-Aug-21	Trawling	TR04	DPF	17W	503009 7976604	503945 7976822	TR04A	TR04B	2021-08-19	13:02	2021-08-19	13:35	0.55	30	Released

[1] NFC = no fish caught
[2] AALG = Arctic Alligatorfish; ARCH = Arctic Char; ARSC = Arctic Sculpin; ATPO = Atlantic Poacher; FHSC = Fourhorn Sculpin; GRCD = Greenland Cod; RBSC = Ribbed Sculpin; SAEP = Saddled Eelpout; SHSC = Shorthorn Sculpin; STSC = Arctic Staghorn Sculpin; UNCD = Unknown Cod; UNPO = Unknown Poacher; UNSC = Unknown Sculpin; UNSN = Unknown Snailfish
[3] M = Male; F = Female; U = Unknown
[4] A = Adult; J = Juvenile; F = Fry; U = Uknown
[5] DPF = Direct Project Footprint; IPF = Indirect Project Footprint; REF-K = Chapter 7.0 fish health reference exploration in Tugaat River

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
NFC	-	-	-	-	-	02-08-2022	Angling - Jigging	AJ01	IPF	17W	503217 7976609	- -	AJ01	-	02-08-2022	9:05	02-08-2022	9:35	0.50	15	-
1	FHSC	242	162.6	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Euthanized
2	FHSC	258	187.1	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Euthanized
3	FHSC	233	138	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
4	FHSC	179	54	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
5	FHSC	191	73	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
6	FHSC	210	78	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
7	FHSC	203	86	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
8	FHSC	214	124	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
9	FHSC	154	32	U	J	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
10	FHSC	228	124	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
11	FHSC	195	63	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
12	FHSC	206	81	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
13	FHSC	217	102	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
14	FHSC	207	82	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
15	FHSC	213	98	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
16	FHSC	194	75	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
17	FHSC	272	231	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
18	FHSC	229	112	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
19	FHSC	170	38	U	J	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
20	FHSC	245	124	M	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
21	FHSC	200	73	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
22	FHSC	191	65	F	A	03-08-2022	Angling - Jigging	AJ02	DPF	17W	503219 7976551	- -	AJ02	-	03-08-2022	14:06	03-08-2022	14:36	0.50	1	Released
1	GRCD	706	4260	U	A	04-08-2022	Angling - Jigging	AJ03	IPF	17W	505722 7978486	- -	AJ03	-	04-08-2022	8:20	04-08-2022	8:50	0.50	20	Released
2	SHSC	322	460	U	A	04-08-2022	Angling - Jigging	AJ03	IPF	17W	505722 7978486	- -	AJ03	-	04-08-2022	8:20	04-08-2022	8:50	0.50	20	Released
1	FHSC	149	20	U	J	04-08-2022	Angling - Jigging	AJ04	DPF	17W	504012 7976601	- -	AJ04	-	04-08-2022	13:20	04-08-2022	13:40	0.33	1.5	Released
1	FHSC	191	60	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
2	FHSC	182	80	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
3	FHSC	174	45	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
4	FHSC	191	65	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
5	FHSC	171	50	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
6	FHSC	84	55	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
7	FHSC	151	50	U	U	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
8	FHSC	83	60	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
9	FHSC	188	60	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
10	FHSC	200	70	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
11	FHSC	195	70	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
12	FHSC	162	40	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
13	FHSC	157	40	F	U	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
14	FHSC	194	80	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
15	FHSC	190	70	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
16	FHSC	201	85	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
17	FHSC	133	65	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
18	FHSC	149	30	U	J	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
19	FHSC	195	70	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
20	FHSC	254	184.7	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
21	FHSC	306	353.1	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
22	FHSC	260	166.7	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
23	FHSC	266	249.3	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
24	FHSC	214	96.6	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
25	FHSC	278	211.4	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
26	FHSC	240	136.1	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
27	FHSC	230	111.4	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
28	FHSC	218	107.2	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
29	FHSC	230	118.5	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
30	FHSC	267	209.1	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
31	FHSC	267	209.1	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
32	FHSC	225	115.5	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
33	FHSC	204	96	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
34	FHSC	210	83	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
35	FHSC	218	104	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
36	FHSC	224	134	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
37	FHSC	203	109	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
38	FHSC	201	74	F	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
39	FHSC	207	78	M	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Released
40	FHSC	247	142.8	A	A	05-08-2022	Angling - Jigging	AJ05	DPF	17W	503148 7976501	- -	AJ05	-	05-08-2022	10:32	05-08-2022	11:51	1.32	2	Euthanized
1	FHSC	264	213	F	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
2	FHSC	250	145	F	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
3	FHSC	200	82	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
4	FHSC	240	153	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
5	FHSC	288	258	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
6	FHSC	254	149	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
7	FHSC	227	116	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
8	FHSC	205	73	F	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
9	FHSC	197	71	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
10	FHSC	261	175	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
11	FHSC	210	100	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
12	FHSC	189	60	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
13	FHSC	226	108	F	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
14	FHSC	264	171	F	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
15	FHSC	225	95	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
16	FHSC	234	133	M	A	05-08-2022	Angling - Jigging	AJ06	DPF	17W	503211 7976565	- -	AJ06	-	05-08-2022	13:13	05-08-2022	13:43	0.50	3	Released
1	FHSC	200	110	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
2	FHSC	203	80	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
3	FHSC	194	90	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
4	FHSC	183	80	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
5	FHSC	199	85	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
6	FHSC	194	70	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
7	FHSC	194	60	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
8	FHSC	196	85	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
9	FHSC	245	150.1	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
10	FHSC	222	115.3	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
11	FHSC	217	101.3	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
12	FHSC	242	144.2	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
13	FHSC	252	169.2	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
14	FHSC	212	180	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
15	FHSC	257	141.8	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
16	FHSC	252	165.1	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
17	FHSC	246	154.8	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Euthanized
18	FHSC	241	121	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
19	FHSC	212	89	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
20	FHSC	207	82	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
21	FHSC	239	139	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
22	FHSC	217	99	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
23	FHSC	230	107	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
24	FHSC	214	92	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
25	FHSC	217	87	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
26	FHSC	239	115	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
27	FHSC	187	65	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
28	FHSC	224	106	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
29	FHSC	218	108	M	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released
30	FHSC	214	86	F	A	06-08-2022	Angling - Jigging	AJ07	DPF	17W	503221 7976581	- -	AJ07	-	06-08-2022	13:17	06-08-2022	14:00	0.72	3	Released

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
NFC	-	-	-	-	-	08-08-2022	Angling - Jigging	AJ08	IPF	17W	504950 7976588	- -	AJ08	-	08-08-2022	8:31	08-08-2022	9:05	0.57	10	-
1	SHSC	354	580	U	U	08-08-2022	Angling - Jigging	AJ09	DPF	17W	503986 7976664	- -	AJ09	-	08-08-2022	9:37	08-08-2022	10:00	0.38	6	Released
1	GRCD	468	1610	U	A	11-08-2022	Angling - Jigging	AJ10	DPF	17W	503213 7976613	- -	AJ10	-	11-08-2022	10:46	11-08-2022	11:05	0.32	15	Released
2	SHSC	260	300	U	A	11-08-2022	Angling - Jigging	AJ10	DPF	17W	503213 7976613	- -	AJ10	-	11-08-2022	10:46	11-08-2022	11:05	0.32	15	Released
3	SHSC	277	360	U	A	11-08-2022	Angling - Jigging	AJ10	DPF	17W	503213 7976613	- -	AJ10	-	11-08-2022	10:46	11-08-2022	11:05	0.32	15	Released
4	SHSC	232	260	U	A	11-08-2022	Angling - Jigging	AJ10	DPF	17W	503213 7976613	- -	AJ10	-	11-08-2022	10:46	11-08-2022	11:05	0.32	15	Released
1	GRCD	505	1570	U	A	13-08-2022	Angling - Jigging	AJ11	IPF	17W	505718 7978472	- -	AJ11	-	13-08-2022	11:20	13-08-2022	11:40	0.33	20	Released
2	GRCD	528	2290	U	A	13-08-2022	Angling - Jigging	AJ11	IPF	17W	505718 7978472	- -	AJ11	-	13-08-2022	11:20	13-08-2022	11:40	0.33	20	Released
3	GRCD	574	2490	U	A	13-08-2022	Angling - Jigging	AJ11	IPF	17W	505718 7978472	- -	AJ11	-	13-08-2022	11:20	13-08-2022	11:40	0.33	20	Released
4	SHSC	323	450	U	A	13-08-2022	Angling - Jigging	AJ11	IPF	17W	505718 7978472	- -	AJ11	-	13-08-2022	11:20	13-08-2022	11:40	0.33	20	Released
5	SHSC	280	260	U	A	13-08-2022	Angling - Jigging	AJ11	IPF	17W	505718 7978472	- -	AJ11	-	13-08-2022	11:20	13-08-2022	11:40	0.33	20	Released
1	SHSC	290	470	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
2	SHSC	243	220	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
3	SHSC	318	430	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
4	SHSC	255	270	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
5	SHSC	192	90	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
6	SHSC	188	100	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
7	SHSC	172	60	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
8	SHSC	160	50	U	U	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
9	SHSC	210	80	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
10	SHSC	186	90	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
11	SHSC	185	100	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
12	SHSC	171	50	U	U	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
13	SHSC	158	50	U	A	14-08-2022	Angling - Jigging	AJ12	IPF	17W	505124 7977155	- -	AJ12	-	14-08-2022	9:20	14-08-2022	9:55	0.58	3	Released
NFC	-	-	-	-	-	14-08-2022	Angling - Jigging	AJ13	DPF	17W	503209 7976628	- -	AJ13	-	14-08-2022	14:09	14-08-2022	15:24	1.25	15	-
1	FHSC	284	278.7	F	A	10-08-2022	Angling - Jigging	AJREF1	REF - T	17W	512013 7988996	512004 7988841	AJREF1S	AJREF1D	10-08-2022	10:23	10-08-2022	10:33	0.17	2	Euthanized
2	ARCH	-	-	-	-	10-08-2022	Angling - Jigging	AJREF1	REF - T	17W	512013 7988996	512004 7988841	AJREF1S	AJREF1D	10-08-2022	10:23	10-08-2022	10:33	0.17	2	Released
3	ARCH	-	-	-	-	10-08-2022	Angling - Jigging	AJREF1	REF - T	17W	512013 7988996	512004 7988841	AJREF1S	AJREF1D	10-08-2022	10:23	10-08-2022	10:33	0.17	2	Released
1	SHSC	354	595	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
2	SHSC	214	110	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
3	SHSC	197	100	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
4	SHSC	246	200	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
5	SHSC	280	310	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
6	SHSC	175	40	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
7	SHSC	216	125	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
8	SHSC	208	100	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
9	SHSC	197	100	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
10	SHSC	190	80	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
11	SHSC	180	80	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
12	SHSC	200	100	A	UN	10-08-2022	Angling - Jigging	AJREF2	REF - K	17W	511514 7997614	- -	AJREF2	-	10-08-2022	14:50	10-08-2022	15:00	0.17	2	Released
1	ARSC	224	130	U	A	10-08-2022	Angling - Jigging	AJREF3	REF - K	17W	509027 8000823	- -	AJREF3	-	10-08-2022	15:30	10-08-2022	15:45	0.25	2	Released
2	ARSC	220	130	U	A	10-08-2022	Angling - Jigging	AJREF3	REF - K	17W	509027 8000823	- -	AJREF3	-	10-08-2022	15:30	10-08-2022	15:45	0.25	2	Released
3	SHSC	345	200	U	A	10-08-2022	Angling - Jigging	AJREF3	REF - K	17W	509027 8000823	- -	AJREF3	-	10-08-2022	15:30	10-08-2022	15:45	0.25	2	Released
1	SHSC	213	95	U	A	10-08-2022	Angling - Jigging	AJREF4	REF - K	17W	506316 7993979	- -	PHAB8	-	10-08-2022	16:16	10-08-2022	16:26	0.17	3	Released
1	FHSC	249	160	M	A	04-08-2022	Angling - Trolling	AT01	IPF	17W	505168 7977369	505117 7977124	AT01S	AT01D	04-08-2022	10:06	04-08-2022	10:42	0.60	5	Released
2	ARSC	136	30	U	A	04-08-2022	Angling - Trolling	AT01	IPF	17W	505168 7977369	505117 7977124	AT01S	AT01D	04-08-2022	10:06	04-08-2022	10:42	0.60	5	Released
1	FHSC	192	60	M	A	04-08-2022	Angling - Trolling	AT02	DPF	17W	503139 7976499	503077 7976441	AT02S	AT02E	04-08-2022	15:46	04-08-2022	15:58	0.20	3	Released
2	FHSC	214	110	M	A	04-08-2022	Angling - Trolling	AT02	DPF	17W	503139 7976499	503077 7976441	AT02S	AT02E	04-08-2022	15:46	04-08-2022	15:58	0.20	3	Released
3	FHSC	197	77	F	A	04-08-2022	Angling - Trolling	AT02	DPF	17W	503139 7976499	503077 7976441	AT02S	AT02E	04-08-2022	15:46	04-08-2022	15:58	0.20	3	Released
4	FHSC	207	92	F	A	04-08-2022	Angling - Trolling	AT02	DPF	17W	503139 7976499	503077 7976441	AT02S	AT02E	04-08-2022	15:46	04-08-2022	15:58	0.20	3	Released
5	FHSC	182	57	M	A	04-08-2022	Angling - Trolling	AT02	DPF	17W	503139 7976499	503077 7976441	AT02S	AT02E	04-08-2022	15:46	04-08-2022	15:58	0.20	3	Released
NFC	-	-	-	-	-	05-08-2022	Angling - Trolling	AT03	DPF	17W	503890 7976647	503915 7976603	AT03S	AT03E	05-08-2022	10:15	05-08-2022	10:21	0.10	1.5	-
1	GRCD	445	830	-	A	06-08-2022	Angling - Trolling	AT04	DPF	17W	503225 7976606	502879 7976483	AT04S	AT04E	06-08-2022	8:34	06-08-2022	9:00	0.43	3	Released
2	ARCH	620	275	-	A	06-08-2022	Angling - Trolling	AT04	DPF	17W	503225 7976606	502879 7976483	AT04S	AT04E	06-08-2022	8:34	06-08-2022	9:00	0.43	3	Released
1	FHSC	294	260	F	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
2	FHSC	259	220	F	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
3	FHSC	332	450	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
4	FHSC	199	50	U	U	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
5	FHSC	290	260	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
6	FHSC	240	130	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
7	FHSC	248	160	F	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
8	FHSC	281	270	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
9	FHSC	225	105	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
10	FHSC	229	130	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
11	FHSC	226	120	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
12	FHSC	228	100	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
13	FHSC	170	30	U	U	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
14	FHSC	264	150	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
15	FHSC	240	145	F	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
16	FHSC	202	70	F	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
17	FHSC	237	140	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
18	FHSC	172	30	U	U	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
19	FHSC	216	80	F	U	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
20	FHSC	207	60	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
21	FHSC	180	30	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
22	FHSC	203	70	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
23	FHSC	209	80	M	A	11-08-2022	Angling - Jigging	AT05	DPF	17W	503207 7976607	503115 7976508	AT05S	AT05E	11-08-2022	8:58	11-08-2022	9:46	0.80	4	Released
NFC	-	-	-	-	-	13-08-2022	Angling - Trolling	AT06	DPF	17W	502884 7976390	502845 7976364	AT06S	AT06E	13-08-2022	16:20	13-08-2022	16:38	0.30	12	-
1	SHSC	260	340	U	A	14-08-2022	Angling - Trolling	AT07S	DPF	17W	504225 7976667	504606 7976722	AT07S	AT07E	14-08-2022	11:00	14-08-2022	11:45	0.75	8	Released
2	SHSC	176	70	U	A	14-08-2022	Angling - Trolling	AT07S	DPF	17W	504225 7976667	504606 7976722	AT07S	AT07E	14-08-2022	11:00	14-08-2022	11:45	0.75	8	Released
3	SHSC	219	180	U	A	14-08-2022	Angling - Trolling	AT07S	DPF	17W	504225 7976667	504606 7976722	AT07S	AT07E	14-08-2022	11:00	14-08-2022	11:45	0.75	8	Released
4	SHSC	205	150	U	A	14-08-2022	Angling - Trolling	AT07S	DPF	17W	504225 7976667	504606 7976722	AT07S	AT07E	14-08-2022	11:00	14-08-2022	11:45	0.75	8	Released
5	FHSC	245	240	F	A	14-08-2022	Angling - Trolling	AT07S	DPF	17W	504225 7976667	504606 7976722	AT07S	AT07E	14-08-2022	11:00	14-08-2022	11:45	0.75	8	Released
1	GRCD	578	2240	U	A	14-08-2022	Angling - Trolling	AT08	IPF	17W	505308 7978093	505297 7977948	AT08S	AT08E	14-08-2022	15:25	14-08-2022	15:58	0.55	15	Released
2	SHSC	313	450	U	A	14-08-2022	Angling - Trolling	AT08	IPF	17W	505308 7978093	505297 7977948	AT08S	AT08E	14-08-2022	15:25	14-08-2022	15:58	0.55	15	Released
NFC	-	-	-	-	-	01-08-2022	Fukui Trap	FT01	DPF	17W	503215 7976561	- -	FT01	-	01-08-2022	15:51	03-08-2022	9:50	41.98	2	-
NFC	-	-	-	-	-	01-08-2022	Fukui Trap	FT02	DPF	17W	503204 7976540	- -	FT02	-	01-08-2022	15:55	03-08-2022	9:58	42.05	2	-
NFC	-	-	-	-	-	01-08-2022	Fukui Trap	FT03	DPF	17W	503115 7976522	- -	FT03	-	01-08-2022	15:57	03-08-2022	10:00	42.05	10	-
1	FHSC	174	60	F	A	01-08-2022	Fukui Trap	FT04	IPF	17W	502740 7976275	- -	FT04	-	01-08-2022	16:07	03-08-2022	9:10	41.05	2	Released
NFC	-	-	-	-	-	01-08-2022	Fukui Trap	FT05	IPF	17W	502664 7976287	- -	FT05	-	01-08-2022	16:10	03-08-2022	9:15	41.08	2	-
NFC	-	-	-	-	-	01-08-2022	Fukui Trap	FT06	IPF	17W	502661 7976441	- -	FT06	-	01-08-2022	16:15	03-08-2022	9:20	41.08	18	-
NFC	-	-	-	-	-	03-08-2022	Fukui Trap	FT07	IPF	17W	502508 7976537	- -	FT07	-	03-08-2022	9:20	05-08-2022	8:30	47.17	15	-
NFC	-	-	-	-	-	03-08-2022	Fukui Trap	FT08	IPF	17W	502392 7976461	- -	FT08	-	03-08-2022	9:23	05-08-2022	8:40	47.28	2	-
NFC	-	-	-	-	-	03-08-2022	Fukui Trap	FT09	IPF	17W	502287 7976432	- -	FT09	-	03-08-2022	9:28	05-08-2022	8:50	47.37	2	-
1	FHSC	169	50	M	A	03-08-2022	Fukui Trap	FT10	DPF	17W	502980 7976395	- -	FT10	-	03-08-2022	10:17	05-08-2022	9:05	46.80	2	Released
NFC	-	-	-	-	-	03-08-2022	Fukui Trap	FT11	DPF	17W	502883 7976346	- -	FT11	-	03-08-2022	10:20	05-08-2022	9:10	46.83	2	-
NFC	-	-	-	-	-	03-08-2022	Fukui Trap	FT12	DPF	17W	502897 7976391	- -	FT12	-	03-08-2022	10:24	05-08-2022	9:15	46.85	2	-
NFC	-	-	-	-	-	05-08-2022	Fukui Trap	FT13	DPF	17W	503869 7976636	- -	FT13	-	05-08-2022	8:45	09-08-2022	8:10	95.42	1	-
1	FHSC	194	100	F	A	05-08-2022	Fukui Trap	FT14	DPF	17W	503911 7976549	- -	FT14	-	05-08-2022	8:50	09-08-2022	8:10	95.33	1	Released
1	GRCD	472	1200	U	U	05-08-2022	Fukui Trap	FT15	DPF	17W	503925 7976707	- -	FT15	-	05-08-2022	8:55	09-08-2022	8:05	95.17	12	Released
NFC	-	-	-	-	-	05-08-2022	Fukui Trap	FT16	IPF	17W	504683 7976765	- -	FT16	-	05-08-2022	9:30	09-08-2022	8:35	95.08	22	-
1	ARSC	104	20	U	U	05-08-2022	Fukui Trap	FT17	IPF	17W	504713 7976713	- -	FT17	-	05-08-2022	9:40	09-08-2022	8:45	95.08	2	Released
1	SHSC	166	90	U	U	05-08-2022	Fukui Trap	FT18	IPF	17W	504844 7976638	- -	FT18	-	05-08-2022	9:45	09-08-2022	8:50	95.08	12	Released
NFC	-	-	-	-	-	09-08-2022	Fukui Trap	FT19	DPF	17W	504032 7976602	- -	FT19	-	09-08-2022	8:20	13-08-2022	8:30	96.17	2	-
NFC	-	-	-	-	-	09-08-2022	Fukui Trap	FT20	DPF	17W	504072 7976570	- -	FT20	-	09-08-2022	8:25	13-08-2022	8:25	96.00	2	-
1	ARSC	167	80	U	A	09-08-2022	Fukui Trap	FT21	IPF	17W	505098 7976838	- -	FT21	-	09-08-2022	8:40	13-08-2022	7:35	94.92	15	Released
2	HBEP	187	30	U	U	09-08-2022	Fukui Trap	FT21	IPF	17W	505098 7976838	- -	FT21	-	09-08-2022	8:40	13-08-2022	7:35	94.92	15	Released
NFC	-	-	-	-	-	09-08-2022	Fukui Trap	FT22	IPF	17W	505135 7977043	- -	FT22	-	09-08-2022	9:55	13-08-2022	7:50	93.92	1	-
1	SHSC	144	50	U	A	09-08-2022	Fukui Trap	FT23	IPF	17W	505180 7977407	- -	FT23	-	09-08-2022	9:03	13-08-2022	8:00	94.95	2	Released
1	FHSC	155	35	M	A	09-08-2022	Fukui Trap	FT24	DPF	17W	504064 7976674	- -	FT24	-	09-08-2022	16:30	13-08-2022	8:10	87.67	12	Released
1	SAEP	168	25	U	A	09-08-2022	Fukui Trap	FT24	DPF	17W	504064 7976674	- -	FT24	-	09-08-2022	16:30	13-08-2022	8:10	87.67	12	Released
NFC	-	-	-	-	-	13-08-2022	Fukui Trap	FT25	IPF	17W	505076 7977076	- -	FT25	-	13-08-2022	7:40	14-08-2022	15:07	31.45	11	-

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
NFC	-	-	-	-	-	13-08-2022	Fukui Trap	FT26	IPF	17W	505149 7977299	- -	FT26	-	13-08-2022	8:00	14-08-2022	15:12	31.20	2	-
NFC	-	-	-	-	-	13-08-2022	Fukui Trap	FT27	IPF	17W	505161 7977602	- -	FT27	-	13-08-2022	8:05	14-08-2022	15:18	31.22	2	-
NFC	-	-	-	-	-	13-08-2022	Fukui Trap	FT28	DPF	17W	504217 7976641	- -	FT28	-	13-08-2022	8:20	14-08-2022	14:50	30.50	15	-
NFC	-	-	-	-	-	13-08-2022	Fukui Trap	FT29	DPF	17W	504331 7976564	- -	FT29	-	13-08-2022	8:32	14-08-2022	14:55	30.38	2.5	-
NFC	-	-	-	-	-	13-08-2022	Fukui Trap	FT30	DPF	17W	504411 7976544	- -	FT30	-	13-08-2022	8:35	14-08-2022	15:30	30.92	2.5	-
1	ARCH	450	1200	F	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
2	ARCH	755	5390	U	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Released
3	ARCH	534	2310	U	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Released
4	ARCH	521	1760	F	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
5	ARCH	457	1110	F	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
6	ARCH	559	2110	M	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
7	ARCH	545	1810	M	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
8	ARCH	429	1000	F	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
9	ARCH	426	1080	M	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Mortality
10	FHSC	157	349	U	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Released
11	FHSC	255	200	U	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Released
12	FHSC	144	20	U	U	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Released
13	ARCH	601	2790	U	A	01-08-2022	Gill Net	GN01	DPF	17W	503107 7976434	503092 7976539	GN01S	GN01D	01-08-2022	9:30	01-08-2022	13:20	3.83	6	Released
1	FHSC	198	755	U	A	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Released
2	ARCH	744	5000	U	A	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Released
3	ARCH	580	2430	U	A	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Released
4	FHSC	180	60	U	U	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Released
5	FHSC	185	70	U	U	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Released
6	ARCH	516	1520	M	A	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Mortality
7	ARCH	525	1890	M	A	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Mortality
8	ARCH	328	390	M	J	01-08-2022	Gill Net	GN02	IPF	17W	502604 7976229	502624 7976318	GN02S	GN02D	01-08-2022	9:58	01-08-2022	13:30	3.53	1.5	Mortality
1	ARCH	332	530	U	U	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
2	ARCH	236	140	U	J	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
3	FHSC	245	130	F	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
4	FHSC	248	120	F	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
5	FHSC	273	210	F	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
6	FHSC	221	180	F	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
7	FHSC	225	130	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
8	FHSC	258	270	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
9	FHSC	255	210	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
10	FHSC	234	140	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
11	FHSC	257	190	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
12	FHSC	277	280	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
13	FHSC	252	200	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
14	FHSC	245	110	M	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
15	ARCH	522	1750	U	A	04-08-2022	Gill Net	GN03	IPF	17W	505195 7977496	505141 7977420	GN03S	GN03D	04-08-2022	9:31	04-08-2022	12:00	2.48	2.5	Released
1	ARCH	395	770	U	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
2	ARCH	663	3300	U	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
3	ARCH	495	1390	M	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Mortality
4	ARCH	676	4050	U	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
5	ARCH	353	420	U	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
6	ARCH	225	80	U	U	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
7	FHSC	242	110	M	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
8	FHSC	227	120	M	A	04-08-2022	Gill Net	GN04	IPF	17W	505142 7977064	505077 7977023	GN04S	GN04D	04-08-2022	9:49	04-08-2022	11:45	1.93	5	Released
1	ARCH	579	1800	U	U	04-08-2022	Gill Net	GN05	DPF	17W	504357 7976466	504347 7976559	GN05S	GN05D	04-08-2022	12:50	04-08-2022	14:57	2.12	1.5	Released
1	FHSC	240	136.7	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Euthanized
2	FHSC	220	105.1	M	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Euthanized
3	FHSC	322	435	U	U	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
4	FHSC	209	95	M	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
5	FHSC	203	77	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
6	FHSC	231	115	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
7	FHSC	207	75	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
8	FHSC	224	99	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
9	FHSC	161	88	U	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
10	FHSC	204	72	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
11	FHSC	208	126	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
12	FHSC	219	110	M	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
13	FHSC	211	83	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
14	FHSC	183	55	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
15	FHSC	176	58	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
16	FHSC	203	82	M	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
17	FHSC	220	96	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
18	FHSC	183	60	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
19	FHSC	192	63	M	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
20	FHSC	197	74	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
21	FHSC	179	52	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
22	FHSC	160	38	F	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
23	FHSC	169	48	M	A	04-08-2022	Gill Net	GN06	DPF	17W	503917 7976503	503853 7976561	GN06S	GN06D	04-08-2022	13:15	04-08-2022	15:15	2.00	1.5	Released
1	ARCH	434	950	U	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	3.5	Released
2	FHSC	226	110	M	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	4.5	Released
3	FHSC	258	185	F	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	5.5	Released
4	FHSC	221	110	F	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	6.5	Released
5	FHSC	234	175	F	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	7.5	Released
6	FHSC	220	-	M	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	8.5	Released
7	ARCH	420	750	U	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	9.5	Mortality
8	SHSC	295	350	U	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	10.5	Released
9	ARSC	220	180	U	A	07-08-2022	Gill Net	GN07	IPF	17W	505163 7976895	505137 7976814	GN07S	GN07E	07-08-2022	12:01	07-08-2022	13:25	1.40	11.5	Released
1	FHSC	210	85	M	A	07-08-2022	Gill Net	GN08	DPF	17W	504104 7976627	504184 7976646	GN08S	GNO8E	07-08-2022	12:30	07-08-2022	13:45	1.25	4	Released
2	ARCH	429	1008	U	A	07-08-2022	Gill Net	GN08	DPF	17W	504104 7976627	504184 7976646	GN08S	GNO8E	07-08-2022	12:30	07-08-2022	13:45	1.25	4	Mortality
NFC	-	-	-	-	-	08-08-2022	Gill Net	GN09	DPF	17W	503551 7976418	503540 7976508	GN09S	GN09D	08-08-2022	8:06	08-08-2022	11:30	3.40	1.5	-
1	ARCH	340	450	U	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
2	FHSC	173	55	M	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
3	FHSC	214	11	M	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
4	FHSC	199	85	F	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
5	FHSC	201	80	F	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
6	FHSC	141	40	U	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
7	FHSC	210	100	M	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
8	FHSC	158	35	U	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
9	FHSC	161	35	M	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
10	FHSC	203	90	F	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
11	FHSC	184	50	M	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
12	FHSC	169	45	U	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
13	FHSC	152	35	U	A	08-08-2022	Gill Net	GN10	IPF	17W	504512 7976467	504431 7976503	GN10S	GN10D	08-08-2022	8:17	08-08-2022	11:00	2.72	2	Released
1	ARCH	312	340	U	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
2	ARCH	634	3210	U	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
3	ARCH	275	200	U	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
4	FHSC	164	40	M	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
5	FHSC	182	70	M	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
6	FHSC	211	125	F	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
7	FHSC	208	65	M	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
8	FHSC	168	60	M	A	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
9	FHSC	154	50	U	U	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
10	FHSC	106	10	U	U	08-08-2022	Gill Net	GN11	DPF	17W	503147 7976465	503083 7976538	GN11S	GN11D	08-08-2022	15:51	08-08-2022	17:10	1.32	2	Released
1	FHSC	101	10	U	U	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
2	FHSC	254	220	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
3	FHSC	190	70	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
4	FHSC	139	40	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
5	FHSC	163	50	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
6	FHSC	157	35	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
7	FHSC	204	180	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
8	FHSC	202	80	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
9	FHSC	169	65	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
10	ARCH	541	2200	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Mortality
11	ARCH	700	2860	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Mortality
12	ARCH	430	1280	U	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
13	FHSC	188	60	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
14	FHSC	188	60	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
15	FHSC	206	80	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
16	FHSC	192	60	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
17	FHSC	175	50	U	U	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
18	FHSC	160	40	U	U	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
19	FHSC	182	60	F	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
20	FHSC	165	50	M	A	11-08-2022	Gill Net	GN12	DPF	17W	503016 7976389	502941 7976420	GN12S	GN12D	11-08-2022	8:22	11-08-2022	11:50	3.47	2	Released
1	ARCH	324	500	U	F	11-08-2022	Gill Net	GN13	IPF	17W	502691 7976239	502721 7976325	GN13S	GN13E	11-08-2022	8:35	11-08-2022	12:20	3.75	1.5	Mortality
2	ARCH	255	220	U	A	11-08-2022	Gill Net	GN13	IPF	17W	502691 7976239	502721 7976325	GN13S	GN13E	11-08-2022	8:35	11-08-2022	12:20	3.75	1.5	Released
3	ARCH	642	3220	U	A	11-08-2022	Gill Net	GN13	IPF	17W	502691 7976239	502721 7976325	GN13S	GN13E	11-08-2022	8:35	11-08-2022	12:20	3.75	1.5	Mortality
4	FHSC	204	85	M	A	11-08-2022	Gill Net	GN13	IPF	17W	502691 7976239	502721 7976325	GN13S	GN13E	11-08-2022	8:35	11-08-2022	12:20	3.75	1.5	Released
5	FHSC	175	70	M	A	11-08-2022	Gill Net	GN13	IPF	17W	502691 7976239	502721 7976325	GN13S	GN13E	11-08-2022	8:35	11-08-2022	12:20	3.75	1.5	Released
1	ARCH	326	350	U	A	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Released
2	ARCH	385	650	U	A	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Released
3	ARCH	356	450	U	A	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Mortality
4	ARCH	225	150	U	A	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Released
5	ARCH	434	1100	U	A	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Released
6	ARCH	301	350	U	A	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Released
7	ARCH	315	390	U	U	13-08-2022	Gill Net	GN14	IPF	17W	505265 7977776	505183 7977801	GN14S	GN14D	13-08-2022	10:30	13-08-2022	12:30	2.00	6.5	Mortality
1	ARCH	685	3950	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
2	ARCH	679	4190	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
3	ARCH	700	3830	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
4	ARCH	555	2250	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
5	ARCH	741	4940	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
6	ARCH	537	2500	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
7	ARCH	510	1830	U	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
8	ARCH	219	140	U	J	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Mortality
9	ARCH	314	370	U	J	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Mortality
10	ARCH	222	120	U	J	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
11	FHSC	215	140	F	A	13-08-2022	Gill Net	GN15	IPF	17W	505296 7978014	505243 7977967	GN15S	GN15E	13-08-2022	10:40	13-08-2022	12:40	2.00	2.5	Released
1	ARCH	434	1090	-	-	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
2	FHSC	248	200	F	A	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
3	FHSC	232	140	F	A	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
4	FHSC	202	70	M	A	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
5	SHSC	205	110	U	A	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
6	SHSC	230	180	U	A	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
7	FHSC	170	60	M	A	13-08-2022	Gill Net	GN16	IPF	17W	505198 7977544	505108 7977590	GN16S	GN16D	13-08-2022	10:55	13-08-2022	12:00	1.08	4.5	Released
1	ARCH	747	4970	U	A	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
2	ARCH	305	390	U	J	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
3	ARCH	334	510	U	J	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
4	ARCH	371	810	U	J	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
5	FHSC	154	30	F	A	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
6	FHSC	168	50	M	A	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
7	FHSC	145	35	F	A	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
8	FHSC	149	45	F	A	13-08-2022	Gill Net	GN17	DPF	17W	502962 7976310	502915 7976399	GN17S	GN17D	13-08-2022	15:20	13-08-2022	16:45	1.42	4.5	Released
1	ARCH	632	2750	U	A	13-08-2022	Gill Net	GN18	IPF	17W	502390 7976283	502435 7976360	GN18S	GN18D	13-08-2022	15:30	13-08-2022	16:53	1.38	2	Released
2	ARCH	614	2150	U	A	13-08-2022	Gill Net	GN18	IPF	17W	502390 7976283	502435 7976360	GN18S	GN18D	13-08-2022	15:30	13-08-2022	16:53	1.38	2	Released

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
3	ARCH	373	560	U	U	13-08-2022	Gill Net	GN18	IPF	17W	502390 7976283	502435 7976360	GN18S	GN18D	13-08-2022	15:30	13-08-2022	16:53	1.38	2	Released
4	ARCH	374	590	U	U	13-08-2022	Gill Net	GN18	IPF	17W	502390 7976283	502435 7976360	GN18S	GN18D	13-08-2022	15:30	13-08-2022	16:53	1.38	2	Released
5	ARCH	309	240	U	J	13-08-2022	Gill Net	GN18	IPF	17W	502390 7976283	502435 7976360	GN18S	GN18D	13-08-2022	15:30	13-08-2022	16:53	1.38	2	Released
6	ARCH	335	360	U	J	13-08-2022	Gill Net	GN18	IPF	17W	502390 7976283	502435 7976360	GN18S	GN18D	13-08-2022	15:30	13-08-2022	16:53	1.38	2	Released
1	ARCH	363	520	U	U	14-08-2022	Gill Net	GN19	DPF	17W	504141 7976580	504225 7976637	GN19S	GN19D	14-08-2022	8:50	14-08-2022	12:03	3.22	7.5	Released
2	FHSC	148	45	U	U	14-08-2022	Gill Net	GN19	DPF	17W	504141 7976580	504225 7976637	GN19S	GN19D	14-08-2022	8:50	14-08-2022	12:03	3.22	7.5	Released
3	FHSC	144	30	U	U	14-08-2022	Gill Net	GN19	DPF	17W	504141 7976580	504225 7976637	GN19S	GN19D	14-08-2022	8:50	14-08-2022	12:03	3.22	7.5	Released
4	FHSC	237	145	M	A	14-08-2022	Gill Net	GN19	DPF	17W	504141 7976580	504225 7976637	GN19S	GN19D	14-08-2022	8:50	14-08-2022	12:03	3.22	7.5	Released
5	FHSC	219	100	M	A	14-08-2022	Gill Net	GN19	DPF	17W	504141 7976580	504225 7976637	GN19S	GN19D	14-08-2022	8:50	14-08-2022	12:03	3.22	7.5	Released
6	FHSC	231	140	F	A	14-08-2022	Gill Net	GN19	DPF	17W	504141 7976580	504225 7976637	GN19S	GN19D	14-08-2022	8:50	14-08-2022	12:03	3.22	7.5	Released
NFC	-	-	-	-	-	14-08-2022	Gill Net	GN20	IPF	17W	504761 7976633	504808 7976702	GN20S	GN20D	14-08-2022	9:10	14-08-2022	11:52	2.70	2.5	-
1	ARCH	131	15	U	U	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
2	ARCH	590	3000	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
3	ARCH	690	3780	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Mortality
4	ARCH	675	3500	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
5	ARCH	456	1100	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
6	ARCH	547	2180	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
7	ARCH	553	2460	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
8	ARCH	545	2330	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
9	ARCH	557	2200	U	U	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
10	ARCH	374	600	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
11	ARCH	376	610	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
12	ARCH	330	450	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
13	ARCH	370	550	U	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
14	FHSC	200	135	F	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Released
15	ARCH	380	590	M	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Mortality
16	ARCH	444	1040	U	J	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Mortality
17	ARCH	478	1490	F	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Mortality
18	ARCH	451	1030	M	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Mortality
19	ARCH	531	1760	F	A	14-08-2022	Gill Net	GN21	IPF	17W	502537 7976250	502579 7976330	GN21S	GN21D	14-08-2022	12:45	14-08-2022	16:11	3.43	5	Mortality
1	ARCH	677	3890	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
2	ARCH	775	4350	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
3	ARCH	552	2170	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
4	ARCH	621	2950	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
5	ARCH	477	1510	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
6	ARCH	530	2190	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
7	ARCH	585	2610	U	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
8	FHSC	233	140	M	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
9	FHSC	196	70	M	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
10	FHSC	210	110	F	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
11	FHSC	154	50	F	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
12	FHSC	190	80	M	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
13	FHSC	222	140	M	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
14	FHSC	174	60	F	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
15	FHSC	145	35	F	U	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
16	ARCH	390	820	F	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Mortality
17	ARCH	590	2620	F	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Mortality
18	ARCH	544	2010	F	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Mortality
19	ARCH	540	2200	M	A	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Mortality
20	ARCH	168	58	U	J	14-08-2022	Gill Net	GN22	DPF	17W	503106 7976431	503082 7976516	GN22S	GN22D	14-08-2022	12:52	14-08-2022	16:35	3.72	6.5	Released
NFC	-	-	-	-	-	10-08-2022	Gill Net	GNREF1	REF - T	17W	512155 7989017	512071 7988995	GNREF1S	GNREF1D	10-08-2022	10:43	10-08-2022	12:05	1.37	1.5	-
NFC	-	-	-	-	-	10-08-2022	Gill Net	GNREF2	REF - T	17W	512013 7988845	511919 7988853	GNREF2S	GNREF2D	10-08-2022	10:55	10-08-2022	12:15	1.33	1.5	-
1	FHSC	282	353	F	A	01-08-2022	Hoop Net	HN01	DPF	17W	503008 7976390	- -	HN01	-	01-08-2022	7:44	03-08-2022	10:40	50.93	0.8	Euthanized
2	FHSC	185	68	U	A	01-08-2022	Hoop Net	HN01	DPF	17W	503008 7976390	- -	HN01	-	01-08-2022	7:44	03-08-2022	10:40	50.93	0.8	Released
3	FHSC	182	70	M	A	01-08-2022	Hoop Net	HN01	DPF	17W	503008 7976390	- -	HN01	-	01-08-2022	7:44	03-08-2022	10:40	50.93	0.8	Released
1	FHSC	282	353	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
2	FHSC	239	163	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
3	FHSC	245	215.7	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
4	FHSC	254	208.2	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
5	FHSC	260	190.8	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
6	FHSC	180	57	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
7	FHSC	192	71	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
8	FHSC	235	104	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
9	FHSC	228	114	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
10	FHSC	208	75	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
11	FHSC	205	81	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
12	FHSC	231	128	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
13	FHSC	185	66	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
14	FHSC	196	77	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
15	FHSC	211	95	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
16	ARSC	150	37	U	U	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
17	FHSC	285	259.6	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
18	FHSC	229	147.8	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
19	FHSC	237	120	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
20	FHSC	233	114.4	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
21	FHSC	245	159.6	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
22	FHSC	241	202.3	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Euthanized
23	FHSC	212	92	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
24	FHSC	197	85	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
25	FHSC	157	8	U	U	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
26	FHSC	214	108	M	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
27	FHSC	205	93	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
28	FHSC	234	147	F	A	01-08-2022	Hoop Net	HN02	DPF	17W	503131 7976472	- -	HN02	-	01-08-2022	8:15	03-08-2022	10:50	50.58	0.8	Released
1	FHSC	153	30	M	J	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
2	FHSC	146	30	M	J	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
3	FHSC	162	90	M	J	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
4	FHSC	230	94.4	M	A	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Euthanized
5	FHSC	143	35	M	A	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
6	FHSC	233	150	M	A	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
7	FHSC	158	50	F	A	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
8	FHSC	144	40	M	U	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
9	FHSC	135	35	M	U	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
10	FHSC	132	25	M	U	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
11	FHSC	144	50	M	U	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
12	FHSC	139	55	M	U	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
13	FHSC	143	50	M	U	03-08-2022	Hoop Net	HN03	DPF	17W	503444 7976596	- -	HN03	-	03-08-2022	11:27	08-08-2022	16:05	124.63	1.6	Released
1	FHSC	210	85	M	A	03-08-2022	Hoop Net	HN04	DPF	17W	503929 7976592	- -	HN04	-	03-08-2022	12:06	08-08-2022	16:30	124.40	1.5	Released
2	FHSC	165	70	M	A	03-08-2022	Hoop Net	HN04	DPF	17W	503929 7976592	- -	HN04	-	03-08-2022	12:06	08-08-2022	16:30	124.40	1.5	Released
3	FHSC	160	50	F	A	03-08-2022	Hoop Net	HN04	DPF	17W	503929 7976592	- -	HN04	-	03-08-2022	12:06	08-08-2022	16:30	124.40	1.5	Released
4	FHSC	135	30	M	A	03-08-2022	Hoop Net	HN04	DPF	17W	503929 7976592	- -	HN04	-	03-08-2022	12:06	08-08-2022	16:30	124.40	1.5	Released
5	FHSC	134	30	F	A	03-08-2022	Hoop Net	HN04	DPF	17W	503929 7976592	- -	HN04	-	03-08-2022	12:06	08-08-2022	16:30	124.40	1.5	Released
NFC	-	-	-	-	-	08-08-2022	Hoop Net	HN05	IPF	17W	504564 7976631	- -	HN05	-	08-08-2022	16:12	13-08-2022	7:30	111.30	1.5	-
1	FHSC	202	100	M	A	08-08-2022	Hoop Net	HN06	DPF	17W	504131 7976549	- -	HN06	-	08-08-2022	16:47	13-08-2022	7:30	110.72	1	Released
NFC	-	-	-	-	-	13-08-2022	Hoop Net	HN07	IPF	17W	504558 7976647	- -	HN07	-	13-08-2022	7:36	15-08-2022	8:50	49.23	1.5	-
1	FHSC	176	50	M	A	13-08-2022	Hoop Net	HN08	DPF	17W	503050 7976442	- -	HN08	-	13-08-2022	9:00	14-08-2022	8:10	23.17	1.15	Released
2	FHSC	219	70	M	A	13-08-2022	Hoop Net	HN08	DPF	17W	503050 7976442	- -	HN08	-	13-08-2022	9:00	14-08-2022	8:10	23.17	1.15	Released
3	SHSC	175	80	U	A	13-08-2022	Hoop Net	HN08	DPF	17W	503050 7976442	- -	HN08	-	13-08-2022	9:00	14-08-2022	8:10	23.17	1.15	Released
4	FHSC	188	70	F	A	13-08-2022	Hoop Net	HN08	DPF	17W	503050 7976442	- -	HN08	-	13-08-2022	9:00	14-08-2022	8:10	23.17	1.15	Released
5	FHSC	220	130	M	A	13-08-2022	Hoop Net	HN08	DPF	17W	503050 7976442	- -	HN08	-	13-08-2022	9:00	14-08-2022	8:10	23.17	1.15	Released
NFC	-	-	-	-	-	14-08-2022	Hoop Net	HN09	IPF	17W	504366 7976489	- -	HN09	-	14-08-2022	8:30	15-08-2022	8:55	24.42	1.75	-
1	STSC	131	30	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
2	RBSC	114	10	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released

Table 4. 2022 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
3	RBSC	117	15	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
4	RBSC	117	10	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
5	RBSC	122	10	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
6	RBSC	109	10	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
7	RBSC	95	5	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
8	RBSC	96	5	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
9	RBSC	113	10	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
10	POCD	105	10	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Euthanized
11	SPSC	64	5	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Euthanized
12	SPSC	59	3	U	U	15-08-2022	Trawling	TR01	IPF	17W	502058 7977608	502490 7978248	TR01S	TR01E	15-08-2022	13:41	15-08-2022	14:09	0.47	50	Released
1	POCD	87	9.4	U	J	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
2	STSC	145	46.6	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
3	STSC	93	12	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
4	STSC	142	36.1	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
5	STSC	127	26.8	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
6	STSC	138	33.7	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
7	STSC	124	15.6	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Mortality
8	STSC	99	13.7	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
9	RBSC	113	10.4	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
10	RBSC	115	9.8	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
11	RBSC	102	7.3	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
12	RBSC	104	7.4	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
13	RBSC	121	11.3	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
14	RBSC	112	8.9	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
15	SPSC	70	4.8	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
16	SPSC	68	4.1	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
17	SPSC	63	2.4	U	U	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Released
18	POCD	72	2.2	U	J	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Mortality
19	POCD	72	2.4	U	J	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Mortality
20	POCD	72	3	U	J	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Mortality
21	POCD	72	2.2	U	J	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Mortality
22	POCD	74	2.8	U	J	15-08-2022	Trawling	TR02	DPF	17W	502305 7976619	503338 7976862	TR02S	TR02E	15-08-2022	15:13	15-08-2022	15:54	0.68	30	Mortality

[1] NFC = no fish caught

[2] ARCH = Arctic Char; ARSC = Arctic Sculpin; FHSC = Fourhorn Sculpin; GRCD = Greenland Cod; HBEP = Half-barred Eelpout; POCD = Polar Cod; RBSC = Ribbed Sculpin; SAEP = Saddled Eelpout; SHSC = Shorthorn Sculpin; SPSC = Spatulate Sculpin; STSC = Arctic Staghorn Sculpin

[3] M = Male; F = Female; U = Unknown

[4] A = Adult; J = Juvenile; F = Fry; U = Uknown

[5] DPF = Direct Project Footprint; IPF = Indirect Project Footprint; REF-K = Chapter 7.0 fish health reference exploration in Koluktoo Bay; REF-T = Chapter 7.0 fish health reference exploration in Tugaat River

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
1	GRCD	-	-	-	-	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Observed
2	FHSC	187	50	U	U	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Released
3	FHSC	199	70	U	U	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Released
4	FHSC	197	60	U	U	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Released
5	FHSC	265	263.8	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
6	FHSC	259	181.7	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
7	FHSC	248	161	M	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
8	FHSC	204	87.8	M	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
9	FHSC	275	252.2	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
10	FHSC	218	110	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
11	FHSC	253	157.5	M	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
12	FHSC	276	213.1	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
13	FHSC	229	109.8	M	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
14	FHSC	225	105.1	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
15	FHSC	227	111.9	M	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
16	FHSC	259	183.2	F	A	28-07-2023	Angling - Jigging	ANJ01	DPF	17W	0503224 7976600	0503144 7976512	ANJ01A	ANJ01B	28-07-2023	9:45	2023-07-28	10:30	0.75	3	Euthanized
1	GRCD	455	900	U	A	29-07-2023	Angling - Jigging	ANJ02	DPF	17W	0503218 7976598	-	ANJ02	-	29-07-2023	10:28	2023-07-29	10:54	0.43	10	Released
2	GRCD	397	600	U	A	29-07-2023	Angling - Jigging	ANJ02	DPF	17W	0503218 7976598	-	ANJ02	-	29-07-2023	10:28	2023-07-29	10:54	0.43	10	Released
3	GRCD	445	1100	U	A	29-07-2023	Angling - Jigging	ANJ02	DPF	17W	0503218 7976598	-	ANJ02	-	29-07-2023	10:28	2023-07-29	10:54	0.43	10	Released
1	FHSC	166	40	U	U	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Released
2	FHSC	162	30	U	U	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Released
3	FHSC	174	40	U	U	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Released
4	FHSC	195	60	U	U	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Released
5	FHSC	195	60	U	U	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Released
6	FHSC	223	128.9	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
7	FHSC	205	97.5	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
8	FHSC	246	174.1	F	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
9	FHSC	224	100.5	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
10	FHSC	281	240.8	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
11	FHSC	225	177	F	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
12	FHSC	210	90.5	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
13	FHSC	230	128.6	F	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
14	FHSC	224	93.8	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
15	FHSC	212	94.1	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
16	FHSC	203	76.4	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Euthanized
17	ARCH	557	1350.6	M	A	29-07-2023	Angling - Jigging	ANJ03	DPF	17W	0503207 7976559	-	ANJ03	-	29-07-2023	13:07	2023-07-29	13:33	0.43	2	Mortality
1	GRCD	572	-	U	A	30-07-2023	Angling - Jigging	ANJ04	DPF	17W	0503225 7976599	-	ANJ04	-	30-07-2023	10:50	2023-07-30	11:30	0.67	13	Released
2	GRCD	581	-	M	A	30-07-2023	Angling - Jigging	ANJ04	DPF	17W	0503225 7976599	-	ANJ04	-	30-07-2023	10:50	2023-07-30	11:30	0.67	13	Released
1	FHSC	275	200	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
2	FHSC	233	150	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
3	FHSC	260	180	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
4	FHSC	225	130	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
5	FHSC	276	190	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
6	FHSC	183	57	F	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
7	FHSC	186	60	F		31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Released
8	SHSC	275	276.9	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
9	SHSC	286	337.7	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
10	SHSC	345	556.6	F	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
11	SHSC	205	112.5	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
12	SHSC	175	80.3	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
13	SHSC	165	52.3	F	J	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
14	SHSC	162	235	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
15	FHSC	215	93.4	M	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Mortality
16	FHSC	274	243	F	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
17	FHSC	256	164	F	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
18	FHSC	323	329	F	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
19	FHSC	256	170.5	F	A	31-07-2023	Angling - Jigging	ANJ05	IPF	17W	0505307 7977977	-	ANJ05	-	31-07-2023	9:00	2023-07-31	11:20	2.33	2	Euthanized
1	STSC	207	103	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Released
2	GRCD	408	700	U	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Released
3	GRCD	466	1000	U	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Released
4	SHSC	371	307	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
5	SHSC	200	95	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
6	SHSC	259	209	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
7	SHSC	307	426	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
8	SHSC	190	94.2	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
9	SHSC	235	145	M	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
10	SHSC	199	103.2	M	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Euthanized
11	SHSC	200	100.1	M	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Mortality
12	SHSC	230	144.7	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Mortality
13	FHSC	175	54.5	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Mortality
14	FHSC	220	139.4	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Mortality
15	SHSC	257	125.7	F	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Mortality
16	SHSC	185	96.7	M	A	01-08-2023	Angling - Jigging	ANJ06	REF - K	17W	0509017 8000858	-	ANJ06	-	01-08-2023	10:00	2023-08-01	11:10	1.17	5	Mortality
1	SHSC	345	528	F	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
2	SHSC	290	296	F	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
3	SHSC	195	92	M	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
4	SHSC	235	173	F	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
5	SHSC	235	161.5	M	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
6	SHSC	190	83.4	M	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
7	SHSC	221	124.8	F	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
8	SHSC	194	79.7	M	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
9	SHSC	195	88.8	M	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
10	SHSC	176	55.1	M	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Euthanized
11	ARSC	161	60.5	U	A	01-08-2023	Angling - Jigging	ANJ07	REF - K	17W	0508861 8000848	-	ANJ07	-	01-08-2023	11:45	2023-08-01	12:42	0.95	5	Mortality
1	SHSC	278	299	F	A	02-08-2023	Angling - Jigging	ANJ08	DPF	17W	0503976 7976671	-	ANJ08	-	02-08-2023	10:25	2023-08-02	10:45	0.33	5	Euthanized
2	SHSC	247	190	F	A	02-08-2023	Angling - Jigging	ANJ08	DPF	17W	0503976 7976671	-	ANJ08	-	02-08-2023	10:25	2023-08-02	10:45	0.33	5	Euthanized
3	SHSC	362	499	F	A	02-08-2023	Angling - Jigging	ANJ08	DPF	17W	0503976 7976671	-	ANJ08	-	02-08-2023	10:25	2023-08-02	10:45	0.33	5	Euthanized
4	SHSC	283	298	F	A	02-08-2023	Angling - Jigging	ANJ08	DPF	17W	0503976 7976671	-	ANJ08	-	02-08-2023	10:25	2023-08-02	10:45	0.33	5	Euthanized
1	FHSC	226	110	M	A	02-08-2023	Angling - Jigging	ANJ09	DPF	17W	0503221 7976580	-	ANJ09	-	02-08-2023	10:55	2023-08-02	11:08	0.22	3	Released
2	FHSC	209	120	F	A	02-08-2023	Angling - Jigging	ANJ09	DPF	17W	0503221 7976580	-	ANJ08	-	02-08-2023	10:55	2023-08-02	11:08	0.22	3	Released
3	FHSC	270	175	F	A	02-08-2023	Angling - Jigging	ANJ09	DPF	17W	0503221 7976580	-	ANJ09	-	02-08-2023	10:55	2023-08-02	11:08	0.22	3	Euthanized
1	SHSC					06-08-2023	Angling - Jigging	ANJ10	DPF	17W	0503296 7976666	-	ANJ10	-	06-08-2023	11:15	2023-08-06	11:45	0.50	20	Released
NFC	-	-	-	-	-	06-08-2023	Angling - Jigging	ANJ11	DPF	17W	0503245 7976645	-	ANJ11	-	06-08-2023	11:48	2023-08-06	12:05	0.28	20	-
1	GRCD					06-08-2023	Angling - Jigging	ANJ12	IPF	17W	0505738 7978462	-	ANJ12	-	06-08-2023	15:21	2023-08-06	15:42	0.35	12.5	Released
NFC	-	-	-	-	-	06-08-2023	Angling - Jigging	ANJ13	IPF	17W	0505280 7978016	-	ANJ13	-	06-08-2023	16:11	2023-08-06	16:27	0.27	5	-
1	ARSC					08-08-2023	Angling - Jigging	ANJ14	REF - K	17X	0509105 8000811	-	ANJ14	-	08-08-2023	13:06	2023-08-08	13:26	0.33	3	Released
2	SHSC					08-08-2023	Angling - Jigging	ANJ14	REF - K	17X	0509105 8000811	-	ANJ14	-	08-08-2023	13:06	2023-08-08	13:26	0.33	3	Released
3	SHSC					08-08-2023	Angling - Jigging	ANJ14	REF - K	17X	0509105 8000811	-	ANJ14	-	08-08-2023	13:06	2023-08-08	13:26	0.33	3	Euthanized
4	SHSC					08-08-2023	Angling - Jigging	ANJ14	REF - K	17X	0509105 8000811	-	ANJ14	-	08-08-2023	13:06	2023-08-08	13:26	0.33	3	Euthanized
5	SHSC					08-08-2023	Angling - Jigging	ANJ14	REF - K	17X	0509105 8000811	-	ANJ14	-	08-08-2023	13:06	2023-08-08	13:26	0.33	3	Euthanized
NFC	-	-	-	-	-	10-08-2023	Angling - Jigging	ANJ15	IPF	17W	0502306 7976187	-	ANJ15	-	10-08-2023	8:49	2023-08-10	9:04	0.25	1.5	-
NFC	-	-	-	-	-	10-08-2023	Angling - Jigging	ANJ16	IPF	17W	0501494 7976914	-	ANJ16	-	10-08-2023	15:38	2023-08-10	15:55	0.28	1.5	-
NFC	-	-	-	-	-	13-08-2023	Angling - Jigging	ANJ17	IPF	17W	0501905 7977898	-	ANJ17	-	13-08-2023	10:02	2023-08-13	10:22	0.33	3	-
NFC	-	-	-	-	-	13-08-2023	Angling - Jigging	ANJ18	IPF	17W	0502806 7977478	-	ANJ18	-	13-08-2023	10:46	2023-08-13	11:02	0.27	2	-

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
1	FHSC					13-08-2023	Angling - Jigging	ANJ19	IPF	17W	0501718 7977249	-	ANJ19	-	13-08-2023	11:20	2023-08-13	11:50	0.50	3	Released
2	FHSC					13-08-2023	Angling - Jigging	ANJ19	IPF	17W	0501718 7977249	-	ANJ19		13-08-2023	11:20	2023-08-13	11:50	0.50	3	Released
3	FHSC					13-08-2023	Angling - Jigging	ANJ19	IPF	17W	0501718 7977249	-	ANJ19		13-08-2023	11:20	2023-08-13	11:50	0.50	3	Released
4	FHSC					13-08-2023	Angling - Jigging	ANJ19	IPF	17W	0501718 7977249	-	ANJ19		13-08-2023	11:20	2023-08-13	11:50	0.50	3	Released
NFC	-	-	-	-	-	29-07-2023	Angling - Trolling	ANT01	DPF	17W	0503143 7976604	0503017 7976495	ANT011	-	29-07-2023	10:00	2023-07-29	10:20	0.33	15	-
NFC	-	-	-	-	-	04-08-2023	Angling - Trolling	ANT02	IPF	17W	0505692 7978486	0505778 7978488	ANT02A	ANT02B	04-08-2023	15:10	2023-08-04	15:35	0.42	35	-
1	SHSC	326	490	F	A	04-08-2023	Angling - Trolling	ANT03	IPF	17W	0505291 7978113	0505128 7977652	ANT03A	ANT03B	04-08-2023	15:40	2023-08-04	16:00	0.33	12.5	Released
2	SHSC	336	520	F	A	04-08-2023	Angling - Trolling	ANT03	IPF	17W	0505291 7978113	0505128 7977652	ANT03A	ANT03B	04-08-2023	15:40	2023-08-04	16:00	0.33	12.5	Released
1	FHSC	231	100	F	A	04-08-2023	Angling - Trolling	ANT04	IPF	17W	0505183 7977558	0505124 7977096	ANT04A	ANT04B	04-08-2023	16:22	2023-08-04	16:37	0.25	10	Released
NFC	-	-	-	-	-	04-08-2023	Angling - Trolling	ANT05	IPF	17W	0505034 7976623	0504629 7976673	ANT05A	ANT05B	04-08-2023	16:40	2023-08-04	16:50	0.17	10	-
NFC	-	-	-	-	-	05-08-2023	Angling - Trolling	ANT06	IPF	17W	0501529 7976416	0501629 7976673	ANT06A	ANT06B	05-08-2023	13:13	2023-08-05	13:35	0.37	5	-
NFC	-	-	-	-	-	05-08-2023	Angling - Trolling	ANT07	IPF	17W	0501637 7976990	0501995 7977690	ANT07A	ANT07B	05-08-2023	14:28	2023-08-05	14:48	0.33	3	-
NFC	-	-	-	-	-	05-08-2023	Angling - Trolling	ANT08	IPF	17W	0501940 7977707	0501624 7977149	ANT08A	ANT08B	05-08-2023	14:55	2023-08-05	15:16	0.35	5	-
NFC	-	-	-	-	-	06-08-2023	Angling - Trolling	ANT09	DPF	17W	0503411 7976668	0503349 7976678	ANT09A	ANT09B	06-08-2023	10:36	2023-08-06	10:50	0.23	20	-
NFC	-	-	-	-	-	06-08-2023	Angling - Trolling	ANT10	DPF	17W	0503411 7976668	0503349 7976678	ANT10A	ANT10B	06-08-2023	10:53	2023-08-06	11:08	0.25	26	-
NFC	-	-	-	-	-	13-08-2023	Angling - Trolling	ANT11	DPF	17W	0504503 7976625	0504493 7976646	ANT11A	ANT11B	13-08-2023	14:23	2023-08-13	14:38	0.25	15	-
NFC	-	-	-	-	-	13-08-2023	Angling - Trolling	ANT12	DPF	17W	0504038 7976594	0503927 7976547	ANT12A	ANT12B	13-08-2023	14:43	2023-08-13	14:54	0.18	4	-
NFC	-	-	-	-	-	13-08-2023	Angling - Trolling	ANT13	DPF	17W	0503124 7976573	0502741 7976355	ANT13A	ANT13B	13-08-2023	15:05	2023-08-13	15:22	0.28	20	-
NFC	-	-	-	-	-	13-08-2023	Angling - Trolling	ANT14	DPF	17W	0502725 7976303	0503005 7976436	ANT14A	ANT14N	13-08-2023	15:24	2023-08-13	15:34	0.17	3	-
NFC	-	-	-	-	-	29-07-2023	Fukui Trap	FT01	DPF	17W	0504496 7976588	-	FT01	-	29-07-2023	9:26	2023-07-31	8:30	47.07	2	-
1	FHSC	134	10	U	J	29-07-2023	Fukui Trap	FT02	IPF	17W	0502948 7976384	-	FT02	-	29-07-2023	9:38	2023-07-31	8:00	46.37	2	Released
2	FHSC	225	100	F	A	29-07-2023	Fukui Trap	FT02	IPF	17W	0502948 7976384	-	FT02	-	29-07-2023	9:38	2023-07-31	8:00	46.37	2	Released
NFC	-	-	-	-	-	31-07-2023	Fukui Trap	FT03	DPF	17W	0503114 7976517	-	FT03	-	31-07-2023	8:07	2023-08-02	9:43	49.60	5	-
NFC	-	-	-	-	-	31-07-2023	Fukui Trap	FT04	IPF	17W	0504771 7976712	-	FT04	-	31-07-2023	8:35	2023-08-02	10:14	49.65	5	-
NFC	-	-	-	-	-	02-08-2023	Fukui Trap	FT05	DPF	17W	0503175 7976572	-	FT05	-	02-08-2023	9:45	2023-08-04	7:58	46.22	10	-
NFC	-	-	-	-	-	02-08-2023	Fukui Trap	FT06	IPF	17W	0504957 7976590	-	FT06	-	02-08-2023	10:20	2023-08-04	8:07	45.78	5	-
NFC	-	-	-	-	-	04-08-2023	Fukui Trap	FT07	DPF	17W	0503877 7976698	-	FT07	-	04-08-2023	8:22	2023-08-06	10:12	49.83	10	-
NFC	-	-	-	-	-	04-08-2023	Fukui Trap	FT08	DPF	17W	0503577 7976664	-	FT08	-	04-08-2023	8:26	2023-08-06	10:27	50.02	5	-
1	ARSC	237	155	U	U	06-08-2023	Fukui Trap	FT09	DPF	17W	0503442 7976657	-	FT09	-	06-08-2023	10:30	2023-08-09	11:30	73.00	7	Released
NFC	-	-	-	-	-	06-08-2023	Fukui Trap	FT10	DPF	17W	0504034 7976682	-	FT10	-	06-08-2023	10:21	2023-08-09	11:17	72.93	8	-
NFC	-	-	-	-	-	10-08-2023	Fukui Trap	FT11	IPF	17W	0504711 7976719	-	FT11	-	10-08-2023	14:59	2023-08-13	8:00	65.02	10	-
-	UNSC	-	-	-	-	10-08-2023	Fukui Trap	FT11	IPF	17W	0504711 7976719	-	FT11	-	10-08-2023	14:59	2023-08-13	8:00	65.02	10	Observed
NFC	-	-	-	-	-	10-08-2023	Fukui Trap	FT12	IPF	17W	0504624 7976720	-	FT12	-	10-08-2023	15:01	2023-08-13	8:03	65.03	7	-
1	POCD	70	5	U	J	13-08-2023	Fukui Trap	FT13	IPF	17W	0501561 7976478	-	FT13	-	13-08-2023	8:35	2023-08-14	10:05	25.50	15	Mortality
NFC	-	-	-	-	-	13-08-2023	Fukui Trap	FT14	IPF	17W	0501530 7976417	-	FT14	-	13-08-2023	8:32	2023-08-14	10:00	25.47	8	-
1	FHSC	220	100	F	A	29-07-2023	Hoop Net	HN01	DPF	17W	0503015 7976396	-	HN01	-	29-07-2023	8:15	2023-07-31	7:30	47.25	1	Released
NFC	-	-	-	-	-	29-07-2023	Hoop Net	HN02	IPF	17W	0504564 7976605	-	HN02	-	29-07-2023	4:15	2023-07-31	8:20	52.08	1	-
NFC	-	-	-	-	-	31-07-2023	Hoop Net	HN03	DPF	17W	0503140 7976453	-	HN03	-	31-07-2023	7:40	2023-08-02	9:12	49.53	1	-
NFC	-	-	-	-	-	31-07-2023	Hoop Net	HN04	IPF	17W	0504559 7976603	-	HN04	-	31-07-2023	8:20	2023-08-02	9:53	49.55	1	-
1	FHSC	255	130	M	A	02-08-2023	Hoop Net	HN05	DPF	17W	0503132 7976473	-	HN05	-	02-08-2023	8:05	2023-08-04	7:41	47.60	0.5	Released
2	FHSC	266	160	F	A	02-08-2023	Hoop Net	HN05	DPF	17W	0503132 7976473	-	HN05	-	02-08-2023	8:05	2023-08-04	7:41	47.60	0.5	Released
NFC	-	-	-	-	-	02-08-2023	Hoop Net	HN06	IPF	17W	0504575 7976638	-	HN06	-	02-08-2023	9:50	2023-08-04	7:50	46.00	1	-
1	FHSC	201	60	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
2	FHSC	215	90	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
3	FHSC	222	95	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
4	FHSC	196	90	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
5	FHSC	240	130	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
6	FHSC	209	60	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
7	FHSC	190	45	M	J	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
8	FHSC	196	60	F	J	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
9	FHSC	201	45	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
10	FHSC	215	80	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
11	FHSC	242	170	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
12	FHSC	204	80	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
13	FHSC	235	100	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
14	FHSC	240	140	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
15	FHSC	225	110	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
16	FHSC	148	25	U	J	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
17	FHSC	226	120	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
18	FHSC	204	70	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
19	FHSC	230	90	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
20	FHSC	206	60	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
21	SHSC	259	210	F	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
22	FHSC	201	50	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
23	FHSC	219	70	M	A	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
24	FHSC	152	20	U	J	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
25	FHSC	134	10	U	J	04-08-2023	Hoop Net	HN07	DPF	17W	0503866 7976662	-	HN07	-	04-08-2023	8:49	2023-08-06	9:25	48.60	1	Released
1	FHSC	163	30	U	J	04-08-2023	Hoop Net	HN08	DPF	17W	0503515 7976631	-	HN08	-	04-08-2023	8:35	2023-08-06	9:55	49.33	1	Released
2	FHSC	149	30	U	J	04-08-2023	Hoop Net	HN08	DPF	17W	0503515 7976631	-	HN08	-	04-08-2023	8:35	2023-08-06	9:55	49.33	1	Released
1	FHSC	243	110	M	A	06-08-2023	Hoop Net	HN09	DPF	17W	0503509 7976609	-	HN09	-	06-08-2023	9:30	2023-08-09	11:26	73.93	1	Released
2	FHSC	226	100	M	A	06-08-2023	Hoop Net	HN09	DPF	17W	0503509 7976609	-	HN09	-	06-08-2023	9:30	2023-08-09	11:26	73.93	1	Released
1	FHSC	153	20	U	J	06-08-2023	Hoop Net	HN10	DPF	17W	0503866 7976603	-	HN10	-	06-08-2023	10:05	2023-08-09	13:30	75.42	1	Released
2	FHSC	160	40	U	J	06-08-2023	Hoop Net	HN10	DPF	17W	0503866 7976603	-	HN10	-	06-08-2023	10:05	2023-08-09	13:30	75.42	1	Released
3	FHSC	144	10	U	J	06-08-2023	Hoop Net	HN10	DPF	17W	0503866 7976603	-	HN10	-	06-08-2023	10:05	2023-08-09	13:30	75.42	1	Released
4	FHSC	196	80	M	A	06-08-2023	Hoop Net	HN10	DPF	17W	0503866 7976603	-	HN10	-	06-08-2023	10:05	2023-08-09	13:30	75.42	1	Released
NFC	-	-	-	-	-	10-08-2023	Hoop Net	HN11	IPF	17W	0504722 7976651	-	HN11	-	10-08-2023	14:28	2023-08-13	7:45	65.28	-	-
NFC	-	-	-	-	-	10-08-2023	Hoop Net	HN12	IPF	17W	0504674 7976642	-	HN12	-	10-08-2023	14:36	2023-08-13	7:50	65.23	0.5	-
NFC	-	-	-	-	-	13-08-2023	Hoop Net	HN13	IPF	17W	0501503 7976519	-	HN13	-	13-08-2023	8:19	2023-08-14	9:40	25.35	0.5	-
1	FHSC	269	180	F	A	13-08-2023	Hoop Net	HN14	IPF	17W	0501462 7976504	-	HN14	-	13-08-2023	8:29	2023-08-14	9:50	25.35	0.5	Released
2	FHSC	266	185	F	A	13-08-2023	Hoop Net	HN14	IPF	17W	0501462 7976504	-	HN14	-	13-08-2023	8:29	2023-08-14	9:50	25.35	0.5	Released
3	FHSC	235	120	F	A	13-08-2023	Hoop Net	HN14	IPF	17W	0501462 7976504	-	HN14	-	13-08-2023	8:29	2023-08-14	9:50	25.35	0.5	Released
4	FHSC	204	80	F	A	13-08-2023	Hoop Net	HN14	IPF	17W	0501462 7976504	-	HN14	-	13-08-2023	8:29	2023-08-14	9:50	25.35	0.5	Released
1	ARCH	-	-	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Mortality
2	ARCH	-	-	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Mortality
3	ARCH	-	-	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Mortality
4	ARCH	469	1100	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
5	FHSC	180	50	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
6	FHSC	174	45	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
7	FHSC	152	30	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
8	FHSC	189	50	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
9	FHSC	265	225.9	F	A	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Euthanized
10	FHSC	214	92.2	M	A	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Euthanized
11	FHSC	239	154.6	M	A	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Euthanized
12	FHSC	225	121.4	M	A	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Euthanized
13	FHSC	248	165.2	F	A	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Euthanized
14	ARCH	434	1050	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
15	ARCH	452	1000	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
16	ARCH	435	950	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
17	ARCH	434	1050	U	U	28-07-2023	Gill Net	GN01	DPF	17W	503145 7976456	503120 7976527	GN01A	GN01B	28-07-2023	8:16	2023-07-28	11:20	3.07	7.5	Released
1	FHSC	205	65	U	U	29-07-2023	Gill Net	GN02	DPF	17W	502600 7976233	502637 7976299	GN02A	GN02B	29-07-2023	9:50	2023-07-29	12:25	2.58	2	Released
2	ARCH	123	20	U	U	29-07-2023	Gill Net	GN02	DPF	17W	502600 7976233	502637 7976299	GN02A	GN02B	29-07-2023	9:50	2023-07-29	12:25	2.58	2	Mortality
3	ARCH	-	-	U	U	29-07-2023	Gill Net	GN02	DPF	17W	502600 7976233	502637 7976299	GN02A	GN02B	29-07-2023	9:50	2023-07-29	12:25	2.58	2	Mortality
NFC	-	-	-	-	-	29-07-2023	Gill Net	GN03	DPF	17W	502970 7976481	502899 7976405	GN03A	GN03A	29-07-2023	12:20	2023-07-29	13:45	1.42	13.5	-
1	ARCH	580	1700	U	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
2	ARCH	499	1400	U	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
3	ARCH	438	1000	U	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Mortality
4	FHSC	259	200	U	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
5	FHSC	227	150	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
6	FHSC	265	210	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
7	FHSC	261	240	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
8	FHSC	222	100	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
9	FHSC	216	80	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
10	FHSC	239	120	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
11	FHSC	234	150	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
12	FHSC	212	90	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
13	FHSC	209	120	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
14	FHSC	211	100	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
15	FHSC	227	120	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
16	FHSC	168	50	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
17	FHSC	214	110	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
18	FHSC	179	60	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
19	FHSC	232	140	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
20	FHSC	235	140	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
21	FHSC	226	110	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
22	FHSC	194	70	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
23	FHSC	220	140	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
24	FHSC	210	100	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
25	FHSC	273	260	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
26	FHSC	209	110	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
27	FHSC	152	20	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
28	FHSC	174	50	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
29	FHSC	255	150	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
30	FHSC	253	190	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
31	FHSC	151	30	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
32	FHSC	184	50	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
33	FHSC	201	80	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
34	FHSC	177	50	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
35	FHSC	179	40	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
36	FHSC	213	100	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
37	FHSC	186	50	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
38	FHSC	220	100	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
39	FHSC	210	80	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
40	FHSC	183	80	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
41	FHSC	187	40	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
42	FHSC	236	110	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
43	FHSC	195	60	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
44	FHSC	204	80	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
45	FHSC	253	160	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
46	FHSC	185	60	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
47	FHSC	219	90	M	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
48	FHSC	170	40	F	U	29-07-2023	Gill Net	GN04	DPF	17W	503199 7976526	503104 7976510	GN04A	GN04B	29-07-2023	13:02	2023-07-29	15:00	1.97	6.5	Released
1	ARCH	-	500	U	U	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Released
2	ARCH	590	2014.7	U	A	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Mortality
3	FHSC	271	227	M	A	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Euthanized
4	FHSC	257	144	F	A	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Euthanized
5	FHSC	246	160	M	A	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Euthanized

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
6	FHSC	256	173	M	A	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Euthanized
7	FHSC	249	140	M	A	30-07-2023	Gill Net	GN05	DPF	17W	505196 7977513	505156 7977446	GN05A	GN05B	30-07-2023	8:40	2023-07-30	9:40	1.00	2.5	Euthanized
1	ARCH	396	644	M	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Mortality
2	FHSC	269	193	M	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Euthanized
3	FHSC	246	138.5	F	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Euthanized
4	FHSC	260	166	M	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Released
5	FHSC	254	135	M	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Released
6	FHSC	266	194	M	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Released
7	FHSC	225	126	M	A	30-07-2023	Gill Net	GN06	IPF	17W	505167 7977257	505127 7977178	GN06A	GN06B	30-07-2023	8:55	2023-07-30	9:50	0.92	2.25	Released
1	FHSC	187	40	F	A	31-07-2023	Gill Net	GN07	IPF	17W	505308 7977983	505264 7977879	GN07A	GN07B	31-07-2023	8:50	2023-07-31	11:40	2.83	-	Released
2	FHSC	202	100	F	A	31-07-2023	Gill Net	GN07	IPF	17W	505308 7977983	505264 7977879	GN07A	GN07B	31-07-2023	8:50	2023-07-31	11:40	2.83	-	Released
1	ARCH	595	2900	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Released
2	ARCH	738	2600	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Released
3	ARCH	530	1150	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
4	ARCH	498	1150	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
5	ARCH	382	600	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
6	ARCH	310	300	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
7	ARCH	324	380	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
8	ARCH	328	380	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
9	ARCH	390	740	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
10	ARCH	425	950	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
11	ARCH	385	640	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
12	ARCH	328	380	U	U	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
13	FHSC	236	127	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
14	FHSC	199	58.2	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
15	FHSC	231	115.7	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
16	FHSC	227	118	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
17	FHSC	220	87	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
18	FHSC	249	149	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
19	FHSC	235	123	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
20	FHSC	247	137	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
21	FHSC	185	50.1	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
22	FHSC	217	93.5	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
23	SHSC	320	390	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
24	SHSC	252	199.6	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
25	SHSC	210	121.1	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
26	FHSC	259	169.4	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
27	FHSC	244	139.1	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
28	FHSC	237	137	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
29	FHSC	240	129.9	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
30	FHSC	245	164	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
31	FHSC	242	145	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
32	FHSC	250	158	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
33	FHSC	265	168	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
34	FHSC	218	95	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
35	FHSC	229	140.4	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Euthanized
36	SHSC	223	155.3	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
37	SHSC	253	213.8	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
38	FHSC	166	34	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
39	SHSC	235	181.1	F	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
40	SHSC	179	81.8	M	A	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Mortality
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed
-	ARCH	-	-	-	-	01-08-2023	Gill Net	GN08	REF - K	17X	509012 8000879	508921 8000866	GN08A	GN08B	01-08-2023	9:42	2023-08-01	12:35	2.88	1.75	Observed
1	FHSC	246	150	M	A	05-08-2023	Gill Net	GN09	IPF	17W	501568 7976609	501610 7976688	GN09A	GN09B	05-08-2023	12:38	2023-08-05	13:55	1.28	5.25	Released
2	FHSC	220	110	M	A	05-08-2023	Gill Net	GN09	IPF	17W	501568 7976609	501610 7976688	GN09A	GN09B	05-08-2023	12:38	2023-08-05	13:55	1.28	5.25	Released
3	FHSC	198	70	M	A	05-08-2023	Gill Net	GN09	IPF	17W	501568 7976609	501610 7976688	GN09A	GN09B	05-08-2023	12:38	2023-08-05	13:55	1.28	5.25	Released
4	FHSC	210	110	M	A	05-08-2023	Gill Net	GN09	IPF	17W	501568 7976609	501610 7976688	GN09A	GN09B	05-08-2023	12:38	2023-08-05	13:55	1.28	5.25	Released
5	FHSC	191	60	F	A	05-08-2023	Gill Net	GN09	IPF	17W	501568 7976609	501610 7976688	GN09A	GN09B	05-08-2023	12:38	2023-08-05	13:55	1.28	5.25	Released
NFC	-	-	-	-	-	05-08-2023	Gill Net	GN10	IPF	17W	501409 7976428	501490 7976454	GN10A	GN10B	05-08-2023	13:05	2023-08-05	15:40	2.58	2.75	-
1	ARCH	510	1400	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
2	ARCH	482	1198.6	F	A	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Mortality
3	ARCH	315	300	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
4	ARCH	384	550	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
5	ARCH	294	270	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
6	ARCH	276	220	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
7	ARCH	269	220	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
8	ARCH	318	300	-	-	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Released
9	ARCH	313	323.4	U	J	05-08-2023	Gill Net	GN11	IPF	17W	501456 7977010	501534 7976975	GN11A	GN11B	05-08-2023	14:25	2023-08-05	15:55	1.50	-	Mortality
NFC	-	-	-	-	-	06-08-2023	Gill Net	GN12	IPF	17W	504527 7976452	504505 7976537	GN12A	GN12B	06-08-2023	15:00	2023-08-06	16:35	1.58	2.75	-
1	FHSC	218	80	U	J	06-08-2023	Gill Net	GN13	IPF	17W	504745 7976614	504763 7976702	GN13A	GN13B	06-08-2023	15:10	2023-08-06	17:00	1.83	2.5	Released
2	FHSC	205	70	F	A	06-08-2023	Gill Net	GN13	IPF	17W	504745 7976614	504763 7976702	GN13A	GN13B	06-08-2023	15:10	2023-08-06	17:00	1.83	2.5	Released
3	FHSC	215	90	F	A	06-08-2023	Gill Net	GN13	IPF	17W	504745 7976614	504763 7976702	GN13A	GN13B	06-08-2023	15:10	2023-08-06	17:00	1.83	2.5	Released
4	FHSC	235	120	F	A	06-08-2023	Gill Net	GN13	IPF	17W	504745 7976614	504763 7976702	GN13A	GN13B	06-08-2023	15:10	2023-08-06	17:00	1.83	2.5	Released
5	FHSC	229	110	F	A	06-08-2023	Gill Net	GN13	IPF	17W	504745 7976614	504763 7976702	GN13A	GN13B	06-08-2023	15:10	2023-08-06	17:00	1.83	2.5	Released
1	FHSC	259	160	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
2	FHSC	170	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
3	FHSC	200	90	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
4	FHSC	200	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
5	FHSC	196	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
6	FHSC	250	65	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
7	FHSC	194	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
8	FHSC	152	40	F	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
9	FHSC	195	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
10	FHSC	210	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
11	FHSC	195	70	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
12	FHSC	187	60	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
13	FHSC	190	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
14	FHSC	147	30	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
15	FHSC	155	30	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
16	FHSC	177	60	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
17	FHSC	142	40	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
18	FHSC	210	90	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
19	FHSC	185	55	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
20	FHSC	214	90	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
21	FHSC	201	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
22	FHSC	196	70	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
23	FHSC	193	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
24	FHSC	197	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
25	FHSC	237	120	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
26	FHSC	194	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
27	FHSC	193	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
28	FHSC	191	60	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
29	FHSC	193	60	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
30	FHSC	197	60	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
31	FHSC	200	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
32	FHSC	191	70	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
33	FHSC	154	50	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
34	FHSC	215	100	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
35	FHSC	220	110	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
36	FHSC	214	80	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
37	FHSC	231	110	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
38	FHSC	188	60	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
39	FHSC	178	95	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
40	FHSC	186	50	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
41	FHSC	182	65	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
42	FHSC	232	120	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
43	FHSC	186	70	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
44	FHSC	206	80	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
45	FHSC	200	80	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
46	FHSC	152	30	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
47	FHSC	170	50	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
48	FHSC	200	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
49	FHSC	192	70	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
50	FHSC	202	75	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
51	FHSC	195	80	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
52	FHSC	231	100	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
53	FHSC	195	55	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
54	FHSC	221	110	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
55	FHSC	186	5	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
56	FHSC	253	150	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
57	FHSC	212	90	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
58	FHSC	187	50	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
59	FHSC	214	85	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
60	FHSC	215	80	M	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
61	FHSC	209	90	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
62	FHSC	215	85	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
63	FHSC	195	70	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
64	FHSC	216	105	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
65	FHSC	190	80	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
66	FHSC	218	80	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
67	FHSC	210	100	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
68	FHSC	201	70	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
69	FHSC	234	120	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
70	FHSC	180	50	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
71	FHSC	209	80	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
72	FHSC	218	110	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
73	FHSC	199	75	M	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
74	FHSC	201	70	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
75	FHSC	213	90	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
76	FHSC	155	50	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
77	FHSC	196	60	F	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
78	FHSC	170	60	U	J	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
79	FHSC	166	50	U	U	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Released
80	ARCH	482	1250	F	A	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Mortality
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Observed
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Observed
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Observed
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Observed
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN14	DPF	17W	503840 7476648	503807 7476673	GN14A	GN14B	07-08-2023	9:40	2023-08-07	14:35	4.92	1.75	Observed
1	ARCH	696	3600	U	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Released
2	ARCH	663	2500	U	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Released
3	ARCH	443	1100	U	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Released
4	ARCH	453	1100	U	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Released
5	ARCH	420	813.7	U	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Mortality
6	ARCH	480	1315.4	F	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Mortality
7	FHSC	262	200	M	A	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Released
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Observed
-	ARCH	-	-	-	-	07-08-2023	Gill Net	GN15	DPF	17W	504145 7976606	504227 7976621	GN15A	GN15B	07-08-2023	10:15	2023-08-07	12:02	1.78	4	Observed
1	FHSC	199	60	F	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
2	FHSC	193	60	F	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
3	FHSC	183	50	U	J	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
4	FHSC	196	75	F	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
5	FHSC	218	110	M	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
6	FHSC	236	130	F	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
7	FHSC	226	110	M	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
8	FHSC	241	140	M	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
9	FHSC	205	80	M	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
10	FHSC	212	90	M	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
11	FHSC	204	100	F	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
12	FHSC	227	100	F	A	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
13	FHSC	192	75	U	J	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
14	FHSC	146	40	U	J	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
15	FHSC	188	60	U	J	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Released
-	FHSC	-	-	-	-	07-08-2023	Gill Net	GN16	DPF	17W	503915 7976538	503889 7976600	GN16A	GN16B	07-08-2023	13:40	2023-08-07	15:40	2.00	0.75	Observed
1	FHSC	195	74	F	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Euthanized
2	FHSC	265	165	F	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Euthanized
3	ARCH	429	650	U	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Released
4	ARSC	166	70	U	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Released
5	ARCH	456	900	U	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Released
6	ARSC	214	170	U	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Released
7	ARCH	136	10	U	J	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Released
8	FHSC	164	25	U	J	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Released
9	ARCH	410	699.3	M	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Mortality
10	ARCH	369	546.7	M	A	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Mortality
-	ARCH	-	-	-	-	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Observed
-	ARCH	-	-	-	-	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Observed
-	ARCH	-	-	-	-	08-08-2023	Gill Net	GN17	REF - K	17X	508925 8000885	508843 8000856	GNK1A	GNK1B	08-08-2023	11:00	2023-08-08	14:00	3.00	4.25	Observed
1	ARCH	324	400	U	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Released
2	ARCH	419	700	U	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Released
3	ARCH	334	300	U	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Released
4	ARCH	374	400	U	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Released
5	ARSC	177	50	U	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Released
6	SHSC	245	175	M	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Euthanized

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
7	SHSC	260	208	M	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Euthanized
8	SHSC	241	180.6	M	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Euthanized
9	SHSC	211	123.6	M	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Euthanized
10	ARCH	349	371.6	F	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Mortality
11	ARCH	430	687	U	J	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Mortality
12	ARCH	366	418.5	F	A	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Mortality
-	ARCH	-	-	-	-	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Observed
-	ARCH	-	-	-	-	08-08-2023	Gill Net	GN18	REF - K	17X	508614 8000826	508697 8000826	GNK2B	GNK2A	08-08-2023	11:10	2023-08-08	14:11	3.02	3.75	Observed
1	ARCH	360	400	U	U	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
2	FHSC	278	240	F	U	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
3	FHSC	269	180	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
4	FHSC	210	70	M	J	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
5	FHSC	176	50	U	J	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
6	FHSC	265	180	M	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
7	FHSC	270	200	M	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
8	FHSC	250	160	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
9	FHSC	273	230	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
10	FHSC	275	220	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
11	FHSC	266	260	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
12	FHSC	296	290	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
13	FHSC	289	230	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
14	FHSC	237	130	F	A	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Released
-	ARCH	-	-	-	-	09-08-2023	Gill Net	GN19	IPF	17W	505164 7976909	505121 7976842	GN19A	GN19B	09-08-2023	9:35	2023-08-09	13:10	3.58	3.75	Observed
1	FHSC	232	120	M	A	09-08-2023	Gill Net	GN20	IPF	17W	505003 7976567	504916 7976596	GN20A	GN20B	09-08-2023	9:45	2023-08-09	13:25	3.67	4.25	Released
2	FHSC	240	130	M	A	09-08-2023	Gill Net	GN20	IPF	17W	505003 7976567	504916 7976596	GN20A	GN20B	09-08-2023	9:45	2023-08-09	13:25	3.67	4.25	Released
3	ARCH	140	25	U	J	09-08-2023	Gill Net	GN20	IPF	17W	505003 7976567	504916 7976596	GN20A	GN20B	09-08-2023	9:45	2023-08-09	13:25	3.67	4.25	Released
1	FHSC	192	80	U	J	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
2	FHSC	337	370	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
3	SHSC	223	170	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
4	FHSC	217	90	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
5	FHSC	241	160	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
6	FHSC	234	140	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
7	ARCH	506	1229.9	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Mortality
8	ARCH	618	1900	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
9	ARCH	490	1400	U	U	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
10	ARCH	424	900	U	U	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
11	FHSC	245	130	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
12	FHSC	224	110	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
13	FHSC	245	110	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
14	FHSC	254	160	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
15	FHSC	225	120	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
16	FHSC	252	160	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
17	FHSC	193	80	M	J	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
18	FHSC	253	170	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
19	FHSC	187	70	F	J	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
20	FHSC	206	90	M	J	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
21	FHSC	205	110	U	J	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
22	FHSC	213	100	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
23	FHSC	202	80	U	U	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
24	FHSC	199	90	M	U	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
25	FHSC	242	145	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
26	FHSC	251	150	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
27	FHSC	120	75	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
28	FHSC	190	30	F	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Released
29	ARCH	647	1886	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Mortality
30	ARCH	424	942.8	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Mortality
31	ARCH	500	1407.6	M	A	10-08-2023	Gill Net	GN21	DPF	17W	503153 7976492	503059 7976496	GN21A	GN21B	10-08-2023	8:26	2023-08-10	12:08	3.70	5.25	Mortality
1	FHSC	183	50	U	J	10-08-2023	Gill Net	GN22	DPF	17W	502920 7976268	502828 7976268	GN22A	GN22B	10-08-2023	8:41	2023-08-10	12:28	3.78	2.25	Released
2	ARCH	358	500	U	U	10-08-2023	Gill Net	GN22	DPF	17W	502920 7976268	502828 7976268	GN22A	GN22B	10-08-2023	8:41	2023-08-10	12:28	3.78	2.25	Mortality
3	ARCH	376	550	U	U	10-08-2023	Gill Net	GN22	DPF	17W	502920 7976268	502828 7976268	GN22A	GN22B	10-08-2023	8:41	2023-08-10	12:28	3.78	2.25	Mortality
4	ARCH	319	319.2	F	J	10-08-2023	Gill Net	GN22	DPF	17W	502920 7976268	502828 7976268	GN22A	GN22B	10-08-2023	8:41	2023-08-10	12:28	3.78	2.25	Mortality
5	ARCH	330	550	U	U	10-08-2023	Gill Net	GN22	DPF	17W	502920 7976268	502828 7976268	GN22A	GN22B	10-08-2023	8:41	2023-08-10	12:28	3.78	2.25	Mortality
6	FHSC	190	50	F	J	10-08-2023	Gill Net	GN22	DPF	17W	502920 7976268	502828 7976268	GN22A	GN22B	10-08-2023	8:41	2023-08-10	12:28	3.78	2.25	Released
1	ARSC	207	120	U	U	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
2	FHSC	180	40	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
3	ARCH	332	410	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
4	ARCH	260	160	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
5	ARCH	380	430	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
6	ARCH	315	310	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
7	ARCH	330	340	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
8	ARCH	320	290	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
9	ARCH	362	450	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Released
10	FHSC	230	95.8	F	A	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Euthanized
11	FHSC	227	99.7	M	A	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Euthanized
12	ARCH	516	1478.5	M	A	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Mortality
13	ARCH	572	992.1	U	J	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Mortality
14	ARCH	415	661.4	F	A	12-08-2023	Gill Net	GN23	REF - K	17X	507636 8000296	507502 8000249	GN23A	GN23B	12-08-2023	10:40	2023-08-12	13:11	2.52	4	Mortality
1	ARCH	223	130	U	J	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Released
2	ARCH	328	380	U	J	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Released
3	ARCH	312	310	U	J	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Released
4	FHSC	182	30	U	J	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Released
5	FHSC	200	71.2	F	A	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Euthanized
6	ARCH	346	417	U	J	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Mortality
-	ARCH	-	-	-	-	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Observed
-	ARCH	-	-	-	-	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Observed
-	ARCH	-	-	-	-	12-08-2023	Gill Net	GN24	REF - K	17X	507559 8000262	507990 8000201	GN24A	GN24B	12-08-2023	10:48	2023-08-12	13:33	2.75	2.5	Observed
1	ARCH	525	1500	U	A	12-08-2023	Gill Net	GN25	REF - K	17X	504415 8000078	507377 8000094	GN25A	GN25B	12-08-2023	11:03	2023-08-12	13:47	2.73	2.5	Released
2	ARCH	440	800	U	A	12-08-2023	Gill Net	GN25	REF - K	17X	504415 8000078	507377 8000094	GN25A	GN25B	12-08-2023	11:03	2023-08-12	13:47	2.73	2.5	Released
3	ARCH	560	1900	U	A	12-08-2023	Gill Net	GN25	REF - K	17X	504415 8000078	507377 8000094	GN25A	GN25B	12-08-2023	11:03	2023-08-12	13:47	2.73	2.5	Released
4	ARCH	443	900	U	A	12-08-2023	Gill Net	GN25	REF - K	17X	504415 8000078	507377 8000094	GN25A	GN25B	12-08-2023	11:03	2023-08-12	13:47	2.73	2.5	Released
1	ARCH	153	20	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
2	FHSC	170	60	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
3	FHSC	165	50	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
4	FHSC	207	80	M	A	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
5	ARCH	154	30	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
6	FHSC	166	45	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
7	ARSC	160	30	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
8	ARCH	185	40	U	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Mortality
9	FHSC	199	65	M	A	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
10	FHSC	195	60	F	A	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
11	FHSC	205	75	M	A	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
12	FHSC	176	70	M	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
13	FHSC	182	55	F	J	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released
14	FHSC	198	55	M	A	13-08-2023	Gill Net	GN26	IPF	17W	501775 7977672	501852 7977630	GN26A	GN26B	13-08-2023	9:53	2023-08-13	14:00	4.12	1.5	Released

Table 5. 2023 Fishing Catch Data, Milne Inlet

Fish Number[1]	Species Code[2]	Length (mm)	Weight (g)	Sex[3]	Stage[4]	Date	Capture Method	Site	Area[5]	Zone	Start UTM (NAD 83)	End UTM (NAD 83)	Start Waypoint	End Waypoint	Start/Set Date	Start Time	End/Pull Date	End Time	Total Hours	Average Water Depth (m)	Released / Mortality / Euthanized / Observed
1	AALG	39	0.32	U	U	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
2	STSC	127	36.1	U	A	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
3	RBSC	110	8.2	U	A	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
4	STSC	152	58.6	U	A	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
5	RBSC	122	13.1	U	A	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
6	RBSC	117	11.6	U	U	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
7	RBSC	64	1.7	U	U	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
8	STSC	90	9.5	U	U	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
9	RBSC	129	18	U	A	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
10	RBSC	64	1.5	U	U	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
11	STSC	76	6.1	U	U	02-08-2023	Trawling	TR01	DPF	17W	0502844 7976534	0503332 7976717	TR01A	TR01B	02-08-2023	12:22	2023-08-02	12:46	0.40	30	Mortality
1	RBSC	126	30	U	U	03-08-2023	Trawling	TR02	DPF	17W	0502332 7976834	0503069 7976781	TR02A	TR02B	03-08-2023	13:55	2023-08-03	14:21	0.43	52.5	Released
2	SPSC	65	10	U	U	03-08-2023	Trawling	TR02	DPF	17W	0502332 7976834	0503069 7976781	TR02A	TR02B	03-08-2023	13:55	2023-08-03	14:21	0.43	52.5	Released
1	SPSC	60	5	U	U	03-08-2023	Trawling	TR03	IPF	17W	0504784 7977067	0505038 7977723	TR03A	TR03B	03-08-2023	15:15	2023-08-03	15:45	0.50	42.5	Released
2	AALG	55	5	U	U	03-08-2023	Trawling	TR03	IPF	17W	0504784 7977067	0505038 7977723	TR03A	TR03B	03-08-2023	15:15	2023-08-03	15:45	0.50	42.5	Released
1	STSC	194	115	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
2	UNCD	86	5	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Mortality
3	STSC	141	25	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
4	STSC	129	30	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
5	STSC	164	70	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
6	STSC	91	5	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Mortality
7	STSC	119	40	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
8	RBSC	127	35	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
9	STSC	133	40	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
10	STSC	136	40	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Mortality
11	STSC	170	75	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
12	STSC	142	45	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
13	SAEP	109	10	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
14	STSC	135	30	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released
15	RBSC	95	10	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Mortality
16	AALG	52	5	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Mortality
17	AALG	78	5	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Mortality
18	ASLP	76	40	U	U	03-08-2023	Trawling	TR04	IPF	17W	0501763 7976863	0502121 7977721	TR04A	TR04B	03-08-2023	16:35	2023-08-03	17:00	0.42	31.5	Released

[1] NFC = no fish caught

[2] AALG = Arctic Alligatorfish; ARCH = Arctic Char; ARSC = Arctic Sculpin; ASLP = Atlantic Spiny Lumpsucker; FHSC = Fourhorn Sculpin; GRCD = Greenland Cod; POCD = Polar Cod; RBSC = Ribbed Sculpin; SAEP = Saddled Eelpout; SHSC = Shorthorn Sculpin; SPSC = Spatulate Sculpin;STSC = Arctic Staghorn Sculpin; UNCD = Unknown Cod

[3] M = Male; F = Female; U = Unknown

[4] A = Adult; J = Juvenile; F = Fry; U = Uknown

[5] DPF = Direct Project Footprint; IPF = Indirect Project Footprint; REF-K = Chapter 7.0 fish health reference exploration in Koluktoo Bay

APPENDIX C

Photographs



Photo 1: Angling – jigging effort ANJ01 below the West Ore Dock in the DPF (Direct Project Footprint).



Photo 2: Angling – trolling effort ANT11 off East Beach in the DPF.



Photo 3: Gill net effort GN11 deployed off East Beach in the DPF.



Photo 4: Hoop net effort HN14 deployed on the southwest side of Milne Port in the IPF (Indirect Project Footprint).



Photo 5: Trawling effort TR01 being deployed mid-bay in front of the Ore Dock in the DPF.



Photo 6: Fourhorn Sculpin (*Myoxocephalus quadricornis*) captured in hoop net effort HN07 in the DPF.



Photo 7: Arctic Char (*Salvelinus alpinus*) captured in gill net effort GN11 in the IPF.



Photo 8: Shorthorn Sculpin (*Myoxocephalus scorpius*) captured in angling-trolling effort ANT03 on the east side of Milne Port in the IPF.

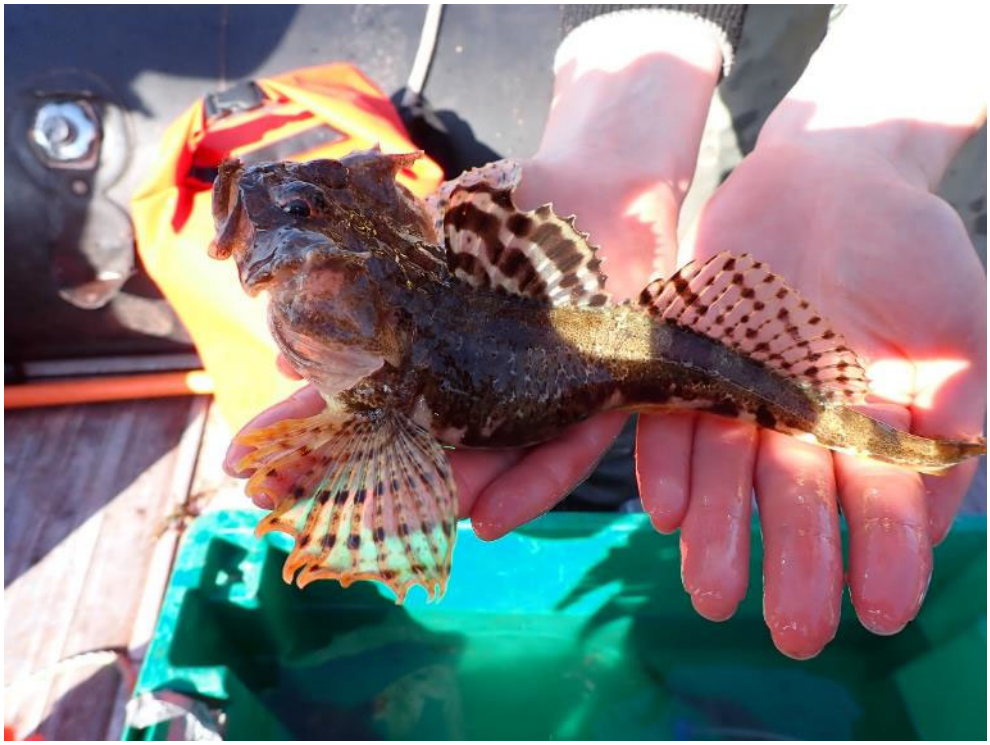


Photo 9: Arctic Staghorn Sculpin (*Gymnocanthus tricuspis*) captured in angling-jigging effort ANJ06 in the fish health reference area.



Photo 10: Ribbed Sculpin (*Triglops pingelii*) captured in trawling effort TR01 in the DPF.



Photo 11: Pacific Cod (*Gadus macrocephalus*) captured in angling (jigging) effort ANJ12 in the IPF.



Photo 12: Arctic Alligatorfish (*Aspidophoroides olrikii*) captured in trawling effort TR01 in the DPF.



Photo 13: Arctic Sculpin (*Myoxocephalus scorpioides*) captured in gill net effort GN18 in the fish health reference area.



Photo 14: Spatulate Sculpin *(Icelus spatulata*) captured in trawling effort TR02 in the DPF.



Photo 15: Unidentified juvenile cod (*Gadus* sp.) captured in trawling effort TR04 in the IPF.



Photo 16: Atlantic Spiny Lumpsucker (*Eumicrotremus spinosus*) captured in trawling effort TR04 in the IPF.

APPENDIX D

Supplementary Figures and Tables

Table 1: Length (mm) Summary Statistics from Catch Data by Taxon, Milne Port (2023)

Fishing Gear	Direct Project Footprint					Indirect Project Footprint				
	No. Fish Caught	Mean	SD	Min	Max	No. Fish Caught	Mean	SD	Min	Max
Arctic Alligatorfish	**1**	**39.00**	**-**	**39**	**39**	**3**	**61.67**	**14.22**	**52**	**78**
Trawling	1	39.00	-	39	39	3	61.67	14.22	52	78
Arctic Char	**29**	**473.41**	**119.73**	**123**	**696**	**15**	**303.27**	**113.70**	**140**	**510**
Angling - Jigging	1	557.00	-	557	557	-	-	-	-	-
Gill Net	28	470.19	120.90	123	696	15	303.27	113.70	140	510
Arctic Sculpin	**1**	**237.00**	**-**	**237**	**237**	**1**	**160.00**	**-**	**160**	**160**
Fukui Trap	1	237.00	-	237	237	-	-	-	-	-
Gill Net	-	-	-	-	-	1	160.00	-	160	160
Arctic Staghorn Sculpin	**4**	**111.25**	**34.65**	**76**	**152**	**11**	**141.27**	**27.26**	**91**	**194**
Trawling	4	111.25	34.65	76	152	11	141.27	27.26	91	194
Atlantic Spiny Lumpsucker	**-**	**-**	**-**	**-**	**-**	**1**	**76.00**	**-**	**76**	**76**
Trawling	-	-	-	-	-	1	76.00	-	76	76
Fourhorn Sculpin	**249**	**211.03**	**40.17**	**120**	**337**	**62**	**228.15**	**41.04**	**134**	**323**
Angling - Jigging	34	223.27	32.49	162	281	12	246.00	42.30	183	323
Angling - Trolling	-	-	-	-	-	1	231.00	-	231	231
Fukui Trap	-	-	-	-	-	2	179.50	64.35	134	225
Gill Net	180	211.74	36.97	120	337	43	227.64	37.16	165	296
Hoop Net	35	201.74	38.20	134	266	4	243.50	30.49	204	269
Pacific Cod	**5**	**490.00**	**82.01**	**397**	**581**	**-**	**-**	**-**	**-**	**-**
Angling - Jigging	5	490.00	82.01	397	581	-	-	-	-	-
Polar Cod	**-**	**-**	**-**	**-**	**-**	**1**	**70.00**	**-**	**70**	**70**
Fukui Trap	-	-	-	-	-	1	70.00	-	70	70
Ribbed Sculpin	**7**	**111.33**	**24.15**	**64**	**129**	**2**	**111.00**	**22.63**	**95**	**127**
Trawling	7	111.33	24.15	64	129	2	111.00	22.63	95	127
Saddled Eelpout	**-**	**-**	**-**	**-**	**-**	**1**	**109.00**	**-**	**109**	**109**
Trawling	-	-	-	-	-	1	109.00	-	109	109
Shorthorn Sculpin	**6**	**275.33**	**47.72**	**223**	**362**	**9**	**252.78**	**76.38**	**162**	**345**
Angling - Jigging	4	292.50	48.99	247	362	7	230.43	71.74	162	345
Angling - Trolling	-	-	-	-	-	2	331.00	7.07	326	336
Gill Net	1	223.00	-	223	223	-	-	-	-	-
Hoop Net	1	259.00	-	259	259	-	-	-	-	-
Spatulate Sculpin	**1**	**65.00**	**-**	**65**	**65**	**1**	**60.00**	**-**	**60**	**60**
Trawling	1	65.00	-	65	65	1	60.00	-	60	60
Unidentified Cod	**-**	**-**	**-**	**-**	**-**	**1**	**86.00**	**-**	**86**	**86**
Trawling	-	-	-	-	-	1	86.00	-	86	86

Table 2: Weight (g) Summary Statistics from Catch Data by Taxon, Milne Port (2023)

Fishing Gear	Direct Project Footprint					Indirect Project Footprint				
	No. Fish Caught	Mean	SD	Min	Max	No. Fish Caught	Mean	SD	Min	Max
Arctic Alligatorfish	**1**	**0.32**	**-**	**0.32**	**0.32**	**3**	**5.00**	**-**	**5**	**5**
Trawling	1	0.32	-	0.32	0.32	3	5.00	-	5	5
Arctic Char	**30**	**1291.30**	**762.06**	**20**	**3600**	**15**	**417.00**	**440.90**	**20**	**1400**
Angling - Jigging	1	1350.60	-	1350.6	1350.6	-	-	-	-	-
Gill Net	29	1288.60	779.88	20	3600	15	417.00	440.90	20	1400
Arctic Sculpin	**1**	**155.00**	**-**	**155**	**155**	**1**	**30.00**	**-**	**30**	**30**
Fukui Trap	1	155.00	-	155	155	-	-	-	-	-
Gill Net	-	-	-	-	-	1	30.00	-	30	30
Arctic Staghorn Sculpin	**4**	**27.58**	**24.65**	**6.1**	**58.6**	**11**	**50.63**	**34.69**	**5**	**115**
Trawling	4	27.58	24.65	6.1	58.6	11	50.63	34.69	5	115
Atlantic Spiny Lumpsucker	**-**	**-**	**-**	**-**	**-**	**1**	**40.00**	**-**	**40**	**40**
Trawling	-	-	-	-	-	1	40.00	-	40	40
Fourhorn Sculpin	**249**	**131.37**	**71.46**	**5**	**370**	**62**	**142.48**	**76.48**	**10**	**329**
Angling - Jigging	34	129.48	61.87	30	263.8	12	163.91	76.48	57	329
Angling - Trolling	-	-	-	-	-	1	100.00	-	100	100
Fukui Trap	-	-	-	-	-	2	55.00	63.64	10	100
Gill Net	180	127.39	75.86	5	370	43	136.98	70.22	40	290
Hoop Net	35	81.32	48.33	10	170	4	141.25	50.39	80	185
Pacific Cod	**3**	**866.67**	**251.66**	**600**	**1100**	**-**	**-**	**-**	**-**	**-**
Angling - Jigging	3	866.67	251.66	600	1100	-	-	-	-	-
Polar Cod	**-**	**-**	**-**	**-**	**-**	**1**	**5.00**	**-**	**5**	**5**
Fukui Trap	-	-	-	-	-	1	5.00	-	5	5
Ribbed Sculpin	**7**	**12.01**	**9.93**	**1.5**	**30**	**2**	**22.50**	**17.68**	**10**	**35**
Trawling	7	12.01	9.93	1.5	30	2	22.50	17.68	10	35
Saddled Eelpout	**-**	**-**	**-**	**-**	**-**	**1**	**10.00**	**-**	**10**	**10**
Trawling	-	-	-	-	-	1	10.00	-	10	10
Shorthorn Sculpin	**6**	**277.67**	**121.42**	**170**	**499**	**9**	**295.70**	**194.02**	**52.3**	**556.6**
Angling - Jigging	4	321.50	128.91	190	499	7	235.90	177.03	52.3	556.6
Angling - Trolling	-	-	-	-	-	2	505.00	21.21	490	520
Gill Net	1	170.00	-	170	170	-	-	-	-	-
Hoop Net	1	210.00	-	210	210	-	-	-	-	-
Spatulate Sculpin	**1**	**10.00**	**-**	**10**	**10**	**1**	**5.00**	**-**	**5**	**5**
Trawling	1	10.00	-	10	10	1	5.00	-	5	5
Unidentified Cod	**-**	**-**	**-**	**-**	**-**	**1**	**5.00**	**-**	**5**	**5**
Trawling	-	-	-	-	-	1	5.00	-	5	5



LEGEND

- 2023 ANGLING (JIGGING) SAMPLING LOCATION
- 2022 ANGLING (JIGGING) SAMPLING LOCATION
- 2021 ANGLING (JIGGING) SAMPLING LOCATION
- 2020 ANGLING (JIGGING) SAMPLING LOCATION
- 2023 ANGLING (JIGGING) SAMPLING LOCATION
- 2023 ANGLING (TROLLING) SAMPLING LOCATION
- 2022 ANGLING (JIGGING) SAMPLING LOCATION
- 2022 ANGLING (TROLLING) SAMPLING LOCATION
- 2021 ANGLING (JIGGING) SAMPLING LOCATION
- 2021 ANGLING (TROLLING) SAMPLING LOCATION
- 2020 ANGLING (JIGGING) SAMPLING LOCATION
- 2020 ANGLING (TROLLING) SAMPLING LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
ANGLING SAMPLE LOCATIONS IN MILNE PORT; MEEMP 2020, 2021, 2022, AND 2023

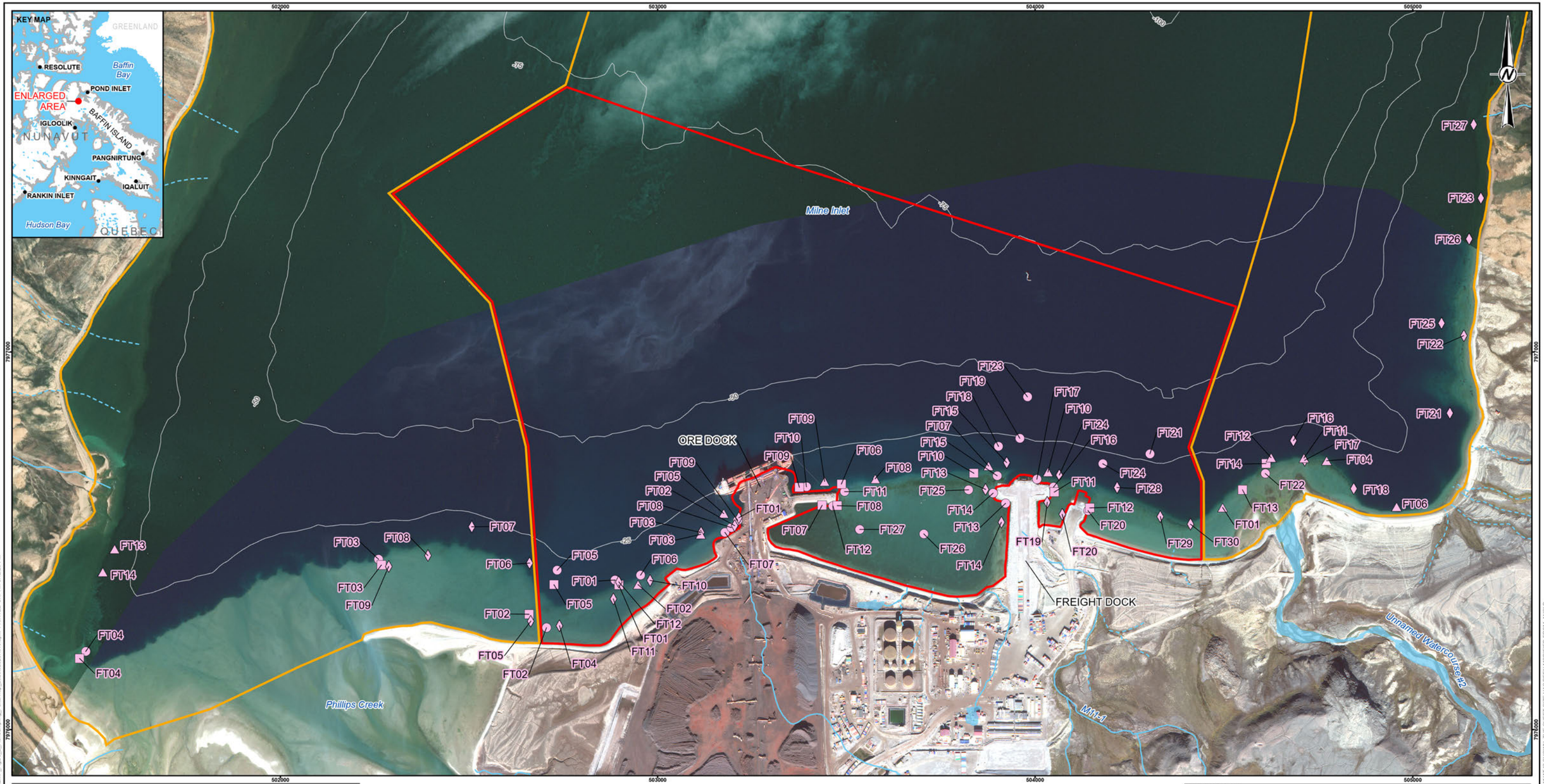
PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-1

PATH: I:\2016\16637\24\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig06_1_FishSampling_Angling_2020to2023Rev0.aprx PRINTED ON: AT 5:12:22 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0



LEGEND

- 2023 FUKUI TRAP DEPLOYMENT LOCATION
- 2022 FUKUI TRAP DEPLOYMENT LOCATION
- 2021 FUKUI TRAP DEPLOYMENT LOCATION
- 2020 FUKUI TRAP DEPLOYMENT LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500

1:10,000 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
FUKUI TRAP DEPLOYMENT LOCATIONS IN MILNE PORT; MEEMP 2020, 2021, 2022, AND 2023

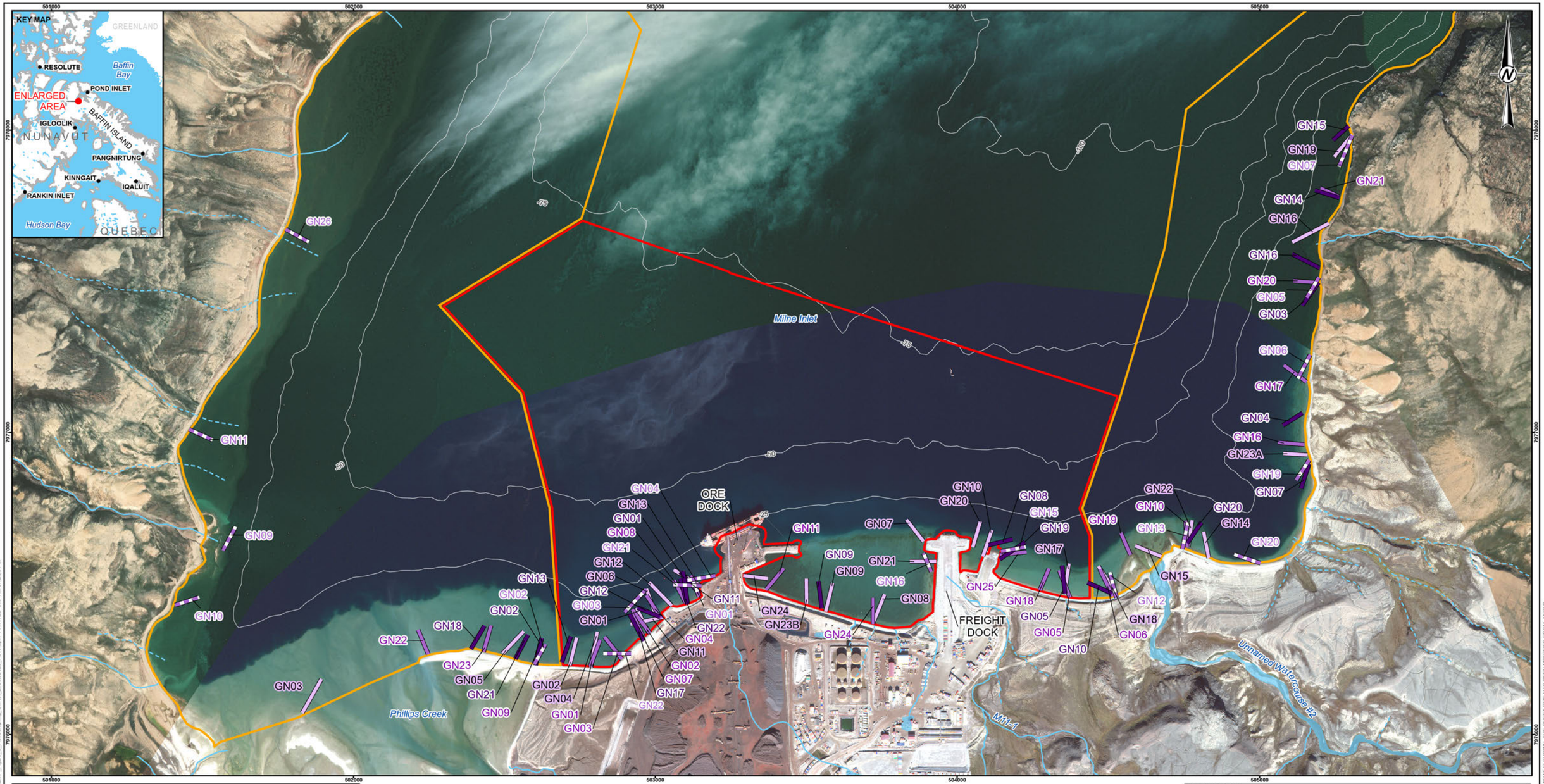
PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: I:\2016\166372414\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_FigD6_2_FishSampling_FukuiTrap_2020to2023Rev0.aprx PRINTED ON: AT 5:12:20 PM



LEGEND

- 2023 GILLNET DEPLOYMENT LOCATION
- 2022 GILLNET DEPLOYMENT LOCATION
- 2021 GILLNET DEPLOYMENT LOCATION
- 2020 GILLNET DEPLOYMENT LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500
1:12,500 METRES

REFERENCE(S)
BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
GILLNET DEPLOYMENT LOCATIONS IN MILNE PORT; MEEMP 2020, 2021, 2022, AND 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-3

PATH: I:\2016\166372\4\Masters\MXD\70000_2023MEEMP1166372402_70000_04_2023MEEMP_FigDir_3_FishSampling_GillNet_2020to2023_Rev0.aprx PRINTED ON: AT 5:12:25 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm
0



LEGEND

- 2023 HOOP NET DEPLOYMENT LOCATION
- 2022 HOOP NET SAMPLING LOCATION
- 2021 HOOP NET SAMPLING LOCATION
- 2020 HOOP NET SAMPLING LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500

1:10,000 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

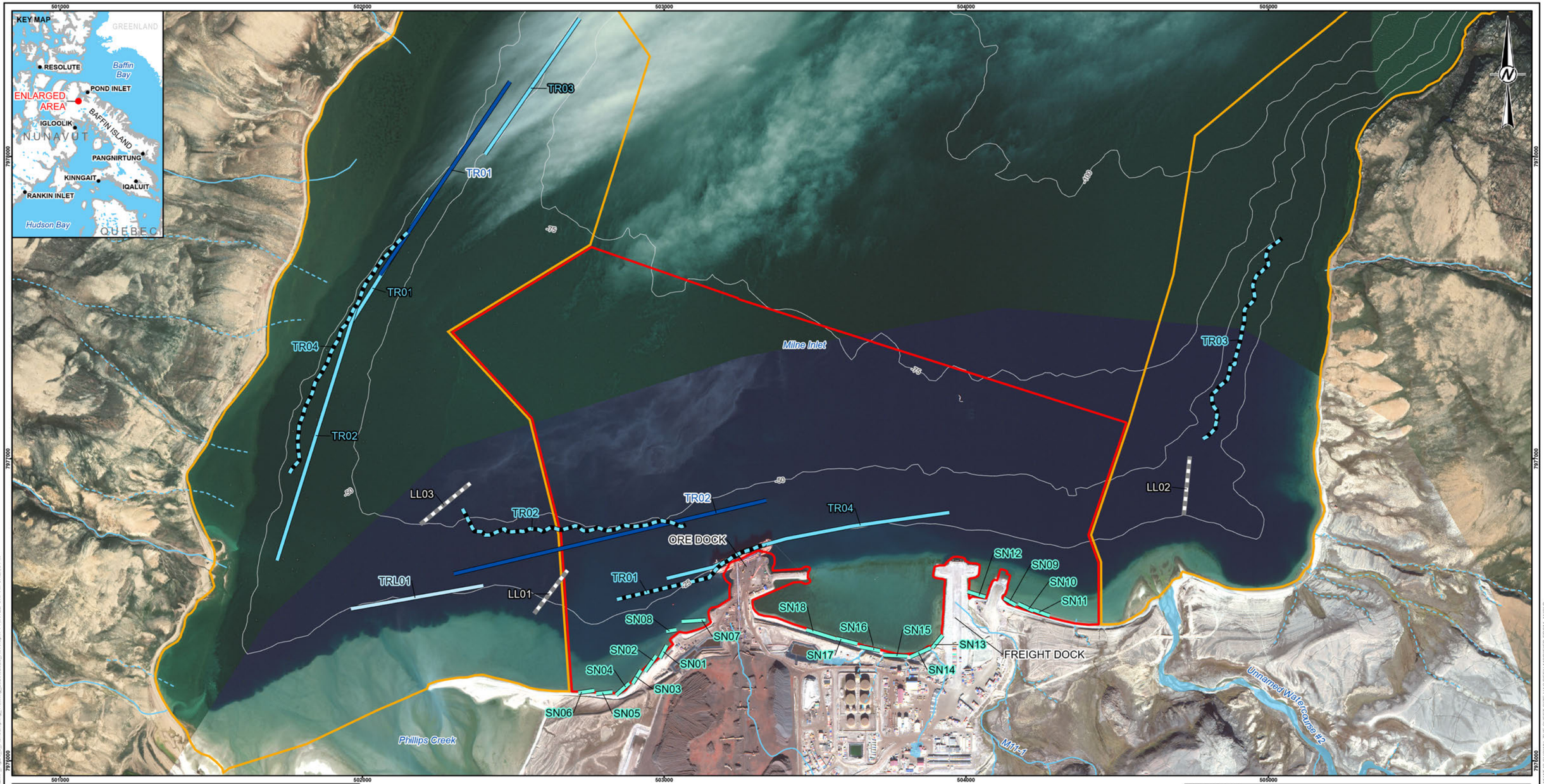
CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
HOOP NET DEPLOYMENT LOCATIONS IN MILNE PORT; MEEMP 2020, 2021, 2022, AND 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-4

PATH: I:\2016\166372491\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig06_4_FishSampling_HoopNet_20230c2023_Rev0.apx PRINTED ON: AT: 5:12:29 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0



LEGEND

- 2023 TRAWLING SAMPLE LOCATION
- 2022 TRAWLING SAMPLING LOCATION
- 2021 LONG LINE SAMPLE LOCATION
- 2021 TRAWLING SAMPLE LOCATION
- 2020 TRAWLING SAMPLE LOCATION
- 2020 SEINE NET SAMPLE LOCATION
- BATHYMETRIC CONTOUR (25 M INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- INDIRECT PROJECT FOOT PRINT (IPF)
- DIRECT PROJECT FOOT PRINT (DPF)
- WATERBODY

0 250 500

1:12,500 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	BG
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
LONGLINING, SEINE NET AND TRAWLING SAMPLE LOCATIONS IN MILNE PORT; MEEMP 2020, 2021, 2022 AND 2023.

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	6-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0

PATH: I:\2016\166372\4 Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig06_5 FishSampling_Trawling_2020to2023_Rev0.aprx, PRINTED ON: AT 5:12:38 PM

Table 3: Fish Catch Data for 2010 - 2023 MEEMP Fish Sampling Program (Combined Fishing Methods)

Family / Common Name	Taxonomic ID	Number of Fish Captured											
		2010	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Agonidae													
Arctic Alligatorfish	*Aspidophoroides olrikii*	0	0	0	0	0	0	0	0	0	2	0	4
Atlantic Poacher	*Leptagonus decagonus*	0	0	0	0	0	0	0	0	0	1	0	0
Ammodytidae													
Sandlance	*Ammodytes* spp.[1]	0	0	0	0	0	1	1	1	6	0	0	0
Cottidae													
Atlantic Hookear Sculpin	*Artediellus atlanticus*	0	0	3	1	0	0	0	0	0	0	0	0
Arctic Staghorn Sculpin	*Gymnocanthus tricuspis*	3	2	0	2	0	0	0	0	11	5	8	15
Spatulate Sculpin	*Icelus spatula*	0	0	0	0	0	0	0	0	0	0	5	2
Longhorn Sculpin	*Myoxocephalus octodecemspinosus*	0	0	4	2	2	0	0	0	0	0	0	0
Fourhorn Sculpin	*Myoxocephalus quadricornis*	7	3	39	13	18	28	147	106	388	295	306	315
Arctic Sculpin	*Myoxocephalus scorpioides*	0	0	4	1	0	6	3	0	13	47	5	2
Shorthorn Sculpin	*Myoxocephalus scorpius*	50	4	10	8	18	21	78	66	74	37	31	16
Ribbed Sculpin	*Triglops pingelii*	0	0	0	0	0	0	0	0	0	47	14	9
Unidentified Sculpin	Cottidae indet.	0	0	0	12	0	0	3	0	84[2]	3	0	0
Cyclopteridae													
Common Lumpfish	*Cyclopterus lumpus*	0	0	1	0	0	0	0	0	0	0	0	0
Atlantic Spiny Lumpsucker	*Eumicrotremus spinosus*	0	0	0	0	0	0	0	0	0	0	0	1
Gadidae													
Arctic Cod	*Arctogadus glacialis*	0	0	0	0	0	0	0	0	70	0	0	0
Polar Cod	*Boreogadus saida*	0	0	0	0	0	0	1[3]	0	0	0	7	1
Pacific Cod	*Gadus macrocephalus*[4]	4	0	1	0	0	0	0	0	57	48	8	6

Family / Common Name	Taxonomic ID	Number of Fish Captured											
		2010	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Unidentified Cod	*Gadus* sp.	0	0	0	0	0	0	0	0	0	0	0	1[5]
Unidentified Cod	Gadidae indet.	0	0	0	0	0	0	0	0	0	11	0	0
Gasterosteidae													
Ninespine Stickleback	*Pungitius pungitius*	0	0	0	0	0	0	0	1	0	0	0	0
Liparidae													
Unidentified Snailfish[6]	Liparidae indet.	0	0	0	0	0	0	0	0	0	1	0	0
Salmonidae													
Arctic Char	*Salvelinus alpinus*	11	6	3	67	157	23	169	105	148	105	98	49
Stichaeidae													
Fourline Snakeblenny	*Eumesogrammus parecisus*	0	0	1	2	2	0	0	0	1	0	0	0
Zoarcidae													
Halfbarred Pout	*Gymnelus hemifasciatus*	0	0	0	0	0	0	0	0	0	0	1	0
Fishdoctor	*Gymnelis viridis*	0	1	0	3	0	0	0	0	0	0	0	0
Saddled Eelpout	*Lycodes mucosus*	0	0	0	0	0	0	0	0	0	1	1	1
Indeterminate													
Unidentified Species	-	0	0	0	0	0	0	1	0	0	0	0	0
Total Taxonomic Richness[7]		**5**	**5**	**9**	**9**	**5**	**5**	**6**	**5**	**9**	**11**	**11**	**12**
Total Fish Captures		**75**	**16**	**67**	**111**	**197**	**79**	**403**	**279**	**852**	**603**	**484**	**422**

[1] Both *Ammodytes hexapterus* and *A. dubius* occur in the Project Area but are difficult to resolve in the field. *Ammodytes* spp. represents observations for both species.
[2] For the Unidentified Sculpin captured in 2021, taxonomic lab results (Biologica) determined the majority of the fish to be in the genus *Myoxocephalus*. The species identification was unknown; however, results suggest it was potentially *M. aenaeus*. Nine of the unidentified sculpins were only able to be taxonomically identified to genus *Triglops*; results suggest it was potentially *T. pingelii.*
[3] Fish species *Arctogadus glacialis* and *Boreogadus saida* both use the common name Polar Cod. The 2018 report (Golder 2019) indicated an Arctic Cod was captured, referred to as *A. glacialis*. Review of the catch record and field photographs indicate this was actually *B. saida* and was corrected in the 2020 MEEMP report (Golder 2021).
[4] Recent taxonomic changes to the genus *Gadus* have combined species *G. ogac* (Greenland Cod) and *G. macrocephalus* (Pacific or Alaska Cod) under the umbrella term *G. macrocephalus*. A universal edit has been made to change Greenland cod (*G. ogac*) to Pacific Cod (*G. macrocephalus*).
[5] For the Unidentified Cod captured in 2023, taxonomic lab results (Biologica) were determined to be in the genus *Gadus*.
[6] Taxonomic lab results (Biologica) identified the 2021 Unidentified Snailfish from Genus *Liparis*. The species was determined be either *L. gibbus* or *L. tunicatus*, however identifying features were not clear.
[7] Note, taxa richness is based on known taxa, therefore 'unidentified' taxa were removed from the taxa richness calculation. This change was made in 2023 and corrected for previous years.

Table 4: Total Fish Captured (n) for Grouped Taxon by Fishing Method, Year, and Fishing Area (2020 – 2023)

Fishing Method	Year	Fishing Area	Arctic Char	Fourhorn Sculpin	Pacific Cod	Shorthorn Sculpin	Other Sculpin	Other Fish	Total per Area	Total per Year
Angling – Jigging	2020	DPF	1	145	38	36	4	0	224	250
		IPF	1	0	16	9	0	0	26	
	2021	DPF	5	135	33	11	26	0	210	260
		IPF	0	15	14	17	4	0	50	
	2022	DPF	0	132	1	4	0	0	137	157
		IPF	0	0	4	16	0	0	20	
	2023	DPF	1	34	5	5	0	0	45	69
		IPF	0	16	1	7	0	0	24	
Angling – Trolling	2020	DPF	0	0	0	0	0	0	0	1
		IPF	0	0	0	1	0	0	1	
	2021	IPF	0	0	0	0	0	0	0	0
	2022	DPF	1	6	1	4	0	0	12	16
		IPF	0	1	1	1	1	0	4	
	2023	DPF	0	0	0	0	0	0	0	3
		IPF	0	1	0	2	0	0	3	
Fukui Trap	2020	DPF	0	17	0	2	13	3	35	43
		IPF	0	1	0	1	6	0	8	
	2021	DPF	0	1	0	0	7	0	8	17
		IPF	0	6	0	0	3	0	9	
	2022	DPF	0	3	1	0	0	1	5	11
		IPF	0	1	0	2	2	1	6	
	2023	DPF	0	0	0	0	1	0	1	4
		IPF	0	2	0	0	0	1	3	
Gill Net	2020	DPF	80	113	0	17	11	1	222	306
		IPF	64	15	0	5	0	0	84	
	2021	DPF	59	87	0	4	4	0	154	242
		IPF	41	39	1	5	2	0	88	
	2022	DPF	35	68	0	0	0	0	103	211
		IPF	62	42	0	3	1	0	108	
	2023	DPF	33	180	0	1	0	0	214	273
		IPF	15	43	0	0	1	0	59	
Hoop Net	2020	DPF	0	70	1	3	3	0	77	84
		IPF	1	3	2	0	1	0	7	
	2021	DPF	0	12	0	0	0	0	12	12
		IPF	0	0	0	0	0	0	0	
	2022	DPF	0	53	0	1	1	0	55	55
		IPF	0	0	0	0	0	0	0	
	2023	DPF	0	35	0	1	0	0	36	40
		IPF	0	4	0	0	0	0	4	

Fishing Method	Year	Fishing Area	Arctic Char	Fourhorn Sculpin	Pacific Cod	Shorthorn Sculpin	Other Sculpin	Other Fish	Total per Area	Total per Year
Longlining	**2021**	**IPF**	0	0	0	0	0	0	0	0
Seine Net	**2020**	**DPF**	1	24	0	0	51	3	79	79
Trawling	**2020**	**IPF**	0	0	0	0	19	70	89	89
	2021	**DPF**	0	0	0	0	52	12	64	72
		IPF	0	0	0	0	4	4	8	
	2022	**DPF**	0	0	0	0	16	6	22	34
		IPF	0	0	0	0	11	1	12	
	2023	**DPF**	0	0	0	0	12	1	13	33
		IPF	0	0	0	0	14	6	20	

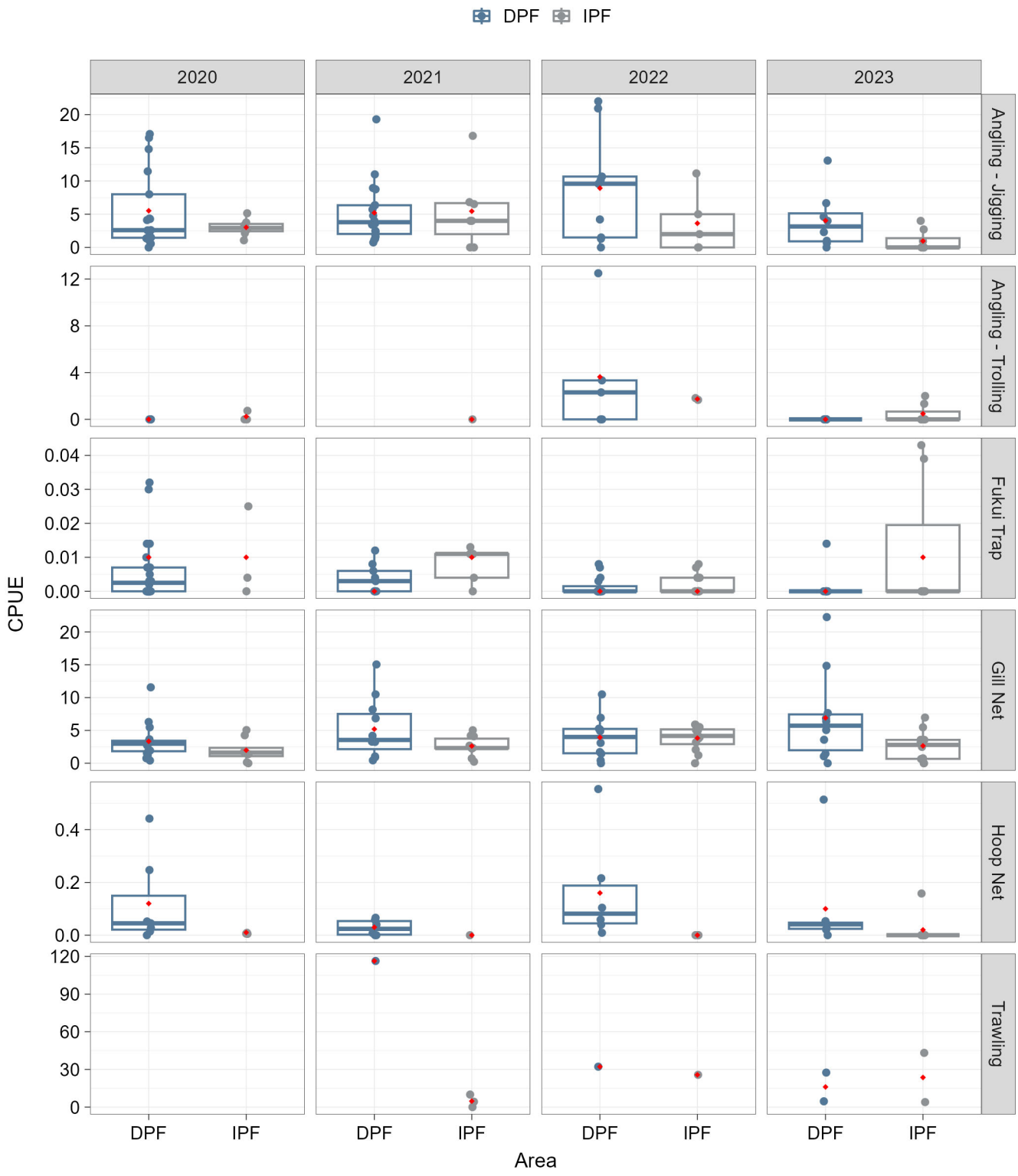


Figure 6: Average Catch-Per-Unit-Effort (CPUE) of Grouped Taxa per Fishing Method by Year (2020-2023) and Fishing Area (Direct Project Footprint (DPF) and Indirect Project Footprint (IPF))
Note: Trawling was excluded from the figure due to high CPUE values that skewed the figure and seine net was excluded due to only being conducted in 2020.

Table 5: Statistical Testing Results for CPUE of All Fish Species Combined, for Select Fishing Methods (2020-2023)

Model				Post-Hoc Testing		
Variable	**Chi square**	**Df**	**P value**	**Contrast**	**Effect size (%)**	**P value**
Angling – Jigging						
Area	6.377	1	**0.012**	DPF-IPF	+105	**0.005**
Year	7.306	3	0.063	-	-	-
Area:Year	2.213	3	0.529	-	-	-
Angling – Trolling						
Area	0.521	1	0.470	-	-	-
Year	16.414	2	**<0.001**	2020-2022	-93	**0.031**
				2022-2023	+637	**0.007**
Fukui Trap						
Area	0.925	1	0.336	-	-	-
Year	6.783	3	0.079	-	-	-
Area:Year	2.765	3	0.429	-	-	-
Gill Net						
Area	8.591	1	**0.003**	DPF-IPF	+78	**0.002**
Year	5.159	3	0.161	-	-	-
Area:Year	3.474	3	0.324	-	-	-
Hoop Net						
Area	29.110	1	**<0.001**	DPF-IPF	+1578	**<0.001**
Year	6.239	2	0.101	-	-	-

Note: Cells highlighted blue and bold indicate statistically significant results (p-value <0.05). Post-hoc testing was only conducted for significant results. Area includes DPF (Direct Project Footprint) and IPF (Indirect Project Footprint). Df = degrees of freedom; Diff = the direction of the contrast, where the second value is used as the baseline.

Table 6: Statistical Testing Results for CPUE of Fourhorn Sculpin, for Select Fishing Methods (2020-2023)

Model				Post-Hoc Testing		
Variable	**Chi square**	**Df**	**P value**	**Contrast**	**Effect size (%)**	**P value**
Angling – Jigging						
Area	8.086	1	**0.004**	DPF-IPF	+597	**0.002**
Year	13.387	3	**0.004**	2020-2021	-95	**0.001**
				2020-2022	-96	**0.003**
				2020-2023	-94	**0.011**
Angling – Trolling						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Fukui Trap						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Gill Net						
Area	16.749	1	**<0.001**	DPF - IPF	+219	**<0.001**
Year	11.797	3	**0.008**	2020-2023	-76	**0.002**
Area:Year	1.438	3	0.697	-	-	-
Hoop Net						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Note: Cells highlighted blue and bold indicate statistically significant results (p-value <0.05). Post-hoc testing was only conducted for significant results. Area includes DPF (Direct Project Footprint) and IPF (Indirect Project Footprint). Df = degrees of freedom; Diff = the direction of the contrast, where the second value is used as the baseline.

Table 7: Statistical Testing Results for CPUE of Arctic Char, for Select Fishing Methods (2020-2023)

Model				Post-Hoc Testing		
Variable	**Chi square**	**Df**	**P value**	**Contrast**	**Effect size (%)**	**P value**
Angling – Jigging						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Angling – Trolling						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Fukui Trap						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Gill Net						
Area	0.630	1	0.427	-	-	-
Year	8.028	3	**0.045**	2021-2023	+200	**0.012**
Area:Year	11.127	3	**0.011**	IPF:2020-2023	+531	**0.012**
				IPF:2021-2023	+427	**0.024**
				IPF:2022-2023	+721	**0.001**
Hoop Net						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Note: Cells highlighted blue and bold indicate statistically significant results (p-value <0.05). Post-hoc testing was only conducted for significant results. Area includes DPF (Direct Project Footprint) and IPF (Indirect Project Footprint). Df = degrees of freedom; Diff = the direction of the contrast, where the second value is used as the baseline.

APPENDIX E

Power Analysis

POWER ANALYSIS – FISH COMMUNITY CPUE

This section presents the results of a power analysis undertaken for the 2020 to 2023 fish community program in support of the catch-per-unit-effort (CPUE) statistical analyses.

METHODS

A Type I error is concluding there is a significant effect when none exists (i.e., a false positive). Alpha (α) is the probability of committing a Type I error. A Type II error is the probability of concluding there is no significant effect when there is a real effect of some specified magnitude (i.e., a false negative). Beta (β) is the probability of committing a Type II error. The power of a statistical test (1 - β) is the probability of detecting a real effect.

In this analysis, the Type I error-rate (α), also referred to as the significance level, was set to 0.05. The desired minimum statistical power was 80%, which corresponds to a type II error-rate of 0.2. Power analyses were conducted to assess the power of statistical tests under three effect sizes – detection of a reduction of 20%, 30%, and 40% in catch per unit effort in the DPF relative to the IPF area in 2023. A range of sample sizes was assessed for each gear type, to evaluate whether increasing effort within the logistical constraints associated with the sampling would result in sufficient (>80%) statistical power.

Data Simulation following Effect Size Application

The power to detect statistically significant effects was estimated using residual bootstrapping in R v. 4.3.2 (R 2023), following the approach of Fox and Weisberg (2018). The general approach was to simulate data based on the model selected for interpretation, the observed sample size (or the sample size of choice), and the variability estimated by the original model, and re-run the models that were used for the original analysis using the simulated data. The data simulation and analysis were repeated 5,000 times, and the proportion of repetitions where the *P*-values of interest were significant ($P<0.05$) was interpreted as the statistical power of the test.

To produce simulated data, the original model was used to predict values of the response variable, and the dispersion estimated by the original negative binomial model were calculated and retained. The predicted values were then adjusted according to the effect size, depending on analysis (see below for details). For each iteration of the simulation, the adjusted predicted values and the dispersion from the original model were used to generate a randomly drawn sample of negative binomial counts, to produce a set of simulated data. Generating the randomly drawn sample around the effect size-adjusted predictions was done to create a level of variability in the simulated data that was similar to the observed data. The simulated data were then analyzed using the same model structure as the original analysis.

In the analysis of 2020 to 2023 data, the question of interest was a reduction in fish CPUE between DPF and IPF in 2023. That is, the power to detect the interaction between area and sampling year needed to be assessed. In addition, the power of the multiple comparisons between areas within year was of interest, specifically for the comparison between 2023 and 2022, relative to which effect sizes were applied. The effect was applied as percentage relative to the values predicted for the IPF in 2023. That is, an increasing effect size resulted in a larger difference between the IPF and DPF areas in 2023.

The power to detect a significant main effect of year on an interaction between year and area was assessed, as well as the power to detect a difference between 2022 and 2023 in the subsequent multiple comparisons. The effect was applied as percentage relative to the values predicted for 2022. That is, an increasing effect size

resulted in a larger difference between 2022 and 2023. The simulated data were analyzed using the same model as the original analysis described in the main report, and the *P*-values for the effects of interest were retained, which included both the main effect of area and an interaction with area (for models that included at interaction). If any of these *P*-values were less than 0.05, it was considered a statistically significant result. The proportion of repetitions with *P*-values less than 0.05 was interpreted as the statistical power of the overall regression for that effect size. In addition to the power to detect the interaction between year and area (for models that included an interaction), the power to detect a difference between areas 2023 in the subsequent multiple comparisons was also calculated, where if the *P*-value of the comparison between the IPF and DPF in 2023 was less than 0.05, the comparison was considered significant. For models that did not include an interaction between area and sampling year due to lack of captured fish in some years in the IPF, multiple comparison power was assessed for comparisons between years, where if the *P*-value of the comparison between 2022 and 2023 was less than 0.05, the comparison was considered significant. The power analysis was performed on three effect sizes – CPUE reductions of 20%, 30%, and 40% relative to the IPF, and a range of sample sizes, depending on fishing gear.

Power Analysis – Reporting of Results

Power curves were produced, showing statistical power as a function of sample size and effect size in percentages. Horizontal lines were added to visualize statistical power values of 0.8 (hereafter sufficient power) and 0.9 (hereafter high power), and the observed effect size was provided in the results.

RESULTS

For the analyses of CPUE, only the models that did not have an interaction between year and area (angling-trolling and hoop nets for all species and angling-jigging for Fourhorn Sculpin) had sufficient power to detect the assessed effects given the evaluated sample sizes (Figure 1, Figure 4). For angling-jigging, the observed annual sample sizes were sufficient to detect a 20% reduction in CPUE relative to 2022 for analysis of all species CPUE and Fourhorn Sculpin CPUE, while for all species data from hoop nets, at least 12 sampling efforts were required to achieve sufficient power to detect a 30% to 40% reduction, and at least 13 sampling efforts to detect a 20% reduction (Figure 1). The higher statistical power under observed effect sizes for angling-jigging for Fourhorn Sculpin (Figure 4) was due to some of the annual observed effect sizes being much higher than the smallest sample size - 17 angling-jigging sampling events took place at the DPF in 2020, but only seven in the IPF in 2020, and only five in the IPF in 2022. Hence, the statistical power given observed effect sizes was higher than if all sample sizes had been set to 10.

For the models that had an interaction between year and area (angling-jigging, gill nets, and Fukui traps for all species, gill nets for Fourhorn Sculpin, and gill nets for Arctic Char), none of the assessed sample sizes and effect sizes achieved sufficient statistical power to detect a significant interaction between year and area (Figure 1, Figure 4, Figure 7). None of the multiple comparisons, for all models, had sufficient statistical power to detect as significant post-hoc comparison – between IPF and DPF in 2023 (for models with an interaction; Figure 2, Figure 5, and Figure 8) or between 2022 and 2023 (for models without an interaction; Figure 3 and Figure 6).

The observed effect sizes for the analyzed CPUE data ranged from -96 (for Fourhorn Sculpin sampled in angling-jigging in 2020 and 2022) to +637 (for all species sampled in angling-trolling in 2022 and 2023; Table 1). While observed effect sizes were often large, sample sizes in the dataset were often small and inconsistent between years and areas. For example, 17 angling-jigging sampling events took place at the DPF in 2020, but only seven

in the IPF in 2020, and only five in the IPF in 2022. The inconsistency in sample size likely reduced the statistical power of the analysis for the all-species-combined dataset. The large differences in annual differences between IPF and DPF for Arctic Char (Table 1) resulted in the only significant interaction found in the original analyses.

The low power to detect a significant interaction was due to three main causes –

1) data variability,
2) low CPUE in the IPF, relative to which the reduction was being simulated, and
3) the lack of difference between areas within previous years (hence requiring a very large difference in 2023 to make the overall interaction significant)

On the other hand, the high power to detect a significant effect of year in models without an interaction, even under observed effect sizes, was driven by differences in CPUE in 2020 and 2022 sampling years. For example, angling-trolling for all species combined had low CPUE values in 2020 and high CPUE values in 2022, leading to an existing difference between years, regardless of the simulated effect size.

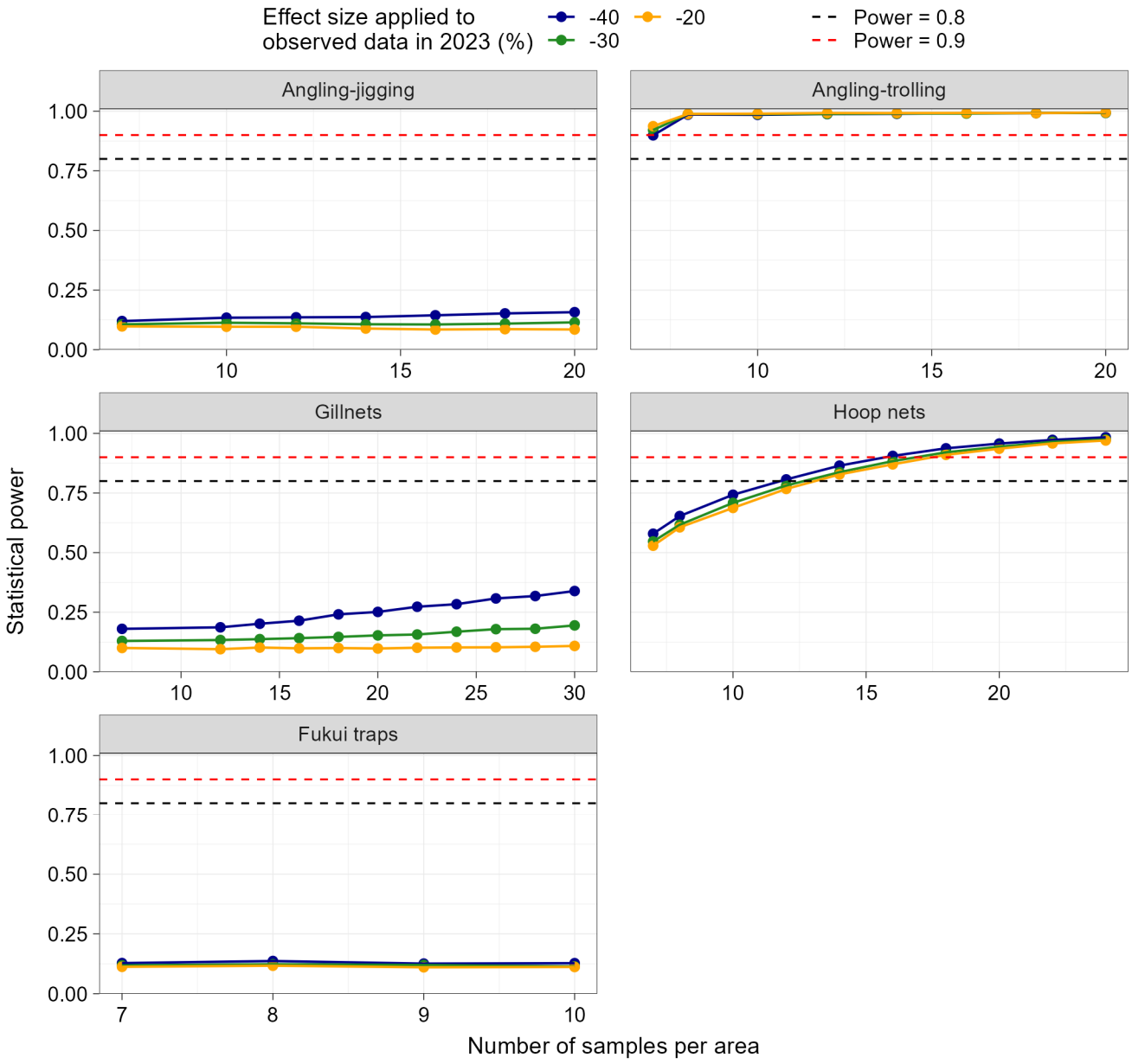


Figure 1: Statistical power of the models of fish CPUE for all species combined to detect a significant interaction between area and year (for models with an interaction) or a main effect of year (for models without an interaction), based on CPUE data collected in 2020 to 2023. The first point on each panel shows power given the observed annual sampled sizes.

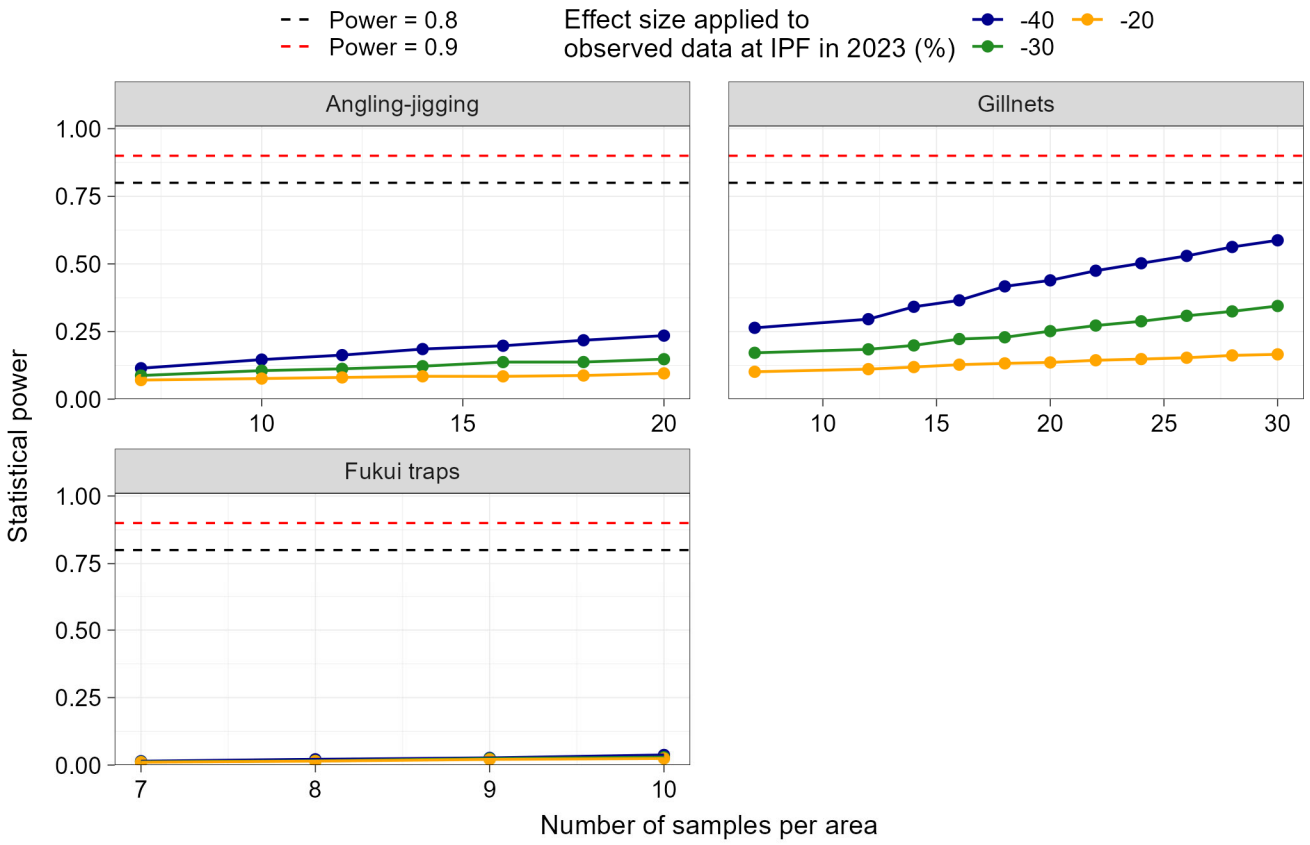


Figure 2: Statistical power of the models of fish CPUE for all species combined to detect a significant post-hoc comparison between IPF and DPF in 2023 (for models with an interaction).

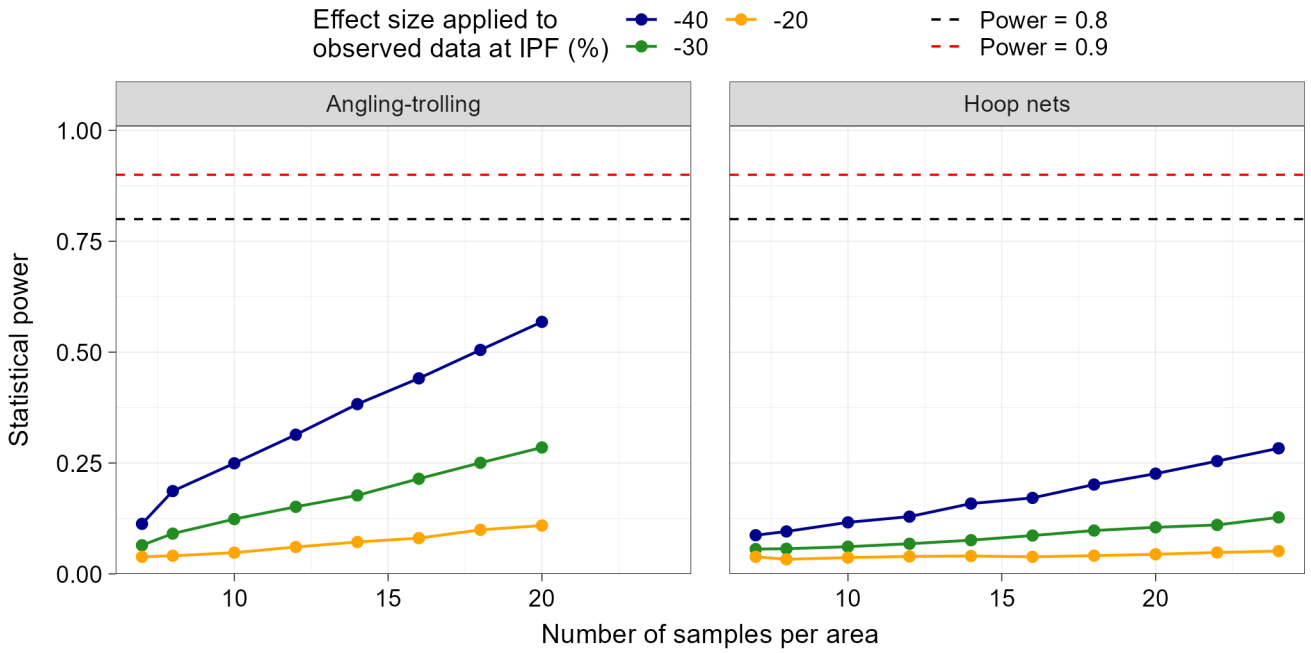


Figure 3: Statistical power of the models of fish CPUE for all species combined to detect a significant post-hoc comparison between 2023 and 2022 (for models without an interaction).

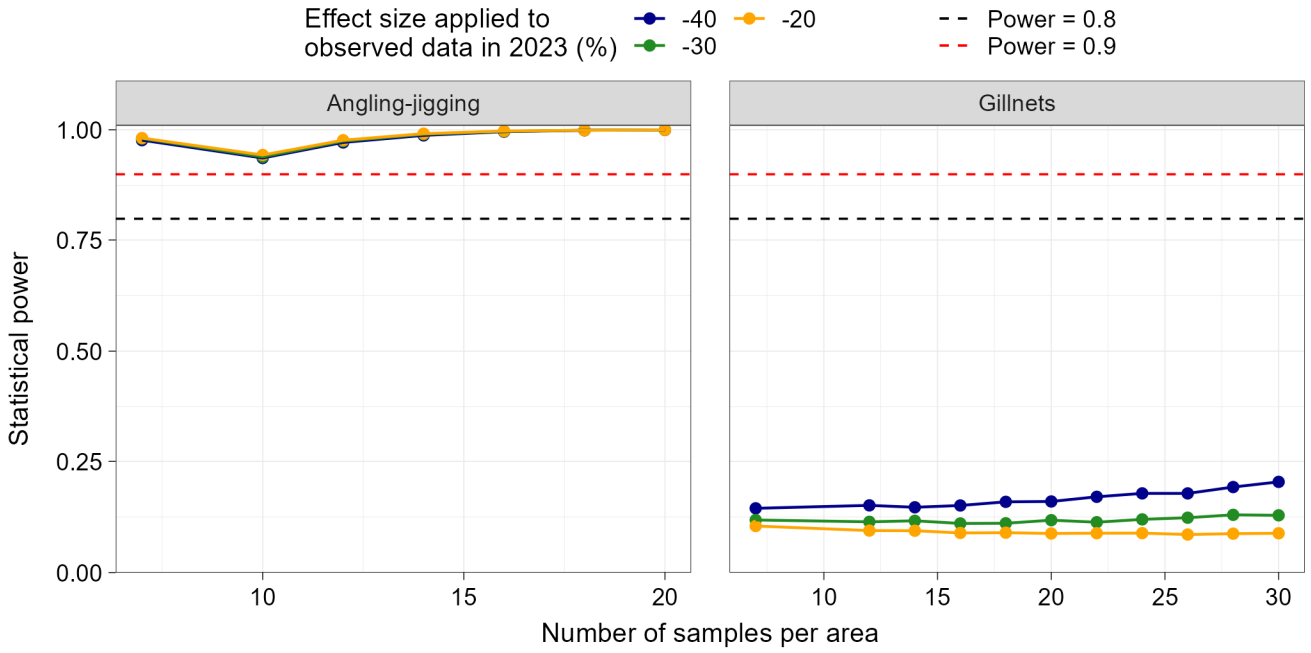


Figure 4: Statistical power of the models of Fourhorn Sculpin data to detect a significant interaction between area and year or a main effect of year based on CPUE data collected in 2020 to 2023.

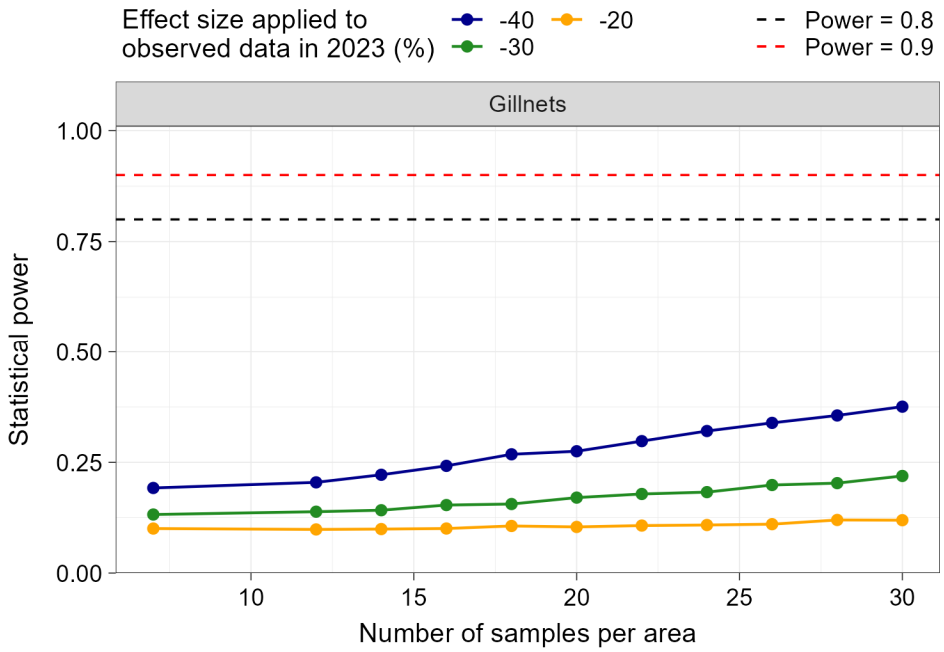


Figure 5: Statistical power of the models of Fourhorn Sculpin data to detect a significant post-hoc comparison between IPF and DPF in 2023 (original model included an interaction).

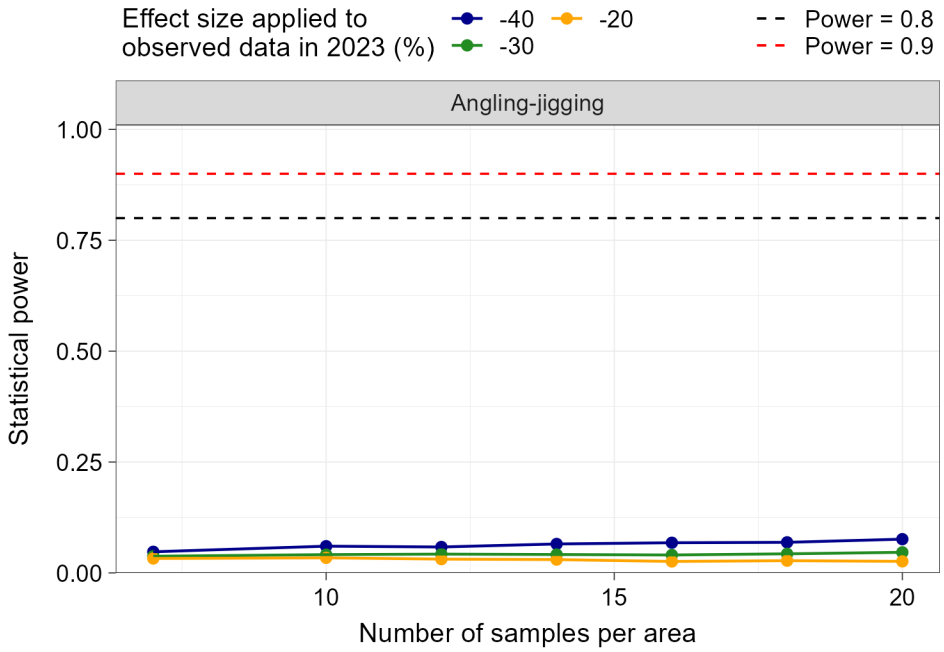


Figure 6: Statistical power of the models of Fourhorn Sculpin data to detect a significant post-hoc comparison between 2023 and 2022 (original model did not have an interaction).

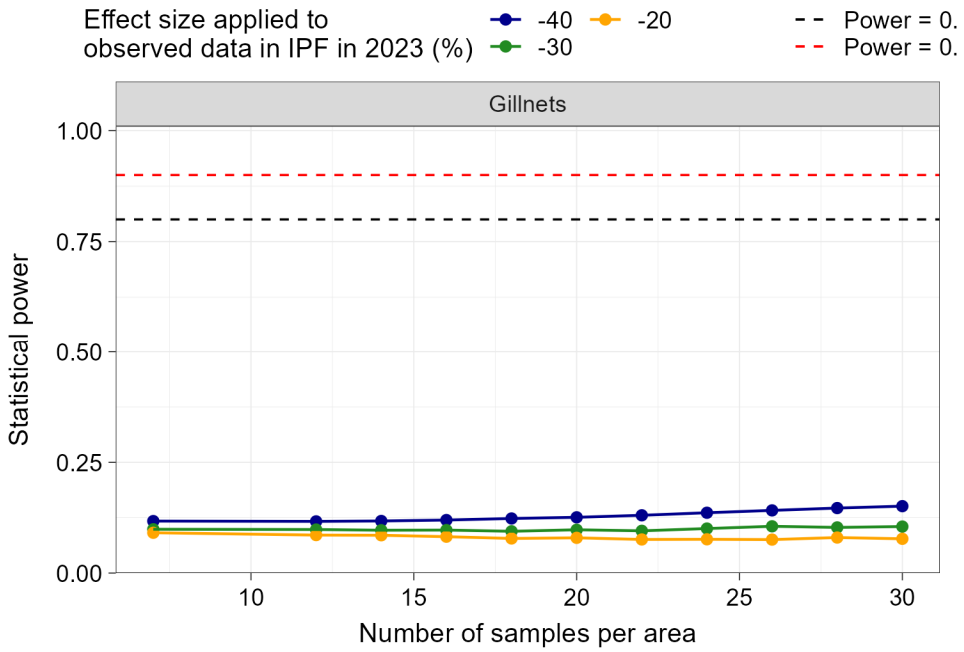


Figure 7: Statistical power of the models of Arctic Char data to detect a significant interaction between area and year based on CPUE data collected in 2020 to 2023.

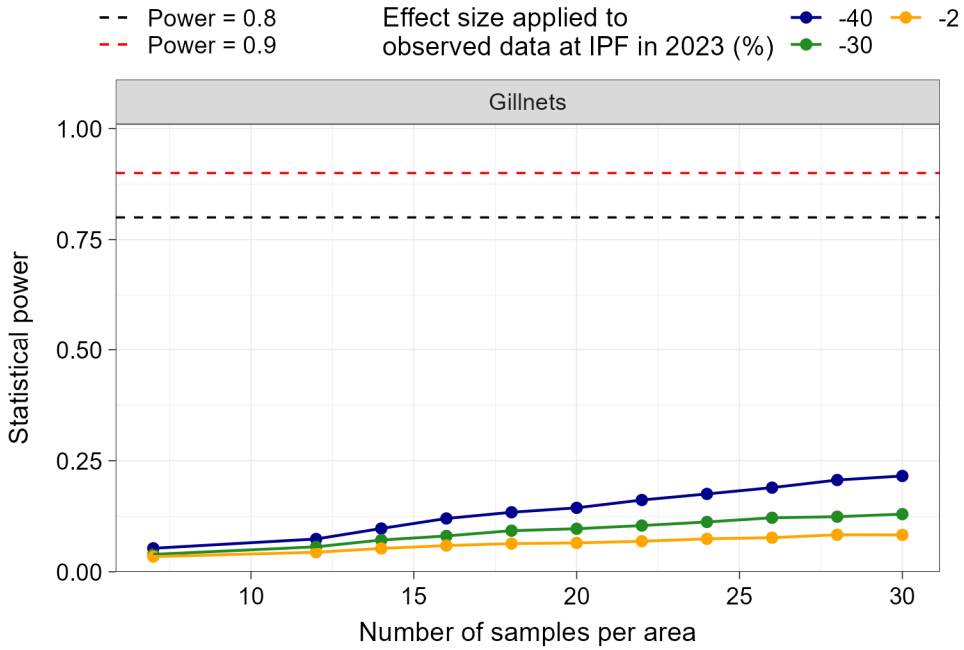


Figure 8: Statistical power of the models of Arctic Chat data to detect a significant post-hoc comparison between IPF and DPF in 2023 (original model included an interaction).

Table 1: Observed effect sizes for analyses of fish CPUE data from 2020-2023.

Species	Gear	Observed effect sizes (%)			
		2020	2021	2022	2023
All fish combined	Angling-jigging (DPF – IPF)	90	20	146	218
	Angling-trolling	Range from -93 (2020 – 2022) to +637 (2022 – 2023)			
	Gill nets (DPF – IPF)	74	99	4	176
	Fukui traps (DPF – IPF)	185	-58	-15	-75
	Hoop nets	Range from -62 (2021 – 2022) to +201 (2020 – 2021)			
Fourhorn Sculpin	Angling-jigging	Range from -96 (2020 – 2022) to +39 (2022 – 2023)			
	Gill nets (DPF – IPF)	462	143	139	218
Arctic Char	Gill nets (DPF – IPF)	-25	67	-37	416

SUMMARY

Overall, statistical power to detect an interaction between year and area was low, while power to detect an overall year effect (for models that did not include an interaction) was high. Across all models, including cases where power was sufficient to detect the overall interaction or main effects, there was not sufficient power to detect a post-hoc difference between areas in 2023 (for models with interaction) or between 2022 and 2023 (for models without an interaction).

Implications of Power Analysis Results

Overall, the results of the power analysis presented here indicate that analyses of fish CPUE data often had low power despite efforts to increase overall sampling size and equalize the sample sizes between the two sampling areas. Given the low statistical power, going forward, it is recommended differences between areas should be assessed using effect sizes rather than a strict adherence to statistical significance.

In order to focus sampling effort on methods that provide the least cases of zero catch, it is recommended to remove Fukui traps and angling-trolling from the sampling design. This simplification of sampling would allow increasing the effort spent on sampling with angling-jigging, gill nets, and hoop nets. The increase in sampling for these 3 methods would allow for an increased statistical power for the respective analyses. Small numbers of trawling efforts would be continued, and as in previous years, would not be statistically analysed.

REFERENCES

Fox, J. and Weisberg, S. 2018. Bootstrapping Regression Models in R. An Appendix to An R Companion to Applied Regression, third edition, https://socialsciences.mcmaster.ca/jfox/Books/Companion/appendices/Appendix-Bootstrapping.pdf.

R Core Team. 2023. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.



wsp.com

REPORT

Chapter 7.0 Fish Health and Tissue Chemistry

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario
Canada
L6H 6K8

Submitted by:

WSP Canada Inc.

1663724-499g-R-Rev0-70000

15 March 2024

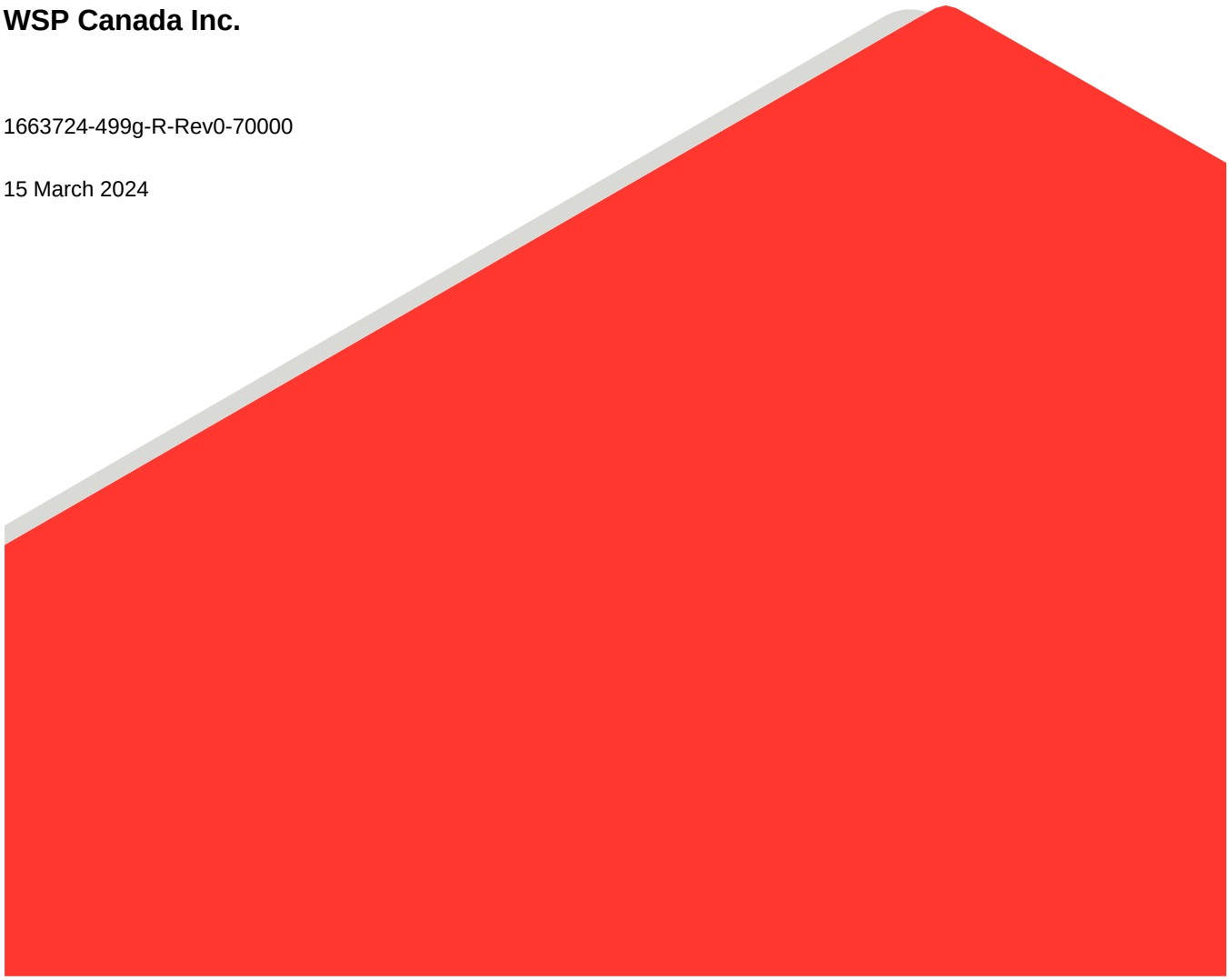


Table of Contents

7.0 FISH HEALTH AND TISSUE CHEMISTRY....1

7.1 Introduction....1

7.1.1 Objectives....2

7.2 Study Design....2

7.2.1 Modifications to the Program (2023)....3

7.2.2 Indicators and Thresholds....3

7.3 Materials and Methods....4

7.3.1 Sampling Areas....4

7.3.1.1 Fish Processing....5

7.3.2 Laboratory Methodology....7

7.3.2.1 Finfishes....7

7.3.2.1.1 Age....7

7.3.2.1.2 Stomach Contents....7

7.3.2.1.3 Tissue Chemistry....7

7.3.2.2 Shellfishes....8

7.3.2.2.1 Processing....8

7.3.2.2.2 Age....8

7.3.2.2.3 Tissue Chemistry....8

7.3.3 Data Analysis....8

7.3.3.1 Fish Health Endpoints....9

7.3.3.2 Tissue Chemistry....10

7.3.3.3 Testing Assumptions for Statistical Analysis....11

7.3.3.4 Relative Percent Difference....12

7.3.3.5 Magnitude of Effect....12

7.3.3.6 Power Analysis....13

7.3.4 Guideline Comparison....13

7.3.5 Quality Management....13

7.3.5.1 Field QA/QC 13
7.3.5.2 Data Analysis QA/QC 14
7.3.5.2.1 Tissue Chemistry 14
7.3.6 TARP Assessment 15
7.4 Results 18
7.4.1 Fish Health 18
7.4.1.1 Arctic Char 18
7.4.1.1.1 Survival - Age 18
7.4.1.1.2 Stomach Contents 19
7.4.1.1.3 Temporal Comparisons 19
7.4.1.1.3.1 Condition Factor 19
7.4.1.2 Fourhorn Sculpin 21
7.4.1.2.1 Spatial Comparisons 23
7.4.1.2.1.1 Survival – Age 23
7.4.1.2.1.2 Growth – Size-at-Age 24
7.4.1.2.1.3 Condition – Relative Weight and Relative Liver Weight 26
7.4.1.2.1.4 Reproduction – Relative Gonad Weight 27
7.4.1.2.1.5 Stomach Contents 28
7.4.1.2.1.6 Abnormalities 30
7.4.1.2.2 Temporal Comparisons 31
7.4.1.2.2.1 Survival – Age 31
7.4.1.2.2.2 Growth – Size-at-Age 31
7.4.1.2.2.3 Condition – Relative Weight and Relative Liver Weight 32
7.4.1.2.2.4 Reproduction – Relative Gonad Weight 34
7.4.1.3 Hiatella arctica 36
7.4.1.3.1 Spatial Comparisons 36
7.4.1.3.1.1 Survival – Length-Frequency Analysis 39
7.4.1.3.1.2 Growth – Whole Animal Wet Weight 40
7.4.1.3.1.3 Condition – Relative Weight 41

7.4.1.3.1.4 Reproduction – Mantle Somatic Index....42
7.4.1.3.2 Temporal Comparisons....44
7.4.1.3.2.1 Survival – Length-Frequency....44
7.4.1.3.2.2 Growth – Whole Animal Wet Weight....45
7.4.1.3.2.3 Condition – Relative Weight....46
7.4.1.3.2.4 Reproduction – Mantle Somatic Index....48
7.4.2 Fish Tissue Chemistry....50
7.4.2.1 Spatial Comparisons....50
7.4.2.1.1 Fourhorn Sculpin....50
7.4.2.1.2 Hiatella arctica....54
7.4.2.2 Temporal Comparisons....56
7.4.2.2.1 Arctic Char....56
7.4.2.2.2 Fourhorn Sculpin....60
7.4.2.2.3 Hiatella arctica....61
7.5 TARP Assessment....62
7.5.1 Fish Health....62
7.5.2 Fish Tissue Chemistry....63
7.6 Discussion....64
7.6.1 Fish Health....64
7.6.2 Tissue Chemistry....67
7.7 Conclusions and Recommendations....69
7.8 References....70

TABLES

Table 7-1: Summary of Monitoring Components Addressing Project Certificate (PC) Conditions....1
Table 7-2: Gonad Maturity Stages for Male and Female Fish Used During the Fish Health Assessment, 2023....6
Table 7-3: Statistical Procedures Used to Evaluate Fourhorn Sculpin Health Indicators....9
Table 7-4: Statistical Procedures Used to Evaluate *Hiatella arctica* Health Indicators....10
Table 7-5: Marine Environment TARP Framework for Fish Health and Tissue Chemistry (Baffinland 2024)....16

Table 7-6: Descriptive Statistics for Arctic Char Biometrics Processed from Milne Inlet, 2021 to 2023 20

Table 7-7: Descriptive Statistics for Fourhorn Sculpin Fish Health Endpoints Processed from the Milne Port Area and Koluktoo Bay Reference Area, 2023 23

Table 7-8: Results of Statistical Comparisons Between Milne Port Area and Koluktoo Bay Reference Area for Fourhorn Sculpin, 2023 29

Table 7-9: Number and Description of External and Internal Abnormalities Observed in Fourhorn Sculpin Sampled from the Milne Port Area, 2023 30

Table 7-10: Summary of Statistical Comparisons Between 2020, 2021, 2022, and 2023 for Fourhorn Sculpin, Milne Port Area 35

Table 7-11: Descriptive Statistics for Hiatella arctica Health Endpoints from the Milne Port Area and Tugaat River Estuary Reference Area, 2023 37

Table 7-12: Summary of Statistical Comparisons for *Hiatella arctica* Health Endpoints between Milne Port Area and Tugaat River Estuary Reference Area, 2023 38

Table 7-13: Summary of Statistical Comparisons for *Hiatella arctica* Health Endpoints at Milne Port between 2020, 2021, 2022, and 2023 43

Table 7-14: Descriptive Statistics for Fourhorn Sculpin Tissue Chemistry Data Analyzed from Milne Port Area and Koluktoo Bay Reference Area, 2023 52

Table 7-15: Summary of Spatial Comparisons of Constituents of Potential Concern in Fourhorn Sculpin and *Hiatella arctica* Tissue Samples Collected from the Milne Port Area and Reference Areas, 2023 53

Table 7-16: Descriptive Statistics for *Hiatella arctica* Tissue Chemistry Data Analyzed from Milne Port Area and Tugaat River Estuary Reference Area, 2023 55

Table 7-17: Descriptive Statistics for Arctic Char Tissue Chemistry Data Analyzed from 2023 58

Table 7-18: Summary of Inter-annual Comparisons of Constituents of Potential Concern in Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Samples Collected from the Milne Port Area from 2018 to 2023 59

Table 7-19: Comparison of Fish Health Endpoints for Fourhorn Sculpin and *Hiatella arctica* with TARP Thresholds, MEEMP 2023 63

Table 7-20: Comparison of Fish Tissue Chemistry Endpoints for Fourhorn Sculpin and *Hiatella arctica* with TARP Thresholds, MEEMP 2023 64

Table 7-21: Summary of Results of Fish Health Assessment for Fourhorn Sculpin, MEEMP 2023 64

Table 7-22: Summary of Results of Fish Health Assessment for *Hiatella arctica*, MEEMP 2023 65

Table 7-23: Summary of Results of Fish Tissue Chemistry Assessment for Arctic Char, Fourhorn Sculpin, and *Hiatella arctica*, MEEMP 2023 67

FIGURES

Figure 7-1: Boxplots of Ages of Arctic Char Incidental Mortalities Sampled from Milne Inlet, 2021 to 2023 18

Figure 7-2: Relative Stomach Contents by Weight from Arctic Char Incidental Mortalities Sampled from Milne Inlet, 2023 19

Figure 7-3: Boxplots of Condition Factor for Arctic Char Captured throughout Milne Inlet, 2021 to 2023 20

Figure 7-4: Length-Frequency Distributions of Female (Top) and Male (Bottom) Fourhorn Sculpin Sampled from the Milne Port Area (Left) and Koluktoo Bay Reference Area (Right), 2023 22

Figure 7-5: Condition (Length-Weight Relationship) for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area (Left) and Koluktoo Bay Reference Area (Right), 2023 22

Figure 7-6: Boxplots of Ages of Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023 24

Figure 7-7: Size-at-Age Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023 25

Figure 7-8: Least Squares Mean Total Weight-at-Age of Female Fourhorn Sculpin Captured from the Milne Port Area and Koluktoo Bay Reference Area, 2023 25

Figure 7-9: Weight-at-Length Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023 26

Figure 7-10: Relative Liver Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023 27

Figure 7-11: Relative Gonad Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023 27

Figure 7-12: Relative Stomach Contents by Weight from Fourhorn Sculpin Sampled from Milne Port and Koluktoo Bay Reference Area, 2023 28

Figure 7-13: Boxplots of Ages of Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023 31

Figure 7-14: Size-at-Age Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023 32

Figure 7-15: Weight-at-Length Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023 33

Figure 7-16: Relative Liver Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023 33

Figure 7-17: Relative Gonad Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023 34

Figure 7-18: Length-Frequency Distribution for *Hiatella arctica* captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023 39

Figure 7-19: Boxplot of Whole Animal Wet Weight of *Hiatella arctica* captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023 40

Figure 7-20: Relationship between Total Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023 41

Figure 7-21: Relationship between Shell Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023 41

Figure 7-22: Relationship between Gonad Weight and Soft Tissue Weight of *Hiatella arctica* captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023 42

Figure 7-23: Length-Frequency Distribution for *Hiatella arctica* captured from the Milne Port Area, 2020 to 2023 44

Figure 7-24: Boxplot of Whole Animal Wet Weight of *Hiatella arctica* captured from the Milne Port Area, 2020 to 2023 45

Figure 7-25: Relationship between Total Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area, 2020 to 2023 46

Figure 7-26: Relationship between Shell Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area, 2020 to 2023 47

Figure 7-27: Relationship between Gonad Weight and Soft Tissue Weight of *Hiatella arctica* captured from the Milne Port Area, 2021 to 2023 48

Figure 7-28: Least Squares Mean Relative Gonad Weights of *Hiatella arctica* Captured from the Milne Port Area, 2021 to 2023 49

Figure 7-29: Concentrations of Mercury and Selenium in Relation to Total Length for Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023 51

Figure 7-30: Concentrations of Mercury and Selenium in Relation to Total Length for Arctic Char Sampled from the Milne Port Area, 2018 to 2023 57

Figure 7-31: Concentrations of Mercury and Selenium in Relation to Total Length for Fourhorn Sculpin Sampled from the Milne Port Area, 2019 to 2023 61

APPENDICES

APPENDIX 7A
Reference Area Reconnaissance Memo

APPENDIX 7B
Fish Health Data

APPENDIX 7C
Fish Tissue Data

APPEDNIX 7D
Fish Tissue Boxplots

APPENDIX 7E
Certificates of Analysis

ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
ANCOVA	analysis of covariance
ANOVA	analysis of variance
BC MOE	British Columbia Ministry of Environment
Biologica	Biologica Environmental Services Ltd.
BV labs	Bureau Veritas Laboratories
COC	chain of custody
COPCs	constituents of potential concern
CRC ICPMS	collision reaction cell inductively coupled plasma mass spectrometry
DL	detection limit
dw	dry weight
EEM	Environmental Effects Monitoring
ERP	Early Revenue Phase
FEIS	2012 Final Environmental Impact Statement
g	gram
GSI	gonadosomatic index
km	kilometre
K-S Test	Kolmogorov-Smirnov test
log_{10}	log_{10}-transformed data
LR	Linear regression
LSI	liver somatic index
MDMER	Metal and Diamond Mining Effluent Regulations
MEEMP	Marine Environmental Effects Monitoring Program
mg/kg	milligrams per kilogram
nm	milligram
Min	minimum
Max	maximum
MSI	mantle somatic index
n	sample size
n/a	not applicable
nc	not calculated
PAH	polycyclic aromatic hydrocarbon

Acronym or Abbreviation	Definitions
PC	Project Certificate
P-value	probability value
QA/QC	quality assurance and quality control
RPD	relative percent differences
SD	Standard Deviation
SE	Standard Error
SR	studentized residuals
TARP	Trigger Action Response Plan
ww	wet weight
Y	year

7.0 FISH HEALTH AND TISSUE CHEMISTRY

7.1 Introduction

This chapter presents the results of the 2023 fish health and tissue chemistry monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted in Milne Inlet during the 2023 open-water season. The fish health and tissue chemistry component was developed in consideration of the potential Project-related impacts to the marine environment as identified in the 2012 Final Environmental Impact Statement (FEIS) and FEIS addenda, as well as monitoring requirements outlined in the Project Certificate (PC) Conditions described in Chapter 1.0, Table 1-2. Those conditions related to the monitoring of fish health include PC Conditions No. 76, 83 (a), 99 (a), 113, and 114: a summary of monitoring components addressing specific PC conditions is presented in Table 7-1.

Table 7-1: Summary of Monitoring Components Addressing Project Certificate (PC) Conditions

PC Condition	Description	Monitoring Component
76	The Proponent shall develop a comprehensive Environmental Effects Monitoring Program to address concerns and identify potential impacts of the Project on the marine environment.	Fish Health & Tissue Chemistry – Spatial and Temporal Comparisons
83(a)	The Proponent shall […] in the Milne Inlet Port area […] determine the potential impacts arising from disturbance to sediments including re-suspension and subsequent transport and deposition of sediment. […]. The monitoring program shall include an ongoing assessment of the potential introduction of metals that bio-accumulate in the marine food chain.	Tissue Chemistry – Temporal Comparisons
87	The Proponent shall develop a detailed monitoring program at a number of sites over the long term to evaluate changes to marine […] organisms […]. This program needs to be able to detect changes that may have biological consequences and […] collect sufficient baseline data and should continue over the life of the Project.	Fish Health & Tissue Chemistry – Temporal Comparisons
99(a)	Establish shipping season, inter-annual baseline in […] Milne Inlet that enables effective monitoring of physical and chemical effects of ballast water releases, sewage outfall, and bottom scour by ship props […]. This shall include the selection and identification of […] biological community/indicator components [… including] both pelagic and benthic species but with emphasis on relatively sedentary benthic species (e.g., sculpins).	Arctic Char (pelagic) Fourhorn Sculpin (benthic) *Hiatella arctica* (benthic) Fish Health & Tissue Chemistry – Spatial and Temporal Comparisons
113	The Proponent shall conduct monitoring of marine fish and fish habitat, which includes but is not limited to, monitoring for Arctic Char stock size and health condition in Steensby Inlet and Milne Inlet, as recommended by the MEWG.	Arctic Char Fish Health – Temporal Comparisons
114	In the event of the development of a commercial fishery in the […] Milne Inlet-Eclipse Sound [area], the Proponent […] shall update its monitoring program for marine fish and fish habitat to ensure that the ability to identify Arctic Char stock(s) potentially affected by Project activities and monitor for changes in stock size and structure of affected stocks and fish health (condition, taste) is maintained to address any additional monitoring issues identified by the MEWG relating to the commercial fishery.	Arctic Char Fish Health – Temporal Components

Project Certificate (PC) Condition descriptions have been edited for conciseness and relevance to Milne Inlet: text that has been edited or removed is indicated using square brackets, […].

MEWG = Marine Environment Working Group.

7.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 for the overall program. The objectives specific to the fish health and tissue chemistry component are:

- Better align the MEEMP with the Metal and Diamond Mining Effluent Regulations (MDMER) Environmental Effects Monitoring (EEM) program (Government of Canada 2002) through the selection of sentinel species and measurements of additional health indicators to monitor for effects from the Project.
- Evaluate the health of the sentinel species, Fourhorn Sculpin (*Myoxocephalus quadricornis*) and Wrinkled Rock-Borer (*Hiatella arctica*), through the assessment of established endpoints (see Section 7.2), length-frequency distributions, length-weight relationships, and visual assessment of internal and external abnormalities.
- Compile current and previously collected tissue chemistry data for Arctic Char (*Salvelinus alpinus*), Fourhorn Sculpin, and *H. arctica*, and assess concentrations of constituents of potential concern (COPCs) associated with the Project.

In addition, to better align the MEEMP with the MDMER EEM program, reference area reconnaissance surveys have been undertaken to identify a suitable reference area for comparing fish health endpoints with Milne Port (see Appendix 7A).

7.2 Study Design

The fish health and tissue chemistry components of the MEEMP were designed to monitor for potential Project-related impacts and changes to fish health and communities through collection of fish population data. Fish were collected using a combination of active and passive fishing methods, and sentinel species are assessed through health assessments and the analysis of tissue chemistry parameters. Incidental mortalities of Arctic Char are also included in the fish health assessment.

During baseline and early MEEMP surveys, fish tissue sampling was limited to incidental Arctic Char mortalities, the numbers of which fluctuated from year to year and did not always yield adequate samples to support a meaningful statistical analysis. In 2018, a local shellfish species *H. arctica*, was added to the MEEMP as an additional effects indicator for the fish sampling program. *Hiatella arctica* is a resident species in the Project area, easily identifiable and measurable in the field, and abundant in the study area (Golder 2018). Measurement endpoints for *H. arctica* in 2018 and 2019 included age and tissue chemistry analysis.

In 2020, changes to the fish health and tissue chemistry program were implemented to better align the MEEMP with the Metal and Diamond Mining Effluent Regulations (MDMER) Environmental Effects Monitoring (EEM) program (Government of Canada 2002). Fourhorn Sculpin and *H. arctica* were selected as sentinel species to monitor for effects from the Project. Lethal target sample sizes were established for Fourhorn Sculpin and *H. arctica* as part of the 2020 fish health program. Fish health effect indicators included measures of energy use (i.e., growth, reproduction), energy storage (i.e., condition) and survival (i.e., age), in addition to supporting endpoints (as appropriate for each species) such as length, body weight, the prevalence of external and internal abnormalities, organ weights, stomach fullness, parasite presence/absence, sex, life stage, and state-of-maturity

(Section 7.4.1; Appendix 7B). In 2023, relative shell weight was added as an endpoint for *H. arctica* to better align the MEEMP program with MDMER EEM endpoints.

For fish tissue chemistry, concentrations of total metals[1] and polycyclic aromatic hydrocarbons (PAHs) were measured (Section 7.4.2; Appendix 7C) from each species (i.e., Arctic Char, Fourhorn Sculpin, and *H. arctica*) and compared to MEEMP data from previous years, where possible. Historical data available for comparison varied for each species, with data extending intermittently back to 2010 for Arctic Char, and back to 2018 for Fourhorn Sculpin and *H. arctica*.

7.2.1 Modifications to the Program (2023)

In 2023, a reconnaissance survey was undertaken during the August field program to identify a suitable reference area for the fish health and tissue chemistry component of the MEEMP. Sampling effort was focused on the north shore of Koluktoo Bay, similar to reconnaissance work completed in 2022 (WSP 2023). Water quality, sediment quality, and fish community sampling was undertaken as part of the reconnaissance survey and a summary of the methods and results of the 2023 reconnaissance survey is provided in Appendix 7A. Fourhorn Sculpin captured and processed from Koluktoo Bay were used for spatial comparisons for fish health and tissue chemistry endpoints, following guidance for MDMER EEM programs.

Shorthorn Sculpin (*Myoxocephalus scorpius*) were also retained for fish health assessment as a potential sentinel fish species in future programs. Shorthorn Sculpin were collected from the Mine Port area as well as from Koluktoo Bay during the reconnaissance survey. Fish health data for Shorthorn Sculpin are not analyzed herein as they are not currently a sentinel species for the MEEMP, but the data are included in this report (i.e., Shorthorn Sculpin collected from Milne Port are included in Chapter 6.0–Fishing Efforts and Catch Data, while data for Shorthorn Sculpin collected during the reconnaissance survey are included in Appendix 7A) should the species become integrated in the MEEMP in the future.

Previous reconnaissance studies near the Tugaat River estuary indicated there was a sufficient population of *H. arctica* present at this site (Golder 2021). Given previous success, the Tugaat River estuary was deemed a suitable reference are for *H. arctica* for future fish health assessment programs, beginning in 2023.

No other significant modifications were made to the fish health and tissue chemistry MEEMP component in 2023.

7.2.2 Indicators and Thresholds

Along with several other components of the MEEMP, the fish health monitoring program has indicators, thresholds and risk categories that are part of Baffinland's Trigger Action Response Plan (TARP), an adaptive management process. The TARP uses effect indicators that are measured against a series of tiered thresholds (i.e., low, moderate and high-risk thresholds) that are designed to guide short-term and long-term adaptive management strategies as outlined in Baffinland (2024). Baffinland has updated the TARP as part of the revised draft Marine Monitoring Plan (MMP) which will be submitted to the NIRB as part of the SOP2 submission package

[1] Includes metals, metalloids, and non-metals. Metals are broadly defined as elements which are good conductors of electricity and heat, which form cations by loss of electrons, and which yield basic oxides and hydroxides (Wood et al. 2012). Metalloids share some but not all properties of metals, while non-metals mostly lack characteristics of metals.

(Baffinland 2024). The pre-defined actions identified in the TARP describe the responses that Baffinland would implement should the corresponding threshold levels be exceeded and assuming there is some degree of certainty that the measured change is Project-related. As adaptive management is beyond the scope of the present report, only the indicators, risk categories and thresholds are presented here (section 2.3.4).

7.3 Materials and Methods

7.3.1 Sampling Areas

Fish health sampling occurred in 2023 in three main areas: (1) near Milne Port (17W 503700m E, 7976400m N), approximately 80 km Northwest of the Mary River Project, (2) in Koluktoo Bay, and (3) in Tugaat River Estuary. The latter two areas represent two proposed reference areas to support the fish health program of the MEEMP.

Milne Port is located at the southern end of Milne Inlet. The port is located in a narrow fjord, surrounded by relatively steep, bedrock slopes. Fish habitat is composed mainly of coarse rock substrates (i.e., boulders with sparse cobbles) nearby the Ore Dock and open-water habitat. Sculpin species, including Fourhorn and Shorthorn sculpin, are relatively abundant at Milne Port, as are Arctic Char (see Chapter 6.0 for further information).

The reference area for finfish was located in Koluktoo Bay (17X 506100m E, 7997100m N), approximately 20 km north of Milne Port. The Robertson River feeds into Koluktoo Bay along the western shore, which has formed a relatively large, sandy delta. The remainder of the bay is bordered by gently sloping bedrock to the north, and steeper bedrock slopes to the south. Fish habitat is composed of a mixture of coarse rocks, cobbles, and fine sediments, comprising long, shallow, sandy littoral habitat and boulder/cobble reefs, prior to dropping off into deeper habitat. Previous reconnaissance surveys captured Shorthorn Sculpin and Arctic Sculpin (*Myoxocephalus scorpioides*) in Koluktoo Bay (WSP 2023).

The reference area for shellfish was located near the Tugaat River estuary (17X 522700m E, 7996700m N), approximately 28 km northeast of Milne Port, where the Tugaat River enters Milne Inlet. Substrates near the Tugaat River estuary were primarily fine sediments, being mainly composed of sand with some cobble. Field Methodology

Finfish

Finfish community sampling was conducted at various locations near Milne Port and along the north shore of Koluktoo Bay, from 28 July to 12 August 2023 (Figure 6-1 to Figure 6-5). Fishing effort included both active (i.e., angling by jigging and trolling, and trawling) and passive (i.e., Fukui traps, hoop nets, and gillnetting) capture methods. Captured fish were enumerated and measured for length and weight. Capture methods are described in detail in Section 6.3.1 of Chapter 6.0.

At Milne Port, a subsample of 40 Fourhorn Sculpin were retained for fish health sampling to meet target sample sizes of 20 adult males and 20 adult females. Captured Arctic Char were processed as part of the Marine Fish Community Program (Chapter 6.0). Incidental mortalities of Arctic Char were retained for analysis of age, stomach contents, and tissue metals concentrations. Results of these analyses for Arctic Char are presented herein, with biometric measurements included, where relevant, as supporting information. At Koluktoo Bay, all Fourhorn Sculpin captured were retained for fish health sampling, resulting in a total of 25 fish retained (18 female and seven male). All other fish, aside from Shorthorn Sculpin (per Section 7.2.1), were released alive back to Milne Inlet at their location of capture.

The primary method of capture for Fourhorn Sculpin in 2023 was angling. Angling (i.e., jigging) efforts were focused on the western and eastern sides of the Ore Dock in coarse rock habitat at depths between 1 m and 5 m (consistent with previous years). Fishers fished from a stationary position, with two to five rods and lines deployed from the field vessel anchored adjacent to the riprap. Hooks or spoon lures (i.e., flashers) were lowered into the riprap at the target depth, then flicked upward to attract fish within the coarse rock habitat.

Shellfish

Hiatella arctica were collected opportunistically from benthic infauna samples, with a target subsample of 40 individuals retained from each sampling area for fish health and tissue chemistry sampling. Benthic infauna samples were collected from the Milne Port area and from the Tugaat River estuary reference area. Collection methods for benthic infauna are described in Section 4.3.1 in Chapter 4.0. Each benthic sample was checked for the presence of *H. arctica*. In Milne Port, samples to be retained for the fish health and tissue chemistry program were obtained from benthic grab samples collected from the northwestern, western, eastern, and northeastern transects (Figure 3-1), with the majority of collections occurring from the western and eastern transects. For both sampling areas, a maximum of five individuals were selected when benthic grab samples contained the greatest numbers of *H. arctica*. Specimens were selected for processing if the shell was intact, greater than 15 mm in length, and had no indications of damage to the umbo or hinge area.

7.3.1.1 Fish Processing

Fourhorn Sculpin retained for fish health sampling were held live in aerated 70 litre totes containing water from Milne Inlet until they were lethally processed at Milne Port. Both external and internal assessments were completed on lethally sampled fish following standardized procedures consistent with MDMER EEM program requirements (Environment Canada 2012). Total lengths (± 1 mm) and total body weights (± 0.001 g) of the fish were documented, and external observations of fish features (i.e., body form, eyes, skin, thymus, opercula, gills, pseudobranchs, fins, vent, and parasites) were recorded. Abnormal features (e.g., wounds, tumours, parasites, fin fraying, gill parasites, or lesions) were documented and photographed. Fish were sacrificed by a concussive blow to the head followed by cervical dislocation (i.e., cutting the spinal cord behind the head). Each fish was handled using new nitrile gloves and dissected on a cutting board covered in a clean sheet of plastic wrap that was changed between fish. The condition of the internal organs (e.g., liver, spleen, gall bladder, and kidneys) was assessed immediately after opening the body cavity and documented. Any abnormalities in size, shape, or colouration of the internal organs were documented. Liver weight and an estimate of percent mesenteric fat were recorded. The gonads of each fish were removed, weighed (± 0.001 g), and photographed before assigning sex and maturity stage, based on the macroscopic features described in Table 7-2. Parasite presence and predominance were recorded, and parasite weight was documented if large parasites (e.g., tapeworms) were observed in the body cavity.

Stomachs and ageing structures (i.e., otoliths[2]) were collected from Fourhorn Sculpin and incidental mortalities of Arctic Char. Sagittal otoliths were extracted as the primary aging structure, wrapped in parchment paper, and stored dry in individually labelled coin envelopes until submission for aging analysis. Stomach fullness was recorded, and the stomachs were removed, placed in individually labelled Nalgene containers, and preserved with

[2] Otoliths are paired bony structures located behind the eyes in fish. Counting the annual growth rings on the otoliths is a common technique in estimating the age of many fish species.

10% formalin. For Fourhorn Sculpin and Arctic Char, one muscle sample (> 10 g) without skin was collected from the left dorsal side of each fish using a fillet knife rinsed with 10% nitric acid then deionized ultrafiltered water. The fillets were weighed (± 0.001 g), placed on ice in individually labelled Ziploc bags, and stored frozen until submission for metals analysis. A second muscle sample (> 10 g) without skin was collected from the right dorsal side of each fish using a fillet knife rinsed with acetone then deionized ultrafiltered water. The fillets were weighed (± 0.001 g) on tared aluminum foil, wrapped in aluminum foil, placed on ice in individually labelled Ziploc bags, and stored frozen for PAH analysis.

Those *H. arctica* retained for fish health sampling were selected based on the external condition of the shell (i.e., > 15 mm long with intact valves and no visible damage to the umbo). Individuals were measured along the largest axis (± 1 mm) and weighed (± 0.001 g), and then placed on ice in individually labelled Ziploc bags and stored frozen until submitted for further processing and tissue chemistry analysis.

Table 7-2: Gonad Maturity Stages for Male and Female Fish Used During the Fish Health Assessment, 2023

Sex	Stage	Code	Macroscopic features
Female	Unknown stage	10	Unable to determine stage.
	Immature	11	Small ovaries, often clear, blood vessels indistinct.
	Early Stage Development	12	Enlarging ovaries, blood vessels more distinct. Granular in appearance.
	Late Stage Development	13	Large ovaries filling the body cavity, prominent blood vessels. Individual oocytes visible.
	Ripe	14	Eggs released with gentle pressure on abdomen.
	Spent	15	Deflated ovaries, blood vessels prominent.
	Reabsorbing	16	Small atretic oocytes throughout the ovaries, which are hard and white.
	Resting	17	Small ovaries, blood vessels reduced but present.
Male	Unknown stage	20	Unable to determine stage.
	Immature	21	Small testes, often clear and threadlike.
	Early Stage Development	22	Small testes, semi-translucent, but easily identified.
	Late Stage Development	23	Testes large, firm, and lobate. White to purplish in colour. Granular appearance.
	Ripe	24	Milt released with gentle pressure on abdomen.
	Spent	25	Small and deflated testes. Blood vessels obvious. Violet-pink in colour.
	Reabsorbing	26	Not typically observed in males.
	Resting	27	Small testes, often threadlike.

Notes: Table modified from Brown-Peterson et al. (2011).

7.3.2 Laboratory Methodology

Samples collected from both fish species and *H. arctica* were submitted for further laboratory analysis. Finfish species (i.e., Arctic Char and Fourhorn Sculpin; Section 7.3.3.1) tissue samples were submitted for tissue chemistry analysis, and stomachs were submitted for contents analysis. Ageing structures from both finfish species were submitted for age determination. Collected *H. arctica* (i.e., whole animals) were sent to a laboratory specialized in marine invertebrates (Biologica Environmental Services Ltd., Victoria, BC [Biologica]) for additional processing (Section 7.3.3.2) and subsequent submission of tissues for tissue chemistry analysis.

7.3.2.1 Finfishes

7.3.2.1.1 Age

Otoliths extracted from Fourhorn Sculpin, and Arctic Char were examined by North/South Consultants Inc. (Winnipeg, MB) to determine the age of the fish. Whole otoliths from individual fish were mounted on microscope slides to estimate age based on the number of annuli (i.e., growth rings) visible under a dissecting microscope. To verify that data quality objectives were met, 10% of fish age estimates were independently verified by a second qualified biologist.

7.3.2.1.2 Stomach Contents

Enumeration and taxonomic identification of stomach contents for Arctic Char and Fourhorn Sculpin were conducted by Biologica. Percent fullness and percent digestion was recorded for each stomach before dissection and identification based on the professional judgement of the taxonomist. Prey items were identified to the lowest practical taxonomic level (e.g., species when possible) using published methods and taxonomic references. Digested and unidentifiable materials were categorized (e.g., unidentified insect parts, digested tissue, non-food, and others). The taxonomic composition within each stomach was determined as percentages of major invertebrate groups by abundance. Results are provided in Appendix 7B in Tables 7B-104 and 7B-5.

7.3.2.1.3 Tissue Chemistry

Muscle tissue samples collected from eight Arctic Char and eight Fourhorn Sculpin from the Milne Port area, and samples collected from eight Fourhorn Sculpin from the Koluktoo Bay reference area, were submitted to Bureau Veritas Laboratories (BV Labs; Burnaby, BC) for tissue chemistry analyses (Appendix 7C, Table 7C-1). Moisture content and metals concentrations for fish were measured in percent and milligrams per kilogram (mg/kg) ww, respectively. Moisture content was determined by oven drying and metals concentrations were determined by collision reaction cell inductively coupled plasma mass spectrometry. Concentrations of PAHs for fish were measured in mg/kg ww by gas chromatography mass spectrometry. Achieved detection limits (DL) for fish are presented in Appendix 7C, Tables 7C-3, 7C-4, 7C-6, and 7C-7 and certificate of analysis forms are provided in Appendix 7E.

7.3.2.2 Shellfishes

7.3.2.2.1 Processing

Frozen *H. arctica* were processed by Biologica. *Hiatella arctica* were measured for total length, total width, and total weight, as well as wet weight (ww) of the whole organism, shells, soft tissues, and gonads. Shell dry weight (dw) was also measured. Ages of *H. arctica* were determined using shells (Section 7.3.2.2.2).

7.3.2.2.2 Age

For *H. arctica* ageing, each shell was sectioned through the umbo-rim axis using a lapidary saw with a diamond-impregnated blade and polished using progressively finer grit sandpaper. Polished shells were etched in a solution of 1% hydrochloric acid for one minute, rinsed with tap water, and dried. An acetate peel of the polished umbo surface was mounted on a slide and examined using a dissecting microscope. Distinct, continuous growth lines were counted to determine the age of the shell. To verify that data quality objectives were met, 10% of *H. arctica* age estimates were independently verified by a second qualified biologist.

7.3.2.2.3 Tissue Chemistry

A total of eight *H. arctica* composite soft tissue samples were submitted to BV Labs for tissue chemistry analyses (Appendix 7C, Table 7C-1). *Hiatella arctica* composites were composed of two to three individuals to satisfy weight requirements for metals analysis (Appendix 7C, 7C-2). For PAH analysis, *H. arctica* composite samples comprised four to six individuals to satisfy weight requirements (Appendix 7C, 7C-2). Concentrations of metals and PAHs and the percent moisture content were determined using methods described in Section 7.3.2.1.3. Achieved DLs for *H. arctica* are presented in Appendix 7C, Tables 7C-5 and 7C-8. Certificate of analysis forms are provided in Appendix 7E.

7.3.3 Data Analysis

Descriptive statistics (i.e., sample size, mean, median, standard deviation [SD], standard error [SE], minimum, and maximum values) were calculated for fish health and tissue chemistry data collected in 2023, as well as fish health endpoints and tissue concentrations of metals and PAHs in Arctic Char, Fourhorn Sculpin, and *H. arctica* available from 2018 to 2022.

Fish health indices for Arctic Char and Fourhorn Sculpin were calculated as follows:

$$Condition\ factor = \left(\frac{total\ weight}{total\ length^3}\right) \times 100{,}000$$

Additional fish health indices calculated for Fourhorn Sculpin were as follows:

$$Gonadosomatic\ index\ (GSI) = \left(\frac{gonad\ weight}{total\ weight}\right) \times 100$$

$$Liver\ somatic\ index\ (LSI) = \left(\frac{liver\ weight}{total\ weight}\right) \times 100$$

Fish health indices for *H. arctica* were calculated as follows:

$$Condition\ factor = \left(\frac{total\ wet\ weight}{total\ length^3}\right) \times 10{,}000$$

$$Mantle\ somatic\ index\ (MSI) = \left(\frac{gonad\ wet\ weight}{soft\ tissue\ wet\ weight - gonad\ wet\ weight}\right) \times 100$$

Weight and length measurements were reported in units of grams (g) and millimetres (mm), respectively. For Arctic Char, total length measurements were not collected in 2022. Therefore, total lengths were estimated using fork length-total length formulas in Peet (1978).

7.3.3.1 Fish Health Endpoints

For Fourhorn Sculpin and *H. arctica,* fish health endpoints were compared using statistical methods. Comparisons were completed temporally (i.e., among years for the Milne Port) and spatially (i.e., between the Milne Port and the references areas in 2023).

Finfish

Condition factor comparisons for Arctic Char were conducted by pooling sexes and life stages (i.e., juvenile, adult) to detect potential differences between 2021, 2022, and 2023 because sex and life stage was inconsistently assigned in previous sampling years. Difference in condition factor was assessed using analysis of variance (ANOVA). Data were log_{10}-transformed prior to analysis if it increased the coefficient of determination (R^2) and/or satisfied model assumptions. For Fourhorn Sculpin, comparisons were conducted separately by sex for the health endpoints presented in Table 7-3 to detect potential differences between 2020, 2021, 2022, and 2023 at Milne Port, and differences between Milne Port and Koluktoo Bay in 2023. Differences in age were assessed using ANOVA. Differences in mean size-at-age, condition, relative liver weight, and relative gonad weight among years were assessed using analysis of covariance (ANCOVA). Data analyzed by ANCOVA were log_{10}-transformed prior to analysis if it increased the coefficient of determination (R^2) and/or satisfied model assumptions. Significant differences between years were determined using an alpha (α) of 0.10 (i.e., *P*-values ([*P*] < 0.1 were considered significant). Post hoc comparisons for ANOVA and ANCOVA models were completed using Tukey's Honest Significant Difference test, with *P*-values adjusted for multiple comparisons (Tukey 1977).

Table 7-3: Statistical Procedures Used to Evaluate Fourhorn Sculpin Health Indicators

Indicator	Endpoint	Response Variable (y)	Covariate (x)	Statistical Procedure
Survival	Age	Age	n/a	ANOVA
Growth	Size-at-Age	Total Weight	Age	ANCOVA
Condition	Condition	Total Weight	Total Length	ANCOVA
	Relative Liver Weight	Liver Weight	Total Weight	ANCOVA
Reproduction	Relative Gonad Weight	Gonad Weight	Total Weight	ANCOVA

ANOVA = analysis of variance; ANCOVA = analysis of covariance.

Shellfish

For *H. arctica*, statistical comparisons were conducted for fish health endpoints presented in Table 7-4 to detect potential differences between 2020, 2021, 2022, and 2023 at Milne Port, and differences between Milne Port and Koluktoo Bay in 2023. The differences in length-frequency distributions among years were assessed using the non-parametric two-sample Kolmogorov-Smirnov (K-S) test. The K-S test compares the cumulative relative distributions of total length between years by comparing the maximum percent difference between the two cumulative relative frequency distributions to a critical value. The test assesses whether the maximum percent difference is large enough to indicate that the two distributions are from different populations. K-S test *P*-values were adjusted using Holm's correction for multiple comparisons (Holm 1979). Differences in total weights (i.e., whole animal ww) were assessed using ANOVA. Differences in condition endpoints were assessed using ANCOVA. Differences in relative gonad weights were assessed between 2021, 2022, and 2023, as gonad tissues were not weighed in 2020. Data analyzed by ANCOVA were $\log_{10}$ transformed prior to analysis if it increased the coefficient of determination (R^2) and/or satisfied model assumptions. Significant differences between years were determined using an α of 0.10 (i.e., $P < 0.1$ was considered significant). Post hoc comparisons for ANOVA and ANCOVA were completed using Tukey's Honest Significant Difference test, with *P*-values adjusted for multiple comparisons (Tukey 1977).

Table 7-4: Statistical Procedures Used to Evaluate *Hiatella arctica* Health Indicators

Indicator	Endpoint	Response Variable (y)	Covariate (x)	Statistical Procedure
Survival	Length-frequency	Total Length	n/a	K-S test[(a)]
Growth	Total Weight (whole animal wet weight)	Total Wet Weight	n/a	ANOVA
Condition	Condition	Total Wet Weight	Total Length	ANCOVA
	Relative Shell Weight	Dry Shell Weight	Total Length	
Reproduction	Mantle Somatic Index	Gonad Weight	Tissue Wet Weight	ANCOVA

K-S test = Kolmogorov-Smirnov test; ANOVA = analysis of variance; ANCOVA = analysis of covariance; n/a = not applicable.
(a) *P*-values were adjusted using Holm's correction for multiple comparisons (Holm 1979).

7.3.3.2 Tissue Chemistry

The COPCs for the MEEMP fish tissue chemistry component are based on the primary constituents of the Project iron ore (i.e., aluminum, magnesium, and iron), as well as metals with existing regulatory guidelines for fish tissue (i.e., mercury and selenium). Differences in COPC concentrations were compared among years (i.e., 2018 to 2023) and, for Fourhorn Sculpin, between Milne Port and Koluktoo Bay in 2023. Values below DL were substituted with half the DL and included in statistical comparisons (US EPA 1998).

Trends in aluminum, magnesium, and iron were compared over years using linear regression, and between sampling areas in 2023 using analysis of variance (ANOVA). Trends in tissue concentrations of mercury and selenium in Arctic Char and Fourhorn Sculpin were compared over years and between sampling areas in 2023 using analysis of covariance (ANCOVA), with fish length as a covariate. Trends in mercury and selenium concentrations were evaluated using least square mean concentrations, calculated during ANCOVA analysis. If length was found not to be significantly related to mercury or selenium concentrations, the covariate was removed

and the analytical method was reduced to either a linear regression, for evaluation of trends over sampling years, or to an ANOVA, for comparisons among sampling areas in 2023. For *H. arctica,* length was not a significant predictor of tissue concentrations of mercury and selenium (i.e., the linear regression relationship was not significant), therefore, comparisons were made among years, and among sampling areas in 2023, using ANOVA. Post hoc comparisons for ANOVA and ANCOVA were completed using Tukey's Honest Significant Differences test, with *P*-values adjusted for multiple comparisons (Tukey 1977). Significant temporal trends and differences between sampling areas were determined using an α of 0.10 (i.e., $P < 0.1$ was considered significant).

Tissue chemistry data were presented visually using boxplots, where the median value was indicated within each box and the first and third quartiles were represented by the lower and upper bounds of each box, respectively. Lower and upper whiskers were calculated as 1.5 times the interquartile range beyond the first and third quartile. Observations outside the upper and lower whiskers were plotted as individual points. Whiskers were extended to the minimum and maximum values within the dataset that fell within the fences. Any values below a DL were not included, however the DLs and the number of samples above DL were indicated on the boxplots.

7.3.3.3 Testing Assumptions for Statistical Analysis

The assumptions of ANOVA and ANCOVA are that the residuals of the data, after being fit to the model, are normally distributed and have equal variance among groups. The assumption of normality was assessed using the Shapiro-Wilk test, while Levene's test was used to assess equality of variances. Significant differences in assumptions were evaluated using an α of 0.01 (i.e., *P*-values < 0.01 indicated assumptions were not met). If the assumptions of normality and equality of variance were not met, the data were $\log_{10}$-transformed and the assumptions were re-assessed. When the assumptions of ANOVA or ANCOVA could not be met using a $\log_{10}$ transformation, the nonparametric rank ANOVA or rank ANCOVA was used and post hoc pairwise comparisons were made using a Tukey's method for multiple comparisons on rank values.

In addition to the assumptions of normality and equality of variance, ANCOVA has the additional assumption that the parameter regression slopes are parallel among sampling areas or years. To test this assumption, the ANCOVA was conducted by first fitting separate regression models for each sampling area using a general linear model that included an interaction term between the categorical variable (i.e., sampling area or year) and covariate:

$$\textit{Full ANCOVA model:} \qquad y = \beta_0 + \beta_1(x) + \beta_2(category) + \beta_3(x) \times (category) + \varepsilon$$

where y is the response variable, x is the covariate, $category$ is the categorical indicator variable, and ε is the error term. If the coefficient β_3 of the $(x) \times (category)$ interaction term was not significant (i.e., $P > 0.01$), then the slopes were considered parallel and the ANCOVA proceeded by testing the significance of the coefficient β_2 of the $(category)$ term in the reduced ANCOVA model that fits separate regressions for each categorical group, but with a common regression slope:

$$\textit{Reduced ANCOVA model:} \qquad y = \beta_0 + \beta_1(x) + \beta_2(category) + \varepsilon$$

When a significant interaction was observed, the regression slopes were considered statistically significantly different. When the covariate was a strong predictor of the response variable, and the ANCOVA had a high coefficient of determination ($R^2 > 0.80$), the test for parallel slopes had high power to detect a difference that may not be practically significant. In this case, when the interaction term in the full ANCOVA model was significant, the slopes were fixed as parallel by fitting the reduced ANCOVA model (because the reduced model explained almost

as much [i.e., within 2%] of the variability in the response variable as the full model). In this case, the ANCOVA proceeded under the assumption that the regression slopes between groups were practically similar (Barrett et al. 2010). If slopes could not be considered practically parallel (difference in $R^2 > 0.02$), then endpoints were compared at the least and greatest overlapping covariate values (Section A1.7, Environment Canada 2012).

Statistical outliers were evaluated using studentized residuals (SR) from the ANOVA and ANCOVA models. A magnitude of 3.5 for the SR was used to identify unusual observations. When an outlier was detected, the validity of the value was examined. If the outlier was determined to be the result of data entry error, the error was corrected; if the outlier was not the result of data entry error and could not be resolved otherwise, the outlier was removed from the analysis and documented. All statistical comparisons were completed using R version 4.1.1 (R Core Team 2021).

7.3.3.4 Relative Percent Difference

The relative percent differences (RPDs) in effect endpoints between sampling years were calculated when significant differences in endpoints were observed, by expressing the difference as a percentage of the mean as follows:

$$Relative\ Percent\ Difference\ (RPD) = \frac{\left|\bar{x}_{Group1} - \bar{x}_{Group2}\right|}{\bar{x}_{(Group1+Group2)}} * 100$$

where $\bar{x}$ is the mean of the endpoint, and $Group_1$ and $Group_2$ refer to the years being compared. If the statistical comparison was conducted on log_{10}-transformed data, then the RPD was calculated using geometric means. For effect endpoints analyzed using rank ANOVA, RPDs were calculated using medians. For effect endpoints analyzed using ANCOVA, RPDs were calculated using least squares means.

To confirm that differences in tissue concentrations between years were real and less likely to be attributed to low concentrations of target constituents, analytical variability, and spatial and temporal variation, an RPD of 100% was used to differentiate the types of expected variability from those of potential biological importance (Environment Canada 2012).

7.3.3.5 Magnitude of Effect

The magnitude of effect for effect endpoints among sampling areas in 2023 were calculated when significant differences in endpoints or tissue concentrations were observed, by expressing the difference as a percentage of the reference mean as follows (Environment Canada 2012):

$$Magnitude\ of\ Effect = \frac{\bar{x}_{Milne} - \bar{x}_{Reference}}{\bar{x}_{Reference}} * 100$$

where $\bar{x}$ is the mean of the endpoint, and *Milne* and *Reference* refer to the Milne Port area and the appropriate Reference area, respectively. If the statistical comparison was conducted on log_{10}-transformed data, then the magnitude of effect was calculated using geometric means. For effect endpoints analyzed using rank ANOVA, the magnitude of effect was calculated using medians. For effect endpoints analyzed using ANCOVA, the magnitude of effect was calculated using least squares means.

For each finfish health endpoint, magnitudes of effect were compared with the critical effect size (CES) defined in the MDMER for that health endpoint. The CES for age, size-at-age, relative liver weight, and relative gonad weight is ±25% of the reference area mean; the CES for condition (relative weight) is ±10% of the reference area mean.

For finfish and shellfish tissue chemistry, a CES of 100% was used for tissue chemistry endpoints to differentiate random variability from those differences of potential biological importance (Environment Canada 2012). This approach was taken to validate that differences in concentrations of metals between years were real and less likely to be attributed to analytical variability, limitations of reporting (i.e., low concentrations of target contaminants), or spatial and temporal variation.

7.3.3.6 Power Analysis

Power analyses were performed to determine the minimum detectable difference of fish health and tissue chemistry endpoints. Target sample sizes for fish health endpoints were 20 Fourhorn Sculpin of each sex (40 total) and 40 *H. arctica*, and eight samples (24 total) for tissue chemistry for each fish species (i.e., Arctic Char, Fourhorn Sculpin, *H. arctica*). These sample sizes were used to estimate the sensitivity of future comparisons to detect differences by expressing the minimum detectable difference as a percent change relative to the mean. Type I (α) and Type II (β) error rates were set to 0.10 (Environment Canada 2012). Power analyses were conducted using the power and sample size function in G*Power 3.1 (Faul et al., 2007).

7.3.4 Guideline Comparison

Tissue concentrations of mercury and selenium for Arctic Char, Fourhorn Sculpin, and *H. arctica* sampled from 2018 to 2023 were compared to applicable tissue quality guidelines. Mercury concentrations were compared to Health Canada's Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada 2015). Selenium concentrations in Arctic Char and Fourhorn Sculpin were compared to the British Columbia Ministry of Environment (BC MOE) fish tissue guideline of 4 mg/kg dw (BC MOE 2014). Relevant guidelines were not available for other tissue chemistry parameters.

7.3.5 Quality Management

The field and laboratory quality assurance and quality control (QA/QC) procedures described in the following sections were implemented at each stage of the fish survey (i.e., field sampling, data entry, sample shipment, laboratory analyses, data analyses and report preparation) to produce technically sound and scientifically defensible results.

7.3.5.1 Field QA/QC

As part of practices for field operations for this program, the following QA/QC procedures were undertaken:

- Detailed specific work instructions outlining each field task were provided to the field personnel prior to the field programs.

- A pre-field meeting with the field crew and project team lead was conducted to review the specific work instructions so that procedures were understood.
- Samples were collected by experienced personnel and were labelled, preserved, and shipped according to laboratory instructions described in Golder TP 8.1-3, Fish Inventory Methods (unpublished information) and Golder TP 8.16-0, Fish Health Assessment – Metals (unpublished information).
- Fish identification was recorded to species, where possible, with identifications verified using fish field guides.
- Field equipment (e.g., electronic scales and water quality meters) were regularly calibrated according to manufacturer's recommendations.
- Detailed field notes were recorded in pencil in waterproof field notebooks, on waterproof pre-printed field data sheets, or directly entered electronically into an excel spreadsheet.
- Field data (i.e., data sheets, notebooks, and electronic spreadsheets) were checked at the end of each day for completeness and accuracy.

Samples were documented and tracked using chain of custody (COC) forms and receipt of samples by the analytical laboratory was confirmed. Field crews were responsible for managing sample shipment to the analytical laboratories. Prior to sample shipment, field crews confirmed the following:

- Required samples were collected and accounted for.
- COC and analytical request forms were completed and correct.
- Proper sample labelling and documentation procedures were followed.

7.3.5.2 Data Analysis QA/QC

Field-collected data, data sheets, and field notebooks were reviewed for completeness and unexpected values or trends. At minimum, 10% of the field data entered electronically were verified by a second person to identify transcription errors. If any errors were identified, a 100% quality check was implemented. Results of statistical data analyses were reviewed by an independent biologist experienced in statistical analysis. Tables containing data summaries and statistical results were reviewed and values were verified by a second, independent individual.

7.3.5.2.1 Tissue Chemistry

The fish tissue chemistry dataset was visually assessed for outliers using scatterplots, and erroneous values were corrected, if possible (i.e., if values were identified as data entry errors). Statistical analyses and data summary tables were independently reviewed and verified by a second individual experienced in statistical analysis. Internal laboratory QA/QC at BV Labs included analysis of duplicates to evaluate the variance in the measurement, matrix spikes to evaluate sample matrix interference, method blanks to identify laboratory contamination, reagent blanks to determine any analytical contamination, spiked samples to evaluate method accuracy, surrogates to evaluate extraction efficiency, and QC standards used as an independent check of method accuracy. Upon receipt of the tissue chemistry data from BV Labs, standard checks were performed to screen for potential data quality issues by:

- confirming that each requested variable was analyzed
- reviewing the reported units
- reviewing any hold time exceedances
- reviewing internal laboratory QA/QC results

Most results met the laboratory quality acceptance criteria for representativeness (e.g., no detected concentrations in procedural blanks) and accuracy (e.g., spiked blanks, containing a known amount of analyte, within acceptable range). Lab duplicate control limits for several parameters were the exception, as RPD limits were exceeded as follows:

- Lead and silver control limits for Arctic Char were exceeded by 73% and 72%, respectively. Other quality control parameters were met, and data were considered acceptable.
- Lead concentration in the method blank for *H. arctica* was above the DL (value = 0.0020; DL = 0.0013 mg/kg ww). Lead concentrations in *H. arctica* samples were more than 10 times greater than in the method blank and, therefore, the method blank contamination was considered irrelevant. Other QC parameters were met.

Visual assessment of tissue chemistry data identified three reported metals concentrations in *H. arctica* samples which were possibly erroneous. Two composite samples from Milne Port (MLN-HTAR-COMP-METALS-5, MLN-HTAR-COMP-METALS-8) and one composite sample from Tugaat River Estuary (REF-HTAR-COMP-METALS-2) were reanalyzed twice by the laboratory: MLN-HTAR-COMP-METALS-5 for lead, and MLN-HTAR-COMP-METALS-8 and REF-HTAR-COMP-METALS-2 for silver. Results of laboratory re-analysis indicated initial concentrations were at least one order of magnitude greater than the concentrations determined through re-analysis, and variability in reported concentrations was attributed to sample heterogeneity (personal communication, N. Amer, BV Labs, 23 January 2024).

Metal concentrations for these samples determined during re-analysis were chosen for inclusion in the MEEMP tissue chemistry dataset. Final concentrations were estimated using the geometric mean of the two concentrations reported during re-analysis. Certificate of analysis forms, including those from sample re-analysis, are provided in Appendix 7E. Overall, the fish tissue chemistry data were considered reliable and representative of site conditions at the time of sampling.

7.3.6 TARP Assessment

As part of applying the Trigger Action Response Plan (TARP; Baffinland 2024), fish health and tissue chemistry performance indicators were screened against condition status/thresholds in 2023, in order to assess risk levels for each performance indicator. The following performance indicators and condition status/threshold values were used when evaluating fish health and tissue chemistry (Table 7-5).

Table 7-5: Marine Environment TARP Framework for Fish Health and Tissue Chemistry (Baffinland 2024)

Component	Performance Indicators[3]	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Fish Health	Fourhorn Sculpin ■ Age ■ Size-at-age (i.e., total weight at age) ■ Condition as relative weight (i.e., total weight at total length) ■ Relative liver weight (i.e., liver weight at total weight) ■ Relative gonad weight (i.e., gonad weight at total weight) *Hiatella arctica* ■ Length-frequency analysis ■ Whole animal wet weight ■ Condition as relative weight (i.e., whole animal wet weight at total length) ■ Relative shell weight (i.e., dry shell weight at total length) ■ Relative gonad weight (i.e., gonad weight at whole animal wet weight)	A statistically significant difference ($P < 0.1$) in effect indicators[8] relative to the reference area and change is in direction that indicates an impairment to fish health and is of magnitude greater than or equal to a defined critical effect size (CES)[4] for that effect indicator.	Confirmed[5] Low Risk Status/ Threshold and mean/median[6] for the same effect indicator is beyond the baseline (FEIS) normal range[7] (if available) or regional normal range[8] AND Is supported by consistent effects in one or more other study components (i.e., water quality, sediment quality and benthic invertebrates) which links the results to the Project.	To be determined based on outcome of moderate response investigations.

[3] The following endpoints were included or excluded relative to the proposed TARP framework in order to better align the Fish Health and Tissue Chemistry monitoring program with the MDMER EEM program: Fourhorn Sculpin – age (included), length-frequency analysis (excluded).

[4] Definition of a magnitude of change that is indicative of impairment to fish health is based on the critical effect sizes defined by Environment Canada's Metal Mining Effluent Regulations Guidance Document (Environment Canada 2012) and refers to an increase or a decrease in fish health endpoints. Additional critical effect sizes may be defined in the future (i.e., beyond those defined by ECCC).

[5] Confirmed indicates that the Risk Status/ Threshold trigger has been observed in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study. For fish, the two or more endpoints that triggered the Moderate Risk Status/ Threshold may be in one species (i.e., two endpoints in one species) or two species (i.e., one endpoint in one species, as second endpoint in another species).

[6] The use of the mean or median will depend on the normality of the dataset used to calculate the normal range for each endpoint or tissue chemistry parameter (i.e., if raw or transformed data do not meet the assumptions of normality, the median will be used to provide an estimate of central tendency instead of the mean).

[7] Baseline (FEIS) normal range is based on the FEIS dataset, including operational monitoring data from Milne Inlet and Steensby Inlet, and includes fish length, weight and condition (K).

[8] Regional normal range will be calculated using all available reference area data (i.e., will include annual and ongoing reference area data as it becomes available).

Component	Performance Indicators[3]	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Fish Tissue Chemistry	Primary constituents of Project iron ore: ▪ Aluminum ▪ Magnesium ▪ Iron Metals with the potential to bioaccumulation and biomagnify in the food web: ▪ Mercury ▪ Selenium	A statistically significant difference ($P < 0.1$) in one or more metals concentrations in a sentinel species relative to the reference area, and change is in the direction[9] that indicates impairment to fish health and is of magnitude[10] greater than or equal to the defined CES.	A confirmed[11] Low Risk Status/ Threshold for one or more metals that is also outside the regional normal range[12], and is supported by consistent effects in one or more other study components (i.e., water quality, sediment quality and benthic invertebrates) which links the results to the Project. OR The mean mercury or selenium concentrations (or ≥50% of the individual samples) in Arctic Char tissue chemistry samples are beyond the respective CFIA[13] or BCMOE[14] guidelines.	To be determined based on outcome of moderate response investigations.

CES = critical effect size; FEIS = Final Environmental Impact Statement; CFIA = Canadian Food Inspection Agency; BC MOE = British Columbia Ministry of Environment.

[9] For tissue chemistry, only an increase in concentration will be considered indicative of a toxicological response.

[10] For fish tissue chemistry parameters, the critical effect size is a difference of 100%.

[11] Confirmed indicates that the Action Status/Threshold trigger has been observed in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study.

[12] Regional normal range is anticipated to include Arctic Char tissue chemistry data from the FEIS (i.e., Milne Inlet and Steensby Inlet) as well as ongoing reference area tissue chemistry data (for *Hiatella arctica* and Fourhorn Sculpin).

[13] Value is 0.5 mg/kg ww total mercury per CFIA (2014) Canadian Food Inspection Agency Fish Products Standards and Methods Manual: Appendix 3 Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products. Ottawa, ON.

[14] Protection of aquatic life chronic criteria for fish tissue selenium concentrations are 15.1 mg/kg dw for ovary, 8.5 mg/kg dw for whole body, or 11.3 mg/kg dw for skinless, boneless muscle fillet per USEPA (2016) Technical Support for Fish Tissue Monitoring for Implementation of EPA's 2016 Selenium Criterion Draft, EPA 820-F-16-007, United States Environmental Protection Agency, Office of Water.

7.4 Results

In 2023, fish health data were collected for Arctic Char, Fourhorn Sculpin, and *H. arctica*, and tissue chemistry samples were submitted for analysis of metals and PAHs from all three species. Fish health data collected in 2023 are provided in Appendix 7B, Tables 7B-1 to 7B-3, and summaries of Fourhorn Sculpin and *H. arctica* fish health data collected in previous monitoring years are presented in Appendix 7B, Tables 7B-4 to 7B-5. Tissue chemistry data collected in 2023 are provided in Appendix 7C, Tables 7C-3 to 7C-8 and summaries of tissue chemistry data collected in previous monitoring years are presented in Appendix 7C, Tables 7C-9 to 7C-11. Fish health and tissue chemistry data collected in previous sampling years are also provided in past MEEMP Reports (e.g., Golder 2019, 2020b, 2021; WSP 2023).

7.4.1 Fish Health

7.4.1.1 Arctic Char

A total of 22 incidental mortalities of Arctic Char from Milne Inlet were processed in 2023 as part the fish community assessment (Chapter 6.0), including 14 adults (five females, nine males) and eight juveniles. Processed Arctic Char ranged in age from 4 to 25 years, in total length from 313 to 647 mm, and in weight from 320 to 2,014 g. Condition factor ranged from 0.53 to 1.24. Fish were considered to be in good health, with many being described as having abundant internal fat and few being observed with parasite infections.

7.4.1.1.1 Survival - Age

Ages of incidental mortalities of Arctic Char were comparable between 2021, 2022, and 2023 (Figure 7-1). Ages ranged from 4 to 17 years in 2021, 4 to 22 years in 2022, and 4 to 25 years in 2023, with maximum ages reported in 2022 and 2023 belonging to fish that were more than five years older than others sampled in their respective years. The median age in 2022 (11.5 years) was greater than that in 2021 or 2023 (8.5 and 9.0 years, respectively (Figure 7-1).

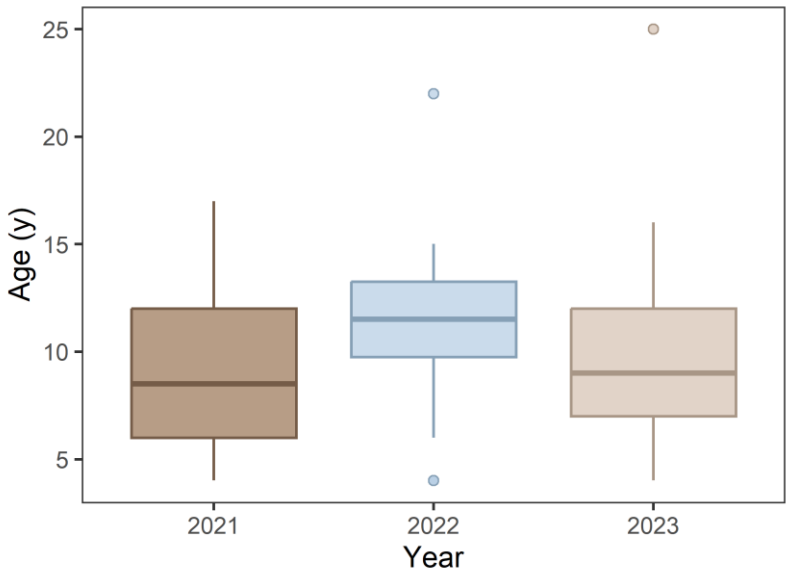


Figure 7-1: Boxplots of Ages of Arctic Char Incidental Mortalities Sampled from Milne Inlet, 2021 to 2023

7.4.1.1.2 Stomach Contents

A total of 21 stomachs collected from incidental mortalities of Arctic Char were analyzed for stomach contents (Figure 7-2). A total of 17 unique prey items were identified: 11 amphipods, three calanoid copepods, two fish, two snails, two mysids, one polychaete worm, one dipteran fly, one additional copepod, and one additional crustacean. Dominant prey items consumed by Arctic Char in 2023 included crustaceans (56% by weight), and fish (43% by weight). Crustaceans were comprised of amphipods (24% by weight), calanoid copepods (6.3% by weight), mysids (10% by weight), and unidentified crustaceans (16% by weight). Fish were comprised of sand lance species (*Ammodytes* spp.; 42% by weight) and unidentified fishes (1.1% by weight). Larval stage cestode tapeworm parasites (i.e., plerocercoids) were identified from the stomach of one Arctic Char.

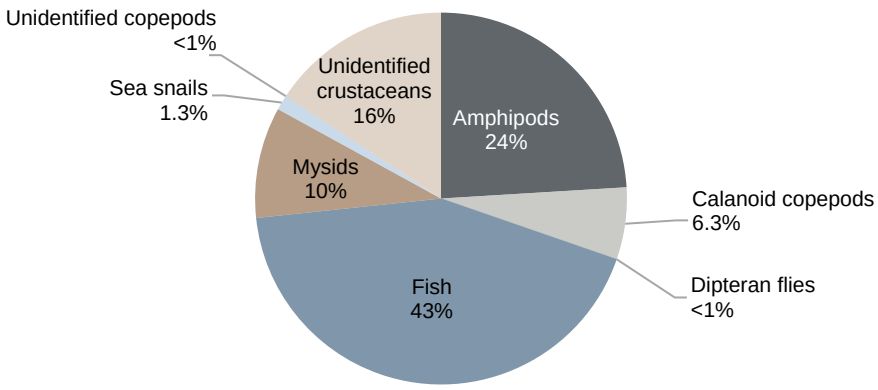


Figure 7-2: Relative Stomach Contents by Weight from Arctic Char Incidental Mortalities Sampled from Milne Inlet, 2023

7.4.1.1.3 Temporal Comparisons

7.4.1.1.3.1 Condition Factor

Condition factor of Arctic Char was compared between 2021, 2022, and 2023 (Table 7-6; Figure 7-3) and data for all sexes and life stages were combined as described in Section 7.3.4.1. Condition factor ranged from 0.75 to 1.22 in 2021, from 0.76 to 1.33 in 2022, and 0.53 to 1.24 in 2023 (Table 7-6). Mean condition differed significantly among sampling years ($F_{2,71}$ = 4.56, P = 0.013). *Post-hoc* pairwise comparisons indicated condition factor was significantly lower in 2023 compared to 2022 (P = 0.010; RPD: 11.9%) but did not differ significantly among other sampling years (P > 0.10).

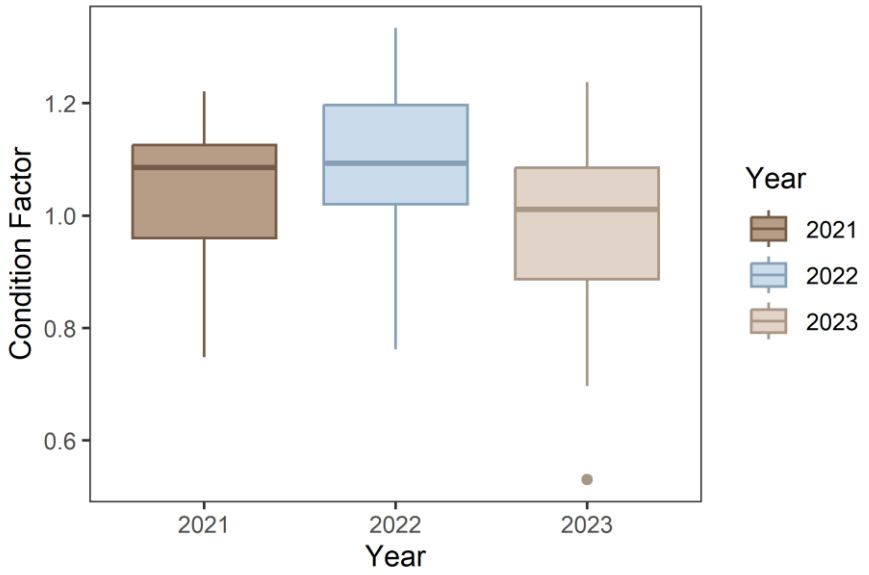


Figure 7-3: Boxplots of Condition Factor for Arctic Char Captured throughout Milne Inlet, 2021 to 2023

Table 7-6: Descriptive Statistics for Arctic Char Biometrics Processed from Milne Inlet, 2021 to 2023

Parameter	Arctic Char						
	n	Min	Max	Median	Mean	SD	SE
2021[a]							
Total Length (mm)	26	145	649	393	387	106.1	20.8
Fork Length (mm)	-	-	-	-	-	-	-
Total Weight (g)	26	25	2,139	660	712	478.9	93.9
Condition Factor	26	0.75	1.22	1.09	1.04	0.14	0.027
Age (y)	26	4	17	8.5	9.5	3.8	0.75
2022[b]							
Total Length (mm)	-	-	-	-	-	-	-
Fork Length (mm)	26	219	700	487	474	112.4	22.05
Total Weight (g)	26	140	3,760	1,420	1,461	868.7	170.4
Condition Factor	26	0.76	1.33	1.09	1.10	0.13	0.025
Age (y)	24	4	22	11.5	11.2	4.0	0.81
2023[a]							
Total Length (mm)	22	313	647	427	450	91.5	19.5
Fork Length (mm)	-	-	-	-	-	-	-
Total Weight (g)	22	319	2,015	878	953	497.9	106.1
Condition Factor	22	0.53	1.24	1.01	0.98	0.16	0.035
Age (y)	21	4	25	9.0	10.0	4.8	1.0

n = sample size; Min = minimum; Max = maximum; SD = standard deviation; SE = standard error.

(a) Fork length measurements were not collected in 2021 or 2023.

(b) Total length measurements were not collected in 2022.

7.4.1.2 Fourhorn Sculpin

A total of 40 Fourhorn Sculpin were processed from the Milne Port area during the 2023 fish health assessment, including 20 females and 20 males. A total of 25 Fourhorn Sculpin were processed from the Koluktoo Bay reference area, including 18 females and seven males. Summary statistics for processed fish are provided in Table 7-7.

Length-frequency distributions for Fourhorn Sculpin from Milne Port were right-skewed (i.e., longer right tail in the frequency distribution) for both female and male fish (Figure 7-4), indicating a strong presence of larger size classes in the population. At the time of sampling, female Fourhorn Sculpin were longer (RPD 13%) and heavier (RPD 37%), based on median total length and total weight, respectively, than male Fourhorn Sculpin, and had greater energy stores, based on comparisons of median LSI (RPD 29%). Both sexes had median ages of approximately 6, with females ranging from 5 to 9 years and males ranging from 4 to 8 years. Female Fourhorn Sculpin ranged in length from 218 mm to 323 mm and in weight from 105 g to 329 g. Female condition factor ranged from 0.85 to 1.42, LSI ranged from 2.88 to 6.72, and GSI ranged from 2.24 to 6.77. Male Fourhorn Sculpin ranged in length from 203 mm to 281 mm and in weight from 76.4 g to 249 g. Male condition factor ranged from 0.83 to 1.70, LSI ranged from 1.60 to 9.25, and GSI ranged from 1.61 to 9.53. No difference in condition (as relative weight) was observed between female and male Fourhorn Sculpin from the Milne Port area (P = 0.494; Figure 7-5).

Length-frequency distributions for Fourhorn Sculpin from Koluktoo Bay were roughly symmetric for both female and male fish, suggesting two age-classes were present among captured fish (Figure 7-4). At the time of sampling, female and male Fourhorn Sculpin from Koluktoo Bay were roughly the same size, based on median total length and total weight, but female fish showed slightly greater energy stores, based on comparisons of median LSI (RPD 6%). Both sexes had median ages of approximately 7, with females ranging from 4 to 9 years and males ranging from 6 to 9 years. Female Fourhorn Sculpin ranged in length from 185 to 265 mm and in weight from 50.1 to 169 g. Female condition factor ranged from 0.74 to 1.17, LSI ranged from 2.71 to 6.20, and GSI ranged from 2.51 to 7.87. Male condition factor ranged from 0.91 to 1.12, LSI ranged from 2.33 to 5.66, and GSI ranged from 1.90 to 4.79. No difference in condition (as relative weight) was observed between female and male Fourhorn Sculpin from Koluktoo Bay (P = 0.447; Figure 7-5).

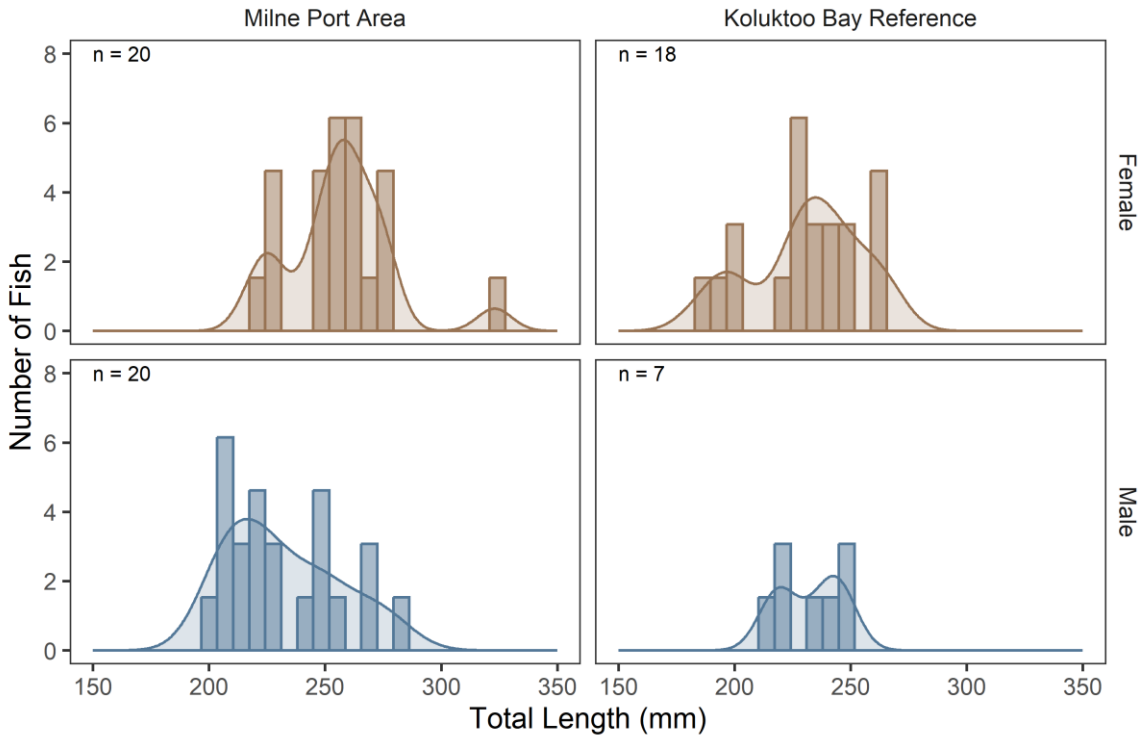


Figure 7-4: Length-Frequency Distributions of Female (Top) and Male (Bottom) Fourhorn Sculpin Sampled from the Milne Port Area (Left) and Koluktoo Bay Reference Area (Right), 2023

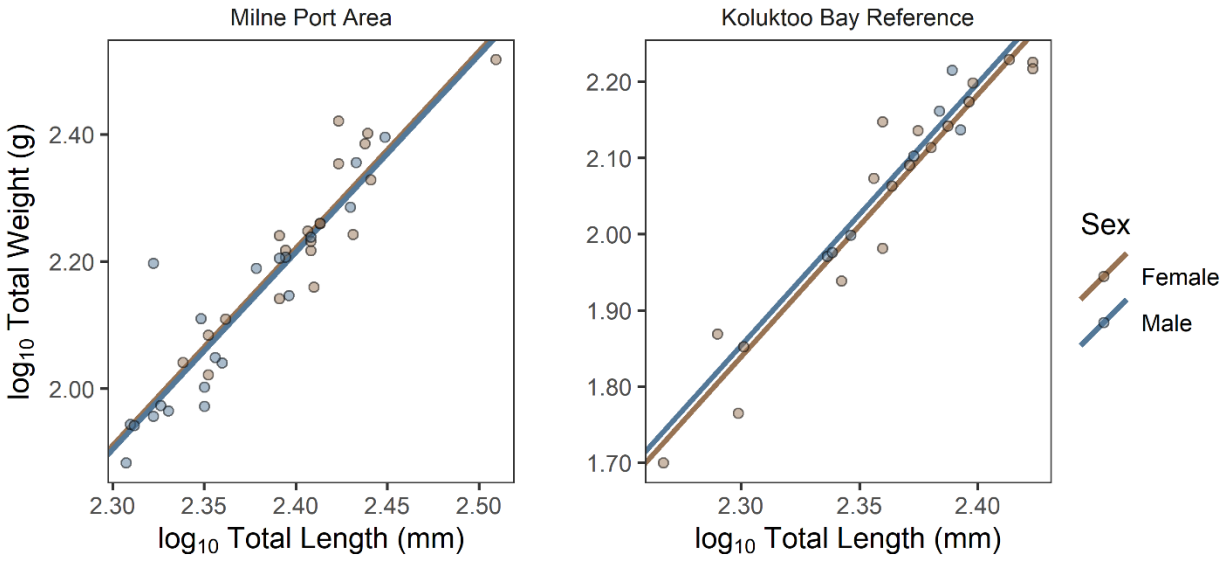


Figure 7-5: Condition (Length-Weight Relationship) for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area (Left) and Koluktoo Bay Reference Area (Right), 2023

Table 7-7: Descriptive Statistics for Fourhorn Sculpin Fish Health Endpoints Processed from the Milne Port Area and Koluktoo Bay Reference Area, 2023

Parameter	Milne Port							Koluktoo Bay Reference						
	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE
Female														
Total Length (mm)	20	218	323	256	256	23.2	5.19	18	185	265	233	231	23.8	5.6
Total Weight (g)	20	105	329	174	183	57.0	12.7	18	50.1	169	127	119	38.4	9.1
Carcass Weight (g)	20	52.4	188	94	96	30.6	6.85	17	27.7	94.6	68.7	64.7	19.9	4.83
Condition Factor	20	0.85	1.42	1.05	1.06	0.13	0.03	18	0.74	1.17	0.94	0.93	0.10	0.02
Liver Weight (g)	20	3.92	16.1	8.66	8.78	3.53	0.78	18	1.31	11.1	7.12	6.19	2.78	0.65
LSI	20	2.88	6.72	4.79	4.78	1.19	0.26	18	2.71	6.20	4.10	4.05	0.94	0.22
Gonad Weight (g)	20	2.35	13.1	5.48	6.08	2.71	0.60	18	1.36	8.70	5.00	4.98	2.24	0.53
GSI	20	2.24	6.77	3.24	3.27	0.93	0.21	18	2.51	7.87	5.19	4.95	1.30	0.31
Age (y)	20	5	9	6	6.5	1.1	0.24	18	4	9	7	6.8	1.5	0.35
Male														
Total Length (mm)	20	203	281	225	232	24.0	5.37	7	217	247	236	232	13.1	5.0
Total Weight (g)	20	76	249	120	134	49.2	11.0	7	93.5	164	127	123	27.7	10.5
Carcass Weight (g)	20	45.4	140	61	77	32.2	7.20	7	51.8	90.9	64.8	68.2	14.9	5.64
Condition Factor	20	0.83	1.70	1.00	1.04	0.18	0.04	7	0.91	1.12	0.92	0.96	0.08	0.03
Liver Weight (g)	20	1.60	9.25	4.40	5.18	2.53	0.57	7	2.18	9.29	4.87	5.08	2.57	0.97
LSI	20	2.09	5.64	3.57	3.76	1.05	0.23	7	2.33	5.66	3.85	3.93	1.18	0.44
Gonad Weight (g)	20	1.61	9.53	3.65	4.01	2.05	0.46	7	1.77	5.14	3.85	3.63	1.29	0.49
GSI	20	1.44	5.76	2.80	2.98	1.05	0.23	7	1.90	4.79	2.81	2.95	0.97	0.37
Age (y)	20	4	8	5.5	5.9	1.2	0.27	7	6	9	7	7.3	0.95	0.36

Data for previous monitoring years presented in Appendix 7B, Table 7B-4.

n = sample size; Min = minimum; Max = maximum; SD = standard deviation; SE = standard error; GSI = gonadosomatic index; LSI = liver somatic index

7.4.1.2.1 Spatial Comparisons

7.4.1.2.1.1 Survival – Age

Ages of Fourhorn Sculpin were compared between Milne Port and Koluktoo Bay reference area (Table 7-10). Female ages ranged from 5 to 9 years in the Milne Port area and from 4 to 9 years in the Koluktoo Bay reference area, while male ages ranged from 4 to 8 years in the Milne Port Area and from 6 to 9 years in the Koluktoo Bay reference area (Table 7-7; Figure 7-6). Mean ages for female Fourhorn Sculpin did not differ significantly between sampling areas, whereas for male Fourhorn Sculpin, mean age was significantly greater in the Koluktoo Bay reference area compared with Milne Port (Table 7-10). The magnitude of effect of the difference in male Fourhorn Sculpin age (-20%) was less than the CES (±25%).

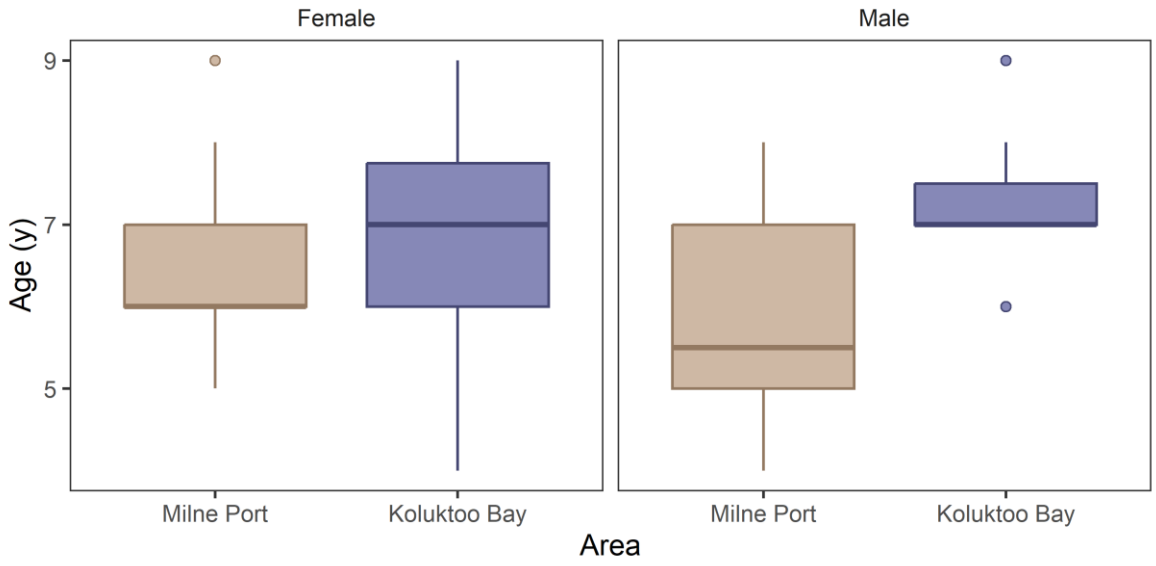


Figure 7-6: Boxplots of Ages of Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023

7.4.1.2.1.2 Growth – Size-at-Age

Size-at-age was compared between Milne Port and Koluktoo Bay using total weight-at-age (Figure 7-7). For female Fourhorn Sculpin, a significant interaction term (P = 0.001) indicated that relationships between age and total weight differed between Milne Port and Koluktoo Bay (Figure 7-8): therefore, size-at-age was compared at the youngest and oldest overlapping ages between the sampling areas. For both younger and older female Fourhorn Sculpin (i.e., age 5 and 9 years, respectively), mean size-at-age was significantly greater at Milne Port compared to Koluktoo Bay, with magnitudes of effect exceeding the CES and corresponding to 37% and 84%, respectively, greater size-at-age at Milne Port. For male Fourhorn Sculpin, size-at-age was greater in the Milne Port Area than the Koluktoo Bay reference area, with a magnitude of effect exceeding the CES (i.e., 50%; Table 7-10). However, the direction of the observed effects (i.e., higher in Milne Port) did not indicate an impairment to the health of female or male Fourhorn Sculpin.

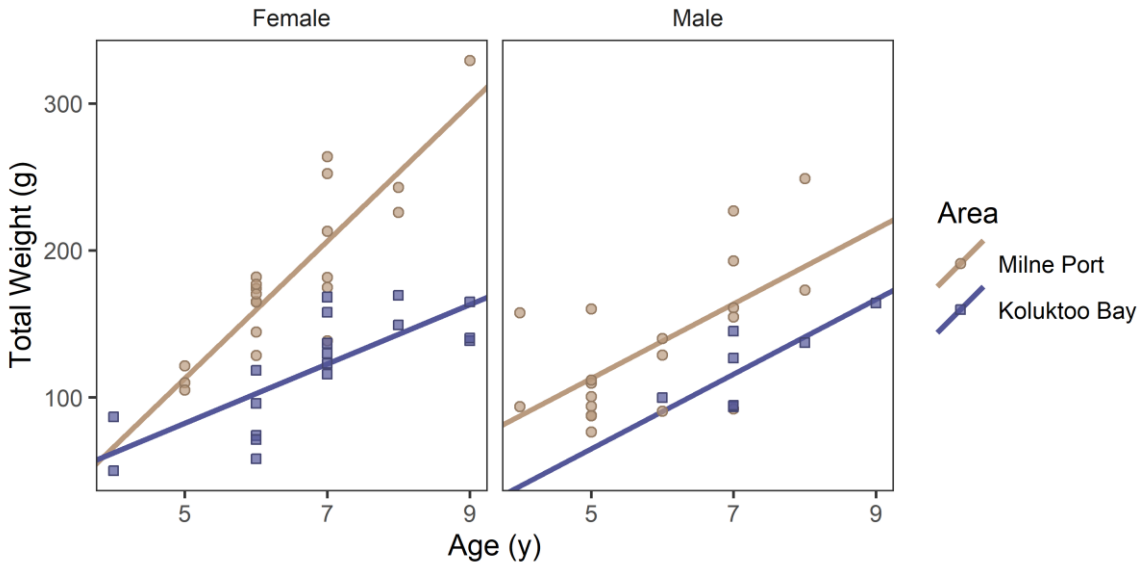
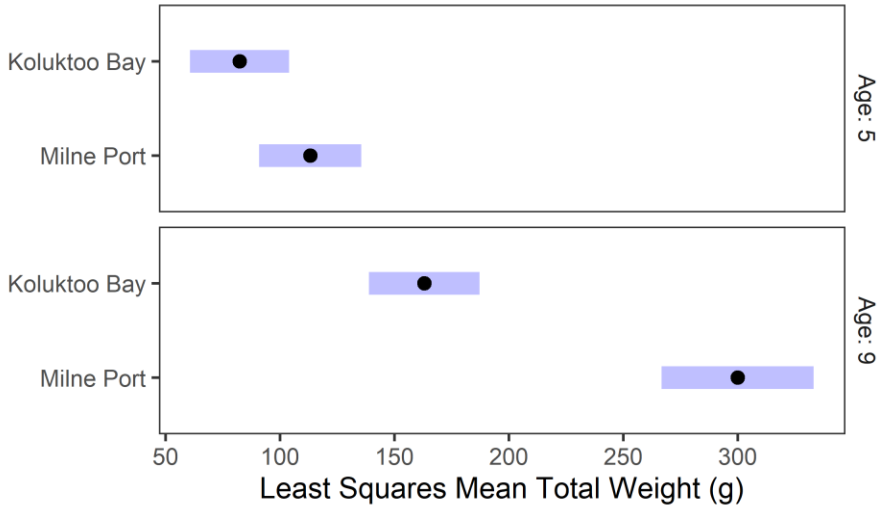


Figure 7-7: Size-at-Age Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023



Blue bars represent 90% confidence intervals. See Table 7-10 for statistical model information.

Figure 7-8: Least Squares Mean Total Weight-at-Age of Female Fourhorn Sculpin Captured from the Milne Port Area and Koluktoo Bay Reference Area, 2023

7.4.1.2.1.3 Condition – Relative Weight and Relative Liver Weight

Condition of Fourhorn Sculpin was compared between Milne Port and Koluktoo Bay using relative weight (as weight-at-length) and relative liver weight (as liver weight-at-total weight). Relative weight differed significantly between areas for female Fourhorn Sculpin, but did not differ significantly between areas for male Fourhorn Sculpin (Table 7-10; Figure 7-9). For female Fourhorn Sculpin, relative weight was significantly greater in the Milne Port area relative to the Koluktoo Bay reference area: the magnitude of difference (10%) was equal to the CES (±10%). For females, condition factor ranged from 0.85 to 1.42 in Milne Port, and 0.74 to 1.17 in Koluktoo Bay; for males, condition factor ranged from 0.83 to 1.70 in Milne Port, and 0.91 to 1.12 in Koluktoo Bay (Table 7-7).

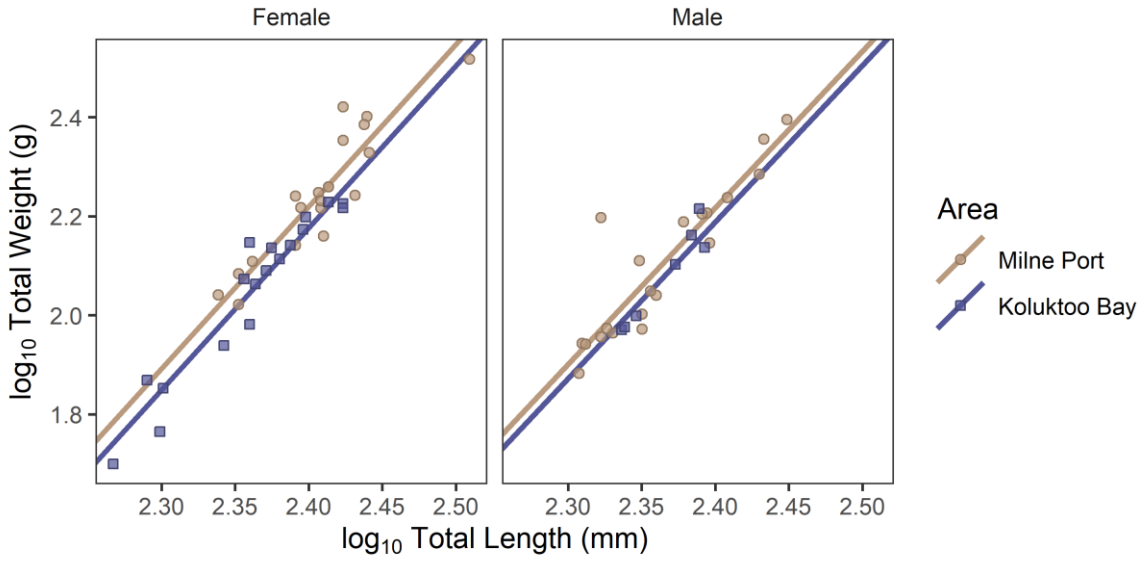


Figure 7-9: Weight-at-Length Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023

Similarly to condition (i.e., relative weight), relative liver weight differed significantly between areas for female Fourhorn Sculpin but not for male Fourhorn Sculpin (Table 7-10; Figure 7-10). For female Fourhorn Sculpin, relative liver weight was significantly greater in the Koluktoo Bay reference area relative to the Milne Port area: the magnitude of effect (-17%) was less than the CES (±25%; Table 7-10). The LSI for female Fourhorn Sculpin ranged from 2.88 to 6.72 in the Milne Port area and from 2.71 to 6.20 in Koluktoo Bay reference area; male LSI ranged from 2.09 to 5.64 in Milne Port and 2.33 to 5.66 in Koluktoo Bay (Table 7-7).

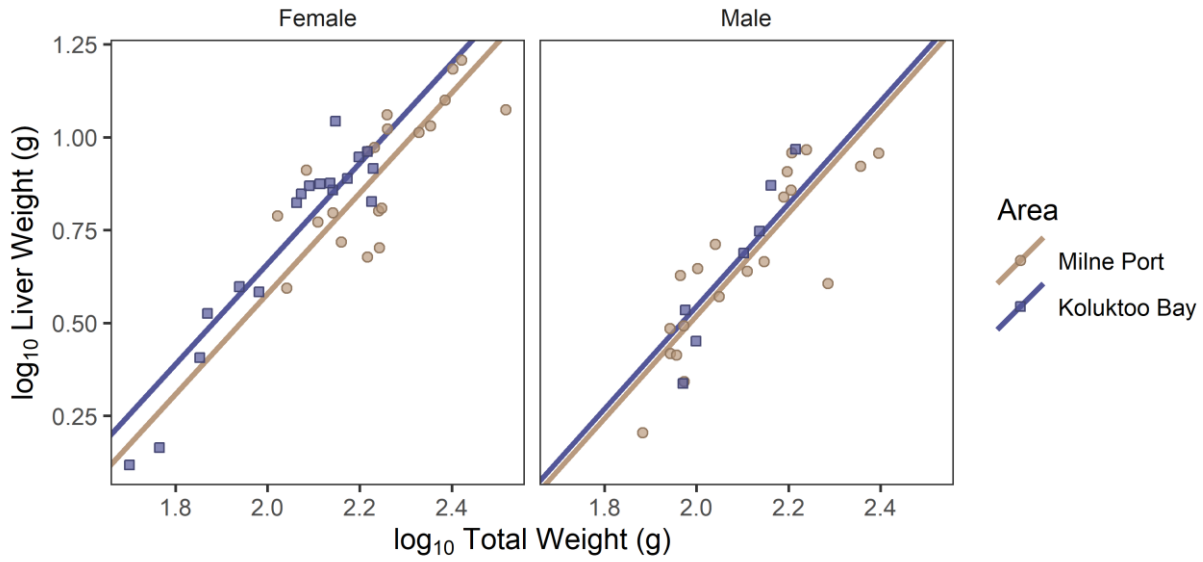


Figure 7-10: Relative Liver Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023

7.4.1.2.1.4 Reproduction – Relative Gonad Weight

Relative gonad weights were compared between Milne Port and Koluktoo Bay using relationships between gonad weight and total weight in female and male Fourhorn Sculpin (Figure 7-11). Relative gonad weight differed significantly among sampling areas for female Fourhorn Sculpin, but did not differ significantly for male Fourhorn Sculpin (Table 7-10). For female Fourhorn Sculpin, relative gonad weight was significantly greater in fish from the Koluktoo Bay reference area compared to the Milne Port area: the magnitude of effect (-31%) was greater than the CES (±25%; Table 7-10). For females, GSI ranged from 2.24 to 6.77 in Milne Port, and 2.51 to 7.87 in Koluktoo Bay; for males, GSI ranged from 1.44 to 5.76 in Milne Port, and 1.90 to 4.79 in Koluktoo Bay (Table 7-7).

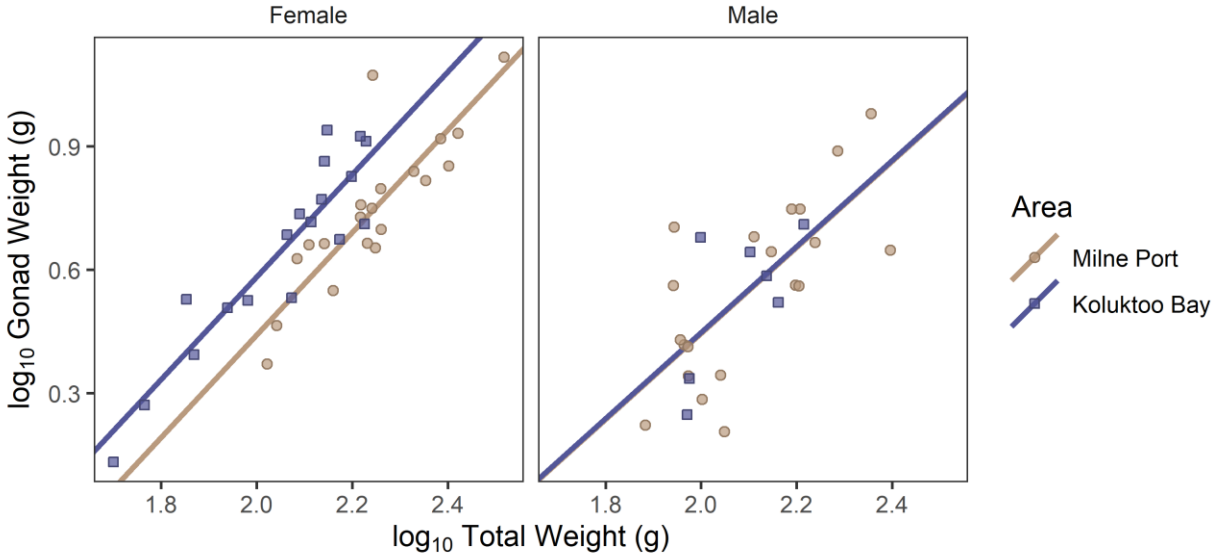


Figure 7-11: Relative Gonad Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023

7.4.1.2.1.5 Stomach Contents

A total of 30 stomachs collected from Fourhorn Sculpin were analyzed for stomach contents: 16 from fish captured in the Milne Port area and 14 from fish captured in the Koluktoo Bay reference area. Stomach fullness ranged from 0% to 100%: stomachs were fuller on average in Milne Port (65% by volume) compared to the reference area (27% by volume). Three stomachs from Fourhorn Sculpin collected from Koluktoo Bay and one stomach from a Fourhorn Sculpin collected in the Milne Port area were empty.

Relative stomach contents differed among sampling areas (Figure 7-12) reflecting variability in diets. In the Milne Port area, the dominant prey item for Fourhorn Sculpin were fishes (88% by weight), mainly comprising sand lance species (*Ammodytes* spp.). Minor prey items included amphipods (6.2% by weight), unidentified crustaceans (3.5% by weight), mysids (also known as opossum shrimps; 1.1% by weight), pectinariid worms (trumpet worms of the family Pectinariidae; 1.0% by weight), and calanoid copepods as well as sea snails of the suborder Heterobranchia (<1%, respectively). In contrast, in the Koluktoo Bay reference area, dominant prey items for Fourhorn Sculpin included amphipods (47% by weight) and unidentified crustaceans (33% by weight). Minor prey items included sea snails (19% by weight) and calanoid copepods (1.0% by weight). Differences in stomach contents likely reflect differences in habitat and prey availability between the Milne Port and Koluktoo Bay. Site characterization surveys indicated a predominance of boulder habitat around Milne Port, whereas habitats in Koluktoo Bay were more variable, including boulders, cobble reefs, and sand bars. These habitat differences likely result in differences in prey items abundance and availability, thus driving differences in stomach contents of Fourhorn Sculpin among sampling areas.

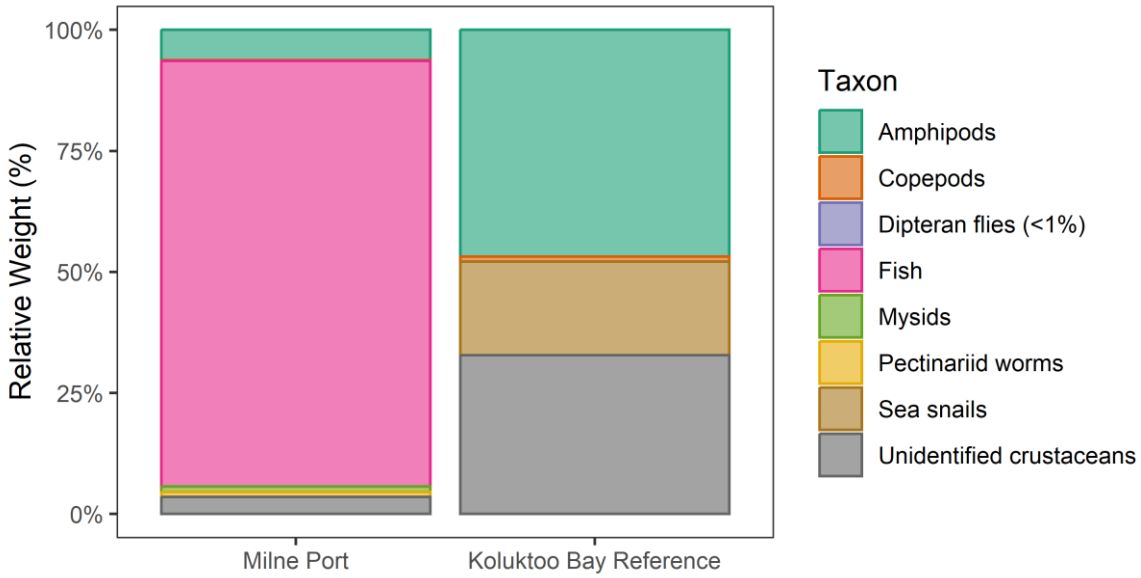


Figure 7-12: Relative Stomach Contents by Weight from Fourhorn Sculpin Sampled from Milne Port and Koluktoo Bay Reference Area, 2023

Table 7-8: Results of Statistical Comparisons Between Milne Port Area and Koluktoo Bay Reference Area for Fourhorn Sculpin, 2023

Effect Indicator	Endpoint[a]	Covariate		Statistical Test	*n* Outlier	Sample Size		Least Squares Mean		Area *P*-value	Magnitude of Effect (%)[b]	Critical Effect Size (%)[c]	Power Analysis[d]		
						Milne Port	Koluktoo Bay	Milne Port	Koluktoo Bay				Power to Detect CES	Minimum Detectable Difference[e]	Sensitivity[f]
Female															
Survival	Age	-		ANOVA	0	20	18	7	7	0.422	-	25%	100%	1.38	21%
Growth	Size-at-Age[g]	Age	5 y	ANCOVA	0	20	18	113	82	**0.052**	**37%**	25%	100%	30.2	20%
			9 y					300	162	**<0.001**	**84%**				
Condition (Energy Storage)	Relative Weight	Total Length		$ANCOVA_{log10}$	0	20	18	2.17	2.13	**0.025**	**10%**	10%	92% / 78%	9.74 / 25.7	7% / 19%
	Relative Liver Weight	Total Weight		$ANCOVA_{log10}$	0	20	18	0.786	0.867	**0.069**	-17%	25%	97% / 82%	2.268 / 1.475	31% / 20%
Reproduction	Relative Gonad Weight	Total Weight		$ANCOVA_{log10}$	1	19	18	0.612	0.771	**<0.001**	**-31%**	25%	100% / 99%	1.847 / 0.055	31% / 1%
Male															
Survival	Age	-		ANOVA	0	20	7	6	7	**0.010**	-20%	25%	100%	1.27	19%
Growth	Size-at-Age	Age		ANCOVA	0	20	7	144	95.9	**0.011**	**50%**	25%	100%	37.6	31%
Condition (Energy Storage)	Relative Weight	Total Length		$ANCOVA_{log10}$	1	19	7	2.10	2.08	0.297	-	10%	88% / 81%	8.21 / 14.0	7% / 12%
	Relative Liver Weight	Total Weight		$ANCOVA_{log10}$	0	20	7	0.654	0.680	0.622	-	25%	75% / 56%	1.350 / 1.488	28% / 31%
Reproduction	Relative Gonad Weight	Total Weight		$ANCOVA_{log10}$	0	20	7	0.547	0.550	0.967	-	25%	59% / 42%	1.113 / 1.590	31% / 45%

Notes: Statistically significant values and magnitudes of effect exceeding the CES are indicated in **bold**. Supporting information for statistical model results are provided in Appendix 7B, Table 7B-8. Statistical outliers are provided in Appendix 7B, Table 7B-10.

(a) For model components, please see Table 7-3.

(b) The magnitude of effect is calculated as the difference in least squares mean values between Milne Port and Koluktoo Bay: (Milne - Koluktoo) / Koluktoo × 100% (Environment Canada 2012).

(c) Critical Effect Size (CES) expressed as a percentage of the Koluktoo Bay mean.

(d) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the Koluktoo Bay mean.

(e) Minimum detectable difference expressed as unit difference from the Koluktoo Bay mean.

(f) Sensitivity is the minimum detectable difference expressed as a percent change in the Koluktoo Bay mean.

(g) The R^2 value for the full model was less than the threshold (0.791 < 0.800) for assuming slopes are practically parallel (Barrett et al., 2010). Therefore, size-at-age was compared at the smallest and largest overlapping covariate values among study years, following Section A1.7 in Environment Canada.

n = number; y = year; P-value = probability value; log_{10} = log_{10}-transformed data; rank = rank-transformed data; ANOVA = analysis of variance; ANCOVA = analysis of covariance; n/a = not applicable.

7.4.1.2.1.6 Abnormalities

Few abnormalities were observed in Fourhorn Sculpin sampled from the Milne Port area or the Koluktoo Bay reference area (Table 7-9). No external abnormalities were observed; however, several fish had parasitic cysts embedded in their fins or skin. Internal abnormalities primarily consisted of variation in liver colour, with light or pale livers observed for nine females and 14 males from Milne Port and three females and one male from Koluktoo Bay. Liver colour is closely tied to the level of blood perfusion (i.e., fresh circulating blood), and, therefore, the time elapsed between sacrifice and observation will influence the liver colour endpoint. Further, colour is subject to observer bias and is considered a less reliable indicator as a result. Internal parasites observed in Fourhorn Sculpin consisted of cysts embedded within the body cavity (i.e., on the stomach and digestive organs) which were present in 11 females and nine males from Milne Port and 13 females and five males from Koluktoo Bay. A parasitic worm was observed inside the body cavity of one male fish from Milne Port, and a parasitic roundworm was observed inside one female fish from Koluktoo Bay.

Table 7-9: Number and Description of External and Internal Abnormalities Observed in Fourhorn Sculpin Sampled from the Milne Port Area, 2023

Parameter	Milne Port		Koluktoo Bay		Description
	Female (n = 20)	Male (n = 18)	Female (n = 20)	Male (n = 7)	
External					
Body Deformity	0	0	0	0	-
Eyes	0	0	0	0	-
Skin	0	0	0	0	-
Thymus	0	0	0	0	-
Opercula	0	0	0	0	-
Gills	0	0	0	0	-
Pseudobranchs	0	0	0	0	-
Fins	0	0	0	0	-
Vent	0	0	0	0	-
Parasitization	3	2	4	1	Cysts embedded in fins, skin
Internal					
Liver	9	14	3	1	Pale coloration or general discolouration[(a)]
Spleen	0	0	0	0	-
Gall bladder	0	0	0	0	-
Gonad	0	0	0	0	-
Kidney	0	0	0	0	-
Parasitization	11	9	13	5	Cysts on internal organs, worm observed in body cavity

(a) Pale liver colouration/general discolouration is typically associated with a lack of perfusion following sacrifice and cessation of the heart beating; pale or discoloured livers were noted and documented but are not considered further.

- = no comments

7.4.1.2.2 Temporal Comparisons

7.4.1.2.2.1 Survival – Age

Ages of female and male Fourhorn Sculpin were compared between 2020, 2021, 2022, and 2023 (Table 7-7; Figure 7-13). Mean ages for female Fourhorn Sculpin increased significantly between 2020 and 2022, increasing by an average of one-year each sampling year, but remained consistent among other years (Table 7-10). Female ages ranged from 4 to 8 years in 2020, from 3 to 10 years in 2021, from 5 to 9 years in 2022, and from 5 to 9 years in 2023. For male Fourhorn Sculpin, mean ages also increased significantly between 2020 and 2022, similarly to female Fourhorn Sculpin, but remained consistent among other years (Table 7-10). Male ages ranged from 4 to 9 years in 2020, from 3 to 12 years in 2021, from 5 to 10 in 2022, and from 4 to 8 in 2023.

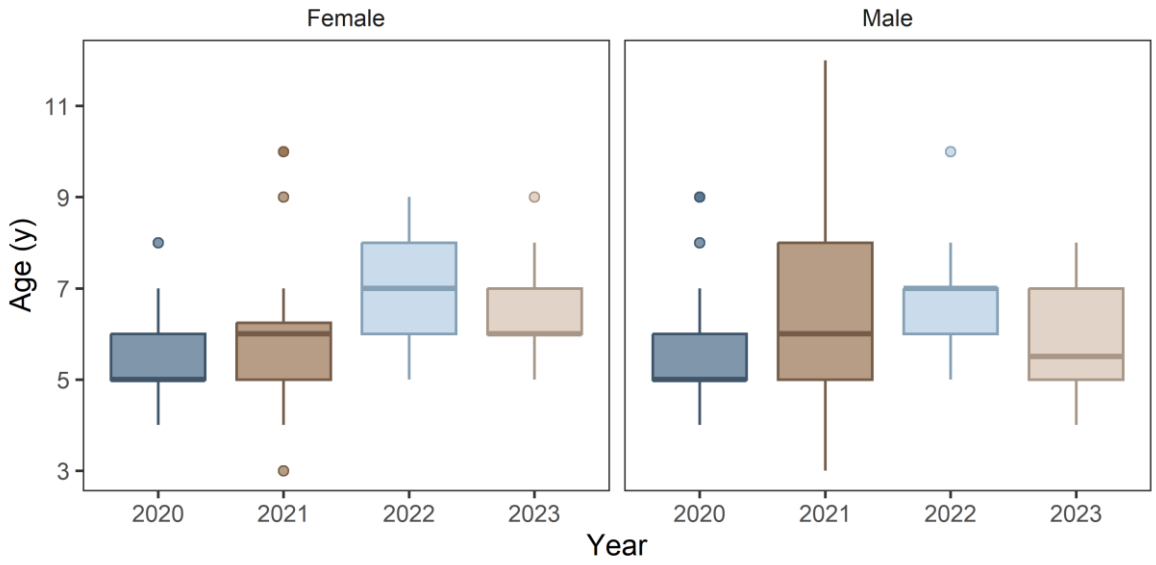


Figure 7-13: Boxplots of Ages of Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023

7.4.1.2.2.2 Growth – Size-at-Age

Size-at-age was compared between 2020, 2021, 2022, and 2023 using total weight-at-age (Figure 7-14). For female Fourhorn Sculpin, mean size-at-age did not differ among sampling years ($p = 0.256$; Table 7-10). For male Fourhorn Sculpin, size-at age was significantly greater in 2023 compared to 2020 and 2021, differing by 25% and 19% respectively (Table 7-10). No other pairwise differences were observed.

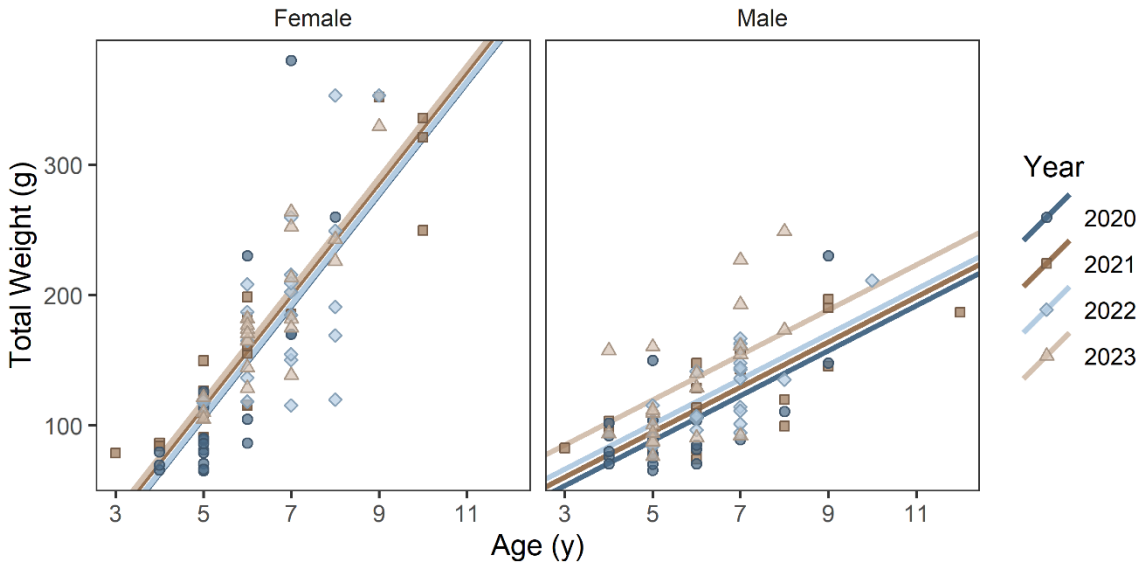
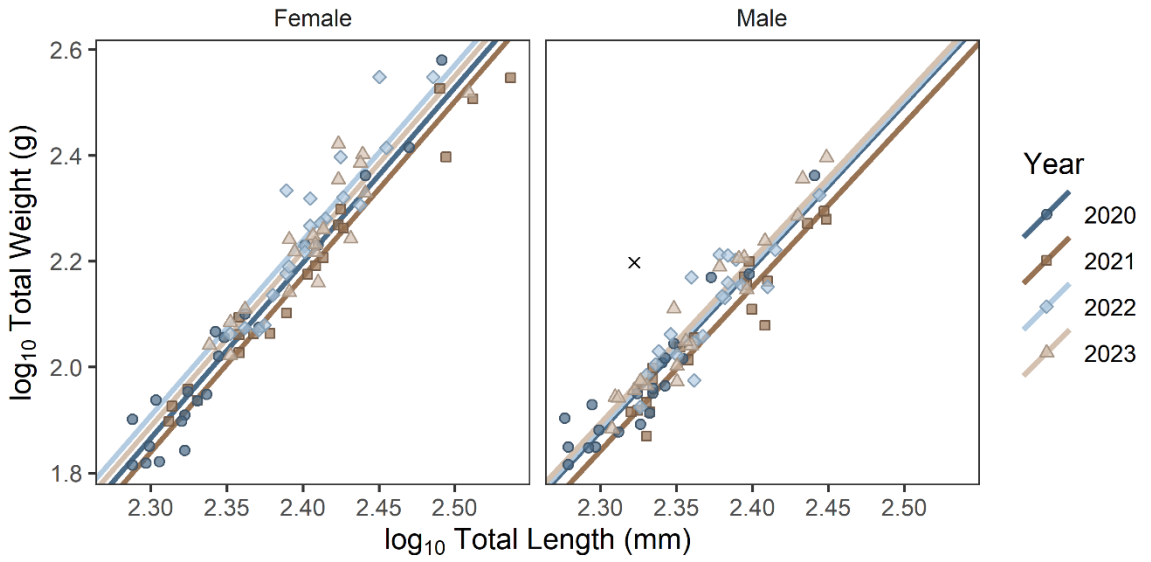


Figure 7-14: Size-at-Age Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023

7.4.1.2.2.3 Condition – Relative Weight and Relative Liver Weight

Condition of Fourhorn Sculpin was compared between 2020, 2021, 2022, and 2023 using relative weight (as weight-at-length) and relative liver weight (as liver weight-at-total weight). Relative weight differed significantly among years for both sexes (Table 7-10; Figure 7-15). For female Fourhorn Sculpin, mean relative weight was similar between 2020 and 2021/2023, as wellas 2022 and 2023, but increased between 2020 and 2023 by approximately 10-16% (Table 7-10). For male Fourhorn Sculpin, relative weight varied among sampling years: generally, mean relative weights were not significantly different between 2020, 2022, and 2023, with a statistically significant decrease in 2021 compared to the other sampling years by 8-12% (Table 7-10). For females, condition factor from 2020 to 2023 ranged from 0.75 to 1.57; for males, condition factor in 2020, 2022, and 2023 ranged from 0.74 to 1.23, while in 2021, condition factor ranged from 0.71 to 1.01 (Table 7-7).

Relative liver weight differed significantly between years for both female and male Fourhorn Sculpin (Table 7-10; Figure 7-16). For female Fourhorn Sculpin, mean relative liver weight generally increased between 2020 to 2023 (by 31%), but no significant differences were observed among other years (Table 7-10). Similarly, for male Fourhorn Sculpin, relative liver weight was consistent between 2020 and 2021/2022, but increased between 2021 and 2022/2023, and 2020 and 2023, with the greatest relative percent difference between 2021 and 2023 of 48% (Table 7-10).



x = outlier.

Figure 7-15: Weight-at-Length Relationships for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023

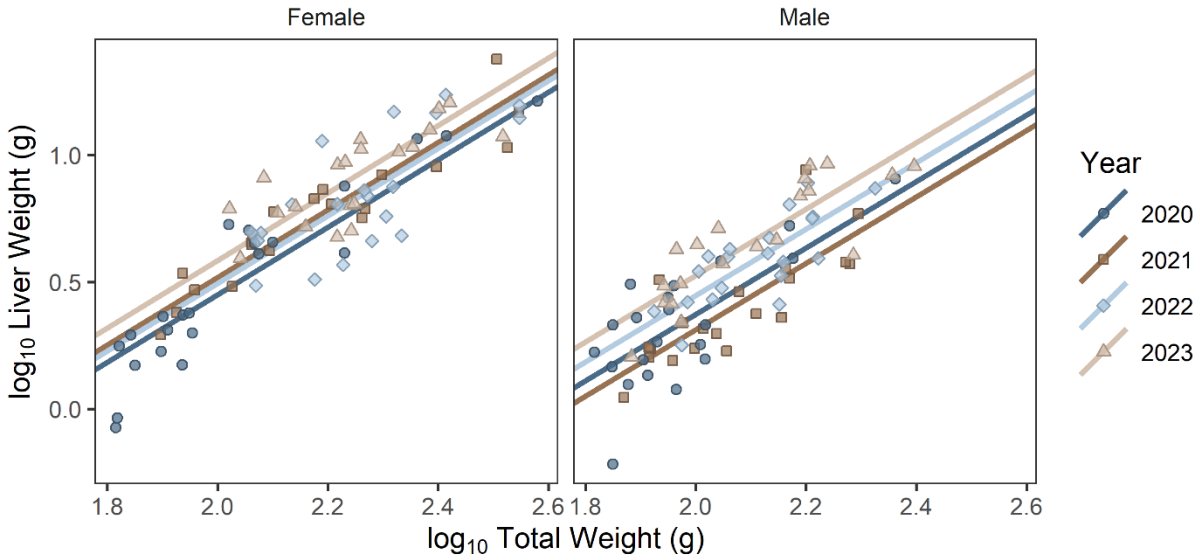
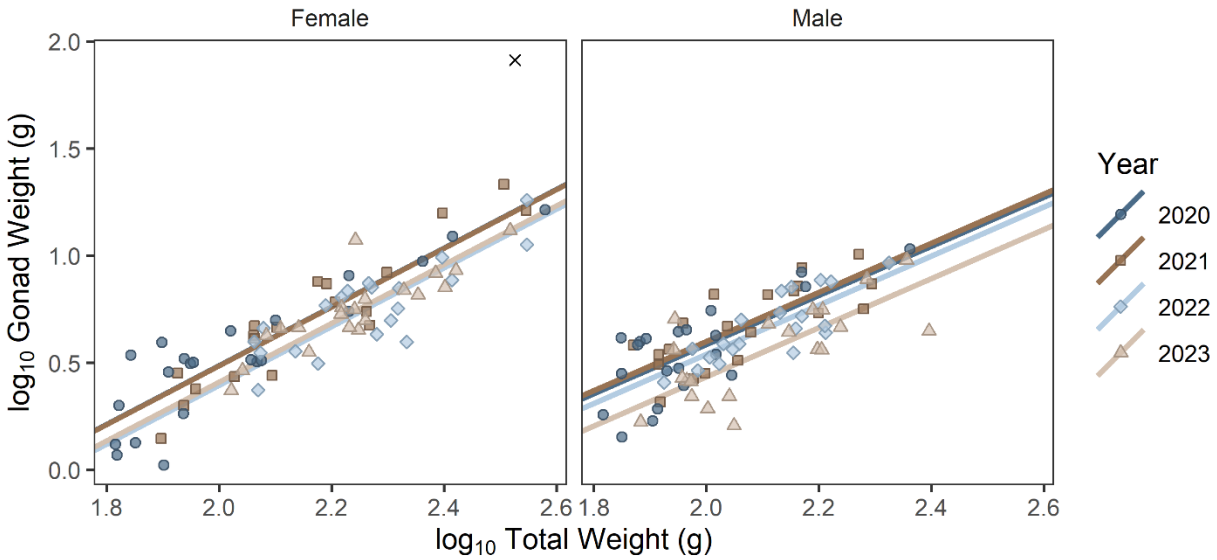


Figure 7-16: Relative Liver Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023

7.4.1.2.2.4 Reproduction – Relative Gonad Weight

Relative gonad weights were compared between 2020, 2021, 2022, and 2023 using relationships between gonad weight and total weight in female and male Fourhorn Sculpin (Figure 7-17). Relative gonad weight differed significantly among sampling years for female Fourhorn Sculpin, but *post hoc* comparisons did not indicate significant pairwise differences[15] among years (Table 7-10). For male Fourhorn Sculpin, relative gonad weight was significantly lower in 2023 compared to previous sampling years (2020: 26%; 2021: 28%; 2022: 19%), which did not differ from each other (Table 7-10).



x = outlier.

Figure 7-17: Relative Gonad Weight for Female and Male Fourhorn Sculpin Sampled from the Milne Port Area, 2020 to 2023

[15] Statistical tests that compare multiple means, such as ANOVA and ANCOVA, test the null hypothesis that all group means (e.g., sampling year means) are equal to the overall mean using F-tests. A significant F-test result indicates that at least one group mean differs significantly from the overall mean, and this result is investigated using *post-hoc* pairwise comparisons that are adjusted for multiple comparisons. This adjustment is necessary to maintain the overall Type I error rate (i.e., $\alpha = 0.10$) when making multiple comparisons, but can result in no significant pairwise differences during *post-hoc* comparisons.

Table 7-10: Summary of Statistical Comparisons Between 2020, 2021, 2022, and 2023 for Fourhorn Sculpin, Milne Port Area

Effect Indicator	Endpoint[a]	Statistical Test	Sample Size				Least Squares Mean				Year *P*-value	*Post-hoc P*-value						Relative Percent Difference (%)						Power Analysis[b]	
			2020	2021	2022	2023	2020	2021	2022	2023		2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	Minimum Detectable Difference[c]	Sensitivity[d]
Female																									
Survival	Age	$ANOVA_{rank}$	22	20	20	20	5	6	7	6	**<0.001**	0.332	**<0.001**	**0.010**	**0.023**	0.444	0.491	-	33%	18%	15%	-	-	1.09	17%
Growth	Size-at-Age	ANCOVA	21	20	20	20	148	169	162	173	0.256	**-**	-	**-**	**-**	-	-	-	-	-	-	-	-	32.1	20%
Condition	Relative Weight	$ANCOVA_{log10}$	22	20	20	20	2.17	2.14	2.21	2.19	**<0.001**	0.393	**0.060**	0.554	**<0.001**	**0.017**	0.569	-	10%	-	16%	11%	-	11.4 / 12.3	8% / 8%
	Relative Liver Weight	$ANCOVA_{log10}$	22	20	20	20	0.68	0.75	0.73	0.82	**0.023**	0.375	0.748	**0.017**	0.945	0.402	0.148	-	-	31%	-	-	-	1.041 / 1.281	19% / 23%
Reproduction	Relative Gonad Weight	$ANCOVA_{log10}$	22	19	20	20	0.72	0.72	0.63	0.65	**0.050**	1.000	0.119	0.244	0.106	0.236	0.973	-	-	-	-	-	-	0.835 / 1.011	17% / 21%
Male																									
Survival	Age	$ANOVA_{rank}$	21	20	20	20	5	6	7	5.5	**0.011**	0.187	**0.009**	0.800	0.621	0.688	0.103	-	33%	-	-	-	-	1.25	20%
Growth	Size-at-Age	ANCOVA	21	20	20	20	109	115	121	140	**0.009**	0.900	0.566	**0.007**	0.920	**0.054**	0.219	-	-	25%	-	19%	-	24.1	20%
Condition	Relative Weight	$ANCOVA_{log10}$	21	20	20	19	2.06	2.03	2.07	2.08	**0.002**	**0.066**	0.951	0.726	**0.010**	**0.002**	0.952	8%	-	-	10%	12%	-	7.5 / 8.0	7% / 7%
	Relative Liver Weight	$ANCOVA_{log10}$	21	20	20	20	0.45	0.39	0.53	0.61	**<0.001**	0.498	0.358	**0.005**	**0.012**	**<0.001**	0.245	-	-	35%	31%	48%	-	0.592 / 0.730	19% / 23%
Reproduction	Relative Gonad Weight	$ANCOVA_{log10}$	21	20	20	20	0.66	0.67	0.61	0.50	**0.001**	0.985	0.714	**0.005**	0.461	**0.001**	**0.061**	-	-	34%	-	38%	24%	0.754 / 0.926	19% / 23%

Notes: Statistically significant values are indicated in **bold**. Power analysis was completed assuming normality. Supporting information for statistical model results is provided in Appendix 7B, Table 7B-9. Statistical outliers are provided in Appendix 7B, Table 7B-10.

(a) For model components, please see Table 7-3.

(b) For log_{10}-transformed models, power analysis was completed for differences less than and greater than the mean. Minimum detectable difference and sensitivity were determined using back-transformed values and are presented as: differences lower than | greater than the mean.

(c) Minimum detectable difference expressed as difference from the overall mean.

(d) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

n = sample size; log_{10} = log_{10}-transformed data; rank = rank-transformed data; ANOVA = analysis of variance; ANCOVA = analysis of covariance; - = not calculated.

7.4.1.3 *Hiatella arctica*

In 2023, a total of 40 *H. arctica* collected from the Milne Port area were processed for fish health endpoints (Table 7-11). The processed individuals ranged in length from 24.3 mm to 37.8 mm, with a median length of 30.5 mm, and ranged in whole animal wet weight from 1.15 g to 7.07 g, with a median value of 3.91 g. Length data showed no skew or multimodality at Milne Port (Figure 7-18). Length exhibited a strong relationship with total weight ($P < 0.001$; $R^2 = 0.62$). Gonad weights ranged from 0.030 g to 0.346 g, with a median value of 0.098 g; mantle somatic index (MSI) ranged from 2.89 to 15.43 with a median value of 6.31. *Hiatella arctica* sampled from the Milne Port area ranged in age from 7 to 52 years, with a median age of 21. Median condition factor in 2023 was 1.79, ranging from 1.10 to 14.20.

Additional *H. arctica* were collected from the Tugaat River Estuary reference area in 2023, totalling 17 individuals. Collected *Hiatella* ranged in length from 19.0 to 39.0 mm, with a median length of 32.0 mm, and ranged in whole animal wet weight from 0.93 g to 10.5 g, with a median value of 4.10 g. Length data showed some multimodality, likely due in part to the smaller sample size (i.e., n = 17; Figure 7-18). Length exhibited a strong relationship with whole animal wet weight ($P < 0.001$; $R^2 = 0.87$). Gonad weights ranged from 0.037 g to 0.171 g, with a median value of 0.121 g; MSI ranged from 3.74 to 9.56, with a median value of 6.28. *Hiatella arctica* sampled from the Tugaat River Estuary reference area ranged in age from 5 to 76 years, with a median age of 14. Median condition factor in 2023 was 1.62, ranging from 1.18 to 2.29.

7.4.1.3.1 Spatial Comparisons

Hiatella arctica were collected from the Milne Port area and Tugaat River Estuary reference area in 2023. Fish health endpoints (Table 7-4) were compared among sampling areas. Biological data for *H. arctica* collected in 2023 are summarized in Table 7-11.

Table 7-11: Descriptive Statistics for Hiatella arctica Health Endpoints from the Milne Port Area and Tugaat River Estuary Reference Area, 2023

Parameter	Milne Port Area							Tugaat River Estuary Reference Area						
	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE
Hiatella arctica														
Total Length (mm)	40	24.3	37.8	30.5	30.5	3.15	0.497	17	19.0	39.0	32.0	31.6	4.69	1.14
Whole Animal ww (g)	40	1.145	7.066	3.906	4.016	1.447	0.229	17	0.927	10.534	4.096	4.462	2.086	0.506
Shell ww (g)	40	0.588	4.45	2.20	2.30	0.990	0.156	17	0.407	8.19	2.12	2.60	1.79	0.434
Shell dw (g)	40	0.535	4.02	1.95	2.03	0.894	0.141	17	0.312	7.65	1.87	2.31	1.70	0.412
Tissue ww (g)	40	0.549	2.75	1.65	1.66	0.542	0.086	17	0.507	2.75	1.87	1.81	0.547	0.133
Condition factor	40	1.10	14.20	1.79	2.14	2.00	0.32	17	1.18	2.29	1.62	1.66	0.29	0.071
Gonad ww (g)	40	0.030	0.346	0.098	0.104	0.058	0.0092	17	0.037	0.171	0.121	0.112	0.042	0.010
MSI	40	2.89	15.43	6.31	6.68	2.56	0.40	17	3.74	9.56	6.28	6.65	1.69	0.41
Age (y)	40	7	52	21	23	11	1.8	17	5	76	14	22	21	5.0

Data for previous monitoring years presented in Appendix 7B, Table 7B-5.

ww = wet weight; dw = dry weight; MSI = Mantle Somatic Index; n = sample size; min = minimum; max = maximum; SD = standard deviation; SE = standard error.

Table 7-12: Summary of Statistical Comparisons for *Hiatella arctica* Health Endpoints between Milne Port Area and Tugaat River Estuary Reference Area, 2023

Effect Indicator	Endpoint[a]	Covariate	Statistical Test	Sample Size		Least Squares Mean		Area *P*-value	Magnitude of Effect (%)[b]	Power Analysis[c]	
				Milne Port	Tugaat River Estuary	Milne Port	Tugaat River Estuary			Minimum Detectable Difference[d]	Sensitivity[r]
Hiatella arctica											
Survival	Length Frequency	-	K-S Test	40	17	-	-	0.243	-	-	-
Growth	Whole Animal Wet Weight	-	ANOVA	40	16	5.28	5.11	0.747	-	1.331	26%
Condition	Relative Weight	Length	$ANCOVA_{log10}$	40	17	0.203	0.212	0.744	-	0.267 / 0.321	17% / 20%
	Relative Shell Weight	Length	$ANCOVA_{log10}$	40	17	0.277	0.238	0.354	-	0.399 / 0.513	22% / 28%
Reproduction	Mantle Somatic Index	Soft Tissue Weight	$ANCOVA_{log10}$	40	17	-1.03	-1.01	0.783	-	0.001 / 0.001	21% / 27%

Notes: Statistically significant values are indicated in bold. Power analysis was completed assuming normality. Supporting information for statistical model results are provided in Appendix 7B, Table 7B-10.

(a) For model components, please see Table 7-4.

(b) The magnitude of effect is calculated as the difference in least squares mean values between Milne Port and Tugaat River Estuary: (Milne - Tugaat) / Tugaat × 100% (Environment Canada 2012).

(c) For log_{10}-transformed models, power analysis was completed for differences less than and greater than the mean. Minimum detectable difference and sensitivity were determined using back-transformed values and are presented as: differences lower than | greater than the mean.

(d) Minimum Detectable Difference expressed as difference from the overall mean.

(e) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

log_{10} = log_{10}-transformed data; K-S Test = Kolmogorov-Smirnov test; ANOVA = analysis of variance; ANCOVA = analysis of covariance; - = not applicable; nc = not calculated.

7.4.1.3.1.1 Survival – Length-Frequency Analysis

Length-frequency distributions of *H. arctica* were compared between Milne Port and Tugaat River Estuary (Figure 7-18). Results of the Kolmogorov-Smirnov tests indicate there was no significant difference in length-frequency distributions between areas for *H. arctica* (Table 7-12).

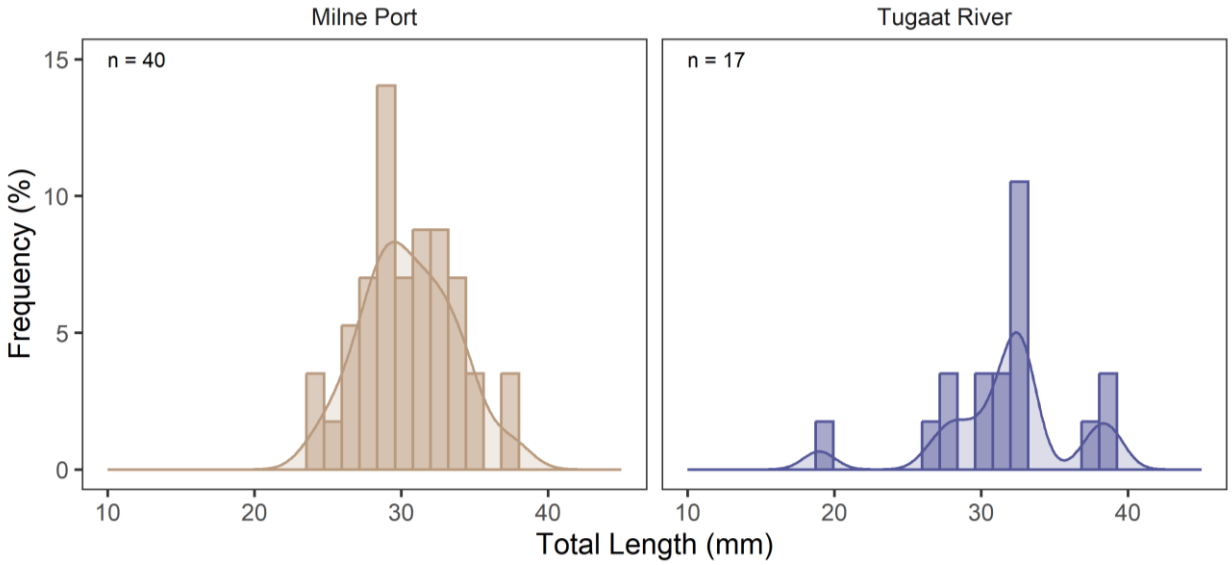


Figure 7-18: Length-Frequency Distribution for *Hiatella arctica* captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023

7.4.1.3.1.2 Growth – Whole Animal Wet Weight

Whole animal wet weight was compared between Milne Port and Tugaat River Estuary for *H. arctica* (Figure 7-19). The range of weights were similar among sampling years (Table 7-11), and there were no significant differences between sampling areas (Table 7-12).

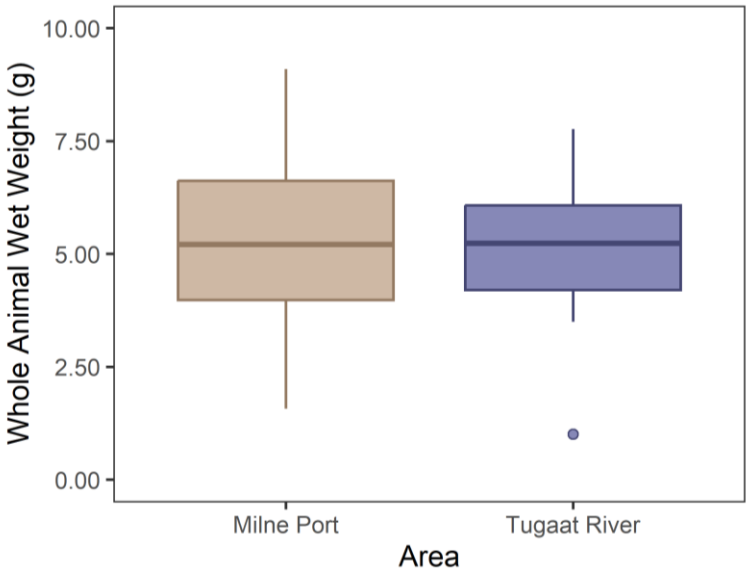
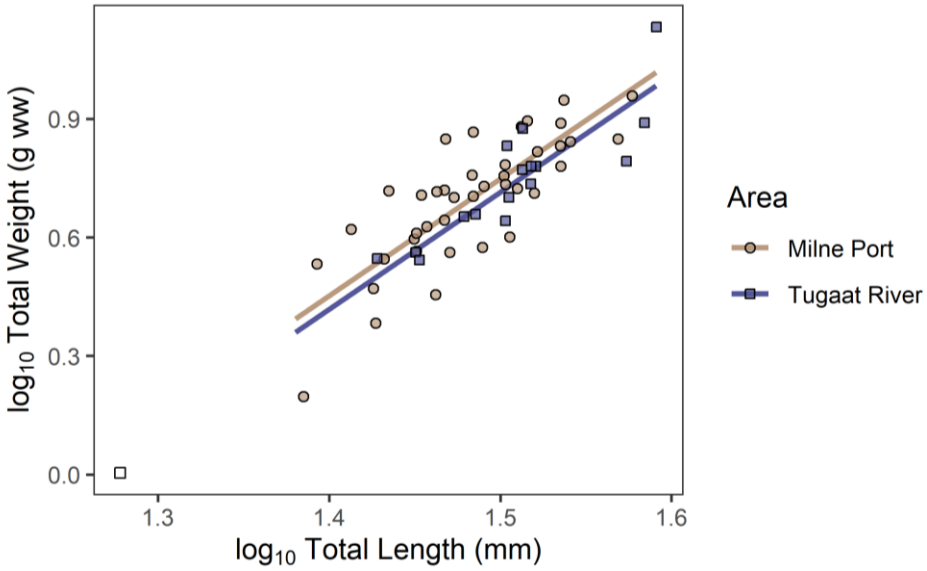


Figure 7-19: Boxplot of Whole Animal Wet Weight of *Hiatella arctica* captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023

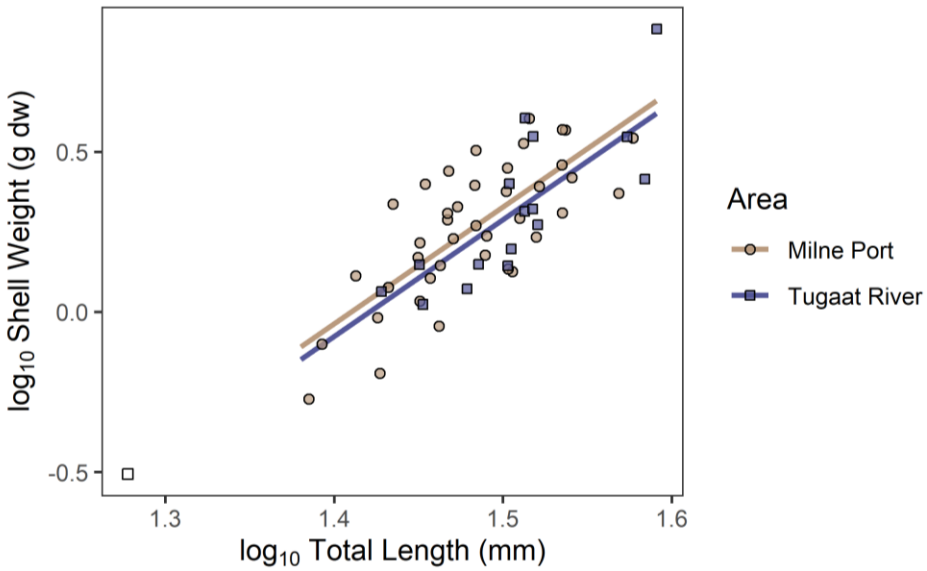
7.4.1.3.1.3 Condition – Relative Weight

Condition of *H. arctica* was compared between Milne Port and Tugaat River Estuary using relative weight (total weight-at-length) and relative shell weight (shell dry weight-at-length). Differences in relative weight and relative shell weight were evaluated over the shared range of lengths between sampling areas (i.e., 24 to 39 mm; Environment Canada 2012; Figure 7-20, Figure 7-21). Both relative weight and relative shell weight did not differ significantly among sampling areas (Table 7-12).



□ = omitted from ANCOVA.

Figure 7-20: Relationship between Total Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023



□ = value omitted from ANCOVA.

Figure 7-21: Relationship between Shell Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023

7.4.1.3.1.4 Reproduction – Mantle Somatic Index

Mantle somatic index of *H. arctica* was compared between Milne Port and Tugaat River Estuary: MSI was evaluated as relative gonad weight (gonad weight-at-tissue weight; Figure 7-22). Relative gonad weight did not differ between sampling areas (Table 7-12).

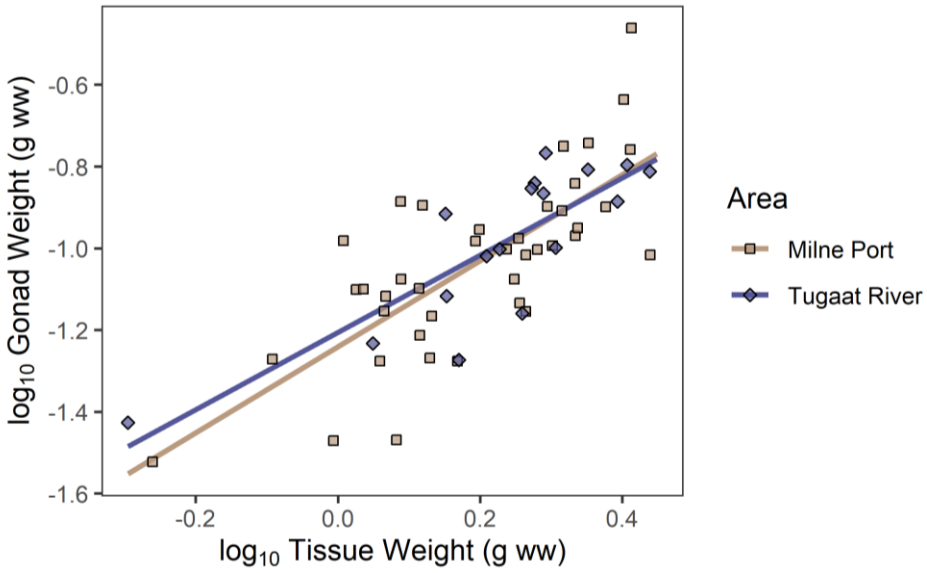


Figure 7-22: Relationship between Gonad Weight and Soft Tissue Weight of *Hiatella arctica* captured from the Milne Port Area and the Tugaat River Estuary Reference Area, 2023

Table 7-13: Summary of Statistical Comparisons for *Hiatella arctica* Health Endpoints at Milne Port between 2020, 2021, 2022, and 2023

Effect Indicator	Endpoint[a]	Covariate		Statistical Test	Sample Size				Least Squares Mean				Year *P*-value	Post-hoc *P*-value					Relative Percent Difference (%)						Power Analysis[b]	
					2020	2021	2022	2023	2020	2021	2022	2023		2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	Minimum Detectable Difference[c]	Sensitivity[d]
Hiatella arctica																										
Survival	Length Frequency	n/a		K-S Test[e]	50	35	44	40	n/a	n/a	n/a	n/a	n/a	0.529	0.687	0.529	1.000	1.000	1.000	-	-	-	-	-	-	-	-
Growth	Whole Animal Wet Weight	n/a		ANOVA	50	35	44	40	4.33	4.02	4.60	5.28	**0.003**	0.800	0.823	**0.021**	0.340	**0.003**	0.185	-	-	20%	-	27%	-	0.869	19%
Condition	Relative Weight	Length	>25 mm	$ANCOVA_{log10}$[f]	50	29	32	38	0.664	0.625	0.653	0.699	**0.003**	0.195	0.943	0.207	0.535	**0.002**	**0.091**	-	-	-	-	17%	11%	0.392 / 0.428	9% / 9%
	Relative Shell Weight	Length	>25 mm	$ANCOVA_{log10}$[f]	50	29	32	38	0.216	0.290	0.211	0.270	**0.018**	**0.063**	0.998	0.201	**0.063**	0.912	0.192	17%	-	-	18%	-	-	0.224 / 0.257	13% / 15%
Reproduction	Mantle Somatic Index	Soft Tissue Weight	0.6172 g	$ANCOVA_{log10}$[g,h]	-	34	40	40	-	-1.76	-2.08	-1.46	**<0.001**	-	-	**0.005**	**0.020**	**<0.001**	**0.005**	-	-	-	70%	66%	122%	0.003 / 0.004	20% / 26%
			2.7505 g							-1.34	-1.17	-0.78				**0.070**	**<0.001**	**<0.001**	**0.070**				40%	114%	84%		

Notes: Statistically significant values are indicated in bold. Power analysis was completed assuming normality. Supporting information for statistical model results are provided in Appendix 7B, Table 7B-11.

(a) For model components, please see Table 7-4.

(b) For log_{10}-transformed models, power analysis was completed for differences less than and greater than the mean. Minimum detectable difference and sensitivity were determined using back-transformed values and are presented as: differences lower than | greater than the mean.

(c) Minimum Detectable Difference expressed as difference from the overall mean.

(d) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(e) *P*-values adjusted using Holm's correction for multiple comparisons (Holm 1979).

(f) ANCOVA completed only in range of overlapping total length between years (i.e., >25 mm) following Section A1.7 in Environment Canada (2012). See Figure 7-18 for *H. arctica* length-frequency distributions in 2020, 2021, 2022, and 2023.

(g) ANCOVA completed only in range of overlapping soft tissue weights between years (i.e., 0.61 to 2.87 g ww) following Section A1.7 in Environment Canada (2012).

(h) The R^2 value for the full model was less than the threshold (0.772 < 0.750) for assessing if slopes are practically parallel (Barrett et al., 2010); therefore, mantle somatic index was compared at the smallest and largest overlapping covariate values among study years, following Section A1.7 in Environment Canada (2012).

log_{10} = log_{10}-transformed data; K-S Test = Kolmogorov-Smirnov test; ANOVA = analysis of variance; ANCOVA = analysis of covariance; - = not applicable; nc = not calculated.

7.4.1.3.2 Temporal Comparisons

7.4.1.3.2.1 Survival – Length-Frequency

Length-frequency distributions of *H. arctica* were compared between years for 2020, 2021, 2022, and 2023 (Figure 7-23). Results of the Kolmogorov-Smirnov tests indicate there were no significant differences between years in length-frequency distributions for *H. arctica* (Table 7-13); however, the range of lengths was greater in 2021 than in 2020, 2022, or 2023 (Table 7-11), with more individuals less than 25 mm being collected.

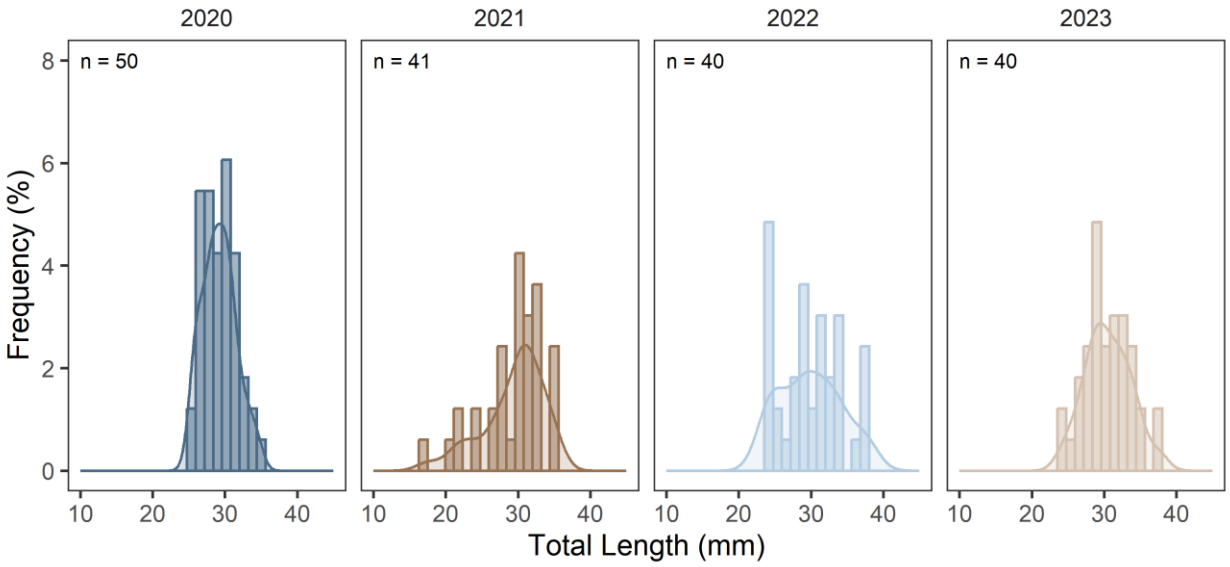


Figure 7-23: Length-Frequency Distribution for *Hiatella arctica* captured from the Milne Port Area, 2020 to 2023

7.4.1.3.2.2 Growth – Whole Animal Wet Weight

Whole animal wet weight was compared among years for 2020, 2021, 2022, and 2023 for *H. arctica* (Figure 7-24). The range of weights were similar among sampling years; however, mean whole animal wet weight was significantly greater in 2023 compared to 2020 and 2021 (Table 7-11). No other significant differences between sampling years were observed.

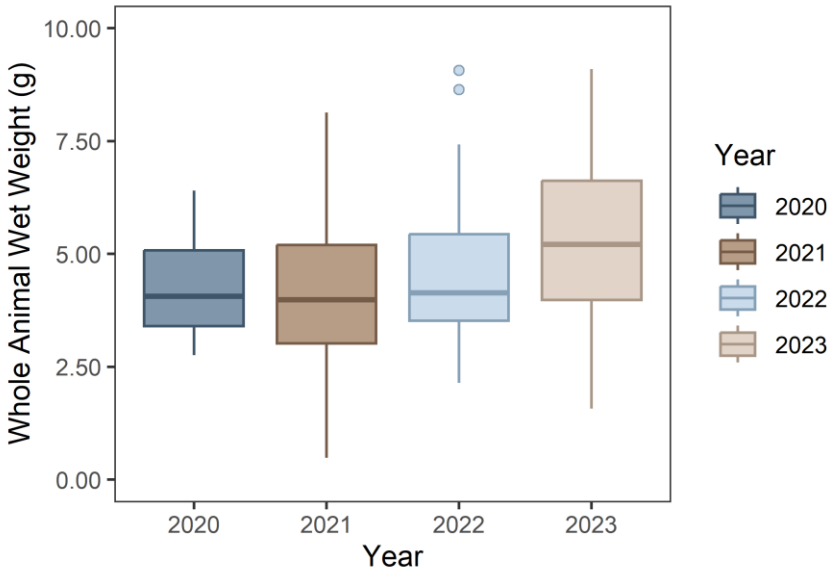
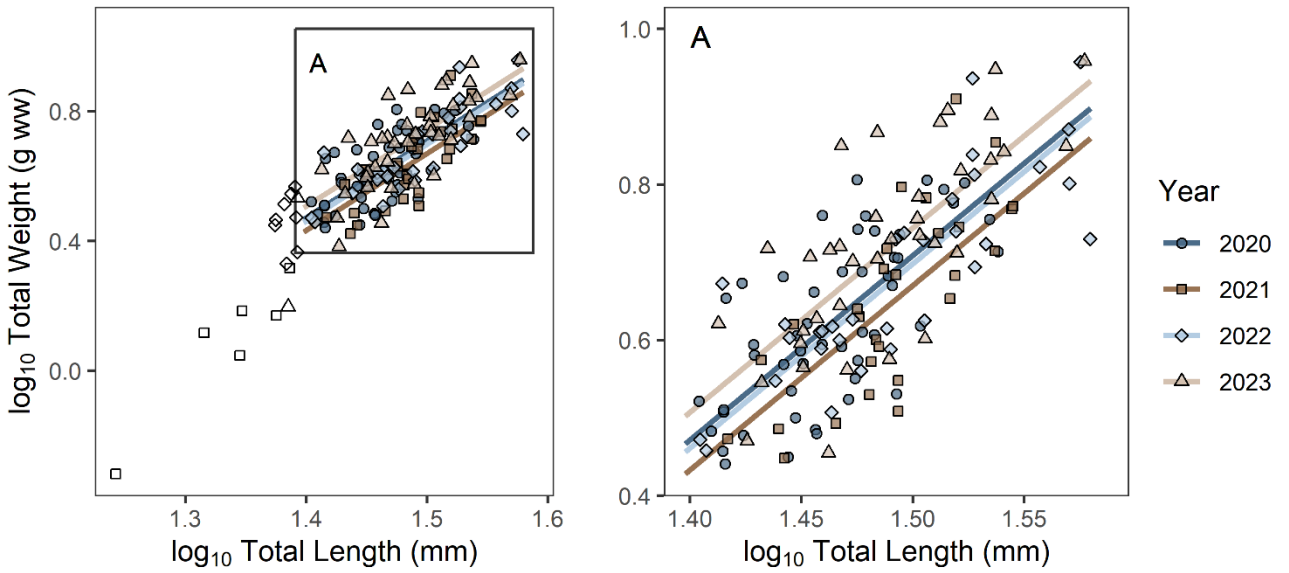


Figure 7-24: Boxplot of Whole Animal Wet Weight of *Hiatella arctica* captured from the Milne Port Area, 2020 to 2023

7.4.1.3.2.3 Condition – Relative Weight

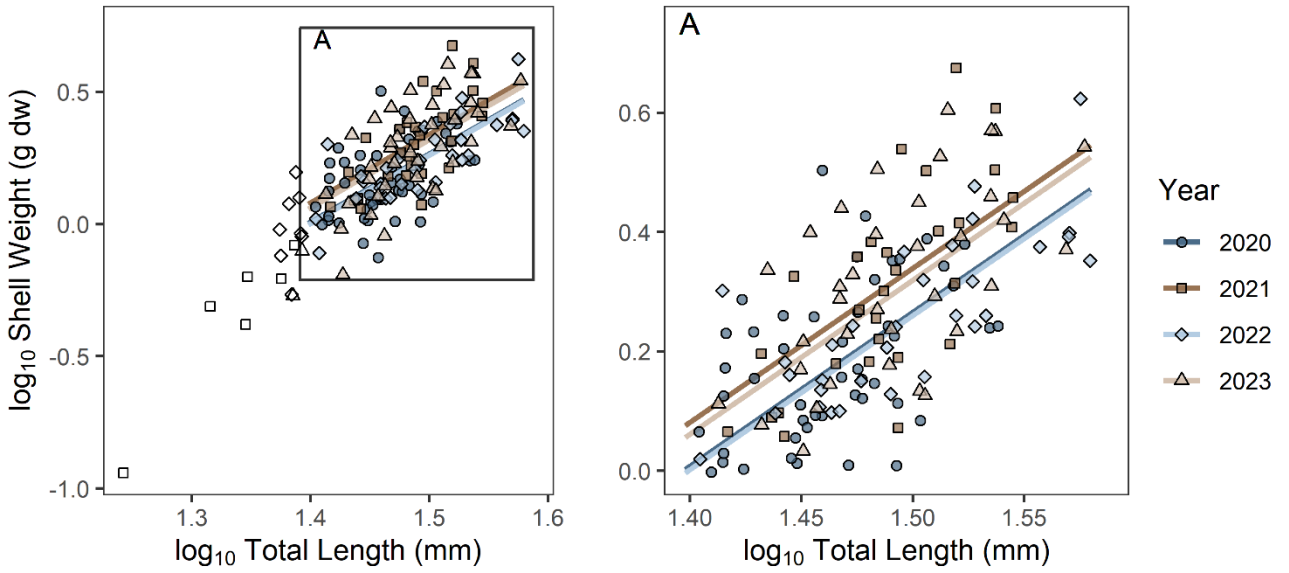
Condition of *H. arctica* was compared among years for 2020, 2021, 2022, and 2023 using relative weight (total weight-at-length) and relative shell weight (shell dry weight-at-length). Given the observed differences in the range of total length of *H. arctica* between years (Figure 7-23), differences in relative weight and relative shell weight were evaluated over the shared range of lengths (i.e., 25 to 38 mm; Figure 7-25), per Environment Canada (2012). Relative weight differed significantly among sampling years, with relative weight being greater in 2023 compared to 2021 and 2022 (Table 7-13). No other differences among sampling years were observed. Relative shell weight also differed significantly among sampling years (Figure 7-26): mean relative shell weight was greatest in 2020, declining from 2020 to 2022, then increasing marginally to 2023 (Table 7-13).



□, ◇, △ = values omitted from ANCOVA.

The portion of the data contained in inset 'A' is shown in more detail at right.

Figure 7-25: Relationship between Total Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area, 2020 to 2023



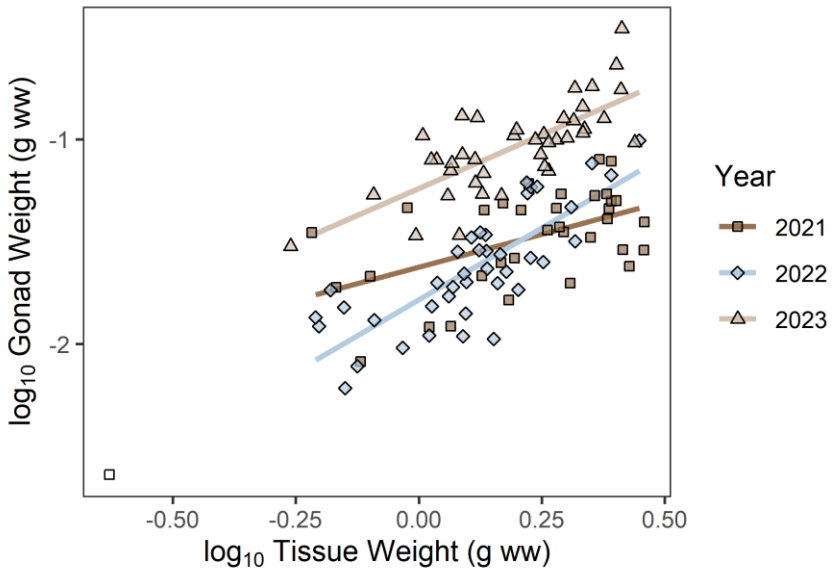
□, ◇, △ = omitted from ANCOVA.

The portion of the data contained in inset 'A' is shown in more detail at right.

Figure 7-26: Relationship between Shell Weight and Total Length of *Hiatella arctica* Captured from the Milne Port Area, 2020 to 2023

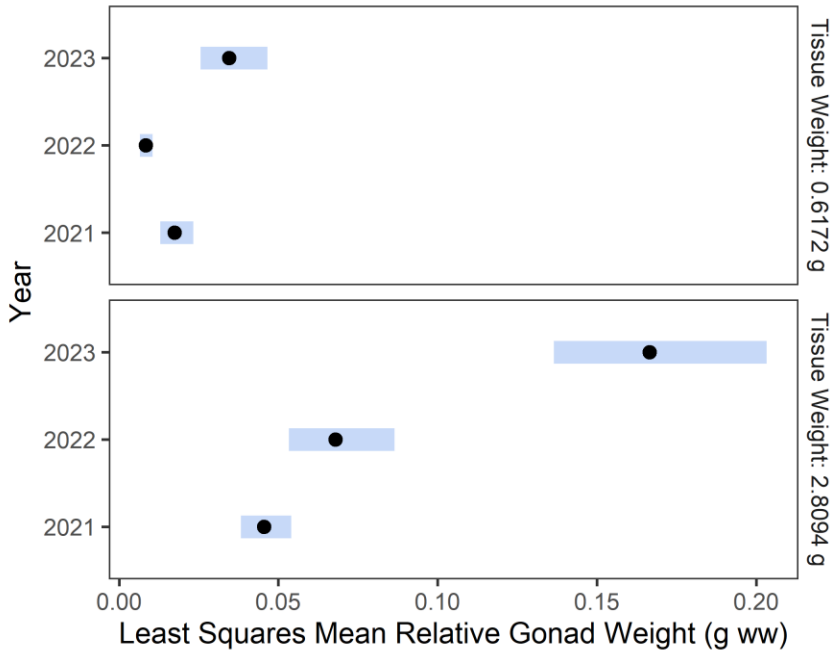
7.4.1.3.2.4 Reproduction – Mantle Somatic Index

Mantle somatic index (MSI) of *H. arctica* was compared between 2021, 2022, and 2023, as gonad tissues were not separated from other soft tissues in 2020. Mantle somatic index was evaluated as relative gonad weight (gonad weight-at-tissue weight; Figure 7-27). Relative gonad weight was evaluated at the least and greatest overlapping covariate values (i.e., tissue weights = 0.6172 g, 2.7505 g), due to a significant interaction term and relatively low R^2 values indicating slopes were not practically parallel (Table 7-13). At low tissue weight (-0.210 log units), relative gonad weight was greatest in 2023, followed by 2021, with the lowest relative gonad weight in 2022. At high tissue weight (0.439 log units), relative gonad weight was greatest in 2023, followed by 2020, with the lowest relative gonad weight in 2021.



□ = value omitted from ANCOVA.

Figure 7-27: Relationship between Gonad Weight and Soft Tissue Weight of *Hiatella arctica* captured from the Milne Port Area, 2021 to 2023



Values were back transformed from the log_{10} scale. Blue bars represent 90% confidence intervals. See Table 7-13 for statistical model information.

Figure 7-28: Least Squares Mean Relative Gonad Weights of *Hiatella arctica* Captured from the Milne Port Area, 2021 to 2023

Results of fish health analysis for Arctic Char, Fourhorn Sculpin, and *Hiatella arctica* were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude reductions in fish health and condition associated with release of site drainage. Results presented herein do not exceed predicted effects on fish health due to Project activities.

7.4.2 Fish Tissue Chemistry

A total of 389 fish tissue samples were submitted for metals analysis and 105 fish tissue samples were submitted for PAH analysis from the Milne Port area from 2010 to 2023. A summary of sample sizes by species and year are provided in Appendix 7C; Table 7C-1. The analyses presented herein focus on data collected since 2018. Summaries of tissue chemistry data collected in previous monitoring years are presented in Appendix 7C, Tables 7C-9 to 7C-11, and visual comparisons of the entire data series, including years prior to 2018, are shown as boxplots in Appendix 7D.

In 2023, a total of 24 samples from three species collected from the Milne Port area were submitted for metals analysis, supplementing data collected since 2018 to produce a dataset comprised of 333 samples for metals from the Milne Port area (i.e., Arctic Char [n = 105], Fourhorn Sculpin [n = 62], indeterminate sculpin [n = 30], and *H. arctica* [n = 136]). In addition, 12 samples from each of Fourhorn Sculpin and *H. arctica* collected from the reference areas were submitted for metals analysis in 2023. A total of 18 samples were analyzed for PAHs in 2023, supplementing data collected since 2020 to produce a dataset comprised of 104 samples for PAHs from the Milne Port area (i.e., Arctic Char [n = 50], Fourhorn Sculpin [n = 32], and *H. arctica* [n = 22]). In addition, a total of nine samples from Fourhorn Sculpin and *H. arctica* collected from the reference areas were submitted for PAH analysis in 2023. Results for individual species are described in the following sections.

7.4.2.1 Spatial Comparisons

7.4.2.1.1 Fourhorn Sculpin

Tissue Metals

In 2023, a total of 16 Fourhorn Sculpin tissue samples were analyzed for metals (i.e., eight samples from the Milne Port area and eight samples from the Koluktoo Bay reference area). Summary statistics for metals concentrations are provided in Table 7-14 and these results are presented as boxplots in Appendix 7D, Figures 7D-1 to 7D-31. Statistical comparisons for COPCs among sampling areas are provided in Table 7-15.

Concentrations of metals in Fourhorn Sculpin were generally similar between Milne Port and Koluktoo Bay (Appendix 7D, Figures 7D-1 to 7D-31), with a few exceptions. The range of measured concentrations of arsenic, lead, and manganese in samples from Koluktoo Bay appeared to be greater than the range of measured concentrations in Milne Port (Appendix 7D, Figures 7D-3, 7D-14, and 7D-16). These results are likely related to localized differences in water or sediment chemistry nearby the sampling area, and are considered to represent natural variability in the environment due to their association with the reference area. Concentrations of COPCs were generally not different between sampling areas, with the exception of selenium (Table 7-15). Mean selenium concentrations, adjusted for fish length, were significantly lower in Milne Port compared to Koluktoo Bay: the magnitude of effect was -12%. The direction of the observed difference does not support an effect attributable to Milne Port operations and was, therefore, not considered further.

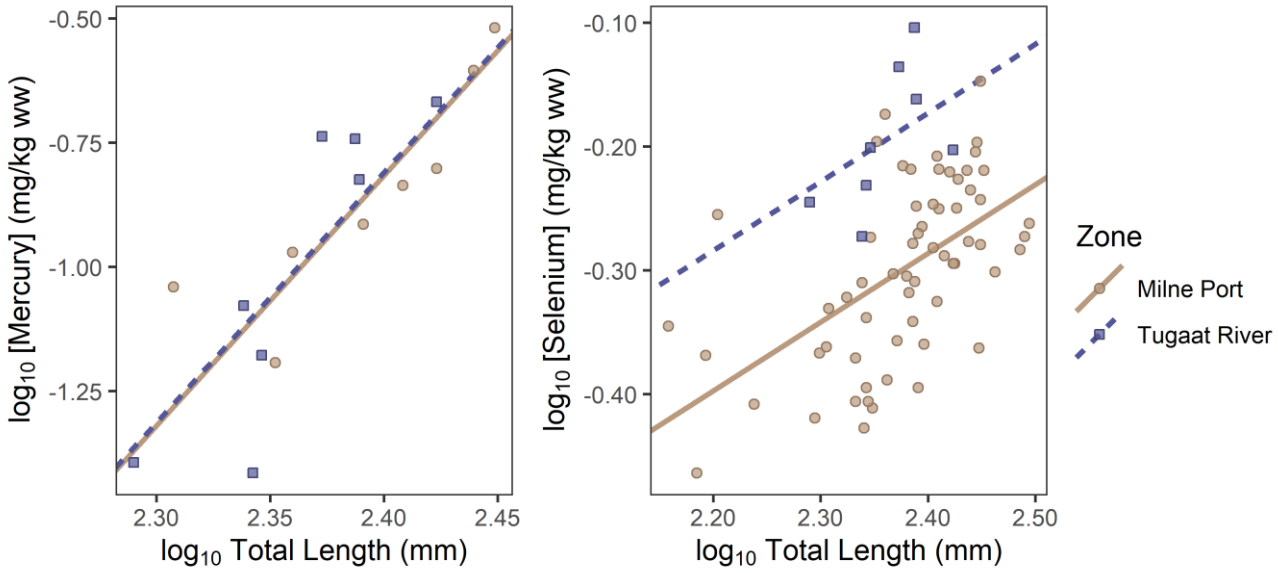


Figure 7-29: Concentrations of Mercury and Selenium in Relation to Total Length for Fourhorn Sculpin Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023

Polycyclic Aromatic Hydrocarbons

In 2023, a total of 16 Fourhorn Sculpin tissue samples were analyzed for PAHs (i.e., eight samples collected from the Milne Port area and eight samples collected from the Koluktoo Bay reference area). The reported concentrations of PAHs were below DL for all parameters analyzed in Fourhorn Sculpin (Appendix 7C, Table 7C-7).

Results of chemical analyses of metals and PAHs in Fourhorn Sculpin tissues were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude increases in fish tissue concentrations of metals and/or PAHs associated with release of site drainage. Results presented herein do not exceed predicted effects on fish tissue chemistry due to Project activities.

Table 7-14: Descriptive Statistics for Fourhorn Sculpin Tissue Chemistry Data Analyzed from Milne Port Area and Koluktoo Bay Reference Area, 2023

Parameter (mg/kg ww)	Milne Port							Koluktoo Bay						
	N >DL / N Total	Min	Max	Median	Mean	SD	SE	N >DL / N Total	Min	Max	Median	Mean	SD	SE
Aluminum	6 / 8	<0.20	0.87	0.33	0.37	0.26	0.092	8 / 8	0.33	1.5	0.62	0.69	0.37	0.13
Antimony	0 / 8	<0.0010	<0.0010	-	-	-	-	6 / 8	<0.0010	0.0021	0.0014	0.0013	0.00055	0.00019
Arsenic	8 / 8	0.45	1.3	0.77	0.85	0.31	0.11	8 / 8	2.4	8.5	4.4	5.0	2.3	0.80
Barium	5 / 8	<0.010	0.018	0.011	0.011	0.0052	0.0019	8 / 8	0.025	0.15	0.064	0.072	0.037	0.013
Beryllium	0 / 8	<0.0010	<0.0010	-	-	-	-	0 / 8	<0.0010	<0.0010	-	-	-	-
Bismuth	0 / 8	<0.0010	<0.0010	-	-	-	-	3 / 8	<0.0010	0.0026	<0.0010	0.0011	0.00083	0.00029
Boron	0 / 8	<0.20	<0.20	-	-	-	-	0 / 8	<0.20	<0.20	-	-	-	-
Cadmium	8 / 8	0.0015	0.012	0.0024	0.0040	0.0036	0.0013	8 / 8	0.0033	0.014	0.011	0.0093	0.0044	0.0016
Calcium	8 / 8	70	530	180	210	140	50	8 / 8	250	2,400	770	1,000	690	250
Chromium	2 / 8	<0.010	0.029	<0.010	<0.010	0.0086	0.0030	5 / 8	<0.010	0.025	0.013	0.013	0.0081	0.0029
Cobalt	8 / 8	0.0020	0.0075	0.0047	0.0045	0.0017	0.00062	8 / 8	0.0080	0.018	0.012	0.013	0.0038	0.0013
Copper	8 / 8	0.29	0.63	0.33	0.38	0.13	0.045	8 / 8	0.26	0.64	0.47	0.45	0.12	0.043
Iron	8 / 8	3.6	13	6.6	6.8	2.8	1.0	8 / 8	6.8	13	9.4	9.5	2.1	0.73
Lead	7 / 8	<0.0010	0.0055	0.0027	0.0030	0.0017	0.00058	8 / 8	0.0033	0.0095	0.0052	0.0055	0.0020	0.00070
Magnesium	8 / 8	260	350	300	300	32	11	8 / 8	220	290	270	260	21	7.4
Manganese	8 / 8	0.080	0.19	0.11	0.12	0.038	0.013	8 / 8	0.27	0.41	0.36	0.36	0.041	0.014
Mercury	8 / 8	0.012	0.059	0.024	0.029	0.015	0.0054	8 / 8	0.039	0.22	0.12	0.12	0.071	0.025
Molybdenum	1 / 8	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	1 / 8	<0.0040	0.0048	<0.0040	<0.0040	-	-
Nickel	5 / 8	<0.010	0.024	0.012	0.012	0.0067	0.0024	8 / 8	0.014	0.045	0.023	0.027	0.012	0.0043
Phosphorus	8 / 8	2,700	3,600	3,200	3,100	280	100	8 / 8	2,300	3,300	2,700	2,700	310	110
Potassium	8 / 8	3,800	5,200	4,700	4,600	480	170	8 / 8	3,500	4,000	3,600	3,700	220	77
Selenium	8 / 8	0.32	0.43	0.34	0.37	0.046	0.016	8 / 8	0.53	0.79	0.63	0.64	0.086	0.030
Silver	3 / 8	<0.0010	0.0036	<0.0010	0.0013	0.0013	0.00047	0 / 8	<0.0010	<0.0010	-	-	-	-
Sodium	8 / 8	260	430	350	350	51	18	8 / 8	610	890	730	720	110	38
Strontium	8 / 8	0.12	1.4	0.29	0.41	0.40	0.14	8 / 8	1.5	12	4.3	5.6	3.7	1.3
Thallium	8 / 8	0.0020	0.0048	0.0022	0.0026	0.00098	0.00035	8 / 8	0.00072	0.0022	0.00091	0.0012	0.00060	0.00021
Tin	0 / 8	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	2 / 4	<0.020	0.035	<0.020	<0.020	0.0094	0.0033
Titanium	8 / 8	0.085	0.12	0.10	0.10	0.014	0.0049	8 / 8	0.063	0.12	0.088	0.091	0.016	0.0056
Uranium	4 / 8	<0.00040	0.00061	<0.00040	<0.00040	0.00018	0.000065	8 / 8	0.00092	0.0051	0.0017	0.0021	0.0014	0.00049
Vanadium	0 / 8	<0.020	<0.020	-	-	-	-	1 / 8	<0.020	0.038	<0.020	<0.020	-	-
Zinc	8 / 8	3.6	6.1	5.0	4.8	0.79	0.28	8 / 8	11	26	18	18	5.9	2.1

Data for previous monitoring years presented in Appendix 7C, Table 7C-9.

N > DL / N Total = number of samples above DL / sample size; mg/kg = milligram per kilogram wet weight; > = greater than; DL = detection limit; n = sample size; min = minimum; max = maximum; SD = standard deviation; SE = standard error.

Table 7-15: Summary of Spatial Comparisons of Constituents of Potential Concern in Fourhorn Sculpin and *Hiatella arctica* Tissue Samples Collected from the Milne Port Area and Reference Areas, 2023

Parameter	Statistical Test	Sample Size		*n* Outliers	Coefficient of Determination (R^2)		Interaction *P*-value	Area *P*-value	Least Squares Means		Magnitude of Effect (%)	Power Analysis[a]	
		Milne Port	Reference		Full Model	Reduced Model			Milne Port	Reference		Minimum Detectable Difference[b]	Sensitivity[c]
Fourhorn Sculpin													
Aluminum	ANOVA	8	8	0	0.064	-	-	0.343	0.530	0.690	-	0.580	95%
Iron	ANOVA	8	8	0	0.152	-	-	0.135	7.74	9.48	-	3.9	45%
Magnesium	ANOVA	8	8	0	0.047	-	-	0.419	255	263	-	35.8	14%
Mercury	$ANCOVA_{log}$[d]	8	8	0	0.785	0.745	0.160	0.937	-0.935	-0.929	-	3.84 / 6.97	45% / 82%
Selenium	$ANCOVA_{log}$[d]	8	8	0	0.316	0.303	0.640	**0.074**	-0.241	-0.185	-12%	0.330 / 0.413	20% / 25%
Hiatella arctica													
Aluminum	ANOVA	8	4	0	0.228	-	-	0.138	533	818	-	756	112%
Iron	ANOVA	8	4	0	0.061	-	-	0.440	2446	1722	-	3993	192%
Magnesium	ANOVA	8	4	0	0.294	-	-	**0.069**	2935	1610	82%	2886	127%
Mercury	ANOVA	8	4	0	0.115	-	-	0.282	0.0284	0.0217	-	0.0262	105%
Selenium	ANOVA	8	4	0	0.010	-	-	0.761	1.35	1.42	-	1.018	73%

Note: Significant differences indicated in **bold**. Supporting information for statistical model results are provided in Appendix 7C, Table 7C-12.

(a) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the grand mean.

(b) Minimum Detectable Difference expressed as difference from the overall mean.

(c) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(d) Length was included as a covariate for ANCOVA and MLR.

ANOVA = analysis of variance; ANCOVA = analysis of covariance; log = log_{10}-transformed data; rank = rank-transformed data; - = not calculated, not applicable.

7.4.2.1.2 Hiatella arctica

Tissue Metals

In 2023, a total of 12 *H. arctica* samples were analyzed for metals (i.e., eight composite samples composed of shellfish collected from the Milne Port area, and four composite samples composed of shellfish collected from the Tugaat River Estuary reference area). Summary statistics for *H. arctica* metals concentrations are provided in Table 7-16 and are presented visually as boxplots in Appendix 7D, Figures 7D-1 to 7D-31. Statistical comparisons for COPCs among years are provided in Table 7-15.

Concentrations of metals in *Hiatella* were generally similar between Milne Port and Tugaat River Estuary, with a few exceptions. The range of measured concentrations of beryllium, lead, silver, and uranium in samples from the Tugaat River Estuary appeared to be greater than the range of measured concentrations in Milne Port (Appendix 7D, Figures 7D-5, 7D-14, 7D-23, and 7D-29). These results are likely related to localized differences in water or sediment chemistry nearby or upstream of the estuary, and are considered to represent natural variability in the environment due to their association with the reference area. Concentrations of COPCs were generally not significantly different between sampling areas, with the exception of magnesium (Table 7-15). Mean magnesium concentrations were significantly greater in samples from Milne Port compared to Tugaat River Estuary: the magnitude of effect was 82%, which is below the CES.

Polycyclic Aromatic Hydrocarbons

In 2023, a total of three *H. arctica* tissue samples were analyzed for PAHs, comprising two composite samples of shellfish collected from the Milne Port area and one composite sample composed of shellfish collected from the Tugaat River Estuary reference area. Samples were composited (i.e., multiple individual *H. arctica* combined into one sample) in order to meet minimum mass requirements for laboratory analyses. Polycyclic aromatic hydrocarbons were below DL for all parameters analyzed in *H. arctica* (Appendix 7C, Table 7C-8).

Results of chemical analyses of metals and PAHs in *Hiatella arctica* tissues were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude increases in fish tissue concentrations of metals and/or PAHs associated with release of site drainage. Results presented herein do not exceed predicted effects on fish tissue chemistry due to Project activities.

Table 7-16: Descriptive Statistics for *Hiatella arctica* Tissue Chemistry Data Analyzed from Milne Port Area and Tugaat River Estuary Reference Area, 2023

Parameter	Milne Port							Tugaat River Estuary						
	N > DL / N Total	Min	Max	Median	Mean	SD	SE	N > DL / N Total	Min	Max	Median	Mean	SD	SE
Aluminum	8 / 8	160	1,800	540	690	500	180	4 / 4	500	1,200	790	820	300	150
Antimony	8 / 8	0.0097	0.044	0.014	0.021	0.015	0.0052	4 / 4	0.013	0.032	0.016	0.019	0.0085	0.0043
Arsenic	8 / 8	1.5	5.3	2.8	3.1	1.5	0.53	4 / 4	2.2	3.6	3.1	3.0	0.59	0.29
Barium	8 / 8	2.3	15	7.3	8.5	5.1	1.8	4 / 4	4.8	13	12	11	3.9	1.9
Beryllium	8 / 8	0.0070	0.085	0.027	0.035	0.023	0.0083	4 / 4	0.038	0.086	0.057	0.059	0.020	0.010
Bismuth	8 / 8	0.0028	0.027	0.0069	0.0095	0.0078	0.0027	4 / 4	0.0074	0.016	0.011	0.011	0.0040	0.0020
Boron	8 / 8	3	14	6.3	7.3	3.5	1.2	4 / 4	4.2	7.4	4.9	5.3	1.5	0.76
Cadmium	8 / 8	0.42	1.1	0.74	0.75	0.25	0.089	4 / 4	0.59	1.8	0.79	0.99	0.55	0.27
Calcium	8 / 8	2,000	10,000	5,000	6,100	2,900	1,000	4 / 4	1,600	6,000	2,200	3,000	2,000	1,000
Chromium	8 / 8	0.41	4.5	1.5	1.9	1.2	0.43	4 / 4	1.2	2.6	1.6	1.8	0.63	0.32
Cobalt	8 / 8	0.29	4.1	1.1	1.5	1.2	0.42	4 / 4	0.85	2.1	1.2	1.3	0.57	0.28
Copper	8 / 8	1.4	4	2	2.3	0.91	0.32	4 / 4	1.8	3.2	2.5	2.5	0.62	0.31
Iron	8 / 8	400	5,100	2,000	2,400	1,700	600	4 / 4	960	2,700	1,600	1,700	700	350
Lead	8 / 8	0.051	1.62	0.73	0.73	0.51	0.18	4 / 4	0.96	3.0	2.2	2.1	0.91	0.46
Magnesium	8 / 8	1,100	5,000	2,600	2,900	1,200	440	4 / 4	1,200	2,100	1,600	1,600	380	190
Manganese	8 / 8	20	440	130	180	140	49	4 / 4	76	190	110	120	54	27
Mercury	8 / 8	0.014	0.044	0.029	0.028	0.011	0.0039	4 / 4	0.017	0.028	0.021	0.022	0.0050	0.0025
Molybdenum	8 / 8	0.13	0.65	0.28	0.36	0.18	0.063	4 / 4	0.20	0.38	0.25	0.27	0.086	0.043
Nickel	8 / 8	0.54	4	1.5	1.9	1.1	0.38	4 / 4	1.0	2.3	1.4	1.5	0.56	0.28
Phosphorus	8 / 8	1,000	1,500	1,300	1,300	190	67	4 / 4	1,100	2,300	1,400	1,500	560	280
Potassium	8 / 8	1,100	1,700	1,400	1,400	240	86	4 / 4	1,100	1,500	1,400	1,300	170	87
Selenium	8 / 8	0.67	1.9	1.4	1.4	0.43	0.15	4 / 4	1.3	1.7	1.4	1.4	0.20	0.10
Silver	8 / 8	0.0042	0.022	0.0091	0.0097	0.0057	0.002	4 / 4	0.0055	0.034	0.024	0.022	0.014	0.0049
Sodium	8 / 8	3,300	6,300	4,500	4,700	980	350	4 / 4	3,500	4,200	3,600	3,700	280	140
Strontium	8 / 8	10	45	21	24	12	4.2	4 / 4	11	46	15	22	17	8.3
Thallium	8 / 8	0.0039	0.045	0.013	0.018	0.013	0.0046	4 / 4	0.0090	0.019	0.014	0.014	0.0046	0.0023
Tin	7 / 8	<0.020	0.1	0.04	0.045	0.029	0.01	4 / 4	0.036	0.083	0.061	0.060	0.019	0.0096
Titanium	8 / 8	5.1	53	19	23	15	5.4	4 / 4	19	49	30	32	13	6.3
Uranium	8 / 8	0.013	0.27	0.1	0.12	0.079	0.028	4 / 4	0.27	0.47	0.38	0.37	0.085	0.043
Vanadium	8 / 8	0.78	7.8	2.4	3.2	2.2	0.77	4 / 4	1.9	5.1	3.2	3.3	1.3	0.67
Zinc	8 / 8	7.3	20	18	16	4.5	1.6	4 / 4	14	26	17	18	5.3	2.6

Data for previous monitoring years presented in Appendix 7C, Table 7C-10.

N > DL / N Total = number of samples above DL / sample size; mg/kg = milligram per kilogram wet weight; > = greater than; DL = detection limit; N = sample size; min = minimum; max = maximum; SD = standard deviation; SE = standard error.

7.4.2.2 Temporal Comparisons

7.4.2.2.1 Arctic Char

Tissue Metals

From 2018 to 2023, a total of 105 Arctic Char were analyzed for metals from the Milne Port area. Summary statistics for metals concentrations from Arctic Char collected in 2023 are provided in Table 7-17 (data from all years are presented as boxplots in Appendix 7D, Figures 7D-1 to 7D-31). Statistical evaluation of trends in COPCs (i.e., aluminum, iron, magnesium, mercury, and selenium) among years (i.e., 2018 to 2023) are provided Table 7-18 and Appendix 7C.

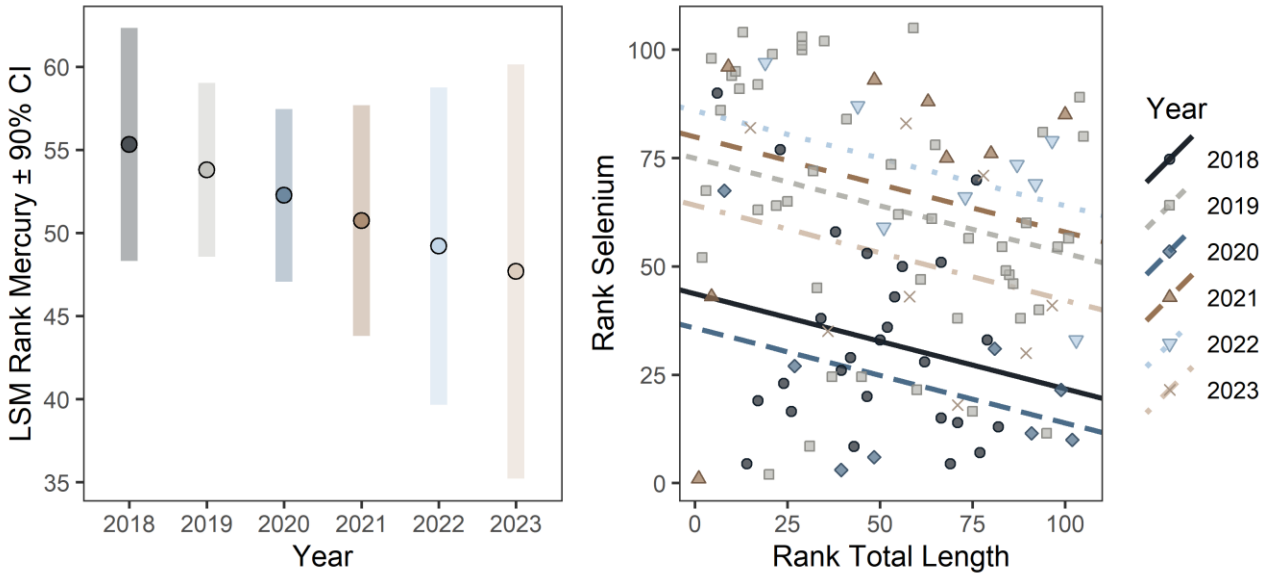
Concentrations of many metals were similar among years, however some demonstrated notable inter-annual variability (e.g., copper, iron, selenium, zinc; Appendix 7D, Figures 7D-1 to 7D-31). Among COPCs, no significant temporal trends were observed for aluminum, mercury, and selenium, while significant trends were observed among years for iron and magnesium (Table 7-18):

- Rank-transformed iron concentrations in Arctic Char demonstrated a significant increasing trend from 2018 to 2023. Median concentrations displayed interannual variability pre-2022, but increased between 2022 and 2023 (RPD: 44%) compared to previous years (Appendix 7D Figure 7D-13).
- Magnesium concentrations in Arctic Char demonstrated a significant increasing trend from 2018 to 2023. Median magnesium concentrations displayed interannual variability over the sampling period, increasing steadily from 2018 to 2022, with median concentration decreasing by approximately 6% in 2023 to levels comparable to those observed in 2019 and 2020 (Appendix 7D Figure 7D-15).

A power analysis for COPCs indicated that target sample sizes of eight Arctic Char of mixed sex per sampling area would be sufficient to detect differences in concentrations ranging from 9% for magnesium to 92% for aluminum (Table 7-18).

From 2018 to 2023, mercury concentrations showed no statistical relationship between fish length or weight in Arctic Char. Therefore, mercury concentrations in Arctic Char were evaluated for temporal trends without adjusting for a covariate (Figure 7-30): no significant temporal trends were observed (Table 7-18). In contrast, selenium concentrations were significantly, positively associated with fish length (Figure 7-30) and after adjusting for length, no significant temporal trends were observed (Table 7-18)

Mercury concentrations for all Arctic Char sampled from 2018 to 2023 were below Health Canada's Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada 2015), with tissue mercury concentrations ranging from 0.011 to 0.297 mg/kg ww. Selenium concentrations for Arctic Char were also below the BC MOE fish tissue guidelines of 4 mg/kg dw (BC MOE 2014), with tissue concentrations ranging from 0.912 to 3.19 mg/kg dw from 2018 to 2023.



LSM = least squares mean; CI = confidence interval.

Note: rank transformation results in unitless values.

Figure 7-30: Concentrations of Mercury and Selenium in Relation to Total Length for Arctic Char Sampled from the Milne Port Area, 2018 to 2023

Polycyclic Aromatic Hydrocarbons

From 2010 to 2022, a total of 56 Arctic Char were analyzed for polycyclic aromatic hydrocarbons (PAHs) from the Milne Port area. In 2023, a total of eight Arctic Char were analyzed for PAHs in muscle tissue. Concentrations of PAHs were below DLs for all parameters analyzed in Arctic Char (Appendix 7C, Table 7C-6).

Results of chemical analyses of metals and PAHs in Arctic Char tissues were within FEIS predictions and FEIS addenda, which are consistent with low magnitude increases in fish tissue concentrations of metals and/or PAHs associated with release of site drainage. These results do not exceed predicted effects on fish tissue chemistry due to Project activities.

Table 7-17: Descriptive Statistics for Arctic Char Tissue Chemistry Data Analyzed from 2023

Parameter (mg/kg ww)	2023						
	N > DL / N Total	Min	Max	Median	Mean	SD	SE
Arctic Char							
Aluminum	6 / 8	<0.20	0.87	0.33	0.37	0.26	0.092
Antimony	0 / 8	<0.0010	<0.0010	-	-	-	-
Arsenic	8 / 8	0.45	1.3	0.77	0.85	0.31	0.11
Barium	6 / 8	<0.010	0.018	0.011	0.011	0.0052	0.0019
Beryllium	0 / 8	<0.0010	<0.0010	-	-	-	-
Bismuth	0 / 8	<0.0010	<0.0010	-	-	-	-
Boron	0 / 8	<0.20	<0.20	-	-	-	-
Cadmium	8 / 8	0.0015	0.012	0.0024	0.0040	0.0036	0.0013
Calcium	8 / 8	70	530	180	210	140	50
Chromium	2 / 8	<0.010	0.029	<0.010	<0.010	0.0086	0.0030
Cobalt	8 / 8	0.0020	0.0075	0.0047	0.0045	0.0017	0.00062
Copper	8 / 8	0.29	0.63	0.33	0.38	0.13	0.045
Iron	8 / 8	3.6	13	6.6	6.8	2.8	1.0
Lead	7 / 8	<0.0010	0.0055	0.0027	0.0030	0.0017	0.00058
Magnesium	8 / 8	260	350	300	300	32	11
Manganese	8 / 8	0.080	0.19	0.11	0.12	0.038	0.013
Mercury	8 / 8	0.012	0.059	0.024	0.029	0.015	0.0054
Molybdenum	0 / 8	<0.0040	<0.0040	-	-	-	-
Nickel	5 / 8	<0.010	0.024	0.012	0.012	0.0067	0.0024
Phosphorus	8 / 8	2,700	3,600	3,200	3,100	280	100
Potassium	8 / 8	3,800	5,200	4,700	4,600	480	170
Selenium	8 / 8	0.32	0.43	0.34	0.37	0.046	0.016
Silver	3 / 8	<0.0010	0.0036	<0.0010	0.0013	0.0013	0.00047
Sodium	8 / 8	260	430	350	350	51	18
Strontium	8 / 8	0.12	1.4	0.29	0.41	0.40	0.14
Thallium	8 / 8	0.0020	0.0048	0.0022	0.0026	0.00098	0.00035
Tin	0 / 8	<0.020	<0.020	-	-	-	-
Titanium	8 / 8	0.085	0.12	0.10	0.10	0.014	0.0049
Uranium	4 / 8	<0.00040	0.00061	<0.00040	<0.00040	0.00018	0.000065
Vanadium	0 / 8	<0.020	<0.020	-	-	-	-
Zinc	8 / 8	3.6	6.1	5.0	4.8	0.79	0.28

Data for previous monitoring years presented in Appendix 7C, Table 7C-11.

N > DL / N Total = number of samples above DL / sample size; mg/kg ww = milligram per kilogram wet weight; > = greater than; DL = detection limit; SD = Standard deviation; SE = standard error.

Table 7-18: Summary of Inter-annual Comparisons of Constituents of Potential Concern in Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Samples Collected from the Milne Port Area from 2018 to 2023

Parameter	Test	*n* Outliers	Sample Size						Coefficient of Determination (R^2)	Trend *P*-value	Slope Direction[a]	Least Squares Means[b]						Power Analysis[c]	
			2018	2019	2020	2021	2022	2023				2018	2019	2020	2021	2022	2023	Minimum Detectable Difference[d]	Sensitivity[e]
Arctic Char																			
Aluminum	LR_{rank}	0	26	47	8	8	8	8	0.017	0.184	-	49	52	54	57	59	62	0.359	92%
Iron	LR_{rank}	0	26	47	8	8	8	8	0.051	**0.020**	↑	46	51	55	60	64	69	2.85	57%
Magnesium	LR	0	26	47	8	8	8	8	0.062	**0.011**	↑	293	297	301	305	310	314	28.8	9%
Mercury	LR_{rank}	0	26	47	8	8	8	8	0.006	0.441	-	55	54	52	51	49	48	0.025	54%
Selenium	$ANCOVA_{rank}$[f]	0	26	47	8	8	8	8	0.396	0.353	-	32	63	24	79	75	53	0.082	21%
Fourhorn Sculpin																			
Aluminum	LR_{log}	0	-	30	8	8	8	8	0.319	**<0.001**	↓	-	0.211	0.043	-0.126	-0.295	-0.463	0.869 / 2.48	65% / 186%
Iron	LR_{log}	0	-	30	8	8	8	8	0.079	**0.027**	↓	-	0.928	0.896	0.863	0.831	0.799	2.72 / 4.33	37% / 59%
Magnesium	LR	1	-	29	8	8	8	8	0.025	0.223	-	-	280	277	273	270	267	38.0	14%
Mercury	$ANCOVA_{log}$[f,g]	0	-	30	8	8	8	8	0.709	0.614	-	-	-0.998	-0.981	-0.900	-0.792	-1.005	2.44 / 3.41	28% / 40%
Selenium	$ANCOVA_{log}$[f,g]	0	-	30	8	8	8	8	0.496	0.266	-	-	-0.318	-0.380	-0.356	-0.316	-0.263	0.280 / 0.322	13% / 15%
Hiatella arctica																			
Aluminum	LR_{log}	1	24	79	8	8	8	8	<0.001	0.989	-	2.86	2.86	2.86	2.86	2.86	2.86	306 / 527	42% / 72%
Iron	LR_{log}	1	24	80	8	8	8	7	0.050	**0.009**	↑	3.23	3.27	3.31	3.34	3.38	3.42	902 / 1572	43% / 74%
Magnesium	LR_{log}	0	24	80	8	8	8	8	0.004	0.470	-	3.54	3.53	3.52	3.51	3.50	3.49	1229 / 1968	38% / 60%
Mercury	LR_{log}	0	24	80	8	8	8	8	0.004	0.468	-	-1.54	-1.54	-1.53	-1.52	-1.51	-1.51	12 / 18	35% / 54%
Selenium	LR_{log}	2	23	80	8	8	8	7	0.022	**0.089**	↑	0.11	0.12	0.13	0.14	0.15	0.16	0.25 / 0.31	19% / 23%

Notes: Significant differences indicated in **bold**. Supporting information for statistical model results are provided in Appendix 7C, Table 7C-13.

(a) Slope directions are presented only for statistically significant trends.

(b) Least squares means were calculated using linear regression relationships for linear regression models for each sampling year. For rank-transformed models, rank least squares means are presented.

(c) For log_{10}-transformed models, power analysis was completed for differences less than and greater than the overall mean. Minimum detectable difference and sensitivity were determined using back-transformed values and are presented as: differences lower than / greater than the mean.

(d) Minimum Detectable Difference expressed as difference from the overall mean.

(e) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(f) Length was included as a covariate for ANCOVA.

(g) Parameter concentrations were compared at 217 mm length due to narrow range of covariate overlap.

n = number; *P*-value = probability value; RPD = relative percent difference; LR = linear regression; ANOVA = analysis of variance; ANCOVA = analysis of covariance; log = log_{10}-transformed data; rank = rank-transformed data; - = not calculated.

7.4.2.2.2 Fourhorn Sculpin

Tissue Metals

A total of 62 Fourhorn Sculpin samples were analyzed for metals from the Milne Port area from 2019 to 2023, including 30 samples in 2019, eight in 2020, eight in 2021, eight in 2022, and eight in 2023. Summary statistics for metals concentrations in 2023 are provided in Table 7-14; results from all monitoring years are presented as boxplots in Appendix 7D, Figures 7D-1 to 7D-31 and as summary statistics in Appendix 7C, Tables 7C-9 to 7C-11. Statistical comparisons for COPCs among years are provided in Table 7-18.

Concentrations of metals in Fourhorn Sculpin were generally more variable than Arctic Char (Section 7.4.2.2.1). Significant trends in COPC concentrations were observed among years for aluminum and iron, but not for magnesium, mercury, or selenium (Table 7-18):

- Log-transformed aluminum concentrations in Fourhorn Sculpin demonstrated a significant decreasing trend from 2019 to 2023 (Table 7-18). Median concentrations were greatest in 2019, which declined and became more variable from 2020 to 2022, and declined again in 2023 (Appendix 7D, Figure 7D-1).
- Log-transformed iron concentrations in Fourhorn Sculpin demonstrated a significant decreasing trend from 2019 to 2023. Median concentrations were greatest in 2019, declined in 2020, and remained relatively stable until 2023 (Appendix 7D, Figure 7D-13).
- Mercury and selenium concentrations were significantly related to fish length (Figure 7-31Table 7-18). However, after adjusting for fish length, no significant trends in mean mercury or selenium concentrations were observed in Fourhorn Sculpin (Table 7-18).

A power analysis for COPCs indicated that target sample sizes of eight Fourhorn Sculpin per sampling area would be sufficient to detect differences in concentrations ranging from 13-15% for selenium to 65-186% for aluminum.

Mercury concentrations for all Fourhorn Sculpin sampled from 2019 to 2023 were below Health Canada's Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada 2015), ranging from 0.055 to 0.43 mg/kg ww. Selenium concentrations were also below BC MOE fish tissue guidelines of 4 mg/kg dw (BC MOE 2014), with tissue concentrations in Fourhorn Sculpin from the Milne Port area ranging from 1.72 to 3.57 mg/kg dw from 2019 to 2023.

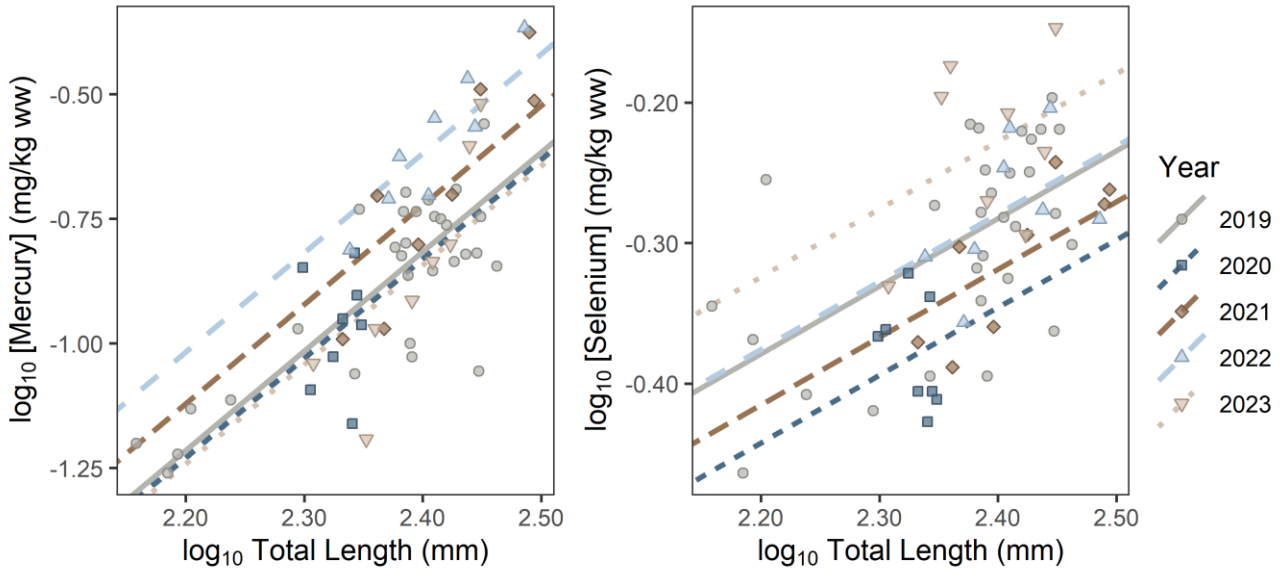


Figure 7-31: Concentrations of Mercury and Selenium in Relation to Total Length for Fourhorn Sculpin Sampled from the Milne Port Area, 2019 to 2023

Polycyclic Aromatic Hydrocarbons

From 2020 to 2023, a total of 32 Fourhorn Sculpin samples have been analyzed for PAHs, comprising eight samples per sampling year. In 2023, eight Fourhorn Sculpin were analyzed for PAHs in muscle tissue. Polycyclic aromatic hydrocarbons were below DL for all parameters analyzed in Fourhorn Sculpin (Appendix 7C, Table 7C-7).

Results of chemical analyses of metals and PAHs in Fourhorn Sculpin tissues were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude increases in fish tissue concentrations of metals and/or PAHs associated with release of site drainage. Results presented herein do not exceed predicted effects on fish tissue chemistry due to Project activities.

7.4.2.2.3 Hiatella arctica

Tissue Metals

A total of 136 *H. arctica* samples were analyzed for metals from the Milne Port area from 2018 to 2023, including 24 samples in 2018, 80 in 2019, eight in 2020, eight in 2021, eight in 2022, and eight in 2023. Summary statistics for *H. arctica* metals concentrations are provided in Table 7-16 and these results are presented as boxplots in Appendix 7D, Figures 7D-1 to 7D-31. Statistical comparisons for COPCs among years are provided in Table 7-18.

Concentrations of metals in *H. arctica* tissue were generally similar among years with a few exceptions. Chromium, nickel, and tin exhibited more variability and greater concentrations in 2020 relative to other years. Greater concentrations of most metals were observed for *H. arctica* when compared to Arctic Char and Fourhorn Sculpin (Appendix 7D, Figures 7D-1 to 7D-31). Differences in species-specific bioaccumulation processes (e.g., filter feeder versus non-filter feeder) and tissue type (i.e., whole body versus muscle) likely contributed to the

interspecies differences in tissue metal concentrations observed, with molluscs typically accumulating greater concentrations of some metals compared to fish (Bonsignore et al. 2018).

For COPCs, significant increasing trends in concentrations were observed for iron and selenium (Table 7-18). For iron, median concentrations increased from 2018 to 2019, after which they remained relative stable, showing only minor interannual variability (Appendix 7D, Figures 7D-13). The slope coefficient associated with the trend indicated iron concentrations have increased from 2018 to 2023. For selenium, median concentrations were relatively stable over time, showing minimal interannual variability (Appendix 7D, Figures 7D-22). However, the slope coefficient associated with the trend indicates selenium concentrations have increased from 2018 to 2023. The magnitude of observed trends are not considered ecologically relevant.

Concentrations of mercury and selenium in *H. arctica* were compared with fish tissue and invertebrate tissue guidelines, respectively. While the mercury guideline is not intended for bivalves, comparisons can provide consistent context for tissue chemistry results among the species monitored in the MEEMP. Mercury concentrations for all *H. arctica* sampled from 2018 to 2023 were below Health Canada's Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada 2015).

Polycyclic Aromatic Hydrocarbons

From 2020 to 2023, a total of 22 samples of *H. arctica* were analyzed for PAHs. In 2023, two samples of *H. arctica* were analyzed for PAHs in soft tissues in order to meet minimum mass requirements for laboratory analysis. Polycyclic aromatic hydrocarbons were below DLs for all parameters analyzed in *H. arctica* (Appendix 7C, Table 7C-8).

Results of chemical analyses of metals and PAHs in *Hiatella arctica* tissues were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude increases in fish tissue concentrations of metals and/or PAHs associated with release of site drainage. Results presented herein do not exceed predicted effects on fish tissue chemistry due to Project activities.

7.5 TARP Assessment

7.5.1 Fish Health

Results of fish health endpoint assessments were screened against the TARP criteria (Table 7-19). The 'Low Risk' threshold was exceeded for endpoints that were significantly different between Milne Port and the relevant reference area, with a magnitude of effect exceeding the CES. In addition, the direction of effect must be indicative of a potential impairment to fish health. In 2023, one fish health endpoint in Fourhorn Sculpin exceeded the 'Low Risk' threshold. Female Fourhorn Sculpin relative gonad weight was significantly different between Milne Port and Koluktoo Bay, and the associated effect size (-31%) exceeded the CES (±25%) in a direction indicative of an impairment to fish health. No additional endpoints for Fourhorn Sculpin and none of the fish health endpoints for *H. arctica* exceeded TARP thresholds.

Table 7-19: Comparison of Fish Health Endpoints for Fourhorn Sculpin and *Hiatella arctica* with TARP Thresholds, MEEMP 2023

TARP Performance Indicators	CES[(a)]	2023 MEEMP Results		Threshold Exceeded	
		Female	Male	Female	Male
Fourhorn Sculpin					
Age	±25%	=	Milne < Reference	None	None
Size-at-age (i.e., total weight at age)	±25%	**Milne > Reference**	**Milne > Reference**	None	None
Condition as relative weight (i.e., total weight at total length)	±10%	**Milne > Reference**	=	None	None
Relative liver weight (i.e., liver weight at total weight)	±25%	Milne < Reference	=	None	None
Relative gonad weight (i.e., gonad weight at total weight)	±25%	**Milne < Reference**	=	Low Risk	None
Hiatella arctica					
Length-frequency analysis	-	=		None	
Whole animal wet weight	-	=		None	
Condition as relative weight (i.e., whole animal wet weight at total length)	-	=		None	
Relative shell weight (i.e., dry shell weight at total length)	-	=		None	
Relative gonad weight (i.e., gonad weight at whole animal wet weight)	-	=		None	

Non-bolded values indicate a significant difference ($P < 0.10$) that does not exceed the CES. **Bold** values indicate a significant difference ($P < 0.10$) exceeding the CES. Underlined values indicate a magnitude of effect greater than the CES in a direction indicative of a potential impairment to fish health.

(a) There are no critical effect sizes associated with shellfish health endpoints (Environment Canada 2012).

TARP = Trigger Action Response Plan; '=' = no statistically significant difference ($P > 0.10$); '-' = not applicable.

7.5.2 Fish Tissue Chemistry

Results of fish tissue chemistry assessments were screened against the TARP criteria (Table 7-20). In 2023, concentrations of selenium in Fourhorn Sculpin and magnesium in *H. arctica* were significantly different between Milne Port and the relevant reference area (Koluktoo Bay and Tugaat River Estuary, respectively). However, the magnitudes of observed effects were below the CES (+100%) or in a direction not consistent with Project-related effects. Thus, no tissue chemistry endpoints exceeded TARP thresholds in 2023.

Table 7-20: Comparison of Fish Tissue Chemistry Endpoints for Fourhorn Sculpin and *Hiatella arctica* with TARP Thresholds, MEEMP 2023

TARP Performance Indicators	2023 MEEMP Results	Threshold Exceeded
Fourhorn Sculpin		
Aluminum	=	None
Iron	=	None
Magnesium	=	None
Mercury	=	None
Selenium	Milne < Reference	None
Hiatella arctica		
Aluminum	=	None
Iron	=	None
Magnesium	Milne > Reference	None
Mercury	=	None
Selenium	=	None

Unbolded values indicate a significant difference ($P < 0.10$) with a magnitude of effect below the CES. **Bold** values indicate a significant difference ($P < 0.10$) exceeding the CES.

TARP = Trigger Action Response Plan; '=' = no statistically significant difference ($P > 0.10$).

7.6 Discussion

7.6.1 Fish Health

Detailed fish health data were collected for Fourhorn Sculpin and *H. arctica* from Milne Port annually from 2020 to 2023 and from reference areas in 2023 (i.e., Koluktoo Bay [Fourhorn Sculpin] and Tugaat River Estuary [*H. arctica*]). In addition, biometric data for Arctic Char were collected from incidental mortalities from Milne Inlet in 2021, 2022, and 2023, to support the evaluation of Arctic Char health and condition. A summary of results of the fish health assessment for Fourhorn Sculpin and *H. arctica* is provided in Table 7-21 and Table 7-22, respectively.

Table 7-21: Summary of Results of Fish Health Assessment for Fourhorn Sculpin, MEEMP 2023

Fish Health Endpoint	CES	Fourhorn Sculpin	
		Female	Male
Spatial Comparisons			
Age	±25%	-	Milne < Reference (-20%)
Size-at-age (i.e., total weight at age)	±25%	Age 5: Milne > Reference (**37%**) Age 9: Milne > Reference (**84%**)	Milne > Reference (**50%**)
Condition as relative weight (i.e., total weight at total length)	±10%	Milne > Reference (**10%**)	-
Relative liver weight (i.e., liver weight at total weight)	±25%	Milne < Reference (-17%)	-
Relative gonad weight (i.e., gonad weight at total weight)	±25%	Milne < Reference (**-31%**)	-

Fish Health Endpoint	CES	Fourhorn Sculpin	
		Female	Male
Temporal Comparisons			
Age	n/a	Significant differences (15-33%) No trend	Significant differences (33%) 2022 > 2020
Size-at-age (i.e., total weight at age)	n/a	-	Significant differences (19-25%) 2023 > 2020, 2021
Condition as relative weight (i.e., total weight at total length)	n/a	Significant differences (10-16%) No trend	Significant differences (8-12%) No trend
Relative liver weight (i.e., liver weight at total weight)	n/a	Significant differences (31%) 2023 > 2020	Significant differences (35-48%) 2023 > 2020, 2021
Relative gonad weight (i.e., gonad weight at total weight)	n/a	-	Significant differences (24-38%) 2023 > 2020, 2021, 2022

The reference area for Fourhorn Sculpin is Koluktoo Bay. Magnitudes of effect (spatial comparisons) and relative percent differences (temporal comparisons) are presented in parentheses. **Bold** values indicate magnitudes of effect greater than the CES. Underlined values indicate magnitudes of effect exceeding the CES that are potentially indicative of an impairment to fish health.

CES = critical effect size; - = not significantly different; n/a = not applicable.

Table 7-22: Summary of Results of Fish Health Assessment for *Hiatella arctica*, MEEMP 2023

Fish Health Endpoint	CES[(a)]	Spatial Comparisons	Temporal Comparisons
Hiatella arctica			
Length-frequency analysis	n/a	-	-
Whole animal wet weight	n/a	-	Significant differences (20-27%) 2023 > 2020, 2021
Condition as relative weight (i.e., whole animal wet weight at total length)	n/a	-	Significant differences (11-17%) 2023 > 2021, 2022
Relative shell weight (i.e., dry shell weight at total length)	n/a	-	Significant differences (17-18%) 2021 > 2020, 2022
Relative gonad weight (i.e., gonad weight at whole animal wet weight)	n/a	-	Min Weight: Significant differences (66-122%) Max Weight: Significant differences (40-114%)

The reference area for *Hiatella arctica* is Tugaat River Estuary. Magnitudes of effect (spatial comparisons) and relative percent differences (temporal comparisons) are presented in parentheses.

(a) The CES is applied to spatial comparisons only.

CES = critical effect size; - = not significantly different; n/a = not applicable.

For Arctic Char, significant interannual differences were observed for condition factor. Mean condition factor was significantly lower in 2023 relative to 2022, but did not differ among other sampling years: the relative difference among years was approximately 12%. Observed variation in Arctic Char condition factor likely reflected natural variability attributable to seasonal and interannual differences in the Arctic Char population of Milne Inlet.

For Fourhorn Sculpin, several fish health endpoints differed between Milne Port and the Koluktoo Bay reference area (Table 7-21). In female Fourhorn Sculpin, relative gonad weight was significantly lower in Milne Port compared to Koluktoo Bay, and the magnitude of effect was greater than the CES: this resulted in a 'Low Risk' threshold exceedance. Similar results were not observed for male Fourhorn Sculpin. Temporal comparisons of female relative gonad weight indicated no differences among sampling years (i.e., 2018 to 2023). Mean gonadosomatic index (GSI), a metric for relative gonad weight, has varied by 2-39% (as RPD) among sampling years for female Fourhorn Sculpin from Milne Port. Field assessment of gonadal development indicates that sample timing is appropriate for assessing reproductive endpoints in Fourhorn Sculpin, as mature females have been captured during multiple MEEMP surveys. Given reference data for Fourhorn Sculpin were first collected in 2023, it is uncertain whether observed differences represent expected variability within the species or if differences are indicative of potential effects of localized stressors. Interannual variability in GSI has been observed in many marine and freshwater fish species (e.g., Albo-Puigserver et al. 2021, Dixon et al. 2020, Kjesbu et al. 1998, Melnikova and Kuzminova 2020, Mori et al. 2011) as populations respond to long-term environmental fluctuations: interannual variation in GSI exceeding 30% is not abnormal within a given population. The observed range of interannual variability and the absence of a consistent trend in relative gonad weight over time in Milne Port together suggest the observed difference in relative gonad weight for female Fourhorn Sculpin between Milne Port and Koluktoo Bay may be a result of interannual variability. Continued monitoring will provide additional insight into the variability of fish health endpoints for this fish species.

Hiatella arctica health endpoints did not differ between Milne Port and Tugaat River Estuary (Table 7-22), however, interannual differences in growth (whole animal wet weight), condition (relative weight and relative shell weight), and MSI all differed significantly among sampling years. Relative differences ranged from 11% for relative weight to 122% for mantle somatic index. Given the limited data currently available for *H. arctica* in Milne Inlet (i.e., three years) and for Tugaat River Estuary (i.e., two years), it is uncertain whether observed differences represent expected variability within the species or if differences are indicative of potential effects of localized stressors. Given the wide range of ages reported in the sampled population of *H. arctica* from both Milne Port and Tugaat River Estuary (i.e., 7 to 76 years), it is expected that growth and condition would vary within the species depending on stage of life. In the absence of significant differences in *H. arctica* health between Milne Port and Tugaat River Estuary in 2023, it is assumed that differences among sampling years represent natural variability within *H. arctica*.

Sample timing of *H. arctica* appears to be appropriate for assessing reproductive endpoints, as gonads were retrieved from collected samples in 2021, 2022, and 2023 from Milne Port, and in 2022 and 2023 from Tugaat River Estuary. Timing of spawning for *H. arctica* may be associated with phytoplankton biomass and varies with geographical location (Brandner et al. 2017). Gonadal development for this species may also be asynchronous, with multiple overlapping spawning events occurring throughout the year, potentially leading to a high degree of variability in gonad size regardless of sample timing. While MSI data from 2023 do not exhibit high variability, observed differences between 2021, 2022, and 2023 suggest interannual variability in gonadal development. Additional data collected in future years will improve understanding of the variability in gonadal development for *H. arctica*.

Results of the fish health analysis for Arctic Char, Fourhorn Sculpin, and *Hiatella arctica* were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude reductions in fish health and condition associated with release of site drainage. Results presented herein do not exceed predicted effects on fish health due to Project activities.

7.6.2 Tissue Chemistry

A total of 36 metals and 27 PAH samples were submitted for tissue chemistry analysis in 2023, including 24 metals and 18 PAH samples from Milne Port and 12 metals and nine PAH samples from the reference areas. Metal concentrations were generally above DLs and variable among species and years. In 2023, concentrations of most COPCs did not differ significantly between Milne Port and the reference areas for Fourhorn Sculpin and *H. arctica*. There were statistically significant differences among years in most COPCs, but the magnitudes of differences were relatively small, and the measured concentrations of COPCs in 2023 remained within the range of historical variability for all species. Temporal trends in COPCs were rarely observed, indicating identified differences were likely a result of interannual variability, and the magnitude of trends were considered not ecologically relevant.

All tissue samples for Arctic Char, Fourhorn Sculpin and *H. arctica* collected from 2018 to 2023 were below Health Canada's Maximum Levels for Chemical Contaminants in Foods mercury consumption guideline of 0.5 mg/kg ww (Health Canada 2015). All tissue samples for Arctic Char and Fourhorn Sculpin were also below BC MOE fish tissue guidelines of 4 mg/kg dw for selenium (BC MOE 2014).

A summary of results of the fish tissue chemistry assessment for Arctic Char, Fourhorn Sculpin, and *H. arctica* is provided in Table 7-23.

Table 7-23: Summary of Results of Fish Tissue Chemistry Assessment for Arctic Char, Fourhorn Sculpin, and *Hiatella arctica*, MEEMP 2023

Tissue Chemistry Endpoint	CES[(a)]	Spatial Comparisons	Temporal Comparisons
Arctic Char			
Aluminum	100%	n/a	-
Iron	100%	n/a	Increasing trend
Magnesium	100%	n/a	Increasing trend
Mercury	100%	n/a	-
Selenium	100%	n/a	-
Fourhorn Sculpin			
Aluminum	100%	-	Decreasing trend
Iron	100%	-	Decreasing trend
Magnesium	100%	-	-
Mercury	100%	-	-
Selenium	100%	Milne < Reference (-12%)	-
Hiatella arctica			
Aluminum	100%	-	-
Iron	100%	-	Increasing trend
Magnesium	100%	Milne > Reference (82%)	-
Mercury	100%	-	-
Selenium	100%	-	-

As Arctic Char are highly mobile pelagic fish, there is no reference area for Arctic Char. The reference area for Fourhorn Sculpin is Koluktoo Bay, and the reference area for *Hiatella arctica* is the Tugaat River Estuary. Magnitudes of effect (spatial comparisons) and relative percent differences (temporal comparisons) are presented in parentheses.
(a) The CES is applied to spatial comparisons only.
CES = critical effect size; - = not significantly different; n/a = not applicable.

Concentrations of metals in sedentary, filter-feeding organisms like *H. arctica* tend to reflect the environment in which they live (Bonsignore et al. 2018; Checa et al. 2007; Shumway 1977). Concentrations of magnesium in *H. arctica* from Milne Port were significantly greater than concentrations at Tugaat River Estuary. Magnesium is an essential element for life, functioning as a key metal involved with cellular function, metabolism, energy storage and transfer, and enzyme function (Gaál et al. 2004; Rubin 1975; Wolf and Cittadini 1999). In bivalves, magnesium is also used for shell development, incorporated as the calcareous mineral aragonite (Dodd 1967; Checa et al. 2007). Given the vital role magnesium plays in living tissues, organisms are capable of bioregulating magnesium concentrations in their tissues. Differences in water chemistry between Tugaat River Estuary and Milne Port are likely contributing to observed differences in tissue chemistry.

Consistent with previous years, concentrations of most metals were greater in *H. arctica* compared to Arctic Char and Fourhorn Sculpin. Molluscs tend to accumulate metals (from both natural and anthropogenic sources) to a greater degree compared to fish (Bonsignore et al. 2018), and this phenomenon is reflected in the *H. arctica* tissue chemistry results. Metals concentrations in *H. arctica* were consistently greater than those measured in Arctic Char and Fourhorn Sculpin, occasionally by orders of magnitude. Species-specific differences in bioaccumulation processes and the tissue types analyzed (i.e., whole body versus muscle) contribute to the differences observed in tissue metals concentrations among the monitored species. *Hiatella arctica* is a long-lived, sedentary, filter feeding mollusc closely associated with the sediment; these life-history characteristics increase the potential of *H. arctica* exposure to, and subsequent accumulation of, metals. The concentrations of metals and the observed trends reported herein in *H. arctica* are not considered to reflect ecologically relevant changes.

Tissue concentrations of PAHs were below DL for all Arctic Char, Fourhorn Sculpin, and *H. arctica* analyzed in 2023, consistent with previous monitoring programs. These results are consistent with water and sediment quality monitoring results, for which concentrations of PAHs were consistently below DL (Chapters 2.0, 3.0).

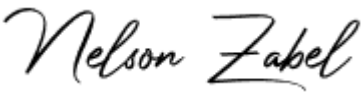
In summary, each sentinel fish species provides valuable information for the MEEMP. Arctic Char, a highly mobile and valued subsistence and commercial food fish species, provides ecologically relevant information regarding potential risk to human consumers, as well as large mammals. Fourhorn Sculpin, a benthic-dwelling species with a relatively small range, is an abundant fish species in the Project area, providing information on potential localized effects due to Project activities. Lastly, *H. arctica* have different feeding and life history strategies and, therefore, exposure potential compared to the finfish species. *Hiatella arctica* represent sedentary organisms, spending nearly their entire lives in one place. Their filter-feeding strategy results in continuous exposure to potential Project-related impacts on water quality, providing valuable information concerning potential risk to the benthic invertebrate and shellfish communities.

Results of chemical analyses of metals and PAHs in tissues from all species (Arctic Char, Fourhorn Sculpin, *Hiatella arctica*) were within FEIS predictions and FEIS addenda, which indicated the potential for low magnitude increases in fish tissue concentrations of metals and/or PAHs associated with release of site drainage. Results presented herein do not exceed predicted effects on fish tissue chemistry due to Project activities.

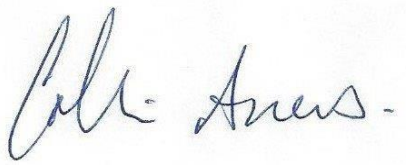
7.7 Conclusions and Recommendations

The MEEMP has been designed to meet the objectives of the various conditions associated with PC No. 005 (Chapter 1.0, Table 1-2), and to provide data and results to evaluate whether the marine environment is changing over time as a result of the Project. Original FEIS predictions, and FEIS addenda, indicated the potential for low magnitude changes in some ecological parameters, such as water quality and Arctic Char tissue chemistry, but characterised these changes as not ecologically significant. Monitoring data align with these predictions overall, as observed changes have been small and are consistent with baseline data or established guidelines. Monitoring to date suggests that Project mitigation is functioning as intended and that Project activities are being managed in a way that has not adversely affected marine fish health beyond the scope of the FEIS predictions, including addenda. Moving forward, continued monitoring of proposed MEEMP components is recommended to maintain continuity in established time series data for Arctic Char, and the ongoing collection of fish health and tissue chemistry data for Fourhorn Sculpin and *H. arctica* from Milne Port and relevant reference areas. These efforts will provide an ongoing dataset for use in monitoring effects of the Project to the marine environment into the future.

WSP Canada Inc.



Nelson Zabel, MSc, PBiol, RPBio
Experienced, Aquatic Scientist



Collin Arens, PhD
Lead, Aquatic Scientist



Rainie Sharpe, MSc, PhD, PBiol, RPBio
Principal, Aquatic Scientist

NZ/CA/RS/lih

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499g-r-rev0-70000/1663724-499g-r-rev0-70000-2023 meemp_7.0 fish health 15mar_24.docx

7.8 References

Albo-Puigserver M, Pennino MG, Bellido JM, Colmenero AI, Giráldez A, Hidalgo M, …, Coll M. 2021. Changes in life history traits of small pelagic fish in the western Mediterranean Sea. Frontiers in Marine Science 8: 570354.

Baffinland. 2024. Marine Monitoring Plan (MMP) - Draft. Document #: BAF-PH1-830-P16-0046. NIRB File No. 08MN053. Public Registry Identification No. 344992.

Barrett T, Tingley M, Munkittrick K, Lowell R. 2010. Dealing with heterogeneous regression slopes in analysis of covariance: new methodology applied to environmental effects monitoring fish survey data. Environmental Monitoring and Assessment 166: 279-291.

Bonsignore M, Manta DS, Mirto S, Quinci EM, Ape F, Montalto V, Gristina M, Traina Anna, Sprovieri M. 2018. Bioaccumulation of heavy metals in fish, crustaceans, molluscs and echinoderms from the Tuscany coast. Ecotoxicology and Environmental Safety 162: 554-562.

Brandner MM, Stubner E, Reed AJ, Gabrielsen TM, Thatje S. 2017. Seasonality of bivalve larvae within a high Arctic fjord. Polar Biology 40: 263-276.

British Columbia Ministry of Environment (BC MOE). 2014. Companion Document to: Ambient Water Quality Guidelines for Selenium Update. Water Protection and Sustainability Branch Environmental Sustainability and Strategic Policy Division British Columbia Ministry of Environment. 28pp.

Brown-Peterson NJ, Wyanski DM, Saborido-Rey F, Macewicz BJ, Lowerre-Barbieri SK. 2011. A standardized terminology for describing reproductive development in fishes. Marine and Coastal Fisheries: Dynamics Management and Ecosystem Science 3(1): 52-70.

Checa AG, Jiménez-López C, Rodríguez-Navarro A, Machado JP. 2007. Precipitation of aragonite by calcitic bivalves in Mg-enriched marine waters. Marine Biology 150: 819-827.

Dixon HJ, Harrison G, Lister AL, MacLatchy DL. 2020. Reproductive status of walleye (*Sander vitreus*) and lake whitefish (*Coregonus clupeaformis*) in two large, shallow Canadian subarctic lakes. Environmental Biology of Fishes 103: 1119-1136.

Dodd JR. 1967. Magnesium and strontium in calcareous skeletons: a review. Journal of Paleontology 1313-1329.

Environment Canada. 2012. Metal Mining Technical Guidance for Environmental Effects Monitoring. National EEM Office, Ottawa, ON, Canada.

Faul F, Erdfelder E, Buchner A, Lang A-G. 2009. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. Behavior Research Methods 41: 1149-1160.

Gaál KK, Sáfár O, Gulyás L, Stadler P. 2004. Magnesium in animal nutrition. Journal of the American College of Nutrition 23(6): 754S-757S.

Golder (Golder Associates Ltd.). 2018. Mary River Project 2017 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-048R-Rev1; 9 April 2018. 504 p. https://www.baffinland.com/_resources/document_portal/1663724-048-r-rev0-meemp-2017-report-20feb18-2018-16-05-01-2018-09-07-11.pdf

Golder. 2019. Mary River Project. 2018 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville ON.

Golder. 2020a. 2020 Milne Ore Dock Fish Offset Monitoring Report – *Fisheries Act* Authorization 14-HCAA-00525. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-250-R-Rev0; 21 December 2020. 71 p.

Golder. 2020b. Mary River Project. 2019 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville ON.

Golder. 2021. Mary River Project. 2020 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville ON.

Government of Canada. 2002. Metal and Diamond Mining Effluent Regulations (current to 11 January 2023 and last amended on 24 June 2022). SOR/2002-222. Available at: http://laws-lois.justice.gc.ca/eng/regulations/SOR-2002-222/. Accessed: 23 January 2024.

Health Canada. 2015. Health Canada's Maximum Levels for Chemical Contaminants in Foods. Available at https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/maximum-levels-chemical-contaminants-foods.html. Accessed: 26 January 2023.

Holm S .1979. A simple sequentially rejective multiple test procedure. Scandinavian Journal of Statistics 6: 65–70. https://www.jstor.org/stable/4615733.

Kjesbu OS, Witthames PR, Solemdal P, Walker M G. 1998. Temporal variations in the fecundity of Arcto-Norwegian cod (*Gadus morhua*) in response to natural changes in food and temperature. Journal of Sea Research 40(3-4): 303-321.

Melnikova EB, Kuzminova NS. 2020. Influence of Climatic Factors on the Interannual Changes of Gonadosomatic Index of the Red Mullet *Mullus barbatus ponticus* in the Coastal Crimean Waters. Ecologica Montenegrina 31: 10-19.

Mori J, Buitrón B, Perea A, Peña C, Espinoza C. 2011. Interannual variability of the reproductive strategy of the Peruvian anchovy off northern-central Peru. Ciencias Marinas 37(4B): 513-525.Peet RF. 1978. Data on the biology of Arctic char from the eastern Arctic, Northwest Territories. Can. Mar. Serv. MS Rep.: 43 p.

R Core Team. 2021. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

Rubin H. 1975. Central role for magnesium in coordinate control of metabolism and growth in animal cells. Proceedings of the National Academy of Sciences 72(9): 3551-3555.

Shumway Se. 1977. Effect of salinity fluctuation on the osmotic pressure and Na^+ and Ca^{2+} and Mg^{2+} ion concentrations in the hemolymph of bivalve molluscs. Marine Biology 41: 153-177.

Tukey JW. 1977. Exploratory data analysis. Addison-Wesley: Reading, MA, USA.

US EPA (United States Environmental Protection Agency). 1998. Evaluation of dredged material proposed for discharge in waters of the United States – Testing Manual (Inland Testing Manual). EPA-823-B-98-004. Washington, DC, USA.

Wolf FI, Cittadini A. 1999. Magnesium in cell proliferation and differentiation. Frontiers in Bioscience 4(4): D607-17.

Wood CM, Farrell A P, Brauner CJ. 2012. Homeostasis and Toxicology of Essential Metals (Vol. 31A). New York: Elsevier.

WSP Canada Inc. 2023. 2022 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species and Aquatic Invasive Species (NIS/AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville ON.

APPENDIX 7A

Reference Area Reconnaissance Memo

TECHNICAL MEMORANDUM

DATE 8 March 2024 **Project No.** 1663724-6400

TO Megan Lord-Hoyle, Vice-President, Sustainable Development
Baffinland Iron Mines Corp.

CC

FROM Lyndsey Stewart, Nelson Zabel, Collin Arens, Rainie Sharpe, Elaine Irving **EMAIL rainie.sharpe@wsp.com**

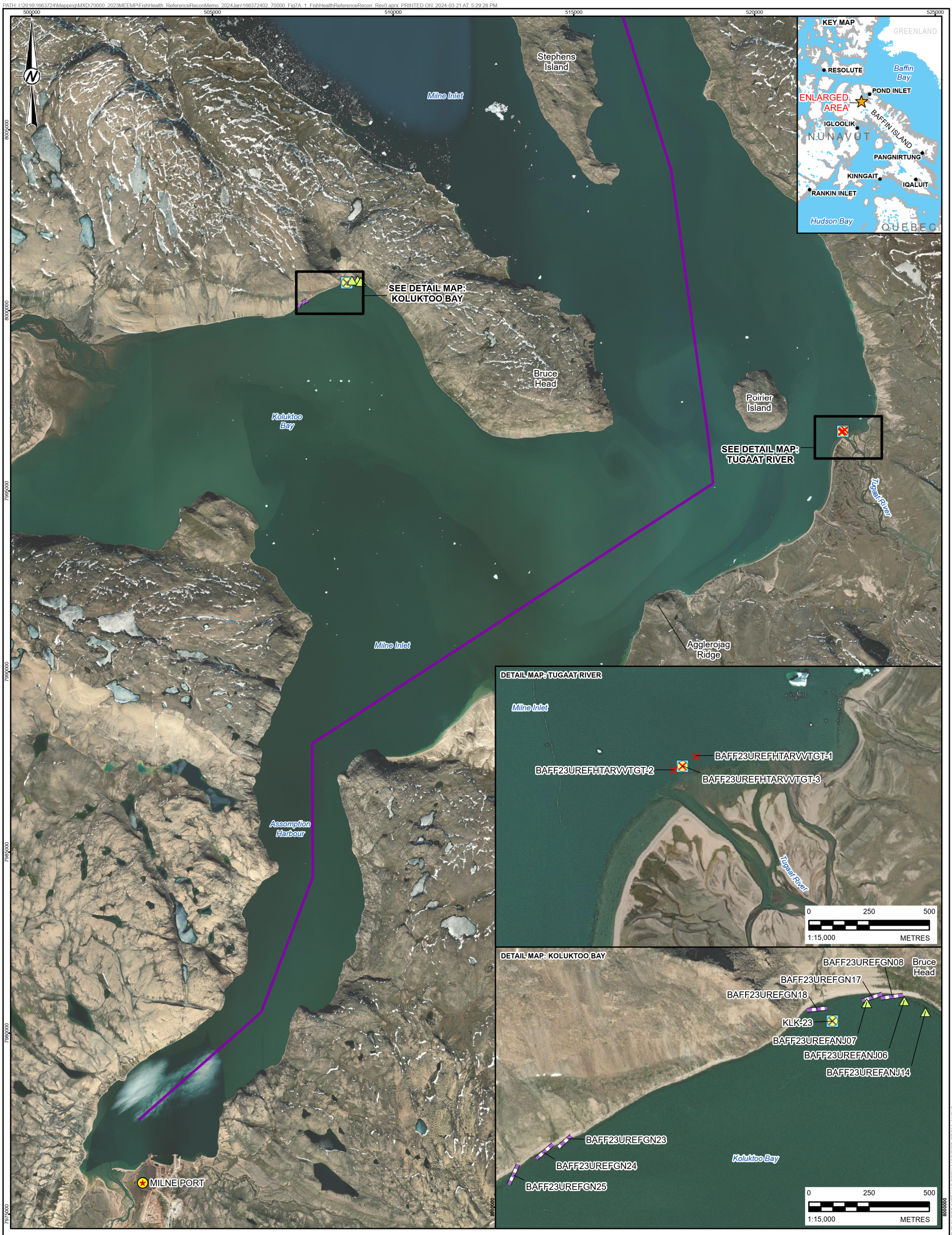
FISH HEALTH PROGRAM – 2023 KOLUKTOO BAY REFERENCE AREA RECONNAISSANCE

1.0 INTRODUCTION

One of the monitoring objectives for the 2023 MEEMP included a reference area reconnaissance survey. The selection of an appropriate reference area for the fish health and tissue chemistry program is necessary to support the MEEMP in future years and the incorporation of the Trigger Action Response Plan (TARP) as an adaptive management tool for the MEEMP program. To meet this objective, fish sampling was conducted in Koluktoo Bay (17W 509027m E 7997614m N; Figure 7A-1) in 2023 to evaluate whether the area was suitable for use as reference areas for Milne Port. *Hiatella arctica* sampling was conducted south of the Tugaat River (17X 0522444m E 7996648m N) as part of MEEMP study design.

The Tugaat River estuary was sampled for fish and *H. arctica* in 2021 and 2022 with Tugaat River fish sampling also conducted in 2022; reference area reconnaissance memos were included as Appendix 7A to the 2021 and 2022 MEEMP reports (Golder 2022; WSP Canada Inc. 2023). Given previous success at the Tugaat River estuary in collecting *H. arctica* but the limited success of targeted fish captures (Golder 2022; WSP Canada Inc. 2023), Tugaat River was deemed an appropriate reference area for *H. arctica* for the 2023 open-water season and was incorporated into the MEEMP Report Chapter 7.0 for the first time in 2023 (Sections 7.4 and 7.5). Supporting water and sediment quality sampling that occurred during sampling efforts in 2021 and 2023 was also incorporated into the report.

The 2023 reference area reconnaissance sampling program was completed concurrently with the 2023 MEEMP field program. The north shore of Koluktoo Bay was chosen for further reconnaissance given limited fishing success there during the 2022 reference area reconnaissance (WSP Canada Inc. 2023). Water quality, sediment quality, and fish community sampling was undertaken as part of the reconnaissance survey. Additionally, in an attempt to consolidate the reference areas, *H. arctica* sampling was attempted in Koluktoo Bay but no specimens were collected; therefore, the *H. arctica* reference area remained at the Tugaat River estuary. Koluktoo Bay does not represent a permanent addition to the MEEMP study design at this time, pending confirmation of the value of the Bay as a fish reference area.



LEGEND

- COMMUNITY
- MILNE PORT
- APPROXIMATE SHIPPING ROUTE
- WATERBODY

2023 FISH HEALTH RECON STATIONS

- ANGLING
- *Hiatella arctica* COLLECTED
- *Hiatella arctica* ATTEMPTED SAMPLING
- SEDIMENT QUALITY
- WATER QUALITY
- GILL NET

0 2 4
1:100,000 METRES

REFERENCE(S)

SHIPPING ROUTE DATA BY CLIENT, JULY 14, 2020. HYDROGRAPHY, POPULATED PLACE, AND PROVINCIAL BOUNDARY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. IMAGERY COPYRIGHT © 20230723 ESRI AND ITS LICENSORS. SOURCE: MAXAR. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTED COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
EXPLORATORY SAMPLING LOCATIONS IN KOLUKTOO BAY; MEEMP 2023

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	LS
PREPARED	AA
REVIEWED	AL
APPROVED	AL

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	7A-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

2.0 WATER QUALITY

Exploratory water quality sampling was completed on 8 August 2023 alongside the 2023 MEEMP field program. Field water quality measurements and water samples were collected at one station, KLK-23, on the north shore of Koluktoo Bay (Figure 7A-1).

2.1 Sampling Methods

A depth sounder was used to measure depth at the reference location prior to sampling. Field water quality measurements (i.e., pH, dissolved oxygen, salinity, conductivity, temperature, and turbidity) were taken just above the sediment surface at a depth of 1 m due to the shallow depth in the area (-1.1 m Chart Datum), using a calibrated water quality meter. Water samples were collected just below the surface from the Baffinland research vessel using a 2.0 L vertically oriented Kemmerer bottle sampler. The sampler was washed with laboratory-grade detergent and then rinsed with site-water prior to sample collection at the station. Samples were preserved in the field according to laboratory instructions. Samples for dissolved analyses were filtered in the field using 0.45 µm filters. Samples were kept refrigerated until they were shipped on ice in coolers within 48 hours to ALS Canada Ltd. (ALS), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited analytical laboratory. Water samples were submitted for analysis of the parameters measured at Milne Port in 2023 (Section 2.2.1) including major ions, nutrients, total and dissolved organic carbon, and total and dissolved metals.

2.2 Data Analysis

Water quality data collected at KLK-23 were screened against the applicable Canadian Council of Ministers of the Environment (CCME) water quality guidelines for the protection of marine aquatic life (CCME 1999, CCME 2002). A comparison was also made to water quality data collected at Milne Port in 2023 (Section 2.3.2).

2.3 Quality Assurance/Quality Control

A field duplicate sample was collected at KLK-23 on 08 August 2023. Laboratory quality assurance/quality control (QA/QC) reports were reviewed upon receipt to confirm adherence to sample hold times and laboratory data quality objectives (DQOs), and that the appropriate QA/QC information had been reported. Laboratory QA/QC included verification of recommended sample holding times and the analysis of laboratory control samples, laboratory duplicates, and spiked samples to assess precision and accuracy of analytical methods. In addition, QA/QC assessments are included in Chapter 2 Marine Water Quality and Appendix 2D, which are applicable to the reference area reconnaissance sampling described herein.

2.3.1 QA/QC Results

The 2023 water quality data for the reference area reconnaissance at Koluktoo Bay were considered valid and of acceptable quality to address the reconnaissance study objective, according to the following rationale:

- Analysis of water quality samples was completed within sample hold time requirements. The only exceptions were nitrate, nitrite, pH, and turbidity. Exceedances of holding times are common for these parameters when shipping samples from remote sampling locations.
- Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment.
- Results of duplicate comparisons using RPD indicated results were within data quality objectives (<20% RPD), with one exception: the RPD for turbidity between the parent sample and the duplicate (41%) exceeded the data quality objective.

The QA/QC results indicate that the water chemistry data collected during the reconnaissance area sampling were of acceptable quality. See Chapter 2.0 Marine Water Quality and Appendix 2D for further information regarding QA/QC assessment results.

2.4 Results and Discussion

Parameter concentrations measured in water quality samples collected in the Koluktoo Bay at KLK-23 were below CCME Aquatic Life Freshwater (AW-F) guidelines and within the concentration ranges documented for Milne Port in 2023 (see Table 7A-1). Similarly, dissolved oxygen, salinity, and temperature measurements at 1 m depth (i.e., just above the sediment surface) were within ranges measured at MP05 and MP06 in Milne Port in 2023 (see Table 2-1 in Section 2.2.1). Water quality in Koluktoo Bay was considered comparable to Milne Port water quality based on this evaluation of water quality data collected during the 2023 open-water season.

Table 7A-1 Water Quality Laboratory Results in Koluktoo Bay, 2023

Sample ID / Date Sampled / Lab Sample ID / QAQC / Parent Sample ID / Parameter	CCME AW-F[1]	Lowest Detection Limit	Unit	KLK-23 8-Aug-23 VA23B8529-002 FDA	DUP-F-23 8-Aug-23 VA23B8529-003 FD	Mean	Relative Percent Difference (RPD)	Difference Factor (DF)
Anions + Nutrients								
Alkalinity, Total as CaCO3		1.0	mg/L	75	76	75	0%	NA
Bromide (Br)		5.0	mg/L	26	25	25	2%	NA
Chloride (Cl)		50	mg/L	7710	7570	7640	2%	NA
Fluoride (F)		0.20	mg/L	0.40	0.40	0.40	NA	0.0
Nitrate (as N)		0.010	mg/L	<0.010	<0.010	NC	NC	NC
Nitrite (as N)		0.010	mg/L	<0.010	<0.010	NC	NC	NC
Ammonia (as N)		0.0050	mg/L	<0.0050	<0.0050	NC	NC	NC
Total Kjeldahl Nitrogen		0.050	mg/L	0.081	0.076	0.1	NA	0.1
Total Nitrogen		0.080	mg/L	0.101	0.096	0.1	NC	NC
Total Phosphorus		0.0020	mg/L	0.0073	0.0074	0.0	NA	0.1
Dissolved Phosphorus		0.0020	mg/L	0.0059	0.0083	0.0	NA	1.2
Sulfate (SO4)		3.0	mg/L	1040	1040	1040.0	0%	NA
Carbons								
Dissolved Organic Carbon		0.5	mg/L	1.3	1.2	1.3	NA	0.1
Total Organic Carbon		0.5	mg/L	1.1	1.4	1.2	NA	0.5
Field + Physical								
pH	7.0-8.7	0.10	pH units	8.0	8.0	8.0	0%	NA
Conductivity		2.0	µS/cm	22200	22100	22150.0	0%	NA
Total Dissolved Solids		10	mg/L	16500	17100	16800.0	4%	NA
Total Suspended Solids		2.0	mg/L	<2.0	<2.0	NC	NC	NC
Turbidity		0.10	NTU	0.41	0.62	0.5	**41%**	NA
Salinity		1.0	PSU	14	14	14.1	1%	NA
Hardness, Calcium Carbonate		0.5	mg/L	2560	2610	2585.0	2%	NA
Metals, Dissolved								
Aluminum		0.0050	mg/L	<0.0050	<0.0050	NC	NC	NC
Antimony		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Arsenic	12.5	0.00040	mg/L	0.00086	0.00074	0.0	NA	0.3
Barium		0.0010	mg/L	0.0058	0.0060	0.0	3%	NA
Beryllium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Bismuth		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Boron		0.30	mg/L	1.9	1.8	1.8	3%	NA
Cadmium	0.12	0.000010	mg/L	<0.000020	<0.000020	NC	NC	NC
Calcium		1.0	mg/L	189	187	188.0	1%	NA
Cesium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Chromium	1.5 (Cr[VI])	0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Cobalt		0.000050	mg/L	<0.000050	<0.000050	NC	NC	NC
Copper		0.00020	mg/L	0.00052	<0.00050	NC	NC	NC
Gallium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Iron		0.010	mg/L	<0.010	<0.010	NC	NC	NC
Lead		0.000050	mg/L	<0.00010	<0.00010	NC	NC	NC
Lithium		0.020	mg/L	0.072	0.074	0.1	NA	0.1
Magnesium		1.0	mg/L	506	520	513.0	3%	NA
Manganese		0.00010	mg/L	0.00073	0.00069	0.0	6%	NA
Mercury	0.016	0.0000050	mg/L	<0.0000050	<0.0000050	NC	NC	NC
Molybdenum		0.00010	mg/L	0.00430	0.00428	0.0	0%	NA
Nickel		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Phosphorus		0.050	mg/L	<0.050	<0.050	NC	NC	NC
Potassium		1.0	mg/L	140	144	142.0	3%	NA
Rhenium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Rubidium		0.0050	mg/L	0.042	0.043	0.0	3%	NA
Selenium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Silicon		1.0	mg/L	<1.0	<1.0	NC	NC	NC
Silver	7.5*	0.00010	mg/L	<0.00010	<0.00010	NC	NC	NC
Sodium		2.5	mg/L	4260	4290	4275.0	1%	NA
Strontium		0.010	mg/L	2.9	3.0	3.0	3%	NA
Sulphur (Colloidal)		5.0	mg/L	373	379	376.0	2%	NA
Tellurium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Thallium		0.000050	mg/L	<0.000050	<0.000050	NC	NC	NC
Thorium-232		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Tin		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Titanium		0.0050	mg/L	<0.0050	<0.0050	NC	NC	NC
Tungsten		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Uranium		0.000050	mg/L	0.0014	0.0014	0.0	5%	NA
Vanadium		0.00050	mg/L	0.00055	0.00056	0.0	NA	0.0
Yttrium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Zinc		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Zirconium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Metals, Total								
Aluminum		0.0050	mg/L	0.016	0.016	0.0	NA	0.1
Antimony		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Arsenic	12.5	0.00040	mg/L	0.00074	0.00080	0.0	NA	0.2
Barium		0.0010	mg/L	0.0067	0.0066	0.0	2%	NA
Beryllium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Bismuth		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Boron		0.30	mg/L	1.8	1.8	1.8	1%	NA
Cadmium	0.12	0.000020	mg/L	<0.000020	<0.000020	NC	NC	NC
Calcium		1.0	mg/L	184	185	184.5	1%	NA
Cesium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Chromium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Cobalt		0.000050	mg/L	<0.000050	<0.000050	NC	NC	NC
Copper		0.00050	mg/L	0.0039	0.0035	0.0	9%	NA
Gallium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Iron		0.010	mg/L	0.021	0.022	0.0	NA	0.1
Lead		0.000050	mg/L	<0.00010	<0.00010	NC	NC	NC
Lithium		0.020	mg/L	0.059	0.070	0.1	NA	0.6
Magnesium		1.0	mg/L	462	506	484.0	9%	NA
Manganese		0.00020	mg/L	0.0011	0.0011	0.0	3%	NA
Mercury	0.016	0.0000050	mg/L	<0.0000050	<0.0000050	NC	NC	NC
Molybdenum		0.00010	mg/L	0.0041	0.0043	0.0	3%	NA
Nickel		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Phosphorus		0.050	mg/L	<0.050	<0.050	NC	NC	NC
Potassium		1.0	mg/L	137	144	140.5	5%	NA
Rubidium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Rhenium		0.0050	mg/L	0.041	0.042	0.0	2%	NA
Selenium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Silicon		1.0	mg/L	<1.0	<1.0	NC	NC	NC
Silver	7.5*	0.00010	mg/L	<0.00010	<0.00010	NC	NC	NC
Sodium		2.50	mg/L	4200	4140	4170.0	1%	NA
Strontium		0.010	mg/L	2.8	3.0	2.9	4%	NA
Sulphur (Colloidal)		5.0	mg/L	342	374	358.0	9%	NA
Tellurium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Thallium		0.000050	mg/L	<0.000050	<0.000050	NC	NC	NC
Thorium-232		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Tin		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Titanium		0.0050	mg/L	<0.0050	<0.0050	NC	NC	NC
Tungsten		0.0010	mg/L	<0.0010	<0.0010	NC	NC	NC
Uranium		0.000050	mg/L	0.0015	0.0015	0.0	1%	NA
Vanadium		0.00050	mg/L	0.00053	0.00056	0.0	NA	0.1
Yttrium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC
Zinc		0.0030	mg/L	<0.0030	<0.0030	NC	NC	NC
Zirconium		0.00050	mg/L	<0.00050	<0.00050	NC	NC	NC

CCME = Canadian Council of Ministers for the Environment; mg/L = milligrams per litre; < = below detection limit; - = no data; * = short-term exposure guideline for silver; NA = not applicable; NC = not calculated.

Bold, outline and blue shaded Exceeds CCME AW-F guidelines for protection of marine aquatic life

1. Canadian Council of Ministers of the Environment (CCME 1999, updated to 2019) water quality guidelines for the protection of marine aquatic life.

3.0 SEDIMENT QUALITY

Exploratory sediment quality sampling was completed on 8 August 2023 alongside the 2022 MEEMP field program. Sediment samples were collected at one station, KLK-23, on the north shore of Koluktoo Bay (Figure 7A-1).

3.1 Sampling Methods

Sediment samples were collected using a Van Veen (0.1 m^2) grab sampler. At the sampling location, a grab sample and a duplicate were collected to obtain a sufficient volume of surficial sediment for the laboratory analysis. Each grab sample was examined for acceptability based on the following criteria:

- The sampler was fully closed.
- There was adequate penetration depth (i.e., sediment volume greater than 25% full).
- The sample did not appear overfilled or disturbed, and the sample did not appear to have been collected on an angle.
- The sampler did not appear to be leaking sediment at a substantial rate (i.e., the top of the sediment profile did not appear to be sloping inwards).

Upon acceptance, the top 5 cm of sediment from the grab sample was removed from the center of the grab using a stainless-steel spoon and transferred to a stainless-steel bowl. The sediment sample was homogenized, and aliquots of the homogenized sample was transferred to clean, laboratory supplied sampling containers. All samples were kept cold until they were shipped on ice in coolers to ALS for analysis of particle size, moisture, total organic carbon (TOC), total metals, benzene, toluene, ethylbenzene, and xylene (BTEX), hydrocarbons (F1-F4), and polycyclic aromatic hydrocarbons (PAHs).

3.2 Data Analysis

Sediment quality data collected at KLK-23 was screened against applicable CCME sediment quality guidelines (SQG) for the protection of marine aquatic life (CCME 1999, CCME 2002). Specifically, data were screened against Probable Effect Levels (PELs) and Interim Sediment Quality Guidelines (ISQGs). PELs were intended to represent concentrations above which adverse effects were predicted to occur frequently. By comparison, the ISQGs were intended to represent concentrations above which adverse biological effects may or may not occur (CCME 2002). To provide a screening value to inform the sediment evaluation, in the absence of a CCME guideline, metals and hydrocarbons were compared to British Columbia (BC) Working Sediment Quality Guidelines (WSQG) (British Columbia Ministry of the Environment and Climate Change Strategy [BC MOE] 2021a), and the National Oceanic and Atmospheric Administration (NOAA) sediment benchmarks (Buchman 2008). The sediment sample from Koluktoo Bay was also qualitatively compared against sediment samples collected at a similar depth (i.e., 28 – 32 m water depths) during the 2023 MEEMP sampling program. Sediment samples collected at approximately 20-32 m water depth were the most comparable to the reference station sample which was collected at 28.3 m depth.

3.3 Quality Assurance/Quality Control

The laboratory QA/QC reports were reviewed upon receipt to confirm adherence to sample hold times and laboratory DQOs, and that the appropriate QA/QC information had been reported. Additionally, a field duplicate sample was collected at KLK-23.

Laboratory QA/QC reports were reviewed upon receipt to confirm adherence to sample hold times and laboratory data quality objectives (DQOs), and that the appropriate QA/QC information had been reported. Laboratory QA/QC included verification of recommended sample holding times and the analysis of laboratory control samples, laboratory duplicates, and spiked samples to assess precision and accuracy of analytical methods.

One field duplicate was sampled at KLK-23. The field duplicate was sampled as a 'split sample' from the same discrete homogenized grab sample as the 'original' sample and identified as Duplicate B (blind sample). To assess the variability between the field duplicate and original sample, the Relative Percent Difference (RPD) was calculated as follows:

$$RPD = \left(\frac{sample - duplicate}{(sample + duplicate)/2}\right) \times 100$$

In accordance with the BC Field Sampling Manual (BC ENV 2023) and CCME (2016), an RPD value of >50% was used to identify notable differences between original and duplicate samples. Values less than five times the Method Detection Limit (MDL) were not included in the RPD calculations because analytical variability near the MDL is higher and does not provide a reliable measure of variability associated with the collection of field samples.

3.3.1 QA/QC Results

The 2023 sediment quality data for the exploratory reference site sample was considered valid and of acceptable quality to address the objectives stated in Section 1.0, based on the following:

- Chemical analyses on sediment samples were completed within the sample hold time requirements.
- No laboratory qualifiers were reported for the original and duplicate sample; therefore, data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment.
- The relative percent difference (RPD) was below the DQO of 50% in the parent/duplicate pair except for gravel (RPD = 51%); however, the DQO exceedance was marginal and particle size in sediment is inherently variable and is therefore not unexpected. The QA/QC results suggest there was low variability and high precision between the duplicate and parent samples which is consistent with sediment quality.

Overall, the QA/QC results indicate that the sediment quality data collected at the exploratory reference site during the 2023 sampling program are of acceptable quality to address the objectives stated in Section 1.0 (Table 7A-2).

3.4 Results and Discussion

Sediments in Koluktoo Bay were primarily composed of sand (70%), gravel (14%), silt (12%), and some clay (4%) (Table 7A- 2). Sand content at the reference station was higher than most shallow MEEMP stations sampled near Milne Port in 2023, and TOC at the reference station was generally lower than the shallow Milne Port stations sampled during the 2023 MEEMP program (i.e., Appendix 3D). Parameter concentrations measured in sediments from Koluktoo Bay were below the applicable CCME sediment quality guidelines (Table 7A- 2). Only barium marginally exceeded the NOAA Apparent Effects Threshold (AET) benchmark by 1.1-times. For parameters without applicable guidelines, aluminum, barium, and strontium were greater than maximum concentrations documented at Milne Port in 2023. PAHs were not detected in the sediment sample similar to the results from the radial transect 2023 program in Milne Port.

Reconnaissance sampling in the reference area indicated that sediment quality in Koluktoo Bay was comparable to Milne Port, reflecting the natural minerology of the area.

Table 7A-2 Sediment Quality Laboratory Results in Koluktoo Bay, 2023

Sample ID Date Sampled Time Sampled Laboratory Sample ID QA/QC Parent Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks							Eco Tox EqP(@1% TOC)	KLK-23 08-Aug-2023 18:16 VA23B8536-009 FDA	DUP-B-23 08-Aug-2023 - VA23B8536-011 FD KLK-23	Relative Percent Difference (RPD)
			ISQG	PEL	T_{20}	TEL	ERL	T_{50}	PEL	ERM	AET				
Physical Parameters															
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	23.8	25.1	5%
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.4	8.4	0.4%
Particle Size															
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	3.8	4.1	-
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	12	11.9	1%
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	69.9	75.5	8%
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	14.3	8.5	51%
Organic / Inorganic Carbon															
Carbon, inorganic	0.05	%	-	-	-	-	-	-	-	-	-	-	2.28	2.33	2%
Carbon, total	0.05	%	-	-	-	-	-	-	-	-	-	-	3.31	3.42	3%
Carbon, total organic	0.05	%	-	-	-	-	-	-	-	-	-	-	1.03	1.09	6%
Carbon, inorganic (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	19	19.4	2%
Organic matter	0.1	%	-	-	-	-	-	-	-	-	-	-	1.78	1.88	5%
Metals															
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	7570	7400	2%
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	<0.10	-
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	3.81	3.81	-
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	*51.9*	47.2	9%
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.38	0.41	-
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	-
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	30.5	29.4	4%
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	0.042	0.038	-
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	75700	72700	4%
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	18.7	19.1	2%
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	3.48	3.58	3%
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	5.01	4.86	3%
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	12500	12700	2%
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	6	6.04	1%
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	18.7	18.7	-
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	17800	17200	3%
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	109	111	2%
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	0.0077	0.0074	-
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-		-	0.19	0.2	-
Nickel	0.5	mg/kg	30[a]	50[a]	15	15.9	20.9	47	42.8	51.6	110	-	11.3	11.6	3%
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	358	388	8%
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	2150	2020	6%
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	-
Silver	0.1	mg/kg	1[a]	2.2[a]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	-
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	3100	3210	3%
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	61.5	60.7	1%
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	-
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.081	0.078	-
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	-
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	138	140	1%
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	-
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.648	0.544	17%
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	18.2	19.4	6%
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	19.6	20.1	3%
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	3.1	3.1	-
VOCs															
Benzene	0.0050	mg/kg	-	-	-	-	-	-	-	-	-	0.06	<0.0050	<0.0050	-
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	<0.015	<0.015	-
Toluene	0.050	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	-
Xylene, m+p-	0.050	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	-
Xylene, o-	0.050	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	-
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	<0.075	<0.075	-
Hydrocarbons															
F1 (C6-C10)	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	-
F1-BTEX	5.0	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	-
F2 (C10-C16)	30	mg/kg	-	-	-	-	-	-	-	-	-	-	<30	<30	-
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	-
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	-
PAHs															
Acenaphthene	0.0050	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	-
Acenaphthylene	0.0050	mg/kg											<0.0050	<0.0050	-
Acridine	0.0100	mg/kg											<0.010	<0.010	-
Anthracene	0.0040	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0040	-
Benz(a)anthracene	0.010	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	-
Benzo(a)pyrene	0.010	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	-
Benzo(b+j)fluoranthene	0.010	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	-
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	-
Benzo(g,h,i)perylene	0.010	mg/kg	0.31[a]	0.78[a]	-	-	-	-	-	-	-	-	<0.010	<0.010	-
Benzo(k)fluoranthene	0.010	mg/kg	2.3[a]	4.5[a]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	-
Chrysene	0.010	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	-
Dibenz(a,h)anthracene	0.0050	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	-
Fluoranthene	0.010	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	-
Fluorene	0.010	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	-
Indeno(1,2,3-c,d)pyrene	0.010	mg/kg	0.34[a]	0.88[a]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	-
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	-
Methylnaphthalene, 1-	0.010	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	-
Methylnaphthalene, 2-	0.010	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	-
Naphthalene	0.010	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	-
Phenanthrene	0.010	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	-
Pyrene	0.010	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	-
Quinoline	0.010	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	-
B(a)P total potency equivalents	0.020	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.020	<0.020	-
IACR (CCME)	0.150	-	-	-	-	-	-	-	-	-	-	-	<0.150	<0.150	-
IACR AB (coarse)	0.10	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	-
IACR AB (fine)	0.10	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	-
PAHs, total (BC Sched 3.4)	0.040	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	-
PAHs, total (EPA 16 - DAS)	0.140	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.140	<0.140	-
PAHs, total (EPA 16)	0.040	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.040	<0.040	-

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidleines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[a] Guideline value substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; BTEX = benzene, toluene, ethylbenzene, and xylene; CCME = Canadian Council of Ministers of the Environment; DAS = disposal at sea; EPA = Environmental Protection Agency; IACR = Index of Additive Cancer Risk; ID = identification; ISQG = interim sediment quality guidelines; mg/kg = miligram per kilogram; NOAA = National Oceanic and Atmospheric Administration; PAH = polycyclic aromatic hydrocarbons; PEL = probable effects levels; QA/QC = quality assurance/quality control; REL = Effect Range Low; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; TOC = total organic carbon; T50 = Concentrations corresponding to 50% probably of observing toxicity; PEL = Probable Effect Levels; pH = scale of acidity; VOC = volatile organic compound; % - percentage; "-" = no value or no result available; < = less than.

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than BC ENV working lower SWQG
Value	Greater than BC ENV working upper SWQG
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
	Orange shaded values indicate an exceedance of the acceptable RPD of 50%.

4.0 FISH HEALTH

Fish were collected on 1, 8, and 12 August 2023 in Koluktoo Bay as part of the reference area reconnaissance program for the fish health and tissue chemistry component of the MEEMP. Fishing effort targeted Fourhorn Sculpin (*Myoxocephalus quadricornis*), with Shorthorn Sculpin (*Myoxocephalus scorpius*) collected as an alternate species, in the event catches of Fourhorn Sculpin were insufficient to support the program. This work was completed concurrently with the 2023 MEEMP field program for the Milne Port.

4.1 Sampling Methods

Fishing effort included both active (i.e., angling with 3 rods) and passive (i.e., gill netting with a 91.44 m net) capture methods. Captured fish were enumerated and measured for length and weight. Fourhorn Sculpin were retained for fish health sampling. Shorthorn Sculpin were also retained for fish health assessment as a potential sentinel fish species in future programs. Fish health data for Shorthorn Sculpin were not analyzed herein but the data are provided in Attachment 7A-1. All other fish species were released back into the area they were captured. Fish processing methods were consistent with those described in Section 7.3.1 in Chapter 7.0 – Fish Health and Tissue Chemistry. Tissue samples and aging structures for Fourhorn Sculpin were submitted for tissue chemistry analysis and aging, while samples from Shorthorn Sculpin were archived.

H. arctica sampling was attempted in Koluktoo Bay using a Van Veen (0.1 m^2) grab sampler, following methods described in Chapter 4.0, however, no *H. arctica* specimens were captured during sampling.

4.2 Data Analysis

Fish health data analysis was completed following the methods described in Section 7.3.3 of Chapter 7.0 – Fish Health and Tissue Chemistry. Briefly, descriptive statistics (i.e., sample size, mean, median, standard deviation [SD], standard error [SE], minimum, and maximum values) were calculated for Fourhorn Sculpin fish health endpoints. These indices included condition factor, liver somatic index, and gonadosomatic index.

Fish health indices for Fourhorn Sculpin and Shorthorn Sculpin were calculated as follows:

$$Condition\ factor = \left(\frac{total\ weight}{total\ length^3}\right) \times 100{,}000$$

Additional fish health indices calculated for Fourhorn Sculpin and Shorthorn sculpin were as follows:

$$Gonadosomatic\ index\ (GSI) = \left(\frac{gonad\ weight}{total\ weight}\right) \times 100$$

$$Liver\ somatic\ index\ (LSI) = \left(\frac{liver\ weight}{total\ weight}\right) \times 100$$

Catch-Per-unit-effort (CPUE) was calculated in a standardized way for comparisons amongst sampling effort. CPUE was calculated consistently with the 2023 MEEMP report (Section 6.4.2).

$$Gillnet\ CPUE = \left(\frac{number\ of\ fish}{net\ length \times effort\ hour}\right) \times 100\ m$$

$$Angling\ CPUE = \left(\frac{number\ of\ fish}{number\ of\ rods \times effort\ hour}\right)$$

4.3 Quality Assurance/Quality Control

The same field practices and operations used for the 2023 MEEMP field program, detailed in Section 7.3.2 of Chapter 7.0, were implemented for the fishing effort in Koluktoo Bay. Field and laboratory QA/QC procedures were implemented at each stage of the fish survey, including sampling, data entry, sample shipment, data analyses, laboratory analyses, and report preparation, to produce technically sound and scientifically defensible results.

4.4 Results and Discussion

4.4.1 Habitat

During the reconnaissance survey, similarities in habitat were observed between Milne Port and Koluktoo Bay. Milne Port is in a relatively sheltered area in the southernmost portion of Milne Inlet, where Fourhorn Sculpin habitat is relatively deep (ranging from 0 to more than 10 m) and has a steep slope prior to dropping off to deeper waters. Substrates around the Milne Port are composed nearly entirely boulders with some cobbles. Koluktoo Bay fish sampling and habitat evaluation occurred primarily along the northern shore of the bay, near the Robertson River in a relatively sheltered portion of the bay, similar to Milne Port. Habitat surveyed in this area was relatively deep (ranging from 0.5 m to 8.0 m) and composed primarily of cobbles and boulders that sloped gradually into deeper waters. Shorelines and littoral habitats were generally cobbles with some patches of boulders.

4.4.2 Fish Capture Data

A total of 133 fish were captured from Koluktoo Bay, including 42 Arctic Char (*Salvelinus alpinus*), 36 Shorthorn Sculpin, 31 Fourhorn Sculpin, six Arctic Sculpin (*Myoxocephalus scorpioides*), two Pacific Cod (*Gadus macrocephalus*[1]*),* and one indeterminate sculpin species (*Myoxocephalus* sp.; Table 7A-3). Of the 31 Fourhorn Sculpin captured in Koluktoo Bay, six fish were mortalities (Appendix 6B), and 25 fish were processed for fish health endpoints. Summary statistics for Fourhorn Sculpin processed from Koluktoo Bay are provided in Table 7A- 4.

Fourhorn Sculpin CPUE in Koluktoo Bay was lower than in Milne Port (Table 7A-3). Gill netting was less successful in capturing Fourhorn Sculpin in Koluktoo Bay compared to Milne Port (CPUE: 1.87 versus 5.66 fish/h·100 m, respectively), and Koluktoo Bay had 66% gill netting bycatch to Milne Port's 18%. Angling in Koluktoo Bay was less successful in targeting Fourhorn Sculpin relative to Milne Port (CPUE: 0.27 fish/h*rod versus 4.86 fish/h*rod), and Koluktoo Bay had 93.8% bycatch to Milne Port's 27.5%.

[1] Recent taxonomic changes to the genus *Gadus* have combined species *G. ogac* (Greenland Cod) and *G. macrocephalus* (Pacific or Alaska Cod) under the umbrella term *G. macrocephalus* (FishBase 2023; GBIF 2023). A universal edit has been made to change Greenland cod (*G. ogac*) to Pacific Cod (*G. macrocephalus*).

Table 7A- 3: Total Catch Per Unit Effort for Fish Captured from Koluktoo Bay Reference Area Reconnaissance Surveys, 2023.

Site	Angling – Jigging				Gill Nets			
	Effort (h*rod)	Species	# of Fish Captured	CPUE (fish/h·rod)	Effort (h·100 m)	Species	# of Fish Captured	CPUE (fish/h·100 m)
Koluktoo Bay	7.35	ARCH	0	0	15.5	ARCH	42	2.72
		FHSC	2	0.27		FHSC	29	1.87
		SHSC	25	3.40		SHSC	11	0.71
		ARSC	2	0.27		ARSC	4	0.26
		GRCD	2	0.27		GRCD	0	0
		Sculpin sp.	1	0.14		Sculpin sp.	0	0
Milne Port	10.75	ARCH	1	0.09	39.3	ARCH	48	1.22
		FHSC	50	4.65		FHSC	223	5.66
		SHSC	12	1.12		SHSC	1	0.03
		ARSC	0	0		ARSC	1	0.03
		GRCD	6	0.56		GRCD	0	0
		Sculpin sp.	0	0		Sculpin sp.	0	0

ARCH = Arctic Char; ARSC = Arctic Sculpin; FHSC = Fourhorn Sculpin; GRCD = Pacific Cod (previously Greenland Cod); SHSC = Shorthorn Sculpin; CPUE = Catch per unit effort; m = meter; # = number; h = hour; nd = no data.

CPUE calculated as an index of total abundance (Section 6.5.1, Chapter 6).

Table 7A- 4: Descriptive Statistics for Fish Health Endpoints from Fourhorn Sculpin Collected from Koluktoo Bay, 2023.

Parameter	n	Minimum	Maximum	Median	Mean	SD	SE
Female							
Total Length (mm)	18	185	265	233	231	23.8	5.61
Total Weight (g)	18	50.1	169.4	127	119	38.4	9.05
Carcass Weight (g)	17	27.7	94.6	68.7	64.7	19.9	4.83
Condition Factor	18	0.74	1.17	0.94	0.93	0.10	0.02
Liver Weight (g)	18	1.31	11.1	7.12	6.19	2.78	0.65
LSI	18	2.51	7.87	5.19	4.95	1.30	0.31
Gonad Weight (g)	18	1.36	8.70	5.00	4.98	2.24	0.53
GSI	18	2.71	6.20	4.10	4.05	0.94	0.22
Age (y)	18	4	9	7	6.8	1.5	0.4
Male							
Total Length (mm)	7	217	247	236	232	13.1	4.95
Total Weight (g)	7	93.5	164	127	123	27.7	10.5

Parameter	n	Minimum	Maximum	Median	Mean	SD	SE
Carcass Weight (g)	7	51.8	90.9	64.8	68.2	14.9	5.64
Condition Factor	7	0.91	1.1	0.92	0.96	0.08	0.03
Liver Weight (g)	7	2.18	9.28	4.87	5.08	2.57	0.97
LSI	7	2.32	5.65	3.85	3.93	1.18	0.44
Gonad Weight (g)	7	1.77	5.14	3.85	3.63	1.29	0.49
GSI	7	1.89	4.79	2.81	2.95	0.97	0.37
Age (y)	7	6	9	7	7.3	1.0	0.4

n = sample size; SD = standard deviation; SE = standard error; mm = millimeters; g = grams; y = years - = not applicable

Koluktoo Bay likely contains a sufficiently large population of Fourhorn Sculpin to support target sample sizes for the MEEMP fish health program. However, due to high bycatch numbers for both capture methods at Koluktoo Bay and the potential for mortalities of bycatch, sampling in another area in Koluktoo Bay may be investigated. The southern portion of Koluktoo bay (17X 497720E 7994082N) appears to reflect similar conditions to Milne Port. Milne Port is in a sheltered southwestern bay and imagery of the southern portion of Koluktoo Bay shoreline appears similar to Milne port.

While CPUE for gillnetting in Koluktoo Bay was greater than 1.0 fish/h·100 m, it can be a destructive fishing method, resulting in damage and risk of mortalities to bycatch and target species. Alternative fishing methods such as hoop nets may be considered in supporting future monitoring programs to limit bycatch and unnecessary mortalities, with additional angling effort (i.e., more time, additional fishers) expended to achieve target sample sizes for Fourhorn Sculpin.

Given the presence and the demonstrated catchability of Fourhorn Sculpin in Koluktoo Bay, this area likely represents a reasonable candidate for a reference area for the MEEMP fish health and tissue chemistry program.

5.0 CONCLUSIONS

Supporting water and sediment quality data collected within Koluktoo Bay in 2023 suggest the area is broadly comparable to Milne Port in terms of water and sediment chemistry. Fourhorn Sculpin numbers in Koluktoo Bay appeared adequate to support sample size requirements for the MEEMP fish health and tissue chemistry program, indicating the area may be an appropriate reference area to support the MEEMP. Additional sample collections are recommended in 2024 from Koluktoo Bay to confirm the presence, abundance, and catchability of Fourhorn Sculpin in the area, and to allow refinement of fishing methods to limit bycatch. Additional effort should be expended in 2024 to more broadly confirm the supporting chemistry (i.e., water, sediment) results of the 2023 reference area reconnaissance survey through the addition of more reference area sampling stations for supporting chemistry.

6.0 CLOSURE

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.

Lyndsey Stewart, BSc, BIT
Intermediate, Aquatic Biologist

Nelson Zabel, MSc, PBiol, RPBio
Experienced, Aquatic Scientist

Collin Arens, MSc, PhD
Lead, Aquatic Scientist

Rainie Sharpe, MSc, PhD, RPBio, PBiol
Principal, Aquatic Scientist

Elaine Irving, PhD, RPBio
Principal, Environmental Scientist

LS/NZ/RS/lih

Attachments: Attachment 7A-1 Koluktoo Bay Fish Health Data

ATTACHMENT 7A-1

Koluktoo Bay Fish Health Data

Table 7A-A1: Fish Health Data for Fourhorn Sculpin Captured at Koluktoo Bay, August 2023

Capture Date (y-m-d)	Effort Number	Species	Fish Identification Number	Standard Length (mm)	Total Length (mm)	Total Weight (g)	Sex	External Assessment										Internal Assessment											Carcass Weight (g)
								Body Deformity	Eyes	Skin	Thymus	Opercula	Gills	Pseudo-branchs	Fins	Hindgut	External Parasites	Liver Condition	Liver Weight (g)	Spleen	Gall Bladder	Gall bladder (%)	Gonad Condition	Gonad Weight	Sotmach Contents (%)	Mesenteric Fat (%)	Internal Parasites	Kidney	
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2018	200	236	126.6	M	N	N	0	0	0	N	N	0	0	N	A	4.872	B	0	100	N	4.394	25	0	1	N	64.80
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2019	169	199	58.2	F	N	N	0	0	0	N	N	0	0	N	A	1.46	B	0	100	N	1.87	0	0	1	N	31.70
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2020	199	231	115.7	F	N	N	0	0	0	N	N	0	0	N	A	6.656	B	0	100	N	4.85	0	0	1	N	60.00
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2021	193	227	118.4	F	N	N	0	0	0	N	N	0	0	N	C	7.041	B	0	100	N	3.407	0	0	1	N	64.00
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2022	190	220	86.8	F	N	N	0	0	0	N	N	0	0	N	A	3.958	B	0	100	N	3.219	0	0	1	N	46.30
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2023	209	249	149.1	F	N	N	0	0	0	N	N	0	0	Y	A	7.733	B	0	50	N	4.726	75	0	1	N	72.90
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2024	199	235	123.1	F	N	N	0	0	0	N	N	0	0	N	C	7.406	B	0	100	N	5.441	0	0	1	N	66.50
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2025	201	247	137.1	M	N	N	0	0	0	N	N	0	0	Y	A	5.587	B	0	50	N	3.85	25	0	2	N	76.40
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2026	157	185	50.1	F	N	N	0	0	0	N	N	0	0	N	A	1.313	B	0	25	N	1.36	0	0	1	N	27.70
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2027	182	217	93.5	M	N	N	0	0	0	N	N	0	0	N	A	2.176	B	0	50	N	1.772	0	0	0	N	51.80
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2031	220	259	169.4	F	N	N	0	0	0	N	N	0	0	Y	A	8.227	B	0	100	N	8.173	0	0	1	N	90.30
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2032	209	244	138.6	F	N	N	0	0	0	N	N	0	0	N	A	7.205	B	0	50	N	7.314	50	0	0	N	71.70
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2033	201	237	136.8	F	N	N	0	0	0	N	N	0	0	N	A	7.521	B	0	100	N	5.907	50	0	1	N	68.70
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2034	205	240	129.9	F	N	N	0	0	0	N	N	0	0	N	A	7.490	B	0	100	N	5.201	25	0	1	N	70.00
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2035	212	245	164.1	M	N	N	0	0	0	N	N	0	0	N	A	9.286	B	0	100	N	5.139	0	0	1	N	90.90
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2036	205	242	145.1	M	N	N	0	0	0	N	N	0	0	N	A	7.420	B	0	50	N	3.320	0	0	1	N	80.90
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2037	211	250	157.9	F	N	N	0	0	0	N	N	0	0	N	A	8.842	B	0	100	N	6.712	0	0	1	N	79.60
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2038	227	265	168.2	F	N	N	0	0	0	N	N	0	0	Y	A	6.702	B	0	50	N	5.141	25	0	1	N	94.60
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2039	180	218	94.6	M	N	N	0	0	0	N	N	0	0	N	A	3.430	B	0	100	N	2.166	25	0	1	N	52.60
2023 08 01	BAFF23UREFGN08	FHSC	BAFF23UREFFHSC2040	197	229	140.4	F	N	N	0	0	0	N	N	0	0	N	A	11.05	B	0	100	N	8.704	50	0	1	N	71.00
2023 08 08	BAFF23UREFGN17	FHSC	BAFF23UREFFHSC2041	164	195	74.0	F	N	N	0	0	0	N	N	0	0	N	A	3.351	B	0	25	N	2.477	50	0	0	N	39.30
2023 08 08	BAFF23UREFGN17	FHSC	BAFF23UREFFHSC2042	224	265	164.8	F	N	N	0	0	0	N	N	0	0	N	A	9.138	B	0	100	N	8.406	0	0	0	N	92.30
2023 08 12	BAFF23UREFGN23	FHSC	BAFF23UREFFHSC2050	197	229	95.80	F	N	N	0	0	0	N	N	0	0	Y	A	3.831	B	0	100	N	3.357	0	0	0	N	52.80
2023 08 12	BAFF23UREFGN23	FHSC	BAFF23UREFFHSC2051	190	222	99.7	M	N	N	0	0	0	N	N	0	0	N	C	2.823	B	0	100	N	4.777	0	0	0	N	59.80
2023 08 12	BAFF23UREFGN24	FHSC	BAFF23UREFFHSC2052	175	200	71.2	F	N	N	0	0	0	N	N	0	0	N	C	2.549	B	0	25	N	3.373	0	0	0	N	-

Table 7A-A2: Fish Health Data for Shorthorn Sculpin Captured at Koluktoo Bay, August 2023

Capture Date (y-m-d)	Effort Number	Species	Fish Identification Number	Standard Length (mm)	Total Length (mm)	Total Weight (g)	Sex	External Assessment[a]										Internal Assessment											Carcass Weight (g)
								Body Deformity	Eyes	Skin	Thymus	Opercula	Gills	Pseudo-branchs	Fins	Hindgut	External Parasites	Liver Condition	Liver Weight (g)	Spleen	Gall Bladder	Gall bladder (%)	Gonad Condition	Gonad Weight (g)	Sotmach Contents (%)	Mesenteric Fat (%)	Int. Parasites	Kidney	
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2001	285	345	528.1	F	N	N	0	0	0	N	N	0	0	N	A	30.111	B	0	0	N	28.904	25	0	0	N	324.70
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2002	245	290	295.7	F	N	N	0	0	0	N	N	0	0	N	C	11.433	B	0	50	N	9.267	50	0	1	N	161.50
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2003	162	195	92.0	M	N	N	0	0	0	N	N	0	0	N	A	1.551	B	0	25	N	1.131	50	0	2	N	51.60
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2004	197	235	173.0	F	N	N	0	0	0	N	N	0	0	N	A	4.504	B	0	50	N	1.375	0	0	0	N	170.30
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2005	193	235	161.5	M	N	N	0	0	0	N	N	0	0	N	C	4.185	B	0	0	N	2.787	25	0	0	N	96.30
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2006	160	190	83.4	M	N	N	0	0	0	N	N	0	0	N	C	2.371	B	0	100	N	1.246	0	0	0	N	49.20
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2007	184	221	124.8	F	N	N	0	0	0	N	N	0	0	N	A	2.400	B	0	50	N	1.080	0	0	0	N	73.40
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2008	169	194	79.7	M	N	N	0	0	0	N	N	0	0	N	C	2.051	B	0	25	N	0.363	50	0	0	N	40.50
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2009	162	195	88.8	M	N	N	0	0	0	N	N	0	0	N	A	1.992	B	0	100	N	1.633	0	0	0	N	54.00
2023 08 01	BAFF23UREFANJ07	SHSC	BAFF23UREFSHSC2010	145	176	55.1	M	N	N	0	0	0	N	N	0	0	N	C	0.506	B	0	50	N	0.145	0	0	1	N	31.90
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2011	307	371	659.7	F	N	N	0	0	0	N	N	0	0	N	A	35.523	B	0	0	N	26.595	100	0	0	N	410.40
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2012	172	200	94.9	F	N	N	0	0	0	N	N	0	0	N	A	22.990	B	0	100	N	2.960	50	0	0	N	51.20
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2013	209	259	181.1	F	N	N	0	0	0	N	N	0	0	Y	A	4.500	B	0	100	N	1.841	50	0	1	N	105.50
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2014	255	307	426.2	F	N	N	0	0	0	N	N	0	0	N	C	33.634	B	0	0	N	18.057	0	0	1	N	248.00
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2015	165	190	94.2	F	N	N	0	0	0	N	N	0	0	N	C	2.840	B	0	0	N	0.642	50	0	1	N	48.30
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2016	201	235	145.1	M	N	N	0	0	0	N	N	0	0	N	A	2.852	B	0	50	N	1.396	0	0	1	N	93.20
2023 08 01	BAFF23UREFANJ06	SHSC	BAFF23UREFSHSC2017	165	199	103.2	M	N	N	0	0	0	N	N	0	0	N	C	2.347	B	0	75	N	2.045	0	0	1	N	55.30
2023 08 01	BAFF23UREFGN08	SHSC	BAFF23UREFSHSC2028	269	320	389.6	F	N	N	0	0	0	N	N	0	0	N	A	22.678	B	0	25	N	15.740	75	0	1	N	263.20
2023 08 01	BAFF23UREFGN08	SHSC	BAFF23UREFSHSC2029	210	252	199.6	F	N	N	0	0	0	N	N	0	0	N	A	7.777	B	0	100	N	2.076	25	0	0	N	120.00
2023 08 01	BAFF23UREFGN08	SHSC	BAFF23UREFSHSC2030	172	210	121.1	M	N	N	0	0	0	N	N	0	0	N	A	3.373	B	0	0	N	1.869	25	0	1	N	60.90
2023 08 08	BAFF23UREFGN18	SHSC	BAFF23UREFSHSC2043	212	245	174.9	M	N	N	0	0	0	N	N	0	0	N	C	6.033	B	0	0	N	1.389	25	0	0	N	98.20
2023 08 08	BAFF23UREFGN18	SHSC	BAFF23UREFSHSC2044	219	260	207.7	M	N	N	0	0	0	N	N	0	0	N	C	7.304	B	0	25	N	1.861	25	0	0	N	124.90
2023 08 08	BAFF23UREFGN18	SHSC	BAFF23UREFSHSC2045	205	241	180.6	M	N	N	0	0	0	N	N	0	0	N	C	5.092	B	0	0	N	2.945	100	0	0	N	98.40
2023 08 08	BAFF23UREFGN18	SHSC	BAFF23UREFSHSC2046	180	211	123.6	M	N	N	0	0	0	N	N	0	0	N	C	1.882	B	0	25	N	0.787	100	0	0	N	69.80
2023 08 08	BAFF23UREFANJ14	SHSC	BAFF23UREFSHSC2047	302	361	571.7	F	N	N	0	0	0	N	N	0	0	N	A	27.899	B	0	25	N	25.397	50	0	2	N	340.50
2023 08 08	BAFF23UREFANJ14	SHSC	BAFF23UREFSHSC2048	232	270	240.6	U	N	N	0	0	0	N	N	0	0	N	A	7.006	B	0	25	N	0.890	75	0	2	N	138.80
2023 08 08	BAFF23UREFANJ14	SHSC	BAFF23UREFSHSC2049	212	250	197.1	M	N	N	0	0	0	N	N	0	0	N	C	7.258	B	0	25	N	2.546	100	0	0	N	108.90

Table 7A-A3: Fish Survey Assessment Codes

Variable	Variable Condition	Original Field Designation
Body deformity	Normal	N
	Spinal deformity - Other	X
Eyes	No aberrations; good “clear” eye	N
	Blind; an opaque eye (one or both)	B
	Swollen, protruding eye (one or both)	E
	Hemorrhaging or bleeding in the eye (one or both)	H
	Missing one or both eyes	M
	Other; any manifestation not fitting the above	OT
Thymus	No hemorrhage	0
	Mild hemorrhage	1
	Moderate hemorrhage	2
	Severe hemorrhage	3
Skin	Normal; no aberrations	0
	Mild skin aberrations	1
	Moderate skin aberrations	2
	Severe skin aberrations	3
Fins	No active erosion	0
	Light active erosion	1
	Moderate active erosion with some hemorrhaging	2
	Severe active erosion with hemorrhaging	3
Opercle	No shortening	0
	Mild shortening	1
	Severe shortening	2
Hindgut	Normal; no inflammation or reddening	0
	Slight inflammation or reddening	1
	Moderate inflammation or reddening	2
	Severe inflammation or reddening	3
Parasites	No observed parasites	0
	Few observed parasites	1
	Moderate parasite infestation	2
	Numerous parasites	3

APPENDIX 7B

Fish Health Data

Table 7B-1: Fish Health Data for Fourhorn Sculpin Lethally Sampled from the Milne Port Area and Koluktook Bay Reference Area, 2023

Date (dd/mm/yy)	Effort Number	Fish Identification Number	Total Length (mm)	Total Weight (g)	Condition Factor	Sex	Life Stage	Maturity[(a)]	Age (y)	Liver Weight (g)	Gonad Weight (g)
Milne Port											
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1001	265	263.8	1.42	F	Adult	23	7	16.12	8.55
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1002	259	181.7	1.05	F	Adult	23	7	11.51	6.28
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1003	248	161.0	1.06	M	Adult	13	7	9.08	5.59
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1004	204	87.8	1.03	M	Adult	13	5	2.62	5.06
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1005	275	252.2	1.21	F	Adult	23	7	15.27	7.11
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1006	218	110.0	1.06	F	Adult	23	5	3.92	2.91
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1007	210	157.5	1.70	M	Adult	13	4	8.09	3.66
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1008	276	213.1	1.01	F	Adult	23	7	10.29	6.91
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1009	229	109.8	0.91	M	Adult	13	5	5.15	2.21
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1010	225	105.1	0.92	F	Adult	23	5	6.15	2.35
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1011	227	111.9	0.96	M	Adult	23	5	3.72	1.61
28-07-23	BAFF23UDPFANJ01	BAFF23UDPFFHSC1012	259	182.0	1.05	F	Adult	12	6	10.54	4.99
28-07-23	BAFF23UDPFGN01	BAFF23UDPFFHSC1013	265	225.9	1.21	F	Adult	13	8	10.74	6.56
28-07-23	BAFF23UDPFGN01	BAFF23UDPFFHSC1014	214	92.2	0.94	M	Adult	23	7	4.24	2.62
28-07-23	BAFF23UDPFGN01	BAFF23UDPFFHSC1015	239	154.6	1.13	M	Adult	23	7	6.91	5.59
28-07-23	BAFF23UDPFGN01	BAFF23UDPFFHSC1016	225	121.4	1.07	F	Adult	13	5	8.15	4.24
28-07-23	BAFF23UDPFGN01	BAFF23UDPFFHSC1017	248	165.2	1.08	F	Adult	13	6	9.17	5.74
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1018	223	128.9	1.16	M	Adult	23	6	4.36	4.79
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1019	205	87.5	1.02	M	Adult	23	5	3.06	3.65
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1020	246	174.1	1.17	F	Adult	13	6	6.34	5.62
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1021	224	100.5	0.89	M	Adult	23	5	4.43	1.93
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1022	281	248.8	1.12	M	Adult	23	8	9.05	4.45
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1023	255	177.0	1.07	F	Adult	13	6	6.44	4.50
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1024	210	90.5	0.98	M	Adult	23	6	2.59	2.70
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1025	230	128.6	1.06	F	Adult	13	6	5.91	4.58
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1026	224	93.8	0.83	M	Adult	23	4	3.11	2.59
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1027	212	94.1	0.99	M	Adult	23	5	2.20	2.20
29-07-23	BAFF23UDPFANJ03	BAFF23UDPFFHSC1028	203	76.4	0.91	M	Adult	23	5	1.60	1.67
30-07-23	BAFF23UIPFGN05	BAFF23UIPFFHSC1029	271	227.0	1.14	M	Adult	23	7	8.36	9.53
30-07-23	BAFF23UIPFGN05	BAFF23UIPFFHSC1030	257	144.5	0.85	F	Adult	12	6	5.23	3.54
30-07-23	BAFF23UIPFGN05	BAFF23UIPFFHSC1031	246	160.3	1.08	M	Adult	23	5	7.21	3.64
30-07-23	BAFF23UIPFGN05	BAFF23UIPFFHSC1032	256	173.1	1.03	M	Adult	23	8	9.25	4.65
30-07-23	BAFF23UIPFGN05	BAFF23UIPFFHSC1033	249	140.1	0.91	M	Adult	23	6	4.63	4.41
30-07-23	BAFF23UIPFGN06	BAFF23UIPFFHSC1034	269	193.0	0.99	M	Adult	23	7	4.04	7.75
30-07-23	BAFF23UIPFGN06	BAFF23UIPFFHSC1035	246	138.5	0.93	F	Adult	12	7	6.26	4.62
31-07-23	BAFF23UIPFANJ05	BAFF23UIPFFHSC1043	274	242.8	1.18	F	Adult	13	8	12.58	8.29
31-07-23	BAFF23UIPFANJ05	BAFF23UIPFFHSC1044	256	164.8	0.98	F	Adult	13	6	4.76	5.34
31-07-23	BAFF23UIPFANJ05	BAFF23UIPFFHSC1045	323	329.3	0.98	F	Adult	13	9	11.86	13.09
31-07-23	BAFF23UIPFANJ05	BAFF23UIPFFHSC1046	256	170.5	1.02	F	Adult	13	6	9.39	4.62
02-08-23	BAFF23UDPFANJ09	BAFF23UDPFFHSC1047	270	174.8	0.89	F	Adult	13	7	5.04	11.83
Koluktoo Bay											
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2018	236	126.6	0.96	M	Adult	23	7	4.87	4.39
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2019	199	58.2	0.74	F	Adult	13	6	1.46	1.87
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2020	231	115.7	0.94	F	Adult	13	7	6.66	4.85
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2021	227	118.4	1.01	F	Adult	13	6	7.04	3.41
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2022	220	86.8	0.82	F	Adult	13	4	3.96	3.22
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2023	249	149.1	0.97	F	Adult	13	8	7.73	4.73
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2024	235	123.1	0.95	F	Adult	13	7	7.41	5.44
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2025	247	137.1	0.91	M	Adult	23	8	5.59	3.85
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2026	185	50.1	0.79	F	Adult	12	4	1.31	1.36
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2027	217	93.5	0.92	M	Adult	22	7	2.18	1.77
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2031	259	169.4	0.98	F	Adult	13	8	8.23	8.17
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2032	244	138.6	0.95	F	Adult	13	9	7.21	7.31
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2033	237	136.8	1.03	F	Adult	13	7	7.52	5.91
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2034	240	129.9	0.94	F	Adult	12	7	7.49	5.20
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2035	245	164.1	1.12	M	Adult	23	9	9.29	5.14
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2036	242	145.1	1.02	M	Adult	23	7	7.42	3.32
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2037	250	157.9	1.01	F	Adult	13	7	8.84	6.71
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2038	265	168.2	0.90	F	Adult	13	7	6.70	5.14
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2039	218	94.6	0.91	M	Adult	23	7	3.43	2.17
01-08-23	BAFF23UREFGN08	BAFF23UREFFHSC2040	229	140.4	1.17	F	Adult	13	9	11.05	8.70
08-08-23	BAFF23UREFGN17	BAFF23UREFFHSC2041	195	74.0	1.00	F	Adult	12	6	3.35	2.48
08-08-23	BAFF23UREFGN17	BAFF23UREFFHSC2042	265	164.8	0.89	F	Adult	13	9	9.14	8.41
12-08-23	BAFF23UREFGN23	BAFF23UREFFHSC2050	229	95.8	0.80	F	Adult	13	6	3.83	3.36
12-08-23	BAFF23UREFGN23	BAFF23UREFFHSC2051	222	99.7	0.91	M	Adult	23	6	2.82	4.78
12-08-23	BAFF23UREFGN24	BAFF23UREFFHSC2052	200	71.2	0.89	F	Adult	13	6	2.55	3.37

(a) Refer to Table 7-1 in Report for descriptions of maturity codes.

Table 7B-2: Internal and External Assessments of Fourhorn Sculpin Lethally Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 2023

Fish Identification Number	External Assessment										Internal Assessment						
	Body Deformity	Eyes	Skin	Thymus	Opercula	Gills	Pseudo-branchs	Fins	Vent	Parasites[a]	Liver[b]	Spleen	Gall Bladder	Gonads	Mesenteric Fat (%)	Parasites[a]	Kidney
Milne Port																	
BAFF23UDPFFHSC1001	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UDPFFHSC1002	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1003	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1004	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1005	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UDPFFHSC1006	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UDPFFHSC1007	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1008	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UDPFFHSC1009	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UDPFFHSC1010	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1011	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UDPFFHSC1012	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1013	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	2	N
BAFF23UDPFFHSC1014	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1015	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1016	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UDPFFHSC1017	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1018	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1019	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1020	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1021	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UDPFFHSC1022	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1023	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1024	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UDPFFHSC1025	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1026	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UDPFFHSC1027	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UDPFFHSC1028	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UIPFFHSC1029	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UIPFFHSC1030	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UIPFFHSC1031	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UIPFFHSC1032	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UIPFFHSC1033	N	N	0	0	0	N	N	0	0	2	C	B	0	N	0	3	N
BAFF23UIPFFHSC1034	N	N	0	0	0	N	N	0	0	2	C	B	0	N	0	0	N
BAFF23UIPFFHSC1035	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	2	N
BAFF23UIPFFHSC1043	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	2	N
BAFF23UIPFFHSC1044	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	2	N
BAFF23UIPFFHSC1045	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	0	N
BAFF23UIPFFHSC1046	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UDPFFHSC1047	N	N	0	0	0	N	N	0	0	1	C	B	0	N	0	0	N
Koluktoo Bay																	
BAFF23UREFFHSC2018	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2019	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2020	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2021	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UREFFHSC2022	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2023	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	1	N
BAFF23UREFFHSC2024	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	1	N
BAFF23UREFFHSC2025	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	2	N
BAFF23UREFFHSC2026	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2027	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UREFFHSC2031	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	1	N
BAFF23UREFFHSC2032	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UREFFHSC2033	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2034	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2035	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2036	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2037	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2038	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	1	N
BAFF23UREFFHSC2039	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2040	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	1	N
BAFF23UREFFHSC2041	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UREFFHSC2042	N	N	0	0	0	N	N	0	0	0	A	B	0	N	0	0	N
BAFF23UREFFHSC2050	N	N	0	0	0	N	N	0	0	1	A	B	0	N	0	0	N
BAFF23UREFFHSC2051	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N
BAFF23UREFFHSC2052	N	N	0	0	0	N	N	0	0	0	C	B	0	N	0	0	N

(a) 0 = No observed parasites; 1 = Few observed parasites; 2 = Several observed parasites; 3 = Many observed parasites.

(b) A = Normal, solid red or light red colour; C = "Fatty" liver, "coffee with cream" colour.

% = percent; N, 0, or B = normal; - = not collected; < = less than

Table 7B-3: Fish Health Data for *Hiatella arctica* Lethally Sampled from the Milne Port Area and Tugaat River Estuary Reference Area, 2023

Date (dd/mm/yy)	Effort Number	Fish Identification Number	Composite	Field Measurements		Laboratory Measurements[a]								
				Total Length (mm)	Whole Animal Wet Weight (g)	Total Length (mm)	Total Height (mm)	Total Width (mm)	Whole Animal Wet Weight (g)	Shell Wet Weight (g)	Tissue Wet Weight (g)	Gonad Wet Weight (g)	Shell Dry Weight (g)	Age (y)
Milne Port														
05-08-23	BAFF23UMLNHTARVVSE3	BAFF23UMLNHTAR1501	MLN-HTAR-COMP-PAH-A	27.55	5.220	27.22	15.86	13.75	4.660	2.474	2.157	0.107	2.168	22
05-08-23	BAFF23UMLNHTARVVSE3	BAFF23UMLNHTAR1502	MLN-HTAR-COMP-METALS-6	29.41	3.645	29.55	13.84	10.47	2.990	1.835	1.060	0.079	1.693	16
05-08-23	BAFF23UMLNHTARVVSE3	BAFF23UMLNHTAR1503	MLN-HTAR-COMP-PAH-B	29.06	5.090	28.44	15.55	12.72	4.116	2.749	1.161	0.070	2.506	35
05-08-23	BAFF23UMLNHTARVVSE3	BAFF23UMLNHTAR1504	MLN-HTAR-COMP-METALS-1	30.88	3.760	30.87	13.47	12.06	3.109	1.695	1.346	0.054	1.503	14
05-08-23	BAFF23UMLNHTARVVSE3	BAFF23UMLNHTAR1505	MLN-HTAR-COMP-PAH-B	26.54	2.954	26.65	13.05	11.30	2.449	1.103	1.209	0.034	0.958	18
05-08-23	BAFF23UMLNHTARVVSW3	BAFF23UMLNHTAR1506	MLN-HTAR-COMP-METALS-3	34.37	8.868	34.44	20.44	15.93	7.066	4.196	2.588	0.346	3.699	47
05-08-23	BAFF23UMLNHTARVVSW3	BAFF23UMLNHTAR1507	MLN-HTAR-COMP-METALS-2	32.51	5.297	32.35	16.19	12.25	3.871	2.242	1.582	0.111	1.960	16
05-08-23	BAFF23UMLNHTARVVSW3	BAFF23UMLNHTAR1508	MLN-HTAR-COMP-METALS-2	31.65	7.355	30.49	17.22	14.47	6.161	3.621	2.522	0.231	3.198	52
05-08-23	BAFF23UMLNHTARVVSW3	BAFF23UMLNHTAR1509	MLN-HTAR-COMP-PAH-B	34.78	6.950	34.75	16.76	13.89	5.276	3.069	2.076	0.178	2.629	22
05-08-23	BAFF23UMLNHTARVVSW3	BAFF23UMLNHTAR1510	MLN-HTAR-COMP-PAH-B	32.66	5.701	31.77	14.12	13.43	4.878	2.667	2.154	0.144	2.376	21
06-08-23	BAFF23UMLNHTARVVSNE1	BAFF23UMLNHTAR1511	MLN-HTAR-COMP-PAH-B	27.35	3.511	27.05	13.22	9.73	2.662	1.397	1.225	0.130	1.193	16
06-08-23	BAFF23UMLNHTARVVSNE1	BAFF23UMLNHTAR1512	MLN-HTAR-COMP-PAH-A	23.67	3.408	24.71	12.69	10.47	1.768	0.926	0.809	0.054	0.792	20
06-08-23	BAFF23UMLNHTARVVSNE1	BAFF23UMLNHTAR1513	MLN-HTAR-COMP-PAH-B	29.17	5.251	29.33	14.04	12.09	3.257	2.165	1.018	0.104	1.940	30
06-08-23	BAFF23UMLNHTARVVSNE1	BAFF23UMLNHTAR1514	MLN-HTAR-COMP-PAH-B	25.59	4.177	25.87	15.14	12.38	2.696	1.464	1.168	0.076	1.294	31
06-08-23	BAFF23UMLNHTARVVSNE1	BAFF23UMLNHTAR1515	MLN-HTAR-COMP-PAH-A	28.64	4.240	28.64	13.53	10.16	2.556	1.435	1.087	0.079	1.273	16
07-08-23	BAFF23UMLNHTARVVSW1	BAFF23UMLNHTAR1516	MLN-HTAR-COMP-PAH-A	34.09	6.571	33.23	14.15	13.46	4.934	2.776	2.064	0.123	2.468	21
07-08-23	BAFF23UMLNHTARVVSW1	BAFF23UMLNHTAR1517	MLN-HTAR-COMP-PAH-B	30.85	5.726	30.44	15.67	14.31	4.701	2.801	1.837	0.096	2.488	34
07-08-23	BAFF23UMLNHTARVVSW1	BAFF23UMLNHTAR1518	MLN-HTAR-COMP-METALS-1	37.23	9.091	37.76	16.53	14.08	6.658	3.853	2.751	0.096	3.485	50
07-08-23	BAFF23UMLNHTARVVSW1	BAFF23UMLNHTAR1519	MLN-HTAR-COMP-METALS-5	32.30	7.585	32.53	15.71	14.17	5.450	3.688	1.727	0.099	3.357	41
07-08-23	BAFF23UMLNHTARVVSW1	BAFF23UMLNHTAR1520	MLN-HTAR-COMP-PAH-A	28.46	3.671	28.24	12.94	11.15	2.559	1.226	1.316	0.127	1.079	16
10-08-23	BAFF23UMLNHTARVVSE1	BAFF23UMLNHTAR1521	MLN-HTAR-COMP-PAH-A	28.29	3.944	28.16	13.32	11.53	3.030	1.652	1.355	0.068	1.477	18
10-08-23	BAFF23UMLNHTARVVSE1	BAFF23UMLNHTAR1522	MLN-HTAR-COMP-PAH-A	30.15	5.061	30.49	15.49	14.14	3.940	2.082	1.802	0.073	1.860	10
10-08-23	BAFF23UMLNHTARVVSE1	BAFF23UMLNHTAR1523	MLN-HTAR-COMP-METALS-4	28.21	4.406	29.33	14.46	12.76	3.534	2.279	1.227	0.084	2.033	38
10-08-23	BAFF23UMLNHTARVVSE1	BAFF23UMLNHTAR1524	MLN-HTAR-COMP-METALS-4	28.22	4.086	28.24	14.75	11.47	3.187	1.847	1.304	0.061	1.644	21
10-08-23	BAFF23UMLNHTARVVSE1	BAFF23UMLNHTAR1525	MLN-HTAR-COMP-METALS-7	23.79	1.573	24.27	10.99	8.56	1.145	0.588	0.549	0.030	0.535	13
11-08-23	BAFF23UMLNHTARVVSW15	BAFF23UMLNHTAR1526	MLN-HTAR-COMP-METALS-3	29.57	5.195	29.03	13.85	12.43	3.192	1.646	1.474	0.053	1.395	9
11-08-23	BAFF23UMLNHTARVVSW15	BAFF23UMLNHTAR1527	MLN-HTAR-COMP-METALS-6	34.43	6.785	34.28	16.59	14.21	5.203	3.246	1.907	0.099	2.878	18
11-08-23	BAFF23UMLNHTARVVSW15	BAFF23UMLNHTAR1528	MLN-HTAR-COMP-METALS-4	33.98	7.7400	34.30	17.62	14.28	6.035	4.120	1.837	0.070	3.713	23
11-08-23	BAFF23UMLNHTARVVSW15	BAFF23UMLNHTAR1529	MLN-HTAR-COMP-PAH-A	31.52	6.0810	31.82	16.43	14.63	4.757	3.123	1.562	0.104	2.816	17
11-08-23	BAFF23UMLNHTARVVSW15	BAFF23UMLNHTAR1530	MLN-HTAR-COMP-METALS-8	30.72	5.3630	30.93	14.36	13.20	4.498	2.150	2.252	0.181	1.726	16
15-08-23	BAFF23UMLNHTARVVSE-15	BAFF23UMLNHTAR1531	MLN-HTAR-COMP-METALS-5	37.40	7.0710	37.05	17.10	13.83	5.082	2.658	2.381	0.126	2.347	23
15-08-23	BAFF23UMLNHTARVVSE-15	BAFF23UMLNHTAR1532	MLN-HTAR-COMP-METALS-7	31.49	3.9940	32.03	14.25	12.57	2.889	1.517	1.301	0.080	1.336	7
15-08-23	BAFF23UMLNHTARVVSE-15	BAFF23UMLNHTAR1533	MLN-HTAR-COMP-PAH-B	26.87	2.4160	26.74	12.22	8.83	1.755	0.735	0.986	0.034	0.642	24
15-08-23	BAFF23UMLNHTARVVSE-15	BAFF23UMLNHTAR1534	MLN-HTAR-COMP-METALS-6	29.31	2.8510	28.99	13.46	11.13	2.180	1.004	1.145	0.053	0.902	13
15-08-23	BAFF23UMLNHTARVVSE-15	BAFF23UMLNHTAR1535	MLN-HTAR-COMP-PAH-A	31.07	5.4230	31.85	15.33	12.99	3.662	1.592	2.004	0.101	1.360	7
16-08-23	BAFF23UMLNHTARVVSW-2	BAFF23UMLNHTAR1536	MLN-HTAR-COMP-PAH-B	32.70	5.0250	29.72	15.03	13.48	4.430	2.422	1.971	0.126	2.130	12
16-08-23	BAFF23UMLNHTARVVSW-3	BAFF23UMLNHTAR1537	MLN-HTAR-COMP-METALS-8	33.46	5.1500	33.10	15.73	11.85	3.731	1.930	1.770	0.084	1.712	24
16-08-23	BAFF23UMLNHTARVVSW-4	BAFF23UMLNHTAR1538	MLN-HTAR-COMP-PAH-B	33.00	7.8570	32.79	17.08	15.31	6.286	4.452	1.795	0.106	4.020	32
16-08-23	BAFF23UMLNHTARVVSW-5	BAFF23UMLNHTAR1539	-	28.56	7.0720	29.37	17.26	14.28	5.755	3.113	2.578	0.175	2.754	32
16-08-23	BAFF23UMLNHTARVVSW-6	BAFF23UMLNHTAR1540	MLN-HTAR-COMP-METALS-7	34.26	6.0340	34.30	16.02	13.44	4.529	2.309	2.173	0.112	2.038	25
Tugaat River Estuary														
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2501	REF-HTAR-COMP-METALS-1	28.40	3.6510	28.22	13.23	11.10	3.082	1.605	1.416	0.121	1.404	8
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2502	REF-HTAR-COMP-PAH-A	31.70	5.9020	32.58	16.96	13.96	4.230	2.290	1.890	0.144	2.062	10
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2503	REF-HTAR-COMP-PAH-A	31.43	5.0310	31.99	14.92	12.03	4.502	1.877	2.551	0.160	1.570	19
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2504	REF-HTAR-COMP-PAH-A	37.77	7.7590	38.39	16.81	14.62	5.865	2.992	2.745	0.154	2.597	20
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2505	REF-HTAR-COMP-METALS-4	32.04	6.7910	31.91	16.83	13.58	5.017	2.988	1.959	0.171	2.512	17
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2506	REF-HTAR-COMP-PAH-A	37.09	6.2070	37.47	16.04	14.24	5.573	3.823	1.690	0.099	3.521	52
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2507	REF-HTAR-COMP-METALS-2	39.04	13.5810	39.02	19.42	18.69	10.534	8.188	2.248	0.156	7.652	76
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2508	REF-HTAR-COMP-METALS-1	32.21	7.5050	32.59	16.48	17.25	6.975	4.501	2.473	0.130	4.033	57
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2509	REF-HTAR-COMP-PAH-A	31.39	4.3810	31.84	16.50	12.89	3.405	1.572	1.817	0.069	1.393	13
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2510	REF-HTAR-COMP-PAH-A	30.85	4.5570	30.59	15.76	13.37	3.493	1.614	1.872	0.140	1.407	15
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2511	REF-HTAR-COMP-METALS-4	32.08	6.0210	33.17	16.41	13.11	4.096	2.118	1.947	0.136	1.870	14
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2512	REF-HTAR-COMP-PAH-A	32.91	5.4400	32.94	15.26	13.20	3.912	2.276	1.618	0.096	2.092	10
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2513	REF-HTAR-COMP-METALS-2	28.61	3.4920	28.36	14.22	11.39	2.804	1.301	1.422	0.076	1.055	8
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2514	REF-HTAR-COMP-METALS-3	31.10	4.4910	30.11	13.47	11.90	3.607	1.412	2.025	0.100	1.180	9
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2515	REF-HTAR-COMP-METALS-3	33.67	6.0340	32.96	16.35	12.75	4.897	3.747	1.120	0.059	3.531	38
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2516	REF-HTAR-COMP-METALS-3	20.01	1.0100	18.96	8.56	7.22	0.927	0.407	0.507	0.037	0.312	8
12-08-23	BAFF23UREFHTARVVTGT	BAFF23UREFHTAR2517	REF-HTAR-COMP-PAH-A	26.85	3.5230	26.79	14.14	12.61	2.936	1.446	1.480	0.053	1.158	5

(a) Measurements collected by Biological Environmental Services Ltd.

d = day; m = month; y = year; - = not applicable.

Table 7B-4: Fish Health Data for Fourhorn Sculpin Lethally Sampled from the Milne Port Area, 2020 to 2023

Parameter	2020							2021							2022							2023						
	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE
Female																												
Total Length (mm)	22	194	310	216	226	32.5	6.92	20	205	344	249	255	40.3	9.02	20	225	306	253	256	20.1	4.49	20	218	323	257	256	23.2	5.19
Total Weight (g)	22	65.4	380	89.4	124	77.8	16.6	20	78.9	352	138	167	85.0	19.0	20	116	353	186	193	69.0	15.4	20	105	329	174	183	57.0	12.7
Carcass Weight (g)	22	54.3	239	72.7	94.5	50.1	10.7	20	49.7	235	86.2	102	51.0	11.4	20	61.4	203	97.3	104	38.9	8.69	20	52.4	188	94.4	95.5	30.6	6.85
Condition Factor	22	0.75	1.28	0.96	0.97	0.12	0.026	20	0.82	1.14	0.93	0.94	0.077	0.017	20	0.90	1.57	1.07	1.12	0.18	0.040	20	0.85	1.42	1.05	1.06	0.13	0.029
Liver Weight (g)	22	0.844	16.4	2.37	4.38	4.08	0.870	20	1.96	23.9	5.82	6.84	5.05	1.13	20	3.07	17.3	6.40	8.10	4.66	1.04	20	3.92	16.1	8.66	8.78	3.53	0.789
LSI	22	1.29	5.09	2.76	3.11	1.2	0.25	20	2.48	7.45	3.88	3.89	1.1	0.24	20	2.15	7.35	3.91	4.09	1.6	0.35	20	2.88	6.72	4.79	4.78	1.2	0.27
Gonad Weight (g)	22	1.06	16.4	3.26	4.53	3.85	0.821	20	1.40	81.8	4.71	10.3	17.7	3.95	20	2.37	18.2	5.76	6.39	3.58	0.802	20	2.35	13.1	5.48	6.08	2.72	0.607
GSI	22	1.33	4.99	3.53	3.38	1.1	0.23	20	1.78	24.38	3.67	4.76	4.8	1.1	20	1.83	5.16	3.28	3.22	0.86	0.19	20	2.24	6.77	3.24	3.27	0.93	0.21
Age (y)	22	4	4	5.0	5.4	1.1	0.22	20	3	10	6.0	6.2	2.0	0.46	20	5	9	7.0	7.0	0.97	0.22	20	5	9	6.0	6.5	1.1	0.24
Male																												
Total Length (mm)	21	189	276	215	214	21.1	4.61	20	209	281	229	237	24.4	5.45	20	212	278	236	236	16.7	3.74	20	203	281	226	232	24.0	5.37
Total Weight (g)	21	65.5	230	89.1	98.3	37.8	8.24	20	74.1	197	111	122	38.8	8.68	20	84.1	211	136	132	31.7	7.08	20	76.4	249	120	134	49.2	11.0
Carcass Weight (g)	21	54.5	169	70.0	78.3	28.0	6.12	20	47.1	147	72.7	80.8	30.0	6.71	20	50.1	129	79.9	77.9	19.6	4.38	20	45.4	140	60.9	77.4	32.2	7.20
Condition Factor	21	0.82	1.19	0.95	0.96	0.099	0.022	20	0.71	1.01	0.90	0.89	0.076	0.017	20	0.78	1.23	0.98	0.99	0.11	0.025	20	0.83	1.70	1.00	1.04	0.18	0.040
Liver Weight (g)	21	0.607	8.08	2.14	2.54	1.68	0.366	20	1.11	8.75	2.24	2.86	1.78	0.398	20	1.78	7.77	3.95	4.18	1.65	0.370	20	1.60	9.25	4.40	5.18	2.53	0.566
LSI	21	0.86	4.09	2.56	2.47	0.87	0.19	20	1.49	5.53	2.02	2.27	0.93	0.21	20	1.82	4.87	3.24	3.12	0.78	0.17	20	2.09	5.64	3.57	3.76	1.0	0.23
Gonad Weight (g)	21	1.43	10.7	3.84	4.07	2.31	0.503	20	2.07	10.2	4.76	5.17	2.19	0.490	20	2.56	9.26	4.48	4.92	1.86	0.415	20	1.61	9.53	3.65	4.01	2.05	0.459
GSI	21	2.02	5.88	4.09	4.03	1.3	0.28	20	2.51	6.40	4.24	4.23	1.1	0.25	20	2.47	5.04	3.46	3.67	0.79	0.18	20	1.44	5.76	2.80	2.98	1.0	0.23
Age (y)	21	4	9	5.0	5.6	1.5	0.34	20	3	12	6.0	6.6	2.1	0.48	20	5	10	7.0	6.8	1.1	0.24	20	4	8	5.5	5.9	1.2	0.27

LSI = Liver Somatic Index; GSI = Gonadal Somatic Index; n = sample size; mm = millimetres; g = grams; min = minimum; max = maximum; SD = standard deviation; SE = standard error

Table 7B-5: Fish Health Data for *Hiatella arctica* Lethally Sampled from the Milne Port Area, 2020 to 2023

Parameter	2020							2021							2022							2023						
	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE	n	Min	Max	Median	Mean	SD	SE
Total Length (mm)	50	25.4	34.5	29.1	29.2	2.30	0.325	35	17.5	35.1	30.5	29.3	4.25	0.718	40	23.7	38.0	29.5	29.9	4.26	0.674	40	24.3	37.8	30.5	30.5	3.15	0.497
Whole Animal ww (g)	50	2.76	6.40	4.06	4.33	1.07	0.151	35	0.481	8.13	3.98	4.02	1.76	0.297	40	1.56	6.08	3.09	3.32	1.15	0.182	40	1.14	7.07	3.91	4.02	1.45	0.229
Condition	50	1.13	2.54	1.70	1.73	0.34	0.047	35	0.90	2.25	1.41	1.48	0.30	0.050	40	0.98	2.68	1.69	1.71	0.37	0.059	40	1.10	2.79	1.78	1.82	0.40	0.063
Shell ww (g)	50	0.799	3.31	1.52	1.65	0.533	0.0753	35	0.219	5.14	2.06	2.22	1.17	0.197	40	0.673	4.58	1.69	1.87	0.774	0.122	40	0.588	4.45	2.20	2.30	0.990	0.156
Shell dw (g)	50	0.747	3.18	1.43	1.56	0.516	0.0729	35	0.115	4.73	1.80	1.90	1.03	0.175	40	0.541	4.19	1.54	1.68	0.701	0.111	40	0.535	4.02	1.95	2.03	0.894	0.141
Tissue ww (g)	50	1.22	4.01	2.57	2.68	0.680	0.0961	35	0.24	2.87	1.91	1.79	0.703	0.119	40	0.62	2.81	1.33	1.37	0.497	0.0786	40	0.55	2.75	1.65	1.66	0.542	0.0857
Gonad ww (g)	-	-	-	-	-	-	-	35	0.00	0.08	0.04	0.04	0.0181	0.00306	40	0.01	0.10	0.02	0.03	0.0208	0.00330	40	0.03	0.35	0.10	0.10	0.0579	0.00916
MSI	-	-	-	-	-	-	-	35	0.90	6.13	1.97	2.23	1.2	0.20	40	0.75	3.85	1.84	2.03	0.86	0.14	40	2.89	15.43	6.31	6.68	2.6	0.40
Age (y)	50	10	49	22.5	24.8	12	1.6	35	1	39	17.0	19.2	8.1	1.4	39	6	34	17.0	17.4	6.4	1.0	40	7	52	21.0	23.0	11	1.8

ww = wetted weight; dw = dry weight; mm = millimetres; g = grams; n = sample size; min = minimum; max = maximum; SD = standard deviation; SE = standard error; - = not applicable.

Table 7B-6: Stomach Contents Observed in Fishes Sampled from the Milne Port Area and Koluktoo Bay Reference Area, 202

Phyllum	Subphyllum	Class	Subclass	Order	Family	Taxon	Proportion of Total Stomach Contents		
							Arctic Char (n = 21)	Fourhorn Sculpin	
								Milne Port (n = 16)	Koluktoo Bay (n = 14)
Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet.	-	1%	-
Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus glacialis*	1%	<1%	<1%
						Calanus hyperboreus	<1%	-	-
						Calanus sp.	5%	<1%	<1%
				-	-	Copepoda indet.	<1%	-	-
		Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	-	3%	-
					Gammaridae	*Gammarus* sp.	<1%	2%	30%
					Hyperiidae	*Themisto* sp.	9%	-	-
					Ischyroceridae	Ischyrocerus sp.	<1%	-	-
					Oedicerotidae	Oedicerotidae indet.	-	-	5%
						Paroediceros lynceus	-	<1%	-
					Pleustidae	Pleustidae indet.	-	-	5%
					Uristidae	*Onisimus* sp.	<1%	<1%	-
					-	Amphipoda indet.	<1%	<1%	5%
					-	Hyperiidea indet.	15%	-	-
					-	Lysianassoidea indet.	<1%	-	2%
				Mysida	Mysidae	*Mysis* sp.	10%	<1%	-
					-	Mysida indet.	-	<1%	-
		-	-	-	-	Crustacea indet.	16%	4%	33%
	Hexapoda	Insecta	Pterygota	Diptera	-	Diptera indet.	<1%	-	-
Chordata	Vertebrata	Teleostei	-	Perciformes	Ammodytidae	*Ammodytes* sp.	42%	-	-
				-	-	Teleostei indet.	1%	88%	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	-	Cephalaspidea indet.	-	<1%	-
				Pteropoda	Limacinidae	*Limacina* sp.	1%	-	19%

Table 7B-7: Stomach Contents of All Fish Captured from Milne Inlet, the Milne Port Area, and Koluktoo Bay Reference Area, 2023

Species	Fish Identification Number	Fullness (%)	Digested (%)	Full Stomach Weight (g)	Phyllum	Subphyllum	Class	Subclass	Order	Family	Taxon	Total Abundance (# individuals)	Total Wet Weight (g)	Wet Weight / Individual (g)
Milne Inlet														
Arctic Char	BAFF23UDPFARCH3001	0	100	13.13	-	-	-	-	-	-	Empty Stomach	-	-	-
	BAFF23UIPFARCH3002	75	50	9.52	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus glacialis*	28	0.059	0.002
									-	-	Copepoda indet.	2	0.002	0.001
							Malacostraca	Eumalacostraca	Mysida	Mysidae	*Mysis* sp.	-	5.274	-
	BAFF23UIPFARCH3003	100	100	25.71	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	7	0.070	0.010
										-	Hyperiidea indet.	1	0.048	0.048
									Mysida	Mysidae	*Mysis* sp.	30	1.877	0.063
							-	-	-	-	Crustacea indet.	-	7.822	-
					Platyhelminthes	-	-	-	-	-	Cestoda indet.	6	-	-
	BAFF23UIPFARCH3004	50	75	15.88	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	9	0.038	0.004
							Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	6	0.058	0.010
									Mysida	Mysidae	*Mysis* sp.	310	0.965	0.003
							-	-	-	-	Crustacea indet.	-	1.749	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	2	0.041	0.021
	BAFF23UIPFARCH3005	50	50	5.63	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	2	0.008	0.004
							Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	20	0.185	0.009
									Mysida	Mysidae	*Mysis* sp.	5	0.023	0.005
							-	-	-	-	Crustacea indet.	-	0.058	-
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	15	0.250	0.017
	BAFF23UDPFARCH3006	25	50	5.32	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus glacialis*	5	0.010	0.002
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	33	0.060	0.002
										Hyperiidae	*Themisto* sp.	5	0.037	0.007
									Mysida	Mysidae	*Mysis* sp.	183	0.671	0.004
							-	-	-	-	Crustacea indet.	-	0.241	-
						Hexapoda	Insecta	Pterygota	Diptera	-	Diptera indet.	1	0.002	0.002
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	3	0.044	0.015
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	17	0.256	0.015
	BAFF23UDPFARCH3007	25	50	18.62	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	1	0.021	0.021
										-	Amphipoda indet.	1	0.001	0.001
									Mysida	Mysidae	*Mysis* sp.	123	0.387	0.003
							-	-	-	-	Crustacea indet.	-	0.639	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	1	0.058	0.058
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	4	0.076	0.019
	BAFF23UDPFARCH3008	25	75	15.83	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	4	0.044	0.011
									Mysida	Mysidae	*Mysis sp.*	5	0.114	0.023
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	3	0.068	0.023
	BAFF23UDPFARCH3009	100	75	53.64	Chordata	Vertebrata	Teleostei	-	Perciformes	Ammodytidae	*Ammodytes* sp.	6	32.789	5.465
	BAFF23UDPFARCH3010	100	100	8.42	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	-	3.321	-
	BAFF23UDPFARCH3012	100	75	36.23	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	26	1.871	0.072
										-	Hyperiidea indet.	-	9.722	-
										-	Lysianassoidea indet.	1	0.026	0.026
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	0.604	-
	BAFF23UDPFARCH3013	50	75	25.74	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	5	0.148	0.030
										-	Hyperiidea indet.	-	3.328	-
	BAFF23UKLKARCH4001	50	50	11.95	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus glacialis*	196	0.927	0.005
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	3	0.027	0.009
										Ischyroceridae	*Ischyrocerus* sp.	1	0.007	0.007
							-	-	-	-	Crustacea indet.	-	0.588	-
	BAFF23UKLKARCH4002	25	50	8.82	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus hyperboreus*	2	0.022	0.011
											Calanus sp.	83	0.357	0.004
							Malacostraca	Eumalacostraca	Amphipoda	-	Hyperiidea indet.	1	0.025	0.025
							-	-	-	-	Crustacea indet.	-	0.657	-
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	26	0.328	0.013
	BAFF23UKLKARCH4003	50	50	9.99	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	4	0.022	0.005
							Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	27	0.827	0.031
							-	-	-	-	Crustacea indet.	-	1.719	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	0.044	-
	BAFF23UKLKARCH4004	100	75	23.76	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	-	4.696	-
							Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	-	0.855	-
										Uristidae	*Onisimus* sp.	7	0.168	0.024
										-	Amphipoda indet.	1	0.010	0.010
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	0.118	-
	BAFF23UKLKARCH4005	75	75	15.56	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	4	0.018	0.005
							Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	*Themisto* sp.	44	1.301	0.030
							-	-	-	-	Crustacea indet.	-	1.992	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	0.129	-
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	1	0.008	0.008
	BAFF23UKLKARCH4006	50	50	27.89	Chordata	Vertebrata	Teleostei	-	Perciformes	Ammodytidae	Ammodytes sp.	2	8.491	4.245
	BAFF23UKLKARCH4007	25	50	17.87	Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	26	0.286	0.011
	BAFF23UKLKARCH4008	25	100	10.60	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	-	Hyperiidea indet.	-	1.398	-
	BAFF23UKLKARCH4009	50	50	4.30	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	4	0.007	0.002
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	5	0.072	0.014
										-	Amphipoda indet.	1	0.002	0.002
										-	Lysianassoidea indet.	4	0.004	0.001
									Mysida	Mysidae	*Mysis* sp.	-	0.185	-
Milne Port														
Fourhorn Sculpin	BAFF23UDPFFHSC1001	100	100	23.30	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	-	0.009	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	14.799	-
					-	-	-	-	-	-	Unidentified tissue	-	4.170	-
	BAFF23UDPFFHSC1004	0	100	2.28	-	-	-	-	-	-	Empty Stomach	-	-	-
	BAFF23UDPFFHSC1005	100	100	25.97	Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	17.229	-
					-	-	-	-	-	-	Unidentified tissue	-	2.957	-
	BAFF23UDPFFHSC1009	50	75	4.00	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	-	Mysida indet.	-	0.253	-
					-	-	-	-	-	-	Unidentified tissue	-	0.320	-
	BAFF23UDPFFHSC1010	100	75	7.90	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	6	0.222	0.037
										-	Amphipoda indet.	2	0.040	0.020
									Mysida	Mysidae	*Mysis* sp.	-	0.120	-
					-	-	-	-	-	-	Unidentified tissue	-	1.378	-
	BAFF23UDPFFHSC1018	100	100	11.80	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	-	0.044	-
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	1	0.054	0.054
							-	-	-	-	Crustacea indet.	-	0.091	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	4.056	-
					-	-	-	-	-	-	Unidentified tissue	-	1.175	-
	BAFF23UDPFFHSC1022	100	100	25.45	Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet. tubes	-	-	-
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	14.169	-
					-	-	-	-	-	-	Unidentified tissue	-	0.803	-
	BAFF23UDPFFHSC1024	25	75	2.30	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	15	0.046	0.003
							Malacostraca	Eumalacostraca	Amphipoda	-	Amphipoda indet.	1	0.010	0.010
									Mysida	-	Mysida indet.	1	0.002	0.002
							-	-	-	-	Crustacea indet.	-	0.147	-
	BAFF23UDPFFHSC1025	100	75	7.34	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	2	0.007	0.004
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	3	0.084	0.028
									Mysida	Mysidae	*Mysis* sp.	12	0.049	0.004
										-	Mysida indet.	47	0.226	0.005
					Chordata	Vertebrata	Teleostei	-	-	-	Teleostei indet.	-	2.978	-
					-	-	-	-	-	-	Unidentified tissue	-	1.486	-
	BAFF23UDPFFHSC1028	10	100	1.66	Arthropoda	Crustacea	-	-	-	-	Crustacea indet.	-	0.003	-
	BAFF23UIPFFHSC1031	100	50	5.67	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	1	0.150	0.150
										Gammaridae	*Gammarus* sp.	17	0.570	0.034
							-	-	-	-	Crustacea indet.	-	0.145	-
	BAFF23UIPFFHSC1032	50	75	6.08	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	8	0.797	0.100
										-	Amphipoda indet.	2	0.038	0.019
							-	-	-	-	Crustacea indet.	-	0.463	-
	BAFF23UIPFFHSC1034	75	50	7.36	Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet.	3	0.627	0.209
											Pectinariidae indet. tubes	-	-	-
					Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	2	0.227	0.113
										Gammaridae	*Gammarus* sp.	2	0.034	0.017
										-	Amphipoda indet.	-	0.072	-
	BAFF23UIPFFHSC1035	50	75	7.77	Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet. tubes	-	-	-
					Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus glacialis*	1	0.005	0.005
							Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	-	0.462	-
										Gammaridae	*Gammarus* sp.	-	0.145	-
							-	-	-	-	Crustacea indet.	-	0.499	-
	BAFF23UIPFFHSC1044	25	25	7.87	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	2	0.093	0.046
										Gammaridae	*Gammarus* sp.	7	0.280	0.040
										Oedicerotidae	Paroediceros lynceus	8	0.413	0.052
										Uristidae	*Onisimus* sp.	1	0.032	0.032
									Mysida	Mysidae	*Mysis* sp.	8	0.014	0.002
							-	-	-	-	Crustacea indet.	-	0.075	-
	BAFF23UIPFFHSC1045	50	75	16.12	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	*Atylus carinatus*	1	0.037	0.037
							-	-	-	-	Crustacea indet.	-	0.695	-
					Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	-	Cephalaspidea indet.	1	0.016	0.016

Table 7B-7: Stomach Contents of All Fish Captured from Milne Inlet, the Milne Port Area, and Koluktoo Bay Reference Area, 2023

Species	Fish Identification Number	Fullness (%)	Digested (%)	Full Stomach Weight (g)	Phyllum	Subphyllum	Class	Subclass	Order	Family	Taxon	Total Abundance (# individuals)	Total Wet Weight (g)	Wet Weight / Individual (g)
Koluktoo Bay														
Fourhorn Sculpin	BAFF23UKLKFHSC2018	0	100	3.68	-	-	-	-	-	-	Empty Stomach	-	-	-
	BAFF23UKLKFHSC2020	0	100	4.57	-	-	-	-	-	-	Empty Stomach	-	-	-
	BAFF23UKLKFHSC2022	50	75	3.48	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	5	0.127	0.025
										-	Amphipoda indet.	1	0.084	0.084
	BAFF23UKLKFHSC2025	75	75	4.75	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	Oedicerotidae indet.	1	0.202	0.202
										Pleustidae	Pleustidae indet.	3	0.095	0.032
										-	Amphipoda indet.	-	0.127	-
							-	-	-	-	Crustacea indet.	-	0.411	-
					Platyhelminthes	-	-	-	-	-	Cestoda indet.	4	-	-
	BAFF23UKLKFHSC2026	10	75	1.80	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	3	0.076	0.025
					Platyhelminthes	-	-	-	-	-	Cestoda indet.	1	-	-
	BAFF23UKLKFHSC2027	10	75	4.14	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	3	0.121	0.040
						Crustacea	-	-	-	-	Crustacea indet.	-	0.060	-
					Platyhelminthes	-	-	-	-	-	Cestoda indet.	1	-	-
	BAFF23UKLKFHSC2031	10	75	6.49	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus glacialis*	1	0.003	0.003
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	1	0.005	0.005
										Oedicerotidae	Oedicerotidae indet.	4	0.009	0.002
							-	-	-	-	Crustacea indet.	-	0.008	-
	BAFF23UKLKFHSC2032	75	50	7.36	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	*Calanus* sp.	8	0.043	0.005
							Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	3	0.177	0.059
										-	Lysianassoidea indet.	3	0.095	0.032
							-	-	-	-	Crustacea indet.	-	0.590	-
					Platyhelminthes	-	-	-	-	-	Cestoda indet.	1	-	-
	BAFF23UKLKFHSC2035	25	75	5.26	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	2	0.074	0.037
										Pleustidae	Pleustidae indet.	-	0.125	-
	BAFF23UKLKFHSC2036	10	75	5.78	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	2	0.015	0.007
							-	-	-	-	Crustacea indet.	-	0.207	-
					Platyhelminthes	-	-	-	-	-	Cestoda indet.	1	-	-
	BAFF23UKLKFHSC2039	25	75	3.74	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	6	0.114	0.019
							-	-	-	-	Crustacea indet.	-	0.160	-
	BAFF23UKLKFHSC2041	75	50	4.59	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	1	0.580	0.580
					Mollusca	-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	*Limacina* sp.	-	0.848	-
	BAFF23UKLKFHSC2042	0	100	6.04	-	-	-	-	-	-	Empty Stomach	-	-	-
	BAFF23UKLKFHSC2051	10	0	2.87	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	*Gammarus* sp.	2	0.028	0.014

indet. = indeterminable; sp. = species; - = not available/not applicable.

Table 7B-8: Supporting Information for Statistical Comparisons Between the Milne Port Area and the Koluktoo Bay Reference Area for Fourhorn Sculpin, 2023

Effect Indicator	Endpoint[a]	Covariate		Statistical Test	*n* Outlier	*n*		LSM		MSE	Coefficient of Determination (R^2)		Interaction *P*-value	Levene's Test	Shapiro-Wilk	*P*-value	Magnitude of Effect (%)	Critical Effect Size (%)[b]	Power Analysis[c]		
						Milne Port	Koluktoo Bay	Milne Port	Koluktoo Bay		Full Model	Reduced Model							Power to Detect CES	Minimum Detectable Difference[d]	Sensitivity[e]
Female																					
Survival	Age	-		ANOVA	0	20	18	7	7	1.597	0.018	-	-	0.396	0.158	0.422	-	25%	100%	1.38	21%
Growth	Size-at-Age	Age	5 years	ANCOVA	0	20	18	113	82	769.50	0.791	-	**0.001**[f]	0.727	0.960	**0.052**	**37%**	25%	100%	30.2	20%
			9 years					300	163							**<0.001**	**84%**				
Condition (Energy Storage)	Condition	Total Length		$ANCOVA_{log10}$	0	20	18	2.17	2.13	0.0025	0.925	0.923	0.464	0.448	0.656	**0.025**	**10%**	10%	92% / 78%	9.74 / 25.7	7% / 19%
	Relative Liver Weight	Total Weight		$ANCOVA_{log10}$	0	20	18	0.786	0.867	0.012	0.830	0.804	0.029	0.170	0.412	**0.069**	-17%	25%	97% / 82%	2.268 / 1.475	31% / 20%
Reproduction	Relative Gonad Weight	Total Weight		$ANCOVA_{log10}$	1	19	18	0.612	0.771	0.006	0.865	0.864	0.637	0.327	0.990	**<0.001**	**-31%**	25%	100% / 99%	1.847 / 0.055	31% / 1%
Male																					
Survival	Age	-		ANOVA	0	20	7	6	7	1.36	0.239	-	-	0.138	0.064	**0.010**	-20%	25%	100%	1.27	19%
Growth	Size-at-Age	Age		ANCOVA	0	20	7	144	95.9	1191.97	0.443	0.442	0.810	0.201	0.207	**0.011**	**50%**	25%	100%	37.57	31%
Condition (Energy Storage)	Condition	Total Length		$ANCOVA_{log10}$	1	19	7	2.10	2.08	0.0013	0.940	0.938	0.469	0.319	0.999	0.297	-	10%	88% / 81%	8.21 / 14.0	7% / 12%
	Relative Liver Weight	Total Weight		$ANCOVA_{log10}$	0	20	7	0.654	0.680	0.014	0.767	0.730	0.068	0.426	0.200	0.622	-	25%	75% / 56%	1.350 / 1.488	28% / 31%
Reproduction	Relative Gonad Weight	Total Weight		$ANCOVA_{log10}$	0	20	7	0.547	0.550	0.022	0.503	0.502	0.828	0.620	0.995	0.967	-	25%	59% / 42%	1.113 / 1.590	31% / 45%

Notes:

Statistically significant values and magnitudes of effect greater than the CES are indicated in **bold**. Statistical outliers are provided in Appendix 7B, Table 7B-12.

(a) For model components, please see Table 7-3 in Chapter 7.

(b) Critical Effect Size (CES) expressed as a percentage of the Koluktoo Bay mean.

(c) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the Koluktoo Bay mean.

(d) Minimum Detectable Difference expressed as unit difference from the Koluktoo Bay mean.

(e) Sensitivity is the minimum detectable difference expressed as a percent change in the Koluktoo Bay mean.

(f) The R^2 value for the full model was less than the threshold (0.791 < 0.800) for assuming slopes are practically parallel (Barrett et al., 2010). Therefore, size-at-age was compared at the smallest and largest overlapping covariate values among study years, following Section A1.7 in Environment Canada (2012).

n = sample size; LSM = least squares mean; P-value = probability value; log_{10} = log_{10}-transformed data; rank = rank-transformed data; ANOVA = analysis of variance; ANCOVA = analysis of covariance; n/a = not applicable.

Table 7B-9: Supporting Information for Statistical Comparisons Between 2020, 2021, 2022, and 2023 for Fourhorn Sculpin, Milne Port Area

Effect Indicator	Endpoint[a]	Statistical Test	*n* Outlier	*n*				LSM				MSE	Coefficient of Determination (R^2)		Interaction *P*-value	Levene's Test	Shapiro-Wilk	Year *P*-value	Post-hoc *P*-value						RPD (%)						Power Analysis[c]	
				2020	2021	2022	2023	2020	2021	2022	2023		Full Model	Reduced Model					2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	Minimum Detectable Difference[d]	Sensitivity[e]
Female																															
Survival	Age	$ANOVA_{rank}$	0	22	20	20	20	5	6	7	6	426.463	0.237	-	-	0.294	0.030	**<0.001**	0.332	**<0.001**	**0.010**	**0.023**	0.444	0.491	-	33%	18%	15%	-	-	1.09	17%
Growth	Size-at-Age	ANCOVA	1	21	20	20	20	148	169	162	173	1571.10	0.725	0.722	0.840	0.037	0.408	0.256	-	-	-	-	-	-	-	-	-	-	-	-	32.09	20%
Condition (Energy Storage)	Condition	$ANOVA_{log10}$	0	22	20	20	20	2.17	2.14	2.21	2.19	0.0025	0.945	0.937	**0.022**[b]	0.726	0.134	**<0.001**	0.393	**0.060**	0.554	**<0.001**	**0.017**	0.569	-	10%	-	16%	11%	-	11.4 / 12.3	8% / 8%
	Relative Liver Weight	$ANOVA_{log10}$	0	22	20	20	20	0.68	0.75	0.73	0.82	0.017	0.839	0.827	0.144	0.149	0.515	**0.023**	0.375	0.748	**0.017**	0.945	0.402	0.148	-	-	31%	-	-	-	1.041 / 1.281	19% / 23%
Reproduction	Relative Gonad Weight	$ANOVA_{log10}$	1	22	19	20	20	0.72	0.72	0.63	0.65	0.015	0.823	0.815	0.337	0.191	0.614	**0.050**	1.000	0.119	0.244	0.106	0.236	0.973	-	-	-	-	-	-	0.835 / 1.011	17% / 21%
Male																															
Survival	Age	$ANOVA_{rank}$	0	21	20	20	20	5	6	7	5.5	476.68	0.133	-	-	0.083	0.114	**0.011**	0.187	**0.009**	0.800	0.621	0.688	0.103	-	33%	-	-	-	-	1.25	20%
Growth	Size-at-Age	ANCOVA	0	21	20	20	20	109	115	121	140	887.59	0.540	0.515	0.269	0.409	0.114	**0.009**	0.900	0.566	**0.007**	0.920	**0.054**	0.219	-	-	25%	-	19%	-	24.12	20%
Condition (Energy Storage)	Condition	$ANOVA_{log10}$	1	21	20	20	19	2.06	2.03	2.07	2.08	0.0019	0.913	0.910	0.524	0.871	0.916	**0.002**	**0.066**	0.951	0.726	**0.010**	**0.002**	0.952	8%	-	-	10%	12%	-	7.5 / 8.0	7% / 7%
	Relative Liver Weight	$ANOVA_{log10}$	0	21	20	20	20	0.45	0.39	0.53	0.61	0.018	0.734	0.733	0.954	0.303	0.722	**<0.001**	0.498	0.358	**0.005**	**0.012**	**<0.001**	0.245	-	-	35%	31%	48%	-	0.592 / 0.730	19% / 23%
Reproduction	Relative Gonad Weight	$ANOVA_{log10}$	0	21	20	20	20	0.66	0.67	0.61	0.50	0.017	0.615	0.610	0.797	0.142	0.240	**0.001**	0.985	0.714	**0.005**	0.461	**0.001**	**0.061**	-	-	34%	-	38%	24%	0.754 / 0.926	19% / 23%

Notes:

Statistically significant values are indicated in **bold**. Statistical outliers are provided in Appendix 7B, Table 7B-12.

(a) For model components, please see Table 7-2 in Chapter 7.

(b) log ANCOVA proceeded despite significant interaction term based on visual inspection of the data.

(c) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the overall mean.

(d) Minimum Detectable Difference expressed as difference from the overall mean.

(e) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

P-value = probability value; log_{10} = log_{10}-transformed data; rank = rank-transformed data; ANOVA = analysis of variance; ANCOVA = analysis of covariance; n/a = not applicable.

Table 7B-10: Supporting Information for Statistical Comparisons Between Milne Port and Tugaat River Estuary for *Hiatella arctica* , 2023

Effect Indicator	Endpoint[a]	Covariate	Statistical Test	*n* Outliers	*n*		LSM		MSE	Coefficient of Determination (R^2)		Interaction *P*-value	Levene's Test	Shapiro-Wilk	*Area P*-value	Magnitude of Effect (%)	Power Analysis[b]	
					Milne Port	Tugaat River Estuary	Milne Port	Tugaat River Estuary		Full Model	Reduced Model						Minimum Detectable Difference[c]	Sensitivity[d]
Hiatella arctica																		
Survival	Length Frequency	n/a	K-S Test	-	40	17	-	-	-	-	-	-	-	-	0.243	-	n/a	n/a
Growth	Whole Animal Wet Weight	n/a	ANOVA	1	40	16	5.280	5.112	3.05	0.002	-	-	0.932	0.915	0.747	-	1.331	26%
Condition (Energy Storage)	Condition	Length	$ANCOVA_{log10}$	0	40	17	0.203	0.212	0.0107	0.603	0.589	0.189	0.881	0.495	0.744	-	0.267 / 0.321	17% / 20%
	Relative Shell Weight	Length	$ANCOVA_{log10}$	0	40	17	0.277	0.238	0.0202	0.662	0.661	0.671	0.657	0.183	0.354	-	0.399 / 0.513	22% / 28%
Reproduction	Mantle Somatic Index	Soft Tissue Weight	$ANCOVA_{log10}$	0	40	17	-1.025	-1.014	0.0188	0.592	0.590	0.667	0.278	0.896	0.783	-	0.001 / 0.001	21% / 27%

Notes:

Statistically significant values are indicated in **bold**. Power analysis was completed assuming normality. Statistical outliers are provided in Appendix 7B, Table 7B-12.

(a) For model components, please see Table 7-4 in Chapter 7.

(b) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the Tugaat River Estuary mean.

(c) Minimum Detectable Difference expressed as unit difference from the Tugaat River Estuary mean.

(d) Sensitivity is the minimum detectable difference expressed as a percent change in the Tugaat River Estuary mean.

P-value = probability value; log_{10} = log_{10}-transformed data; K-S Test = Kolmogorov-Smirnov test; ANOVA = analysis of variance; ANCOVA = analysis of covariance; n/a = not applicable.

Table 7B-11: Supporting Information for Statistical Comparisons Between 2020, 2021, 2022, 2023 for *Hiatella arctica* , Milne Port

Effect Indicator	Endpoint[a]	Covariate		Statistical Test	*n* Outliers	Sample Size				Least Squares Mean				MSE	Coefficient of Determination (R^2)		Interaction *P*-value	Levene's Test	Shapiro-Wilk	*Year* *P*-value	Post-hoc *P*-value						RPD (%)						Power Analysis[e]	
						2020	2021	2022	2023	2020	2021	2022	2023		Full Model	Reduced Model					2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	2020* 2021	2020* 2022	2020* 2023	2021* 2022	2021* 2023	2022* 2023	Minimum Detectable Difference[f]	Sensitivity[g]
Hiatella arctica																																	
Survival	Length Frequency	n/a		K-S Test[b]	-	50	35	44	40	-	-	-	-	-	-	-	-	-	-	n/a	0.529	0.687	0.529	1.000	1.000	1.000	-	-	-	-	-	-	n/a	n/a
Growth	Whole Animal Wet Weight	n/a		ANOVA	0	50	35	44	40	4.329	4.021	4.603	5.280	2.36	0.080	-	-	0.063	0.073	**0.003**	0.800	0.823	**0.021**	0.340	**0.003**	0.185	-	-	20%	-	27%	-	0.869	19%
Condition (Energy Storage)	Condition	Length	>25 mm	$ANCOVA_{log10}$[c]	0	50	29	32	38	0.664	0.625	0.653	0.699	0.0066	0.614	0.607	0.458	0.555	0.805	**0.003**	0.195	0.943	0.207	0.535	**0.002**	**0.091**	-	-	-	-	17%	11%	0.392 / 0.428	9% / 9%
	Relative Shell Weight	Length	>25 mm	$ANCOVA_{log10}$[c]	0	50	29	32	38	0.216	0.290	0.211	0.270	0.0151	0.489	0.471	0.180	0.079	0.833	**0.018**	**0.063**	0.998	0.201	**0.063**	0.912	0.192	17%	-	-	18%	-	-	0.224 / 0.257	13% / 15%
Reproduction	Mantle Somatic Index	Soft Tissue Weight	0.6172 g	$ANCOVA_{log10}$[d]	0	-	34	40	40	-	-1.760	-2.078	-1.461	0.0303	0.772	0.750	**0.007**[h]	0.129	0.384	**<0.001**	-	-	-	**0.005**	**0.020**	**<0.001**	-	-	-	70%	66%	122%	0.003 / 0.004	20% / 26%
			2.7505 g								-1.342	-1.168	-0.778								-	-	-	**0.070**	**<0.001**	**<0.001**				40%	114%	84%		

Notes:

Statistically significant values are indicated in **bold**. Power analysis was completed assuming normality.

(a) For model components, please see Table 7-4 in Chapter 7.

(b) P-values adjusted using Holm's correction for multiple comparisons (Holm 1979).

(c) ANCOVA completed only in range of overlapping total length between years (>25 mm) following Section A1.7 in Environment Canada (2012). See Figure 7-9 for *H. arctica* length-frequency distributions from 2020, 2021, 2022, and 2023.

(d) ANCOVA completed only in range of overlapping soft tissue weights between years (0.61 to 2.75 g ww) following Section A1.7 in Environment Canada (2012).

(e) Minimum Detectable Difference expressed as unit difference from the Koluktoo Bay mean.

(f) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(g) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(h) The R^2 value for the full model was less than the threshold (0.772 < 0.750) for assessing if slopes are practically parallel (Barrett et al., 2010); therefore, mantle somatic index was compared at the smallest and largest overlapping covariate values among study years, following Section A1.7 in Environment Canada (2012).

P-value = probability value; log_{10} = log_{10}-transformed data; K-S Test = Kolmogorov-Smirnov test; ANOVA = analysis of variance; ANCOVA = analysis of covariance; n/a = not applicable.

Table 7B-12: Outliers Omitted from Statistical Comparisons of Fish Health Endpoints, 2020 – 2023

Species	Sex	Parameter	Grouping	FIN	Total Length (mm)	Total Weight (g)	SR
Temporal							
Fourhorn Sculpin	Female	Size-at-age	2020	BAFF20UMLNFHSC1023	310	380	4.51
		Relative Gonad Weight	2021	BAFF21UMLNFRSC1019	309	335	4.43
	Male	Condition	2023	BAFF23UDPFFHSC1007	210	158	5.40
Spatial							
Fourhorn Sculpin	Female	Relative Gonad Weight	Milne Port	BAFF23UDPFFHSC1047	270	175	4.34
	Male	Condition	Milne Port	BAFF23UDPFFHSC1007	210	158	6.45
Hiatella arctica	-	Whole Animal Wet Weight	Tugaat River Estuary	BAFF23UREFHTAR2507	39.02	10.53	4.71

FIN = Fish Identification Number; SR = Studentized Residual

APPENDIX 7C

Fish Tissue Data

Table 7C-1: Sample Counts for Fish Tissue Chemistry Analyses from the Milne Port Area, 2010 to 2023

Species	Year	Number of Samples	
		Metals	Polycyclic Aromatic Hydrocarbons
Arctic Char	2010	22[(a)]	0
	2013	17	14
	2015	5	0
	2016	13	0
	2017	2	0
	2018	26	0
	2019	47	0
	2020	8	8
	2021	8	8
	2022	8	26
	2023	8	8
	Total	**156**	**64**
Arctic Staghorn Sculpin	2013	1	0
Fourhorn Sculpin	2013	2	1
	2019	30	0
	2020	8	8
	2021	8	8
	2022	8	8
	2023	8	8
	Total	**56**	**33**
Hiatella arctica	2018	24	0
	2019	80	0
	2020	8	8
	2021	8	8
	2022	8	4[(b)]
	2023	8	2[(b)]
	Total	**136**	**22**
Unknown Sculpin	2019	30	0
Unknown Fish	2015	10	0
Grand Total	**-**	**389**	**119**

(a) Includes 11 muscle samples and 11 liver samples.

(b) Sample sizes were reduced in order to meet laboratory sample mass requirements.

Table 7C-2: Summary of *Hiatella arctica* Samples Sent to Bureau Veritas Laboratory for Tissue Chemistry Analysis, 2023

Chemistry	Area	Composite Sample	Fish Identification Numbers	Number of Individuals
Metals	Milne Port	MLN-HTAR-COMP-METALS-1	BAFF23UMLNHTAR1504	2
			BAFF23UMLNHTAR1518	
		MLN-HTAR-COMP-METALS-2	BAFF23UMLNHTAR1507	2
			BAFF23UMLNHTAR1508	
		MLN-HTAR-COMP-METALS-3	BAFF23UMLNHTAR1506	2
			BAFF23UMLNHTAR1526	
		MLN-HTAR-COMP-METALS-4	BAFF23UMLNHTAR1523	3
			BAFF23UMLNHTAR1524	
			BAFF23UMLNHTAR1528	
		MLN-HTAR-COMP-METALS-5	BAFF23UMLNHTAR1519	2
			BAFF23UMLNHTAR1531	
		MLN-HTAR-COMP-METALS-6	BAFF23UMLNHTAR1502	3
			BAFF23UMLNHTAR1527	
			BAFF23UMLNHTAR1534	
		MLN-HTAR-COMP-METALS-7	BAFF23UMLNHTAR1525	3
			BAFF23UMLNHTAR1532	
			BAFF23UMLNHTAR1540	
		MLN-HTAR-COMP-METALS-8	BAFF23UMLNHTAR1530	2
			BAFF23UMLNHTAR1537	
	Tugaat River Estuary	REF-HTAR-COMP-METALS-1	BAFF23UREFHTAR2501	2
			BAFF23UREFHTAR2508	
		REF-HTAR-COMP-METALS-2	BAFF23UREFHTAR2507	2
			BAFF23UREFHTAR2513	
		REF-HTAR-COMP-METALS-3	BAFF23UREFHTAR2514	3
			BAFF23UREFHTAR2515	
			BAFF23UREFHTAR2516	
		REF-HTAR-COMP-METALS-4	BAFF23UREFHTAR2505	2
			BAFF23UREFHTAR2511	
PAHs	Milne Port	MLN-HTAR-COMP-PAH-A	BAFF23UMLNHTAR1520	9
			BAFF23UMLNHTAR1521	
			BAFF23UMLNHTAR1522	
			BAFF23UMLNHTAR1501	
			BAFF23UMLNHTAR1512	
			BAFF23UMLNHTAR1515	
			BAFF23UMLNHTAR1529	
			BAFF23UMLNHTAR1516	
			BAFF23UMLNHTAR1535	
		MLN-HTAR-COMP-PAH-B	BAFF23UMLNHTAR1503	11
			BAFF23UMLNHTAR1514	
			BAFF23UMLNHTAR1517	
			BAFF23UMLNHTAR1510	
			BAFF23UMLNHTAR1513	
			BAFF23UMLNHTAR1533	
			BAFF23UMLNHTAR1509	
			BAFF23UMLNHTAR1536	
			BAFF23UMLNHTAR1505	
			BAFF23UMLNHTAR1511	
			BAFF23UMLNHTAR1538	
	Tugaat River Estuary	REF-HTAR-COMP-PAH-A	BAFF23UREFHTAR2504	8
			BAFF23UREFHTAR2517	
			BAFF23UREFHTAR2503	
			BAFF23UREFHTAR2512	
			BAFF23UREFHTAR2502	
			BAFF23UREFHTAR2506	
			BAFF23UREFHTAR2509	
			BAFF23UREFHTAR2510	

PAHs = Polycyclic aromatic hydrocarbons.

Table 7C-3: Concentrations of Metals in Arctic Char Muscle Tissue Collected from the Milne Inlet Area, 2023

Parameter	DL	Fish Identification Number							
		BAFF23UDPFARCH3001	BAFF23UDPFARCH3009	BAFF23UDPFARCH3010	BAFF23UDPFARCH3012	BAFF23UIPFARCH3003	BAFF23UIPFARCH3004	BAFF23UKLKARCH4002	BAFF23UKLKARCH4008
Moisture (%)	0.30	78.00	73.00	74.00	75.00	67.00	69.00	70.00	75.00
Total Metals (mg/kg ww)									
Aluminum	0.20	0.20	0.32	0.46	0.57	<0.20	0.87	0.33	<0.20
Antimony	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	0.0040	1.1100	1.2500	0.6980	0.6180	1.2200	0.8470	0.6280	0.4480
Barium	0.010	0.010	<0.010	0.014	0.012	<0.010	0.018	0.016	<0.010
Beryllium	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium	0.0010	0.0119	0.0016	0.0026	0.0015	0.0047	0.0021	0.0061	0.0016
Calcium	2.0	192.0	272.0	170.0	70.1	184.0	110.0	533.0	179.0
Chromium	0.010	<0.010	0.029	<0.010	<0.010	<0.010	0.013	<0.010	<0.010
Cobalt	0.0013	0.0020	0.0026	0.0054	0.0039	0.0051	0.0054	0.0042	0.0075
Copper	0.010	0.317	0.291	0.336	0.331	0.543	0.628	0.341	0.286
Iron	0.25	3.64	5.26	6.86	7.62	6.40	12.70	7.82	4.19
Lead	0.0010	0.0025	0.0013	0.0045	0.0055	0.0025	0.0040	0.0029	<0.0010
Magnesium	0.40	262	313	349	325	255	288	281	307
Manganese	0.010	0.095	0.093	0.137	0.120	0.080	0.162	0.186	0.097
Mercury	0.010	0.035	0.059	0.023	0.018	0.025	0.012	0.019	0.041
Molybdenum	0.0040	<0.0040	<0.0040	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Nickel	0.010	<0.010	<0.010	0.011	0.015	0.013	0.024	<0.010	0.015
Phosphorus	2.0	2810	3180	3560	3380	2700	3010	3150	3200
Potassium	2.0	4580	5020	5180	5100	3760	4390	4320	4730
Selenium	0.010	0.331	0.399	0.430	0.343	0.341	0.317	0.336	0.431
Silver	0.0010	<0.0010	<0.0010	0.0033	0.0036	<0.0010	<0.0010	<0.0010	0.0011
Sodium	2.0	308	264	356	346	360	430	353	402
Strontium	0.010	0.280	0.308	0.389	0.124	0.278	0.223	1.390	0.297
Thallium	0.00040	0.00205	0.00238	0.00338	0.00221	0.00203	0.00210	0.00215	0.00479
Tin	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Titanium	0.020	0.085	0.108	0.124	0.115	0.088	0.103	0.097	0.090
Uranium	0.00040	0.00061	0.00050	<0.00040	<0.00040	<0.00040	0.00053	0.00051	<0.00040
Vanadium	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc	0.040	3.610	3.850	6.050	4.940	4.420	5.060	5.220	5.100

% = percent; mg/kg ww = milligram per killigram wet weight; DL = Detection Limit; < = less than.

Table 7C-4: Concentrations of Metals in Fourhorn Sculpin Muscle Tissue Collected from the Milne Port Area and Koluktoo Bay Reference Area, 2023

Parameter	DL	Fish Identification Number															
		Milne Port								Koluktoo Bay							
		BAFF23UDPFF HSC1001	BAFF23UDPFF HSC1005	BAFF23UDPFF HSC1009	BAFF23UDPFF HSC1010	BAFF23UDPFF HSC1022	BAFF23UDPFF HSC1028	BAFF23UIPFF HSC1032	BAFF23UIPFF HSC1035	BAFF23UREFF HSC2018	BAFF23UREFF HSC2022	BAFF23UREFF HSC2032	BAFF23UREFF HSC2035	BAFF23UREFF HSC2039	BAFF23UREFF HSC2041	BAFF23UREFF HSC2042	BAFF23UREFF HSC2051
Moisture (%)	0.30	78.00	79.00	77.00	81.00	80.00	79.00	79.00	80.00	79	79	79	79	80	78	79	79
Total Metals (mg/kg ww)																	
Aluminum	0.20	0.44	0.87	0.45	<0.20	0.39	0.39	0.84	0.76	0.9	0.39	0.39	0.54	0.33	1.46	0.81	0.7
Antimony	0.0010	<0.0010	0.0015	0.0014	<0.0010	0.0010	<0.0010	0.0010	0.0012	0.0016	0.0013	0.0021	0.0014	<0.0010	<0.0010	0.0015	0.0011
Arsenic	0.0040	2.8300	3.6900	4.3700	3.1300	6.2300	2.7100	4.0200	2.2100	5.1600	3.2400	7.2000	8.4800	2.3500	3.0700	6.8500	3.6300
Barium	0.010	0.037	0.621	0.024	0.026	0.015	0.020	0.039	0.100	0.062	0.093	0.148	0.025	0.061	0.066	0.080	0.043
Beryllium	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth	0.0010	0.0012	0.0024	0.0017	0.0015	0.0023	0.0016	0.0036	0.0037	0.0019	<0.0010	0.0026	0.0015	<0.0010	<0.0010	<0.0010	<0.0010
Boron	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium	0.0010	0.0093	0.0073	0.0036	0.0060	0.0089	0.0028	0.0021	0.0047	0.0143	0.0104	0.0126	0.0124	0.0121	0.0037	0.0055	0.0033
Calcium	2.0	801	601	379	601	298	363	722	1260	694	2410	1650	253	665	842	1010	574
Chromium	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	0.024	0.026	0.023	<0.010	<0.010	0.016	0.01	0.025	0.015	<0.010
Cobalt	0.0013	0.0066	0.0075	0.0110	0.0060	0.0092	0.0061	0.0085	0.0081	0.0173	0.0092	0.0136	0.0182	0.0136	0.0080	0.0100	0.0103
Copper	0.010	0.362	0.470	0.481	0.351	0.474	0.523	0.449	0.462	0.527	0.338	0.406	0.642	0.506	0.262	0.523	0.425
Iron	0.25	6.90	12.40	6.83	4.68	6.72	6.75	9.51	8.12	12.60	6.83	8.05	10.00	7.55	12.10	9.13	9.61
Lead	0.0010	0.0088	0.0242	0.0127	0.0101	0.0042	0.0035	0.0297	0.0065	0.0095	0.0052	0.0051	0.0040	0.0041	0.0061	0.0067	0.0033
Magnesium	0.40	264	224	265	253	233	248	274	279	285	254	269	218	268	277	277	259
Manganese	0.010	0.222	0.195	0.300	0.277	0.218	0.327	0.264	0.238	0.365	0.379	0.374	0.272	0.339	0.414	0.355	0.346
Mercury	0.010	0.158	0.249	0.107	0.064	0.303	0.091	0.146	0.122	0.183	0.039	0.181	0.150	0.084	0.040	0.215	0.066
Molybdenum	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0048	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Nickel	0.010	0.015	0.017	0.019	0.015	0.012	0.012	0.018	0.013	0.040	0.016	0.020	0.025	0.020	0.039	0.045	0.014
Phosphorus	2.0	2770	2430	2600	2520	2310	2380	2590	2830	2630	3250	3020	2310	2640	2660	2900	2420
Potassium	2.0	4090	3730	4050	3920	3700	3710	3680	3490	3610	3450	3690	3520	3640	4040	4030	3640
Selenium	0.010	0.508	0.582	0.670	0.637	0.713	0.467	0.620	0.537	0.732	0.587	0.787	0.689	0.534	0.569	0.627	0.630
Silver	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium	2.0	502	633	482	511	480	604	528	665	894	829	773	626	680	610	771	615
Strontium	0.010	4.490	3.530	1.650	2.640	1.480	1.470	4.190	7.500	4.790	11.600	10.600	1.500	3.600	3.830	6.330	2.820
Thallium	0.00040	0.00088	0.00137	0.00218	0.00172	0.00103	0.00111	0.00144	0.00124	0.00216	0.00072	0.00089	0.00135	0.00209	0.00073	0.00092	0.00079
Tin	0.020	<0.020	<0.020	<0.020	0.020	<0.020	0.023	0.021	<0.020	0.035	<0.020	<0.020	<0.020	0.023	<0.020	<0.020	<0.020
Titanium	0.020	0.096	0.102	0.086	0.076	0.067	0.076	0.097	0.131	0.085	0.090	0.094	0.086	0.063	0.117	0.104	0.085
Uranium	0.00040	0.00120	0.00121	0.00094	0.00078	0.00094	0.00074	0.00128	0.00118	0.00278	0.00182	0.00512	0.00127	0.00092	0.00155	0.0024	0.00094
Vanadium	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.038	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc	0.040	15.000	15.800	15.400	10.500	17.300	12.800	14.300	15.400	25.500	13.100	21.100	25.300	18.100	10.600	17.100	11.300

% = percent; mg/kg ww = milligram per killigram wet weight; DL = Detection Limit; < = less than.

Table 7C-5: Concentrations of Metals in *Hiatella arctica* Tissue Collected from the Milne Port Area and Tugaat River Estuary Reference Area, 2023

Parameter	DL	Fish Identification Number											
		Milne Port								Tugaat River Estuary			
		MLN-HTAR-COMP-METALS-1	MLN-HTAR-COMP-METALS-2	MLN-HTAR-COMP-METALS-3	MLN-HTAR-COMP-METALS-4	MLN-HTAR-COMP-METALS-5	MLN-HTAR-COMP-METALS-6	MLN-HTAR-COMP-METALS-7	MLN-HTAR-COMP-METALS-8	REF-HTAR-COMP-METALS-1	REF-HTAR-COMP-METALS-2	REF-HTAR-COMP-METALS-3	REF-HTAR-COMP-METALS-4
Moisture (%)	0.30	78	78	74	77	72	83	61	73	76	76	77	78
Total Metals (mg/kg ww)													
Aluminum	0.50	591	442	1050	421	1770	551	156	522	501	1190	685	894
Antimony	0.0020	0.0161	0.0193	0.0441	0.0108	0.0442	0.0115	0.0102	0.0097	0.0132	0.0317	0.0150	0.0165
Arsenic	0.0050	2.23	4.43	5.26	3.34	4.43	1.67	1.45	1.77	3.35	3.56	2.23	2.88
Barium	0.010	6.3	14.5	13.3	8.4	14.7	2.9	2.3	5.5	12.0	12.0	4.8	13.4
Beryllium	0.0020	0.0308	0.0250	0.0508	0.0265	0.0849	0.0283	0.0070	0.0257	0.0378	0.0858	0.0508	0.0634
Bismuth	0.0013	0.0075	0.0081	0.0127	0.0052	0.0274	0.0062	0.0028	0.0060	0.0074	0.0162	0.0091	0.0132
Boron	0.20	6.61	7	10.90	5.5	14	5.9	3.0	5.3	4.2	7.4	4.2	5.7
Cadmium	0.0013	1.100	1.000	0.518	0.823	0.932	0.424	0.665	0.515	1.790	0.873	0.698	0.585
Calcium	4.0	4630	4680	9550	5400	10400	7510	2000	4340	1900	5950	1630	2590
Chromium	0.025	1.84	1.45	2.71	1.20	4.47	1.54	0.41	1.51	1.17	2.63	1.45	1.78
Cobalt	0.0013	0.936	1.750	2.000	1.040	4.120	1.120	0.285	0.771	0.854	1.380	0.928	2.090
Copper	0.013	2.08	2.34	3.19	1.89	4.04	1.68	1.41	1.57	1.76	3.19	2.19	2.72
Iron	0.25	1740	2210	4880	1240	5090	1470	397	2540	959	2650	1520	1760
Lead	0.0013	0.84	1.14	1.62	0.61	0.05[(a)]	0.88	0.20	0.50	0.96	2.98	1.76	2.66
Magnesium	0.40	2500	2260	4090	2660	5040	3640	1140	2150	1220	2110	1420	1690
Manganese	0.010	110	291	230	120	442	133	20.1	57.9	75.5	141	82.6	190
Mercury	0.0010	0.037	0.042	0.039	0.049	0.045	0.015	0.018	0.199	0.066	0.03	0.02	0.028
Molybdenum	0.0080	0.276	0.414	0.593	0.279	0.65	0.268	0.133	0.286	0.198	0.294	0.211	0.384
Nickel	0.010	1.68	1.7	2.94	1.34	3.95	1.4	0.538	1.36	1.03	2.27	1.14	1.59
Phosphorus	2.0	1260	1530	1500	1150	1350	1050	1280	1020	2340	1360	1350	1060
Potassium	2.5	1480	1490	1740	1200	1640	1070	1230	1170	1410	1300	1530	1120
Selenium	0.010	1.28	1.77	1.58	1.94	1.51	0.668	1.06	0.999	1.71	1.39	1.25	1.34
Silver	0.0013	0.0060	0.0112	0.0078	0.0045	0.0217	0.0115	0.0042	0.0103[(a)]	0.0324	0.0341[(a)]	0.0055	0.015
Sodium	2.5	4570	5850	6300	4420	4680	3330	4130	3990	4150	3670	3540	3620
Strontium	0.013	18.8	26	45	24	36.4	18.6	10.3	12.7	13.6	46.2	10.7	15.9
Thallium	0.00040	0.0125	0.0257	0.0242	0.011	0.0449	0.0134	0.00388	0.0109	0.00903	0.0192	0.0119	0.017
Tin	0.020	0.043	0.037	0.07	0.025	0.101	0.029	<0.020	0.048	0.036	0.083	0.06	0.062
Titanium	0.13	19.3	14.1	38.5	15.0	52.9	21.0	5.1	18.7	18.7	48.9	28.6	31.2
Uranium	0.00040	0.0911	0.132	0.172	0.113	0.271	0.0753	0.0132	0.0622	0.338	0.465	0.272	0.416
Vanadium	0.020	2.48	3.29	4.98	2.17	7.77	2.39	0.784	2.07	1.94	5.07	2.77	3.59
Zinc	0.20	18.5	18	17.1	19.3	19.9	7.28	10.8	14.7	14.1	25.5	14.5	18.7

% = percent; mg/kg ww = milligram per killigram wet weight; DL = Detection Limit; < = less than.

Table 7C-6: Concentrations of Polycyclic Aromatic Hydrocarbons in Arctic Char Muscle Tissue Collected from the Milne Port Area, 2023

Parameter	DL	Fish Identification Number							
		BAFF23UDPFA RCH3001	BAFF23UIPFA RCH3003	BAFF23UIPFA RCH3004	BAFF23UDPFA RCH3009	BAFF23UDPFA RCH3010	BAFF23UDPFA RCH3012	BAFF23UKLKA RCH4002	BAFF23UKLKA RCH4008
Polycyclic Aromatic Hydrocarbons (mg/kg ww)									
1-Methylnaphthalene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
2-Methylnaphthalene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(j)fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Perylene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluorene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate Recovery (%)									
Anthracene-D_{10}	-	90	86	85	89	88	87	85	89
Acenaphthylene-D_8	-	88	82	79	87	85	83	81	83
Terphenyl-D_{14}	-	90	84	82	88	87	84	83	85

% = percent; mg/kg ww = milligram per killigram wet weight; DL = Detection Limit; < = less than; - = not applicable.

Table 7C-7: Concentrations of Polycyclic Aromatic Hydrocarbons in Fourhorn Sculpin Muscle Tissue Collected from the Milne Port Area and Koluktoo Bay Reference Area, 2023

Parameter	DL	Fish Identification Number															
		Milne Port								Koluktoo Bay							
		BAFF23UDPFF HSC1001	BAFF23UDPFF HSC1005	BAFF23UDPFF HSC1009	BAFF23UDPFF HSC1010	BAFF23UDPFF HSC1022	BAFF23UDPFF HSC1028	BAFF23UIPFF HSC1032	BAFF23UIPFF HSC1035	BAFF23UREF FHSC2018	BAFF23UREF FHSC2022	BAFF23UREF FHSC2032	BAFF23UREF FHSC2035	BAFF23UREF FHSC2039	BAFF23UREF FHSC2041	BAFF23UREF FHSC2042	BAFF23UREF FHSC2051
Polycyclic Aromatic Hydrocarbons (mg/kg ww)																	
1-Methylnaphthalene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
2-Methylnaphthalene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(j)fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Perylene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluorene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate Recovery (%)																	
Anthracene-D_{10}	-	87	84	85	87	91	88	86	91	90	86	86	87	88	88	89	89
Acenaphthylene-D_8	-	88	84	86	87	89	87	87	89	89	87	88	88	87	88	88	88
Terphenyl-D_{14}	-	90	89	90	90	95	90	89	94	94	90	91	90	91	91	94	92

Table 7C-8: Concentrations of Polycyclic Aromatic Hydrocarbons in *Hiatella arctica* Tissues Collected from the Milne Port Area and Tugaat River Estuary Reference Area, 2023

Parameter	DL	Fish Identification Number		
		Milne Port		Tugaat River Estuary
		MLN-HTAR-PAH-A	MLN-HTAR-PAH-B	REF-HTAR-PAH-A
Polycyclic Aromatic Hydrocarbons (mg/kg ww)				
1-Methylnaphthalene	0.050	<0.050	<0.050	<0.050
2-Methylnaphthalene	0.050	<0.050	<0.050	<0.050
Benzo(j)fluoranthene	0.050	<0.050	<0.050	<0.050
Perylene	0.050	<0.050	<0.050	<0.050
Naphthalene	0.050	<0.050	<0.050	<0.050
Acenaphthylene	0.050	<0.050	<0.050	<0.050
Acenaphthene	0.050	<0.050	<0.050	<0.050
Fluorene	0.050	<0.050	<0.050	<0.050
Phenanthrene	0.050	<0.050	<0.050	<0.050
Anthracene	0.050	<0.050	<0.050	<0.050
Fluoranthene	0.050	<0.050	<0.050	<0.050
Pyrene	0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	0.050	<0.050	<0.050	<0.050
Chrysene	0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	0.050	<0.050	<0.050	<0.050
Surrogate Recovery (%)				
D10-Anthracene	-	100	84	91
D8-Acenaphthylene	-	98	81	90
Terphenyl-D14	-	101	84	88

% = percent; mg/kg ww = milligram per killigram wet weight; DL = Detection Limit; < = less than.

Table 7C-9: Tissue Chemistry Summary Statistics for Fourhorn Sculpin from the Milne Port Area, 2019 to 2023

Parameter	2019							2020							2021							2022							2023						
(mg / kg ww)	N >DL / N Total	Min	Max	Median	Mean	SD	SE	N >DL / N Total	Min	Max	Median	Mean	SD	SE	N >DL / N Total	Min	Max	Median	Mean	SD	SE	N >DL / N Total	Min	Max	Median	Mean	SD	SE	N >DL / N Total	Min	Max	Median	Mean	SD	SE
Aluminum	30 / 30	0.75	11	1.9	2.9	2.4	0.44	7 / 8	<0.20	1.2	0.29	0.40	0.35	0.12	8 / 8	0.28	1.3	0.53	0.56	0.31	0.11	7 / 8	<0.50	1.4	0.75	0.78	0.33	0.12	7 / 8	<0.20	0.87	0.45	0.53	0.27	0.095
Antimony	15 / 30	<0.0020	0.0030	<0.0020	<0.0020	0.00074	0.00014	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	7 / 8	<0.0010	0.0028	0.0013	0.0014	0.00071	0.00025	7 / 8	<0.0020	0.0044	0.0028	0.0027	0.00094	0.00033	5 / 8	<0.0010	0.0015	<0.0010	<0.0010	0.00041	0.00015
Arsenic	30 / 30	0.51	6.6	1.8	1.8	1.1	0.20	8 / 8	1.7	3.3	2.2	2.4	0.62	0.22	8 / 8	2.1	4.9	3.6	3.4	1.0	0.36	8 / 8	1.8	5.9	3.3	3.5	1.4	0.49	8 / 8	2.2	6.2	3.4	3.6	1.3	0.45
Barium	30 / 30	0.030	0.40	0.15	0.15	0.087	0.016	8 / 8	0.027	0.086	0.057	0.054	0.021	0.0075	7 / 8	<0.010	0.060	0.031	0.031	0.021	0.0074	6 / 8	<0.010	0.019	0.012	0.012	0.0050	0.0018	8 / 8	0.015	0.62	0.032	0.11	0.21	0.074
Beryllium	0 / 30	<0.0020	<0.0020	<0.0020	<0.0020	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	0.00018	0.000063	0 / 8	<0.0020	<0.0020	<0.0020	<0.0020	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-
Bismuth	26 / 30	<0.0013	0.0052	0.0029	0.0027	0.0012	0.00022	5 / 8	<0.0010	0.0052	0.0014	0.0018	0.0017	0.00059	7 / 8	<0.0010	0.0031	0.0019	0.0019	0.00079	0.00028	8 / 8	0.0016	0.0029	0.0022	0.0022	0.00041	0.00015	8 / 8	0.0012	0.0037	0.0020	0.0023	0.00095	0.00034
Boron	23 / 30	<0.20	0.60	0.24	0.23	0.10	0.018	0 / 8	<0.20	<0.20	<0.20	<0.20	-	-	2 / 8	<0.20	0.54	<0.20	<0.20	0.16	0.058	0 / 8	<0.20	<0.20	<0.20	<0.20	-	-	0 / 8	<0.20	<0.20	<0.20	<0.20	-	-
Cadmium	30 / 30	0.0055	0.13	0.025	0.037	0.034	0.0062	7 / 8	<0.0010	0.0088	0.0023	0.0028	0.0026	0.00092	8 / 8	0.0041	0.0095	0.0055	0.0058	0.0017	0.00062	8 / 8	0.0027	0.012	0.0059	0.0057	0.0029	0.0010	8 / 8	0.0021	0.0093	0.0054	0.0056	0.0027	0.00097
Calcium	30 / 30	470	4300	2200	2200	1200	220	8 / 8	610	910	710	760	110	40	8 / 8	190	1200	490	540	370	130	8 / 8	100	140	120	120	15	5.4	8 / 8	300	1300	600	630	310	110
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	21 / 30	<0.025	0.16	0.031	0.040	0.035	0.0063	8 / 8	0.023	0.50	0.16	0.20	0.17	0.060	7 / 8	<0.010	0.038	0.020	0.021	0.011	0.0038	3 / 8	<0.025	0.030	<0.025	<0.025	0.0084	0.0030	3 / 8	<0.010	0.026	<0.010	0.011	0.0091	0.0032
Cobalt	30 / 30	0.0045	0.024	0.012	0.012	0.0041	0.00074	8 / 8	0.0048	0.0080	0.0062	0.0061	0.0010	0.00036	8 / 8	0.0065	0.012	0.0078	0.0083	0.0019	0.00066	8 / 8	0.0094	0.21	0.012	0.037	0.070	0.025	8 / 8	0.0060	0.011	0.0078	0.0079	0.0017	0.00060
Copper	30 / 30	0.28	1.0	0.56	0.59	0.21	0.038	8 / 8	0.32	1.0	0.43	0.50	0.23	0.080	8 / 8	0.45	0.71	0.47	0.51	0.089	0.031	8 / 8	0.29	0.54	0.35	0.36	0.080	0.028	8 / 8	0.35	0.52	0.47	0.45	0.060	0.021
Iron	30 / 30	3.6	24	9.0	9.9	4.6	0.84	8 / 8	3.7	10	6.3	6.6	2.1	0.73	8 / 8	5.4	9.2	6.7	6.9	1.4	0.48	8 / 8	3.5	8.1	6.5	6.3	1.4	0.51	8 / 8	4.7	12	6.9	7.7	2.3	0.82
Lead	30 / 30	0.0055	0.054	0.015	0.019	0.012	0.0021	8 / 8	0.0013	0.0047	0.0018	0.0022	0.0011	0.00041	8 / 8	0.0037	0.013	0.0054	0.0063	0.0031	0.0011	8 / 8	0.0054	0.032	0.0065	0.011	0.0090	0.0032	8 / 8	0.0035	0.030	0.0095	0.012	0.0095	0.0034
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	30 / 30	190	410	270	280	45	8.2	8 / 8	260	300	300	290	14	4.8	8 / 8	240	310	280	280	28	9.8	8 / 8	250	320	270	280	23	8.1	8 / 8	220	280	260	260	19	6.8
Manganese	30 / 30	0.15	0.87	0.34	0.36	0.16	0.029	8 / 8	0.26	0.41	0.30	0.32	0.049	0.017	8 / 8	0.18	0.35	0.26	0.27	0.053	0.019	8 / 8	0.12	0.26	0.18	0.19	0.055	0.020	8 / 8	0.20	0.33	0.25	0.26	0.045	0.016
Mercury	30 / 30	0.055	0.28	0.15	0.14	0.053	0.0096	8 / 8	0.069	0.15	0.11	0.11	0.029	0.010	8 / 8	0.10	0.42	0.20	0.23	0.11	0.040	8 / 8	0.15	0.43	0.25	0.26	0.089	0.032	8 / 8	0.064	0.30	0.13	0.16	0.082	0.029
Molybdenum	4 / 30	<0.0080	0.012	<0.0080	<0.0080	0.0021	0.00038	5 / 8	<0.0040	0.010	0.0053	0.0049	0.0029	0.0010	0 / 8	<0.0040	<0.0040	<0.0040	<0.0040	0.00071	0.00025	0 / 8	<0.0080	<0.0080	<0.0080	<0.0080	-	-	0 / 8	<0.0040	<0.0040	<0.0040	<0.0040	-	-
Nickel	30 / 30	0.014	0.054	0.030	0.031	0.010	0.0018	6 / 8	<0.010	0.020	0.015	0.013	0.0057	0.0020	8 / 8	0.015	0.079	0.023	0.028	0.021	0.0074	8 / 8	0.017	0.042	0.022	0.025	0.0084	0.0030	8 / 8	0.012	0.019	0.015	0.015	0.0027	0.00095
Phosphorus	30 / 30	1800	4300	2600	2800	700	130	8 / 8	2600	2900	2800	2700	130	46	8 / 8	2000	2700	2500	2400	210	76	8 / 8	1900	2300	2200	2100	120	42	8 / 8	2300	2800	2600	2600	180	64
Potassium	30 / 30	2200	3600	2900	2900	340	63	8 / 8	3900	4300	4100	4000	120	44	8 / 8	3400	3900	3700	3600	160	57	8 / 8	3400	3900	3600	3600	180	62	8 / 8	3500	4100	3700	3800	210	73
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	30 / 30	0.34	0.64	0.52	0.51	0.080	0.015	8 / 8	0.37	0.48	0.41	0.42	0.037	0.013	8 / 8	0.41	0.57	0.50	0.49	0.061	0.021	8 / 8	0.44	0.63	0.53	0.53	0.062	0.022	8 / 8	0.47	0.71	0.60	0.59	0.084	0.030
Silver	3 / 30	<0.0013	0.0023	<0.0013	<0.0013	0.00034	0.000062	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	1 / 8	<0.0010	0.0015	<0.0010	<0.0010	-	-	1 / 8	<0.0013	0.0017	<0.0013	<0.0013	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-
Sodium	30 / 30	890	1700	1300	1300	200	36	8 / 8	480	740	550	570	89	32	8 / 8	550	1000	750	750	160	56	8 / 8	500	770	580	600	94	33	8 / 8	480	670	520	550	73	26
Strontium	30 / 30	2.4	30	14	14	8.2	1.5	8 / 8	2.4	5.0	3.5	3.6	0.88	0.31	8 / 8	0.91	7.3	2.4	2.9	2.3	0.80	8 / 8	0.34	0.75	0.50	0.52	0.13	0.046	8 / 8	1.5	7.5	3.1	3.4	2.1	0.73
Tellurium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	29 / 30	<0.00040	0.0023	0.00087	0.00095	0.00043	0.000078	8 / 8	<0.020	<0.020	<0.020	<0.020	0.00024	0.000087	8 / 8	0.00050	0.0010	0.00076	0.00075	0.00015	0.000054	8 / 8	0.00059	0.0011	0.00077	0.00083	0.00018	0.000065	8 / 8	0.00088	0.0022	0.0013	0.0014	0.00042	0.00015
Tin	19 / 30	<0.020	1.4	0.027	0.10	0.26	0.047	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	5 / 8	<0.020	0.19	0.025	0.042	0.061	0.021	5 / 8	<0.020	0.042	0.023	0.023	0.013	0.0045	3 / 8	<0.020	0.023	<0.020	<0.020	0.0059	0.0021
Titanium	30 / 30	0.27	1.0	0.45	0.48	0.16	0.029	8 / 8	0.17	0.22	0.21	0.21	0.018	0.0065	8 / 8	0.30	0.52	0.37	0.37	0.065	0.023	8 / 8	0.42	0.50	0.46	0.46	0.030	0.011	8 / 8	0.067	0.13	0.091	0.091	0.020	0.0071
Uranium	30 / 30	0.00045	0.020	0.0035	0.0045	0.0041	0.00074	6 / 8	<0.00040	0.0014	0.00072	0.00067	0.00039	0.00014	5 / 8	<0.00040	0.0014	0.00077	0.00067	0.00044	0.00016	8 / 8	0.00075	0.0027	0.00099	0.0012	0.00065	0.00023	8 / 8	0.00074	0.0013	0.0011	0.0010	0.00021	0.000074
Vanadium	0 / 30	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	1 / 8	<0.020	0.056	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-
Zinc	30 / 30	12	27	17	18	3.9	0.72	8 / 8	9.6	18	12	13	3.3	1.2	8 / 8	9.6	26	18	17	5.9	2.1	8 / 8	9.7	18	14	14	3.1	1.1	8 / 8	11	17	15	15	2.1	0.74
Zirconium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 7C-10: Tissue Chemistry Summary Statistics for *Hiatella arctica* from the Milne Port Area, 2018 to 2023

Parameter	2018							2019							2020							2021							2022							2023						
(mg/kg ww)	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE
Aluminum	24 / 24	170	920	520	520	200	40	80 / 80	110	2400	890	910	360	40	8 / 8	330	1800	690	760	440	160	8 / 8	390	1500	830	850	410	150	8 / 8	410	1200	710	700	230	81	8 / 8	160	1800	540	690	500	180
Antimony	24 / 24	0.0039	0.0094	0.0066	0.0064	0.0016	0.00033	80 / 80	0.0043	0.042	0.018	0.018	0.0060	0.00067	8 / 8	0.0085	0.035	0.020	0.019	0.0082	0.0029	8 / 8	0.011	0.032	0.017	0.018	0.0077	0.0027	8 / 8	0.015	0.030	0.026	0.024	0.0055	0.0020	8 / 8	0.0097	0.044	0.014	0.021	0.015	0.0052
Arsenic	24 / 24	1.4	4.1	2.4	2.4	0.68	0.14	80 / 80	1.6	6.3	2.8	2.9	1.0	0.12	8 / 8	2.4	3.4	2.6	2.7	0.33	0.12	8 / 8	2.2	6.2	3.1	3.6	1.5	0.52	8 / 8	2.2	3.4	3.0	2.9	0.52	0.19	8 / 8	1.5	5.3	2.8	3.1	1.5	0.53
Barium	24 / 24	2.1	21	7.9	9.2	5.2	1.1	80 / 80	3.3	33	8.5	11	6.3	0.71	8 / 8	5.3	20	8.8	11	5.0	1.8	8 / 8	5.2	14	9.2	9.8	3.1	1.1	8 / 8	3.5	33	9.1	12	10	3.5	8 / 8	2.3	15	7.3	8.5	5.1	1.8
Beryllium	24 / 24	0.012	0.053	0.033	0.033	0.011	0.0023	80 / 80	0.0072	0.15	0.050	0.051	0.020	0.0022	8 / 8	0.021	0.097	0.041	0.044	0.024	0.0083	8 / 8	0.021	0.081	0.043	0.045	0.022	0.0077	8 / 8	0.021	0.065	0.038	0.038	0.013	0.0046	8 / 8	0.0070	0.085	0.027	0.035	0.023	0.0083
Bismuth	24 / 24	0.0029	0.012	0.0068	0.0069	0.0022	0.00045	80 / 80	0.0032	0.025	0.012	0.012	0.0035	0.00039	8 / 8	0.0050	0.024	0.0088	0.0099	0.0059	0.0021	8 / 8	0.0055	0.017	0.0095	0.0099	0.0040	0.0014	8 / 8	0.0051	0.017	0.0090	0.0099	0.0035	0.0012	8 / 8	0.0028	0.027	0.0069	0.0095	0.0078	0.0027
Boron	24 / 24	3.3	9.0	6.1	6.0	1.4	0.29	80 / 80	3.1	17	8.5	8.9	2.7	0.30	8 / 8	4.4	13	6.6	7.0	2.8	0.98	8 / 8	4.8	12	7.5	7.7	2.8	1.0	8 / 8	4.6	13	8.8	9.1	2.9	1.0	8 / 8	3.0	14	6.3	7.3	3.5	1.2
Cadmium	24 / 24	0.27	2.5	0.56	0.68	0.47	0.097	80 / 80	0.16	1.3	0.45	0.50	0.22	0.024	8 / 8	0.43	0.76	0.61	0.62	0.10	0.036	8 / 8	0.52	1.0	0.90	0.79	0.20	0.070	8 / 8	0.58	1.1	0.84	0.83	0.17	0.060	8 / 8	0.42	1.1	0.74	0.75	0.25	0.089
Calcium	24 / 24	2000	12000	5100	5600	2500	520	80 / 80	1400	27000	7000	7900	4300	480	8 / 8	4000	11000	5400	6000	2300	810	8 / 8	4100	12000	6600	7600	3400	1200	8 / 8	4700	9500	6000	6400	1500	530	8 / 8	2000	10000	5000	6100	2900	1000
Cesium	24 / 24	0.027	0.17	0.091	0.091	0.035	0.0072	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	24 / 24	0.61	2.6	1.5	1.5	0.55	0.11	80 / 80	0.41	7.3	2.5	2.7	1.0	0.12	8 / 8	5.9	64	31	28	18	6.4	8 / 8	1.2	4.5	2.3	2.5	1.3	0.45	8 / 8	1.5	3.1	1.9	2.0	0.51	0.18	8 / 8	0.41	4.5	1.5	1.9	1.2	0.43
Cobalt	24 / 24	0.22	1.7	0.71	0.78	0.39	0.080	80 / 80	0.29	4.0	1.0	1.2	0.75	0.083	8 / 8	0.76	2.5	1.4	1.5	0.54	0.19	8 / 8	0.57	3.3	1.2	1.4	0.90	0.32	8 / 8	0.56	2.0	1.3	1.3	0.50	0.18	8 / 8	0.29	4.1	1.1	1.5	1.2	0.42
Copper	24 / 24	1.5	3.3	2.0	2.1	0.40	0.082	80 / 80	1.4	4.5	2.2	2.3	0.55	0.062	8 / 8	1.8	4.0	2.8	2.9	0.82	0.29	8 / 8	1.6	3.9	2.4	2.5	0.79	0.28	8 / 8	2.1	4.6	2.6	2.8	0.79	0.28	8 / 8	1.4	4.0	2.0	2.3	0.91	0.32
Iron	24 / 24	510	2300	1300	1300	510	100	80 / 80	370	7000	2200	2300	1000	120	8 / 8	900	3900	2000	2100	960	340	8 / 8	970	5200	2000	2500	1400	500	8 / 8	1500	3000	1900	2000	550	200	8 / 8	400	5100	2000	2400	1700	600
Lead	24 / 24	0.20	1.8	0.69	0.74	0.35	0.071	80 / 80	0.15	3.4	1.2	1.3	0.49	0.055	8 / 8	0.43	4.3	0.99	1.4	1.3	0.45	8 / 8	0.56	2.1	1.2	1.2	0.57	0.20	8 / 8	0.45	2.5	1.2	1.4	0.71	0.25	8 / 8	0.051	1.6	0.73	0.73	0.51	0.18
Lithium	24 / 24	0.71	3.9	2.3	2.3	0.83	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	24 / 24	1200	5500	2600	2600	1100	220	80 / 80	1200	12000	3900	4100	1600	180	8 / 8	2400	5000	3000	3200	950	340	8 / 8	2000	5700	3400	3600	1500	530	8 / 8	2000	3400	2900	2800	460	160	8 / 8	1100	5000	2600	2900	1200	440
Manganese	24 / 24	4.8	330	71	90	75	15	80 / 80	14	630	88	140	140	15	8 / 8	74	270	140	160	72	26	8 / 8	55	610	160	190	180	63	8 / 8	59	280	170	160	78	28	8 / 8	20	440	130	180	140	49
Mercury	24 / 24	0.011	0.070	0.023	0.027	0.015	0.0030	80 / 80	0.015	0.078	0.030	0.033	0.014	0.0015	8 / 8	0.022	0.047	0.031	0.032	0.0087	0.0031	8 / 8	0.023	0.036	0.031	0.031	0.0039	0.0014	8 / 8	0.024	0.061	0.030	0.034	0.013	0.0045	8 / 8	0.014	0.044	0.029	0.028	0.011	0.0039
Molybdenum	24 / 24	0.13	0.52	0.26	0.26	0.10	0.021	80 / 80	0.13	1.3	0.29	0.37	0.19	0.021	8 / 8	0.28	1.3	0.72	0.71	0.31	0.11	8 / 8	0.22	0.68	0.31	0.36	0.16	0.056	8 / 8	0.27	0.44	0.35	0.36	0.051	0.018	8 / 8	0.13	0.65	0.28	0.36	0.18	0.063
Nickel	24 / 24	0.79	2.7	1.5	1.5	0.50	0.10	80 / 80	0.74	4.3	2.0	2.1	0.65	0.073	8 / 8	3.5	30	14	13	8.2	2.9	8 / 8	1.2	2.9	1.9	2.0	0.81	0.29	8 / 8	1.3	2.8	1.9	1.9	0.49	0.17	8 / 8	0.54	4.0	1.5	1.9	1.1	0.38
Phosphorus	24 / 24	730	2000	1200	1200	260	53	80 / 80	710	3200	1200	1400	550	61	8 / 8	1000	1600	1300	1300	200	72	8 / 8	1100	1700	1500	1500	200	70	8 / 8	1100	1900	1500	1500	290	100	8 / 8	1000	1500	1300	1300	190	67
Potassium	24 / 24	800	2100	1400	1400	270	55	80 / 80	870	2000	1200	1200	240	27	8 / 8	1300	1700	1400	1500	130	45	8 / 8	1300	2100	1600	1600	250	88	8 / 8	1200	2100	1600	1600	250	88	8 / 8	1100	1700	1400	1400	240	86
Rubidium	24 / 24	0.95	3.2	2.0	2.0	0.57	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	24 / 24	0.65	1.4	1.2	1.2	0.17	0.034	80 / 80	0.74	2.0	1.4	1.4	0.27	0.030	8 / 8	1.1	1.6	1.2	1.3	0.17	0.058	8 / 8	1.2	1.7	1.4	1.4	0.16	0.055	8 / 8	1.2	1.5	1.4	1.3	0.10	0.036	8 / 8	0.67	1.9	1.4	1.4	0.43	0.15
Silver								80 / 80	0.0019	0.022	0.0049	0.0058	0.0036	0.00041	8 / 8	0.0035	0.0083	0.0047	0.0048	0.0016	0.00055	8 / 8	0.0039	0.041	0.0075	0.011	0.012	0.0044	8 / 8	0.0046	0.013	0.0070	0.0076	0.0029	0.0010	8 / 8	0.0042	0.022	0.0091	0.0097	0.0057	0.0020
Sodium	24 / 24	1900	6500	4000	4100	1200	250	80 / 80	1700	5700	4200	4200	870	97	8 / 8	3300	4500	3800	3800	460	160	8 / 8	2800	3900	3300	3300	410	140	8 / 8	3400	6300	5300	5200	1100	380	8 / 8	3300	6300	4500	4700	980	350
Strontium	24 / 24	9.2	46	20	22	9.2	1.9	80 / 80	7.4	90	16	20	13	1.5	8 / 8	10	30	15	16	6.2	2.2	8 / 8	11	45	25	26	12	4.1	8 / 8	19	49	27	31	9.9	3.5	8 / 8	10	45	21	24	12	4.2
Tellurium	6 / 24	<0.0040	0.0052	<0.0040	<0.0040	0.0011	0.00023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	24 / 24	0.0047	0.038	0.013	0.014	0.0075	0.0015	80 / 80	0.0037	0.064	0.021	0.023	0.011	0.0012	8 / 8	<0.020	0.042	<0.020	<0.020	0.010	0.0036	8 / 8	0.010	0.055	0.020	0.024	0.016	0.0056	8 / 8	0.0078	0.028	0.017	0.017	0.0063	0.0022	8 / 8	0.0039	0.045	0.013	0.018	0.013	0.0046
Tin	20 / 24	<0.020	0.35	0.033	0.046	0.067	0.014	79 / 80	<0.020	0.53	0.060	0.071	0.059	0.0066	8 / 8	0.086	0.36	0.16	0.18	0.086	0.030	8 / 8	0.053	0.12	0.074	0.079	0.026	0.0094	8 / 8	0.038	0.070	0.047	0.048	0.010	0.0036	7 / 8	<0.020	0.10	0.040	0.045	0.029	0.010
Titanium	-	-	-	-	-	-	-	80 / 80	4.6	110	34	34	15	1.6	8 / 8	14	63	25	28	16	5.5	8 / 8	14	68	30	33	19	6.7	8 / 8	17	38	24	25	6.7	2.4	8 / 8	5.1	53	19	23	15	5.4
Uranium	24 / 24	0.082	0.19	0.12	0.13	0.030	0.0062	80 / 80	0.090	0.44	0.20	0.20	0.072	0.0081	8 / 8	0.087	0.28	0.14	0.15	0.056	0.020	8 / 8	0.11	0.28	0.15	0.18	0.068	0.024	8 / 8	0.13	0.22	0.16	0.16	0.029	0.010	8 / 8	0.013	0.27	0.10	0.12	0.079	0.028
Vanadium	24 / 24	0.80	4.0	2.4	2.4	0.90	0.18	80 / 80	0.83	7.5	3.8	3.9	1.3	0.15	8 / 8	1.9	6.9	3.4	3.4	1.6	0.55	8 / 8	1.8	5.4	3.3	3.5	1.5	0.55	8 / 8	1.5	4.8	3.1	3.2	1.1	0.38	8 / 8	0.78	7.8	2.4	3.2	2.2	0.77
Zinc	24 / 24	7.1	14	12	11	1.8	0.37	80 / 80	8.6	21	14	14	2.3	0.26	8 / 8	12	18	13	13	2.1	0.73	8 / 8	12	17	14	14	1.9	0.66	8 / 8	14	20	17	17	2.3	0.81	8 / 8	7.3	20	18	16	4.5	1.6
Zirconium	24 / 24	0.22	1.2	0.71	0.72	0.27	0.055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

mg/kg = milligram per kilogram wet weight; > = greater than; DL = detection limit; n = sample size; min = minimum; max = maximum; SD = Standard deviation; SE = standard error.

Table 7C-11: Tissue Chemistry Summary Statistics for Arctic Char from the Milne Inlet Area, 2018 to 2023

Parameter	2018							2019							2020							2021							2022							2023						
(mg/kg ww)	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE	N >DL/N Total	Min	Max	Median	Mean	SD	SE
Aluminum	8 / 26	<0.20	0.81	<0.20	<0.20	0.18	0.036	45 / 47	<0.20	9.5	0.41	0.66	1.4	0.20	8 / 8	0.28	0.62	0.43	0.42	0.11	0.040	3 / 8	<0.20	8.1	<0.20	1.1	2.8	0.99	3 / 8	<0.50	1.3	<0.50	<0.50	0.39	0.14	6 / 8	<0.20	0.87	0.33	0.37	0.26	0.092
Antimony	0 / 26	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 47	<0.0010	<0.0010	<0.0010	<0.0010	-	-	1 / 8	<0.0010	0.0094	<0.0010	0.0016	-	-	4 / 8	<0.0010	0.0045	<0.0010	0.0013	0.0014	0.00048	6 / 8	<0.0020	0.019	0.0031	0.0046	0.0059	0.0021	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-
Arsenic	26 / 26	0.31	1.2	0.46	0.53	0.22	0.043	47 / 47	0.33	2.9	0.81	0.80	0.37	0.055	8 / 8	0.39	33	0.83	4.9	11	4.0	8 / 8	0.10	5.5	2.8	2.6	2.0	0.70	8 / 8	0.37	0.72	0.53	0.52	0.12	0.043	8 / 8	0.45	1.3	0.77	0.85	0.31	0.11
Barium	1 / 26	<0.010	0.013	<0.010	<0.010	-	-	16 / 47	<0.010	0.036	<0.010	<0.010	0.0066	0.00097	5 / 8	<0.010	0.068	0.017	0.024	0.024	0.0084	1 / 8	<0.010	0.12	<0.010	0.020	-	-	5 / 8	<0.010	0.041	0.020	0.019	0.012	0.0043	5 / 8	<0.010	0.018	0.011	0.011	0.0052	0.0019
Beryllium	0 / 26	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 47	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0020	<0.0020	<0.0020	<0.0020	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-
Bismuth	0 / 26	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 47	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0013	<0.0013	<0.0013	<0.0013	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-
Boron	0 / 26	<0.20	0.21	<0.20	<0.20	-	-	0 / 47	<0.20	<0.20	<0.20	<0.20	-	-	0 / 8	<0.20	<0.20	<0.20	<0.20	-	-	1 / 8	<0.20	0.27	<0.20	<0.20	-	-	0 / 8	<0.20	<0.20	<0.20	<0.20	-	-	0 / 8	<0.20	<0.20	<0.20	<0.20	-	-
Cadmium	25 / 26	<0.0010	0.021	0.0030	0.0062	0.0059	0.0012	45 / 47	<0.0010	0.024	0.0052	0.0062	0.0052	0.00076	8 / 8	0.0012	0.017	0.0032	0.0062	0.0061	0.0021	5 / 8	<0.0010	0.0020	0.0015	0.0013	0.00065	0.00023	7 / 8	<0.0013	0.021	0.0028	0.0048	0.0065	0.0023	8 / 8	0.0015	0.012	0.0024	0.0040	0.0036	0.0013
Calcium	26 / 26	43	250	76	87	45	8.8	47 / 47	57	790	150	160	120	17	8 / 8	39	510	110	220	190	68	8 / 8	60	430	150	200	140	49	8 / 8	87	1400	130	360	460	160	8 / 8	70	530	180	210	140	50
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	12 / 26	<0.010	0.050	<0.010	0.014	0.013	0.0025	33 / 47	<0.010	0.043	0.012	0.014	0.0088	0.0013	6 / 8	<0.010	1.5	0.030	0.22	0.53	0.19	3 / 8	<0.010	0.11	<0.010	0.020	0.037	0.013	1 / 8	<0.025	0.033	<0.025	<0.025	-	-	2 / 8	<0.010	0.029	<0.010	<0.010	0.0086	0.0030
Cobalt	26 / 26	0.0030	0.011	0.0047	0.0049	0.0015	0.00029	47 / 47	0.0024	0.013	0.0043	0.0049	0.0022	0.00031	8 / 8	0.0029	0.0057	0.0035	0.0038	0.0010	0.00035	8 / 8	0.0030	0.017	0.0039	0.0059	0.0048	0.0017	8 / 8	0.0037	0.050	0.0071	0.012	0.015	0.0054	8 / 8	0.0020	0.0075	0.0047	0.0045	0.0017	0.00062
Copper	26 / 26	0.35	0.69	0.50	0.51	0.088	0.017	47 / 47	0.29	0.74	0.39	0.41	0.090	0.013	8 / 8	0.17	0.35	0.33	0.30	0.059	0.021	8 / 8	0.30	0.61	0.40	0.42	0.097	0.034	8 / 8	0.27	0.58	0.32	0.36	0.098	0.035	8 / 8	0.29	0.63	0.33	0.38	0.13	0.045
Iron	26 / 26	3.0	5.8	4.4	4.4	0.74	0.14	47 / 47	2.3	21	4.0	4.5	2.7	0.40	8 / 8	2.4	17	4.7	5.9	4.5	1.6	8 / 8	3.1	87	4.0	15	29	10	8 / 8	3.5	10	4.2	5.4	2.4	0.84	8 / 8	3.6	13	6.6	6.8	2.8	1.0
Lead	10 / 26	<0.0010	0.0026	<0.0010	<0.0010	0.00070	0.00014	40 / 47	<0.0010	0.0054	0.0016	0.0018	0.00098	0.00014	8 / 8	0.0012	0.0052	0.0023	0.0024	0.0013	0.00046	6 / 8	<0.0010	0.062	0.0029	0.011	0.021	0.0074	8 / 8	0.0025	0.013	0.0044	0.0054	0.0035	0.0012	7 / 8	<0.0010	0.0055	0.0027	0.0030	0.0017	0.00058
Lithium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	26 / 26	260	310	280	280	12	2.3	47 / 47	260	370	300	300	22	3.3	8 / 8	220	350	300	300	37	13	8 / 8	270	380	310	310	32	11	8 / 8	260	360	320	310	30	11	8 / 8	260	350	300	300	32	11
Manganese	26 / 26	0.067	0.13	0.090	0.093	0.015	0.0030	47 / 47	0.060	0.32	0.092	0.10	0.038	0.0056	8 / 8	0.056	0.18	0.12	0.12	0.045	0.016	8 / 8	0.060	0.58	0.084	0.15	0.18	0.062	8 / 8	0.059	0.26	0.10	0.13	0.076	0.027	8 / 8	0.080	0.19	0.11	0.12	0.038	0.013
Mercury	26 / 26	0.027	0.10	0.038	0.043	0.016	0.0031	47 / 47	0.026	0.13	0.042	0.052	0.025	0.0036	8 / 8	0.023	0.30	0.043	0.073	0.092	0.032	8 / 8	0.025	0.060	0.041	0.042	0.013	0.0046	8 / 8	0.034	0.10	0.062	0.064	0.023	0.0081	8 / 8	0.012	0.059	0.024	0.029	0.015	0.0054
Molybdenum	0 / 26	<0.0040	<0.0040	<0.0040	<0.0040	-	-	0 / 47	<0.0040	<0.0040	<0.0040	<0.0040	-	-	1 / 8	<0.0040	0.011	<0.0040	<0.0040	-	-	1 / 8	<0.0040	0.012	<0.0040	<0.0040	-	-	0 / 8	<0.0080	<0.0080	<0.0080	<0.0080	-	-	1 / 8	<0.0040	<0.0040	<0.0040	<0.0040	-	-
Nickel	21 / 26	<0.010	0.037	0.014	0.015	0.0073	0.0014	37 / 47	<0.010	0.024	0.013	0.013	0.0052	0.00076	5 / 8	<0.010	0.029	0.014	0.015	0.010	0.0036	2 / 8	<0.010	0.052	<0.010	0.013	0.017	0.0060	6 / 8	<0.010	0.041	0.013	0.018	0.014	0.0049	5 / 8	<0.010	0.024	0.012	0.012	0.0067	0.0024
Phosphorus	26 / 26	2800	3200	3000	3000	110	21	47 / 47	2500	3300	2900	2900	190	27	8 / 8	2400	4000	3100	3200	470	170	8 / 8	3000	3400	3100	3100	150	54	8 / 8	2600	3500	3100	3100	340	120	8 / 8	2700	3600	3200	3100	280	100
Potassium	26 / 26	4000	4700	4400	4400	160	31	47 / 47	3000	4900	4100	4000	440	64	8 / 8	4200	5400	4700	4700	430	150	8 / 8	4000	5000	4500	4600	290	100	8 / 8	4100	5200	4400	4500	410	140	8 / 8	3800	5200	4700	4600	480	170
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	26 / 26	0.30	0.46	0.33	0.34	0.037	0.0073	47 / 47	0.23	0.64	0.38	0.40	0.080	0.012	8 / 8	0.29	0.39	0.31	0.32	0.031	0.011	8 / 8	0.18	0.48	0.42	0.40	0.096	0.034	8 / 8	0.34	0.48	0.40	0.40	0.045	0.016	8 / 8	0.32	0.43	0.34	0.37	0.046	0.016
Silver	2 / 26	<0.0010	0.0018	<0.0010	<0.0010	0.00027	0.000053	0 / 47	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	0 / 8	<0.0010	<0.0010	<0.0010	<0.0010	-	-	2 / 8	<0.0013	0.0014	<0.0013	<0.0013	0.00035	0.00012	3 / 8	<0.0010	0.0036	<0.0010	0.0013	0.0013	0.00047
Sodium	26 / 26	360	800	490	500	96	19	47 / 47	310	1200	700	710	230	34	8 / 8	240	630	330	370	120	42	8 / 8	240	420	280	300	59	21	8 / 8	270	460	320	340	68	24	8 / 8	260	430	350	350	51	18
Strontium	26 / 26	0.079	0.64	0.18	0.20	0.11	0.022	47 / 47	0.14	1.7	0.43	0.48	0.26	0.039	8 / 8	0.088	1.6	0.34	0.59	0.55	0.20	8 / 8	0.10	1.1	0.26	0.35	0.33	0.12	8 / 8	0.17	3.0	0.22	0.80	1.1	0.37	8 / 8	0.12	1.4	0.29	0.41	0.40	0.14
Tellurium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	26 / 26	0.0021	0.0064	0.0029	0.0031	0.00082	0.00016	47 / 47	0.0012	0.0060	0.0022	0.0025	0.0010	0.00015	6 / 8	0.00071	0.0032	0.0020	0.0020	0.00072	0.00025	8 / 8	0.0015	0.0087	0.0024	0.0032	0.0023	0.00082	8 / 8	0.0016	0.0037	0.0020	0.0023	0.00077	0.00027	8 / 8	0.0020	0.0048	0.0022	0.0026	0.00098	0.00035
Tin	1 / 26	<0.020	0.036	<0.020	<0.020	-	-	4 / 47	<0.020	0.032	<0.020	<0.020	0.0047	0.00068	8 / 8	<0.020	0.038	0.028	0.026	0.011	0.0038	1 / 8	<0.020	0.069	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-
Titanium	26 / 26	0.085	0.15	0.12	0.12	0.016	0.0031	47 / 47	0.42	0.57	0.49	0.49	0.034	0.0050	8 / 8	0.12	0.17	0.14	0.14	0.018	0.0065	8 / 8	0.42	1.1	0.44	0.52	0.22	0.076	8 / 8	0.50	0.74	0.62	0.63	0.080	0.028	8 / 8	0.085	0.12	0.10	0.10	0.014	0.0049
Uranium	1 / 26	<0.00040	0.00058	<0.00040	<0.00040	-	-	6 / 47	<0.00040	0.00091	<0.00040	<0.00040	0.00014	0.000020	2 / 8	<0.00040	0.0011	<0.00040	<0.00040	0.00034	0.00012	1 / 8	<0.00040	0.0077	<0.00040	0.0011	-	-	6 / 8	<0.00040	0.0018	0.00081	0.00095	0.00064	0.00023	4 / 8	<0.00040	0.00061	<0.00040	<0.00040	0.00018	0.000065
Vanadium	0 / 26	<0.020	<0.020	<0.020	<0.020	-	-	0 / 47	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-	0 / 8	<0.020	<0.020	<0.020	<0.020	-	-
Zinc	26 / 26	4.5	7.7	5.5	5.7	0.91	0.18	47 / 47	4.4	15	7.0	7.6	2.8	0.41	8 / 8	3.8	5.5	4.6	4.6	0.70	0.25	8 / 8	4.4	9.8	4.8	5.6	1.8	0.65	8 / 8	3.9	8.1	5.0	5.2	1.3	0.46	8 / 8	3.6	6.1	5.0	4.8	0.79	0.28
Zirconium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

mg/kg = milligram per kilogram wet weight; > = greater than; < = less than; DL = detection limit; n = sample size; min = minimum; max = maximum; SD = standard deviation; SE = standard error; - = not applicable.

Table 7C-12: Supporting Information for Spatial Analysis of Chemicals of Potential Concern in Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Samples Collected from the Milne Port Area and Reference Area, 2023.

Parameter	Test	Sample Size		*n* Outliers	MSE	Coefficient of Determination (R^2)		Interaction *P*-value	Covariate *P*-value	Levene's Test	Shapiro-Wilk Test	Area *P*-value	Least Squares Means		Magnitude of Effect (%)	Power Analysis[a]	
		Milne Port	Reference			Full Model	Reduced Model						Milne Port	Reference		Minimum Detectable Difference[b]	Sensitivity[c]
Fourhorn Sculpin																	
Aluminum	ANOVA	8	8	0	0.106	0.064	-	-	-	0.483	0.324	0.343	0.530	0.690	-	0.580	95%
Iron	ANOVA	8	8	0	4.84	0.152	-	-	-	0.902	0.420	0.135	7.74	9.48	-	3.9	45%
Magnesium	ANOVA	8	8	0	405.3	0.047	-	-	-	0.786	0.175	0.419	255	263	-	35.8	14%
Mercury	$ANCOVA_{log}$[d]	8	8	0	0.0210	0.785	0.745	0.160	**<0.001**	0.741	0.664	0.937	-0.935	-0.929	-	3.84 / 6.97	45% / 82%
Selenium	$ANCOVA_{log}$[d]	8	8	0	0.00301	0.316	0.303	0.640	**0.007**	0.291	0.444	**0.074**	-0.241	-0.185	-12%	0.330 / 0.413	20% / 25%
Hiatella arctica																	
Aluminum	ANOVA	8	4	0	77376	0.228	-	-	-	0.632	0.499	0.138	533	818	-	756	112%
Iron	ANOVA	8	4	0	2156907	0.061	-	-	-	0.253	0.218	0.440	2446	1722	-	3993	192%
Magnesium	ANOVA	8	4	0	1126540	0.294	-	-	-	0.180	0.862	**0.069**	2935	1610	82%	2886	127%
Mercury	ANOVA	8	4	0	0.0000929	0.115	-	-	-	0.117	0.984	0.282	0.0284	0.0217	-	0.02620	105%
Selenium	ANOVA	8	4	0	0.140	0.010	-	-	-	0.096	0.998	0.761	1.35	1.42	-	1.018	73%

Note: Significant differences indicated in **bold**.

(a) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the grand mean.

(b) Minimum Detectable Difference expressed as difference from the overall mean.

(c) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(d) Length was included as a covariate for ANCOVA and MLR.

RPD = Relative Percent Difference; ANOVA = analysis of variance; ANCOVA = analysis of covariance; log = log10-transformed data; rank = rank-transformed data; - = not calculated, no data available.

Table 7C-13: Supporting Information for Trend Analysis of Chemicals of Potential Concern in Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Samples Collected from the Milne Port Area from 2018 to 2023.

Parameter	Test	Sample Size						*n* Outliers	MSE	Coefficient of Determination (R^2)		Interaction *P*-value	Covariate *P*-value	Heteroscedasticity Test[a]	Normality Test	Trend *P*-value	Trend Slope	Least Squares Means						Power Analysis[b]	
		2018	2019	2020	2021	2022	2023			Full Model	Reduced Model							2018	2019	2020	2021	2022	2023	Minimum Detectable Difference[c]	Sensitivity[d]
Arctic Char																									
Aluminum	LR_{rank}	26	47	8	8	8	8	0	904.2	0.017	-	-	-	0.904	**<0.001**[e]	0.184	-	49	52	54	57	59	62	0.359	92%
Iron	LR_{rank}	26	47	8	8	8	8	0	888.3	0.051	-	-	-	0.346	**<0.001**[e]	**0.020**	4.56	46	51	55	60	64	69	2.85	57%
Magnesium	LR	26	47	8	8	8	8	0	628.1	0.062	-	-	-	0.012	0.069	**0.011**	4.23	293	297	301	305	310	314	28.8	9%
Mercury	LR_{rank}	26	47	8	8	8	8	0	931.1	0.006	-	-	0.126	0.030	**<0.001**[e]	0.441	-	55	54	52	51	49	48	0.025	54%
Selenium	$ANCOVA_{rank}$[f]	26	47	8	8	8	8	0	583.3	0.413	0.396	0.745	**0.001**	0.325	0.335	0.353	-	32	63	24	79	75	53	0.082	21%
Fourhorn Sculpin																									
Aluminum	LR_{log}	-	30	8	8	8	8	0	0.1387	0.319	-	-	-	0.364	0.963	**<0.001**	-0.169	-	0.211	0.043	-0.126	-0.295	-0.463	0.869 / 2.48	65% / 186%
Iron	LR_{log}	-	30	8	8	8	8	0	0.0273	0.079	-	-	-	0.069	0.323	**0.027**	-0.032	-	0.928	0.896	0.863	0.831	0.799	2.72 / 4.33	37% / 59%
Magnesium	LR	-	29	8	8	8	8	1	965.7	0.025	-	-	-	0.064	0.692	0.223	-	-	280	277	273	270	267	38.0	14%
Mercury	$ANCOVA_{log}$[f,g]	-	30	8	8	8	8	0	0.0140	0.768	0.709	0.018	**<0.001**	0.816	0.551	0.614	-	-	-0.998	-0.981	-0.900	-0.792	-1.005	2.44 / 3.41	28% / 40%
Selenium	$ANCOVA_{log}$[f,g]	-	30	8	8	8	8	0	0.00252	0.518	0.496	0.721	**<0.001**	0.465	0.112	0.266	-	-	-0.318	-0.380	-0.356	-0.316	-0.263	0.280 / 0.322	13% / 15%
Hiatella arctica																									
Aluminum	LR_{log}	24	79	8	8	8	8	1	0.042	<0.001	-	-	-	0.604	0.086	0.989	-	2.86	2.86	2.86	2.86	2.86	2.86	306 / 527	42% / 72%
Iron	LR_{log}	24	80	8	8	8	7	1	0.0442	0.050	-	-	-	0.655	0.610	**0.009**	0.037	3.23	3.27	3.31	3.34	3.38	3.42	902 / 1572	43% / 74%
Magnesium	LR_{log}	24	80	8	8	8	8	0	0.0317	0.004	-	-	-	0.206	0.239	0.470	-	3.54	3.53	3.52	3.51	3.50	3.49	1229 / 1968	38% / 60%
Mercury	LR_{log}	24	80	8	8	8	8	0	0.027	0.004	-	-	-	0.304	0.039	0.468	-	-1.54	-1.54	-1.53	-1.52	-1.51	-1.51	12 / 18	35% / 54%
Selenium	LR_{log}	23	80	8	8	8	7	2	0.006	0.022	-	-	-	0.890	0.253	**0.089**	0.009	0.11	0.12	0.13	0.14	0.15	0.16	0.25 / 0.31	19% / 23%

Note: Significant differences indicated in **bold**.

(a) For linear regression models, heteroscedasticity was evaluated with the Breusch-Pagan test. For ANCOVA models, heteroscedasticity was evaluated using Levene's test.

(b) Power Analysis values presented on measurement scale. Log_{10}-transformed models include values for differences below and above the grand mean.

(c) Minimum Detectable Difference expressed as difference from the overall mean on the original measurement scale (i.e., not log-transformed). For rank-transformed variables, difference expressed on the rank-scale.

(d) Sensitivity is the minimum detectable difference expressed as a percent change in the overall mean.

(e) Rank ANCOVA proceeded despite violation of normality. See Section 7.3.4.3.

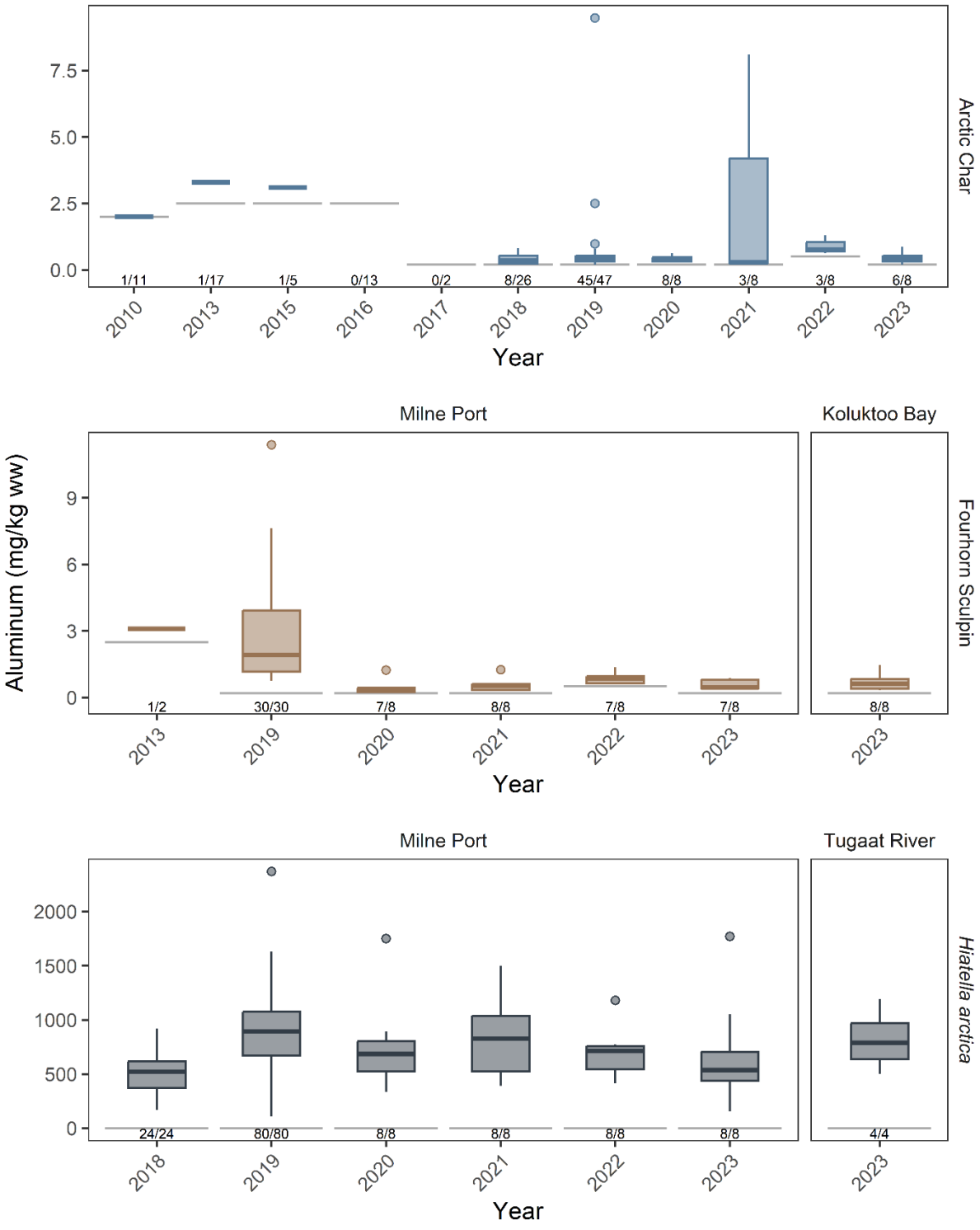
(f) Length was included as a covariate for ANCOVA and MLR.

(g) Parameter concentrations were compared at 217 mm length due to narrow range of covariate overlap among sampling years.

LR = linear regression; ANCOVA = analysis of covariance; log = log_{10}-transformed data; rank = rank-transformed data; - = not calculated, no data available.

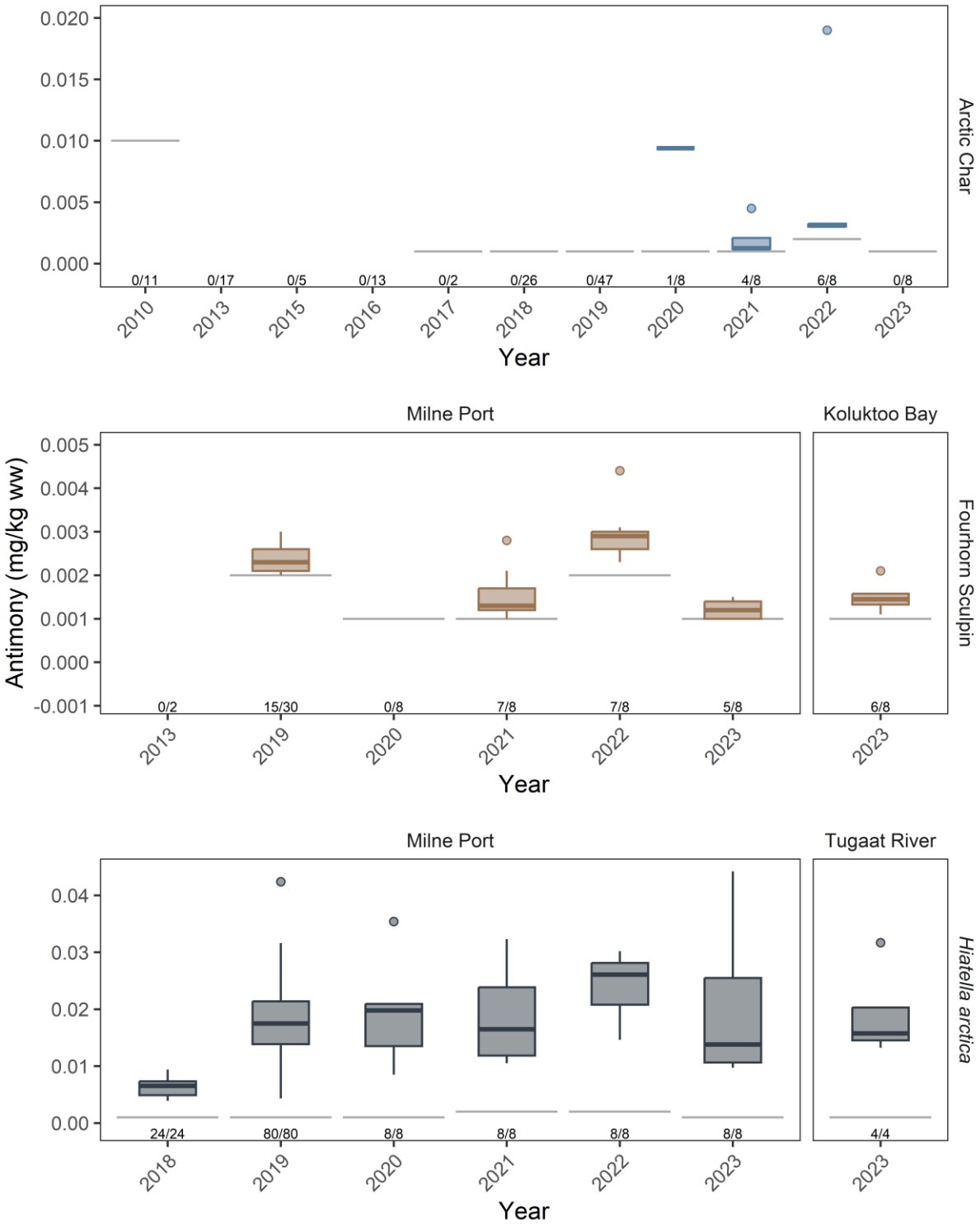
APPENDIX 7D

Fish Tissue Boxplots



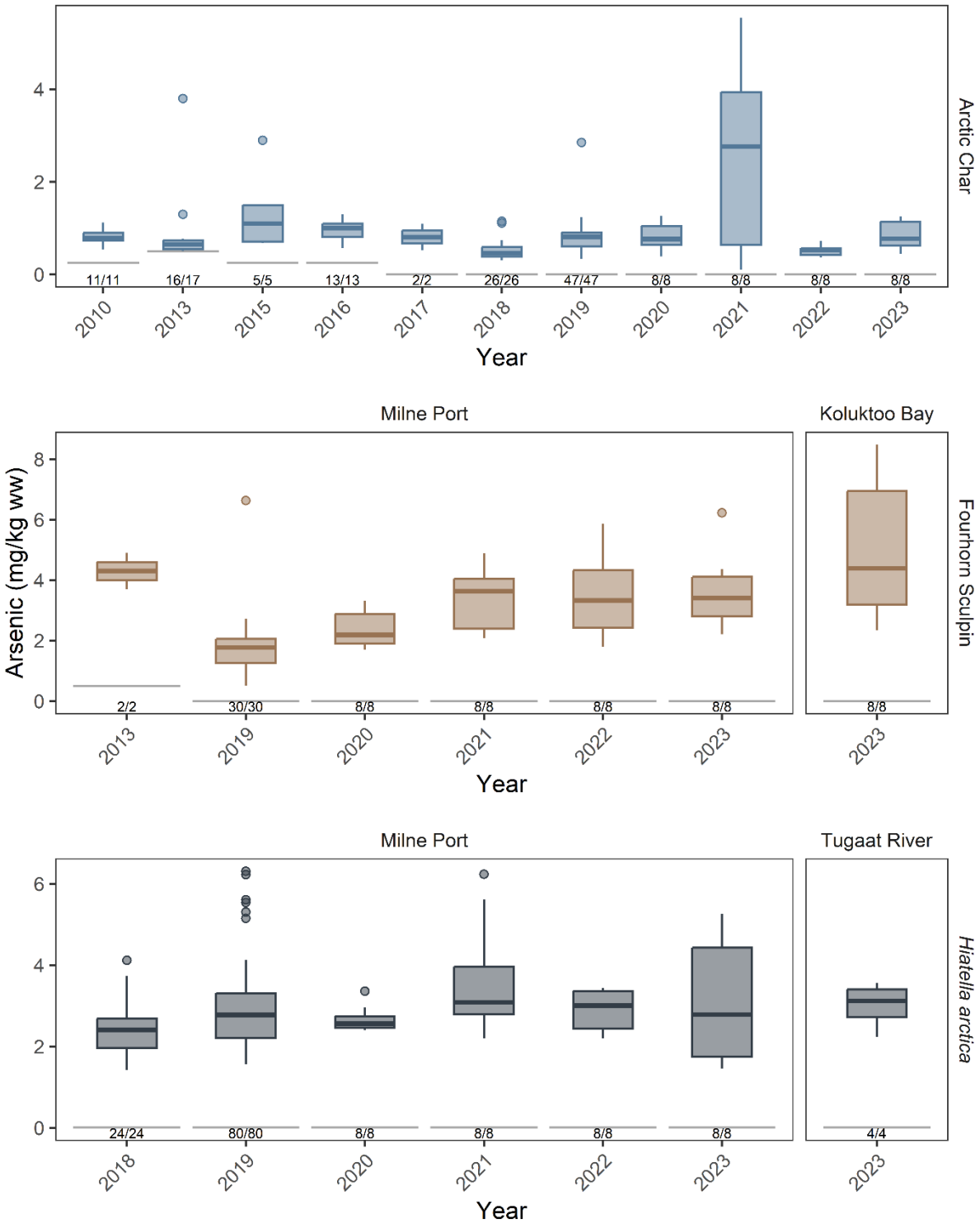
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-1: Concentrations of Aluminum for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



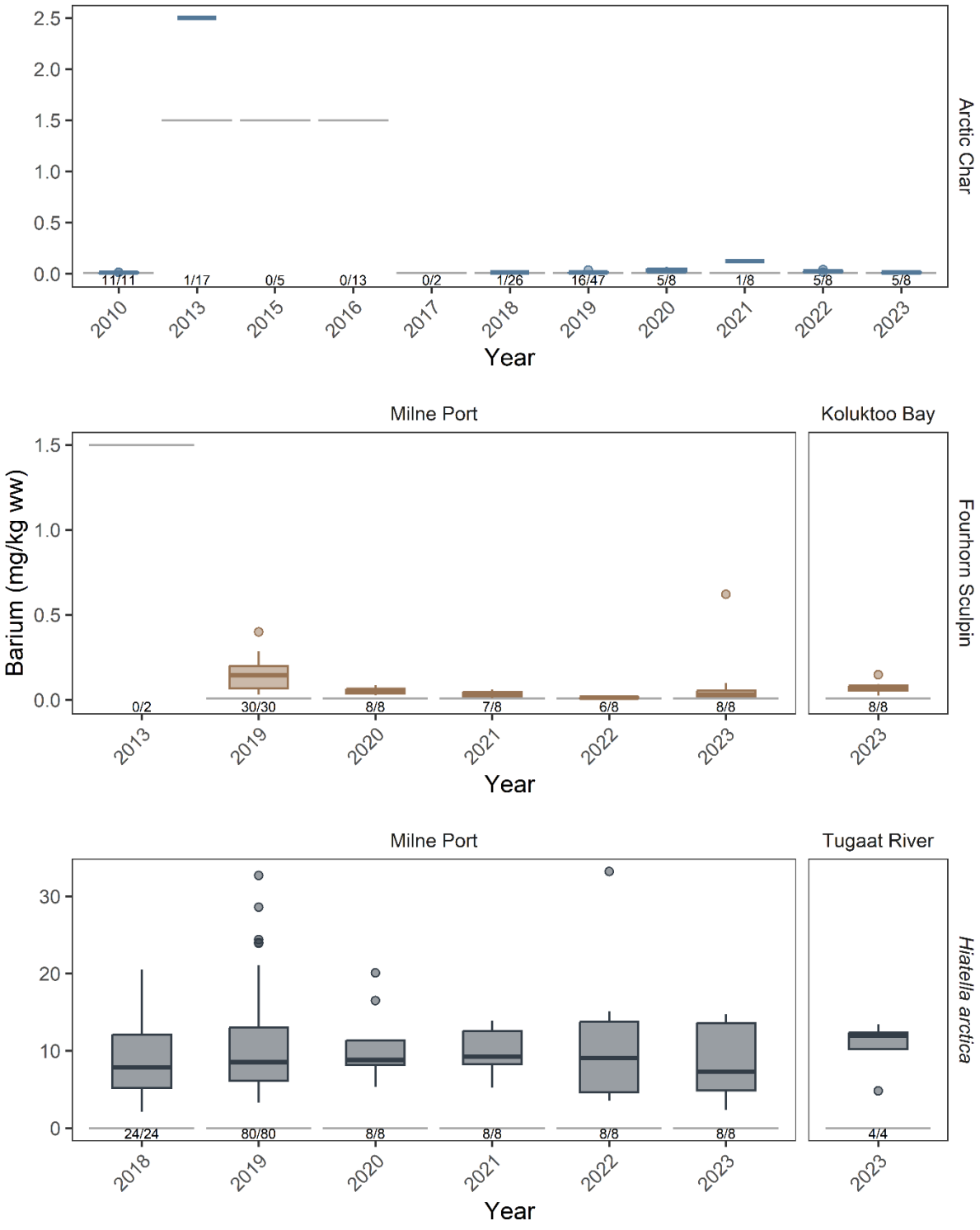
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.5 mg/kg ww for Arctic Char (2013, 2015, 2016) and Fourhorn Sculpin (2013) not shown to allow for clearer visualization of the data.

Figure 7D-2: Concentrations of Antimony for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



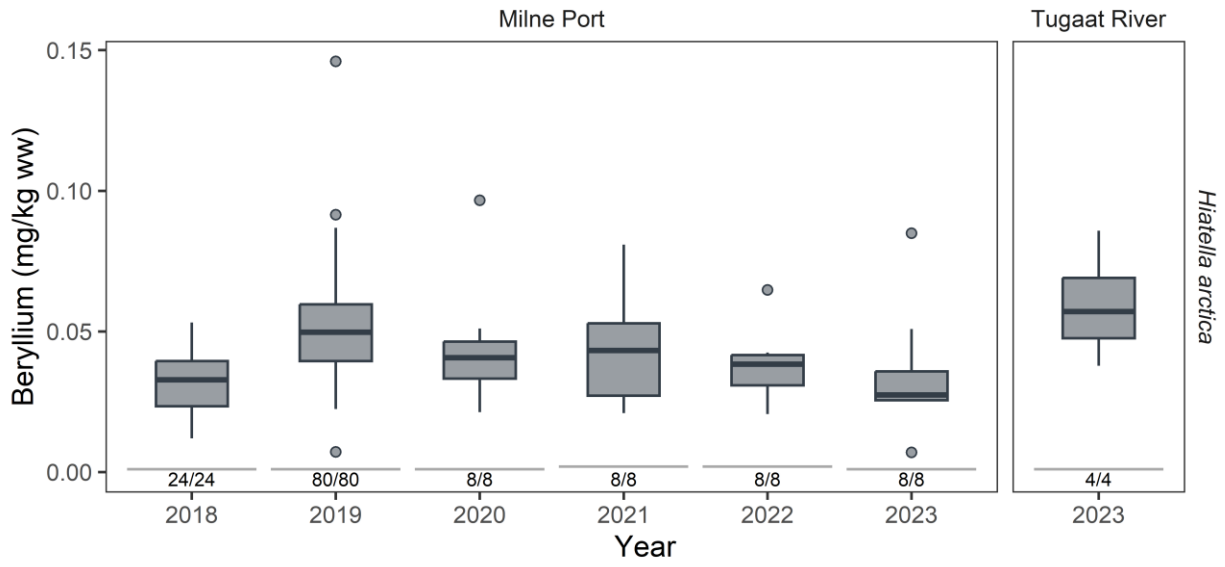
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. One Arctic Char sample removed from 2020 (BAFF20UMLNGN18ARCH003, 33.2 mg/kg ww) to improve plotting.

Figure 7D-3: Concentrations of Arsenic for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



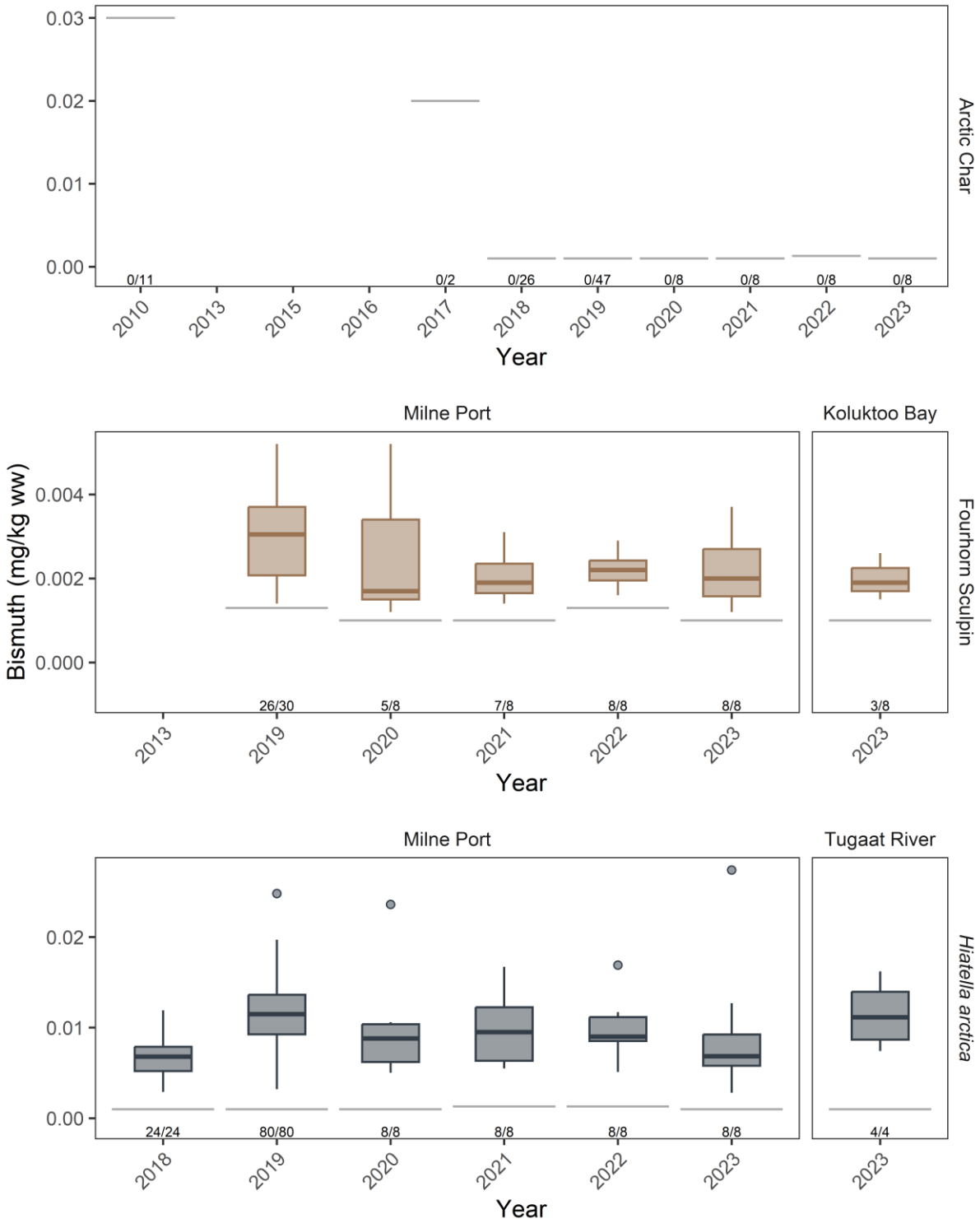
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-4: Concentrations of Barium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



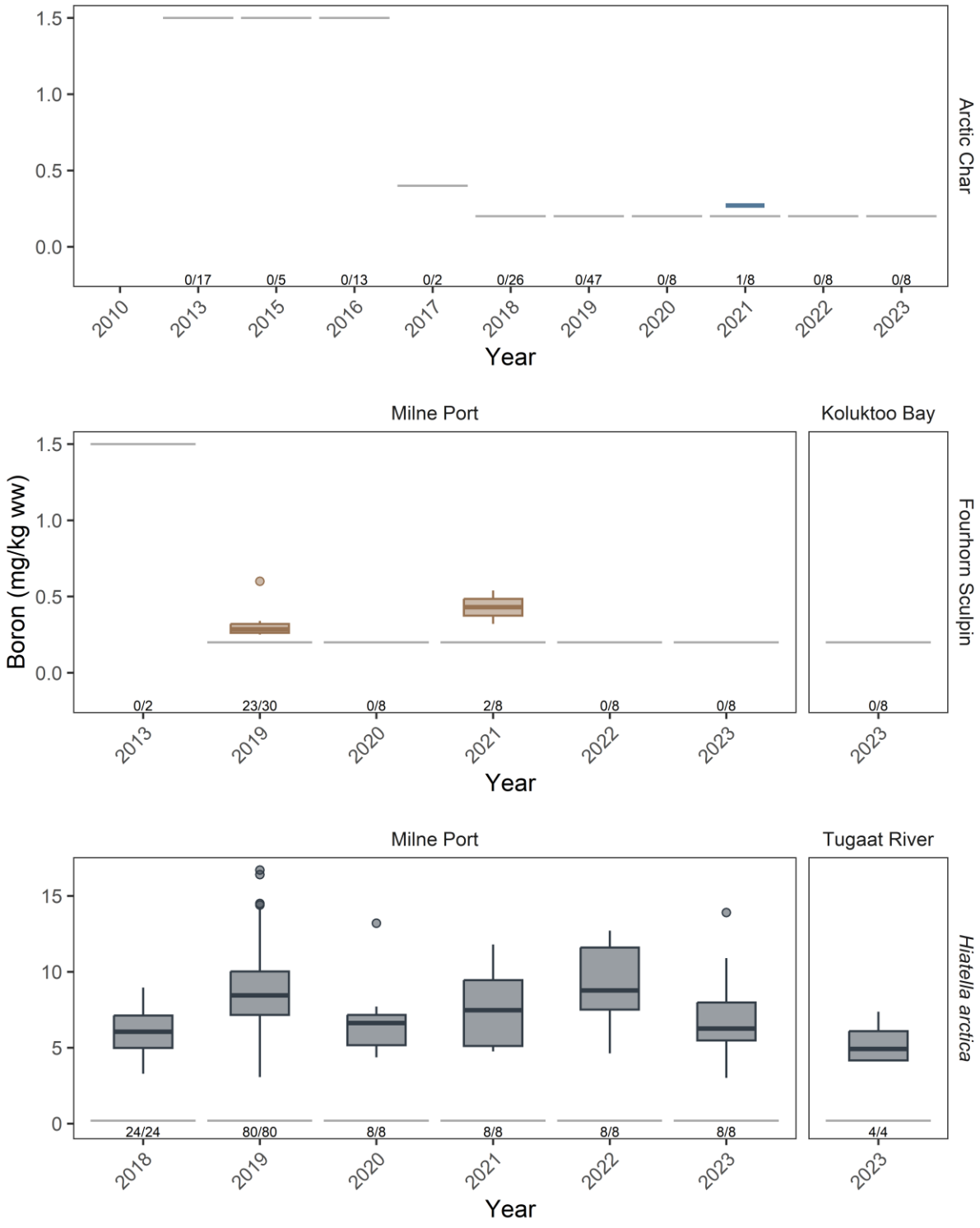
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-5: Concentrations of Beryllium for *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



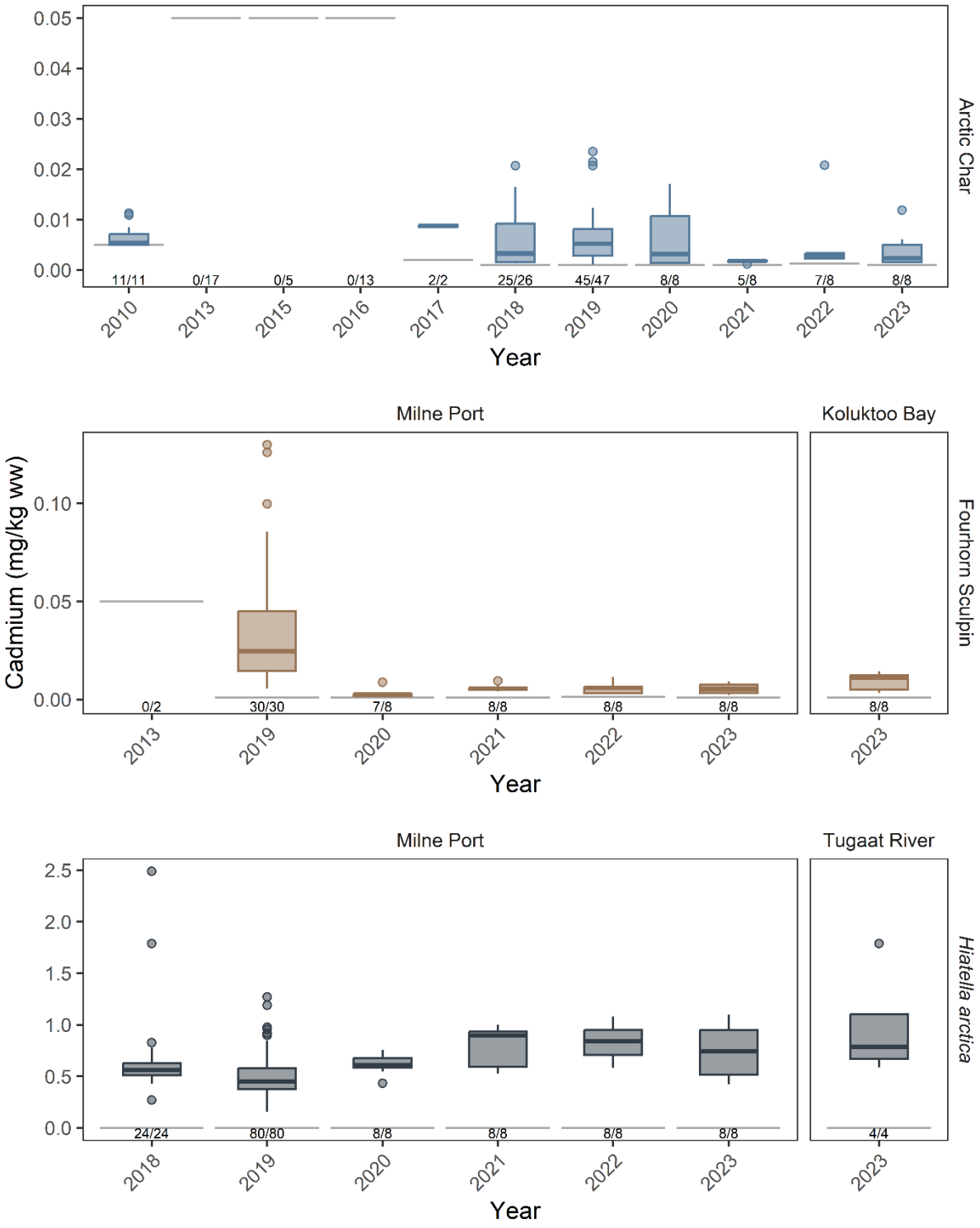
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-6: Concentrations of Bismuth for Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



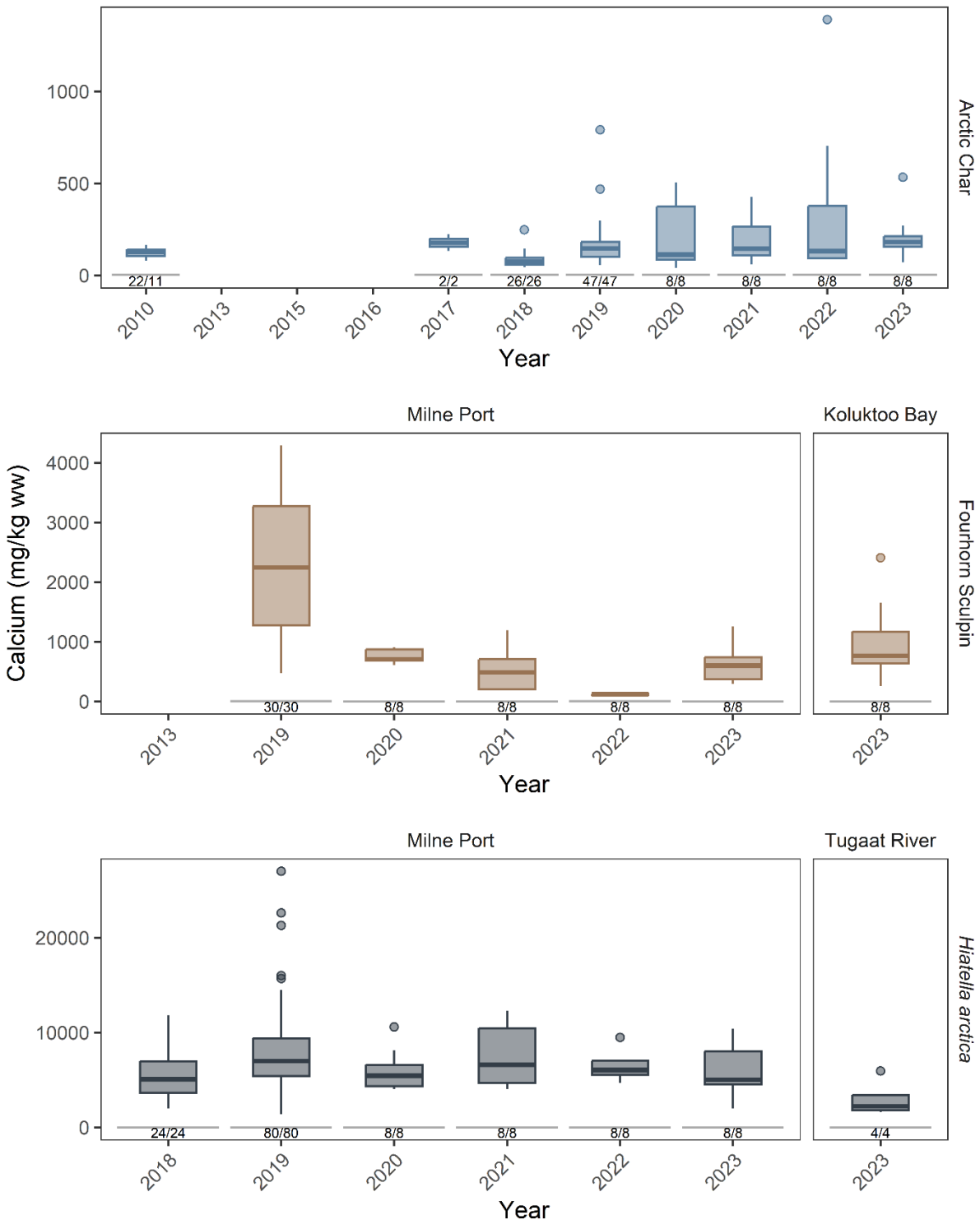
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-7: Concentrations of Boron for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



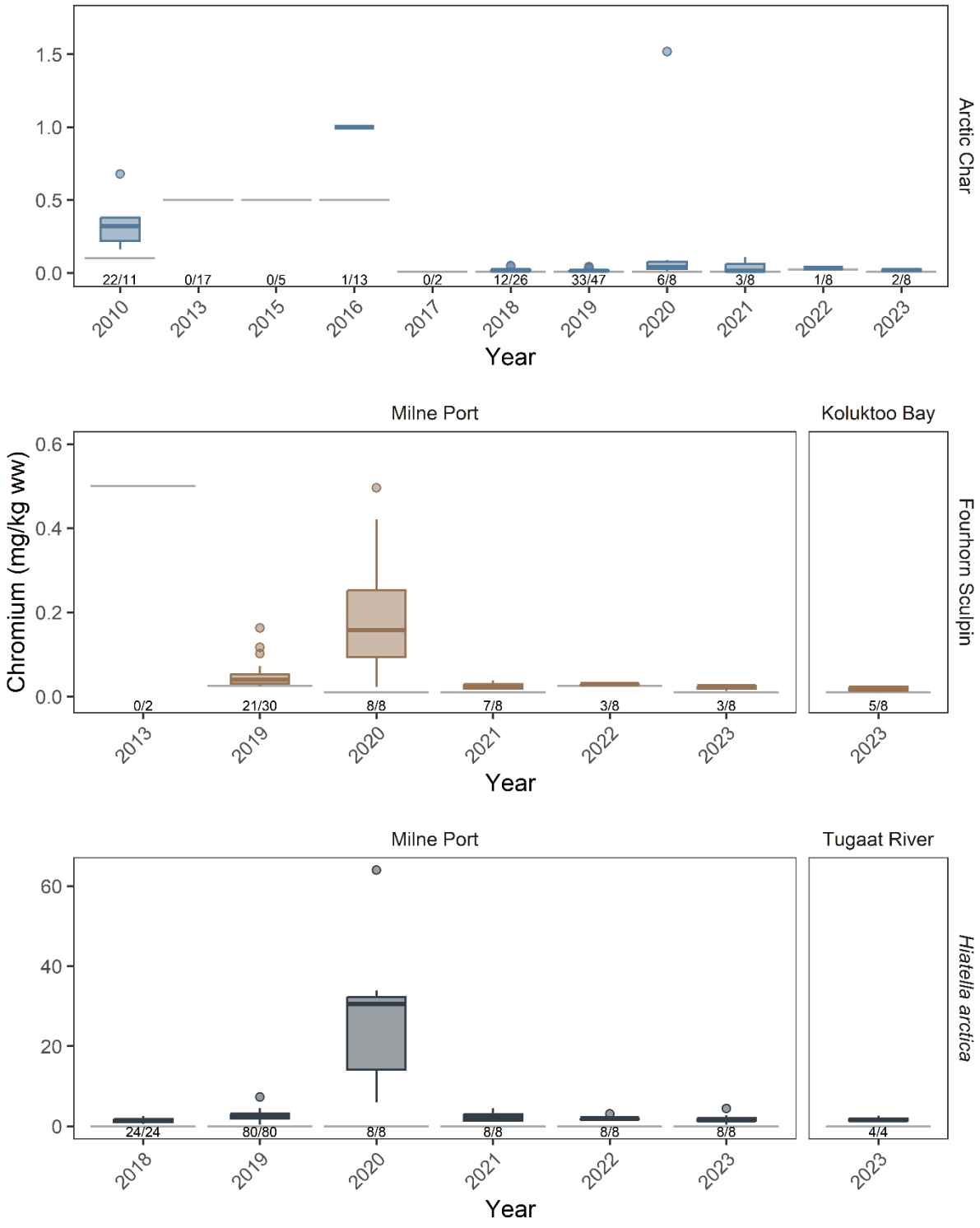
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-8: Concentrations of Cadmium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



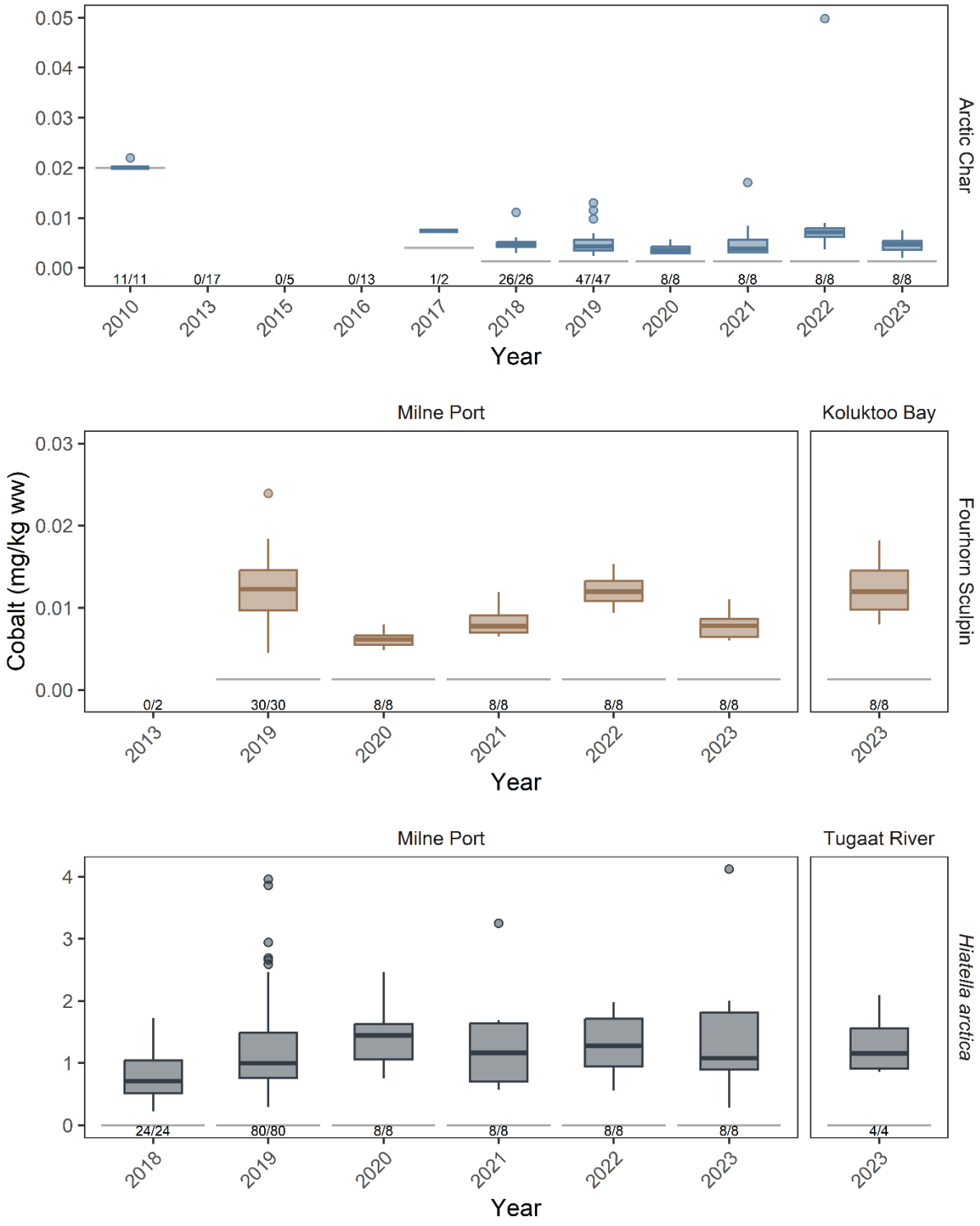
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-9: Concentrations of Calcium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



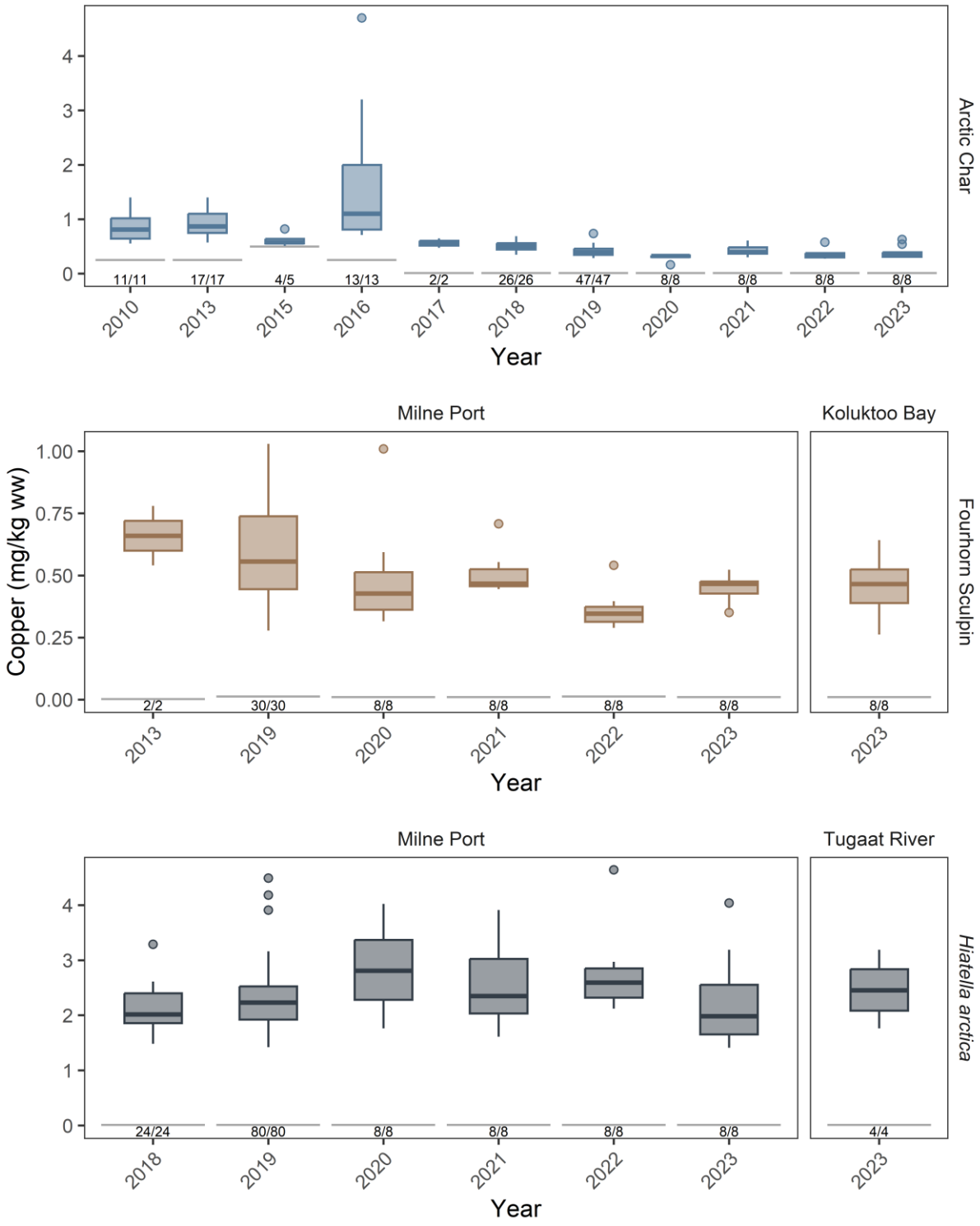
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. One value for Arctic Char (3.27 mg/kg ww; 2010) not shown to allow for clearer visualization of the data.

Figure 7D-10: Concentrations of Chromium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



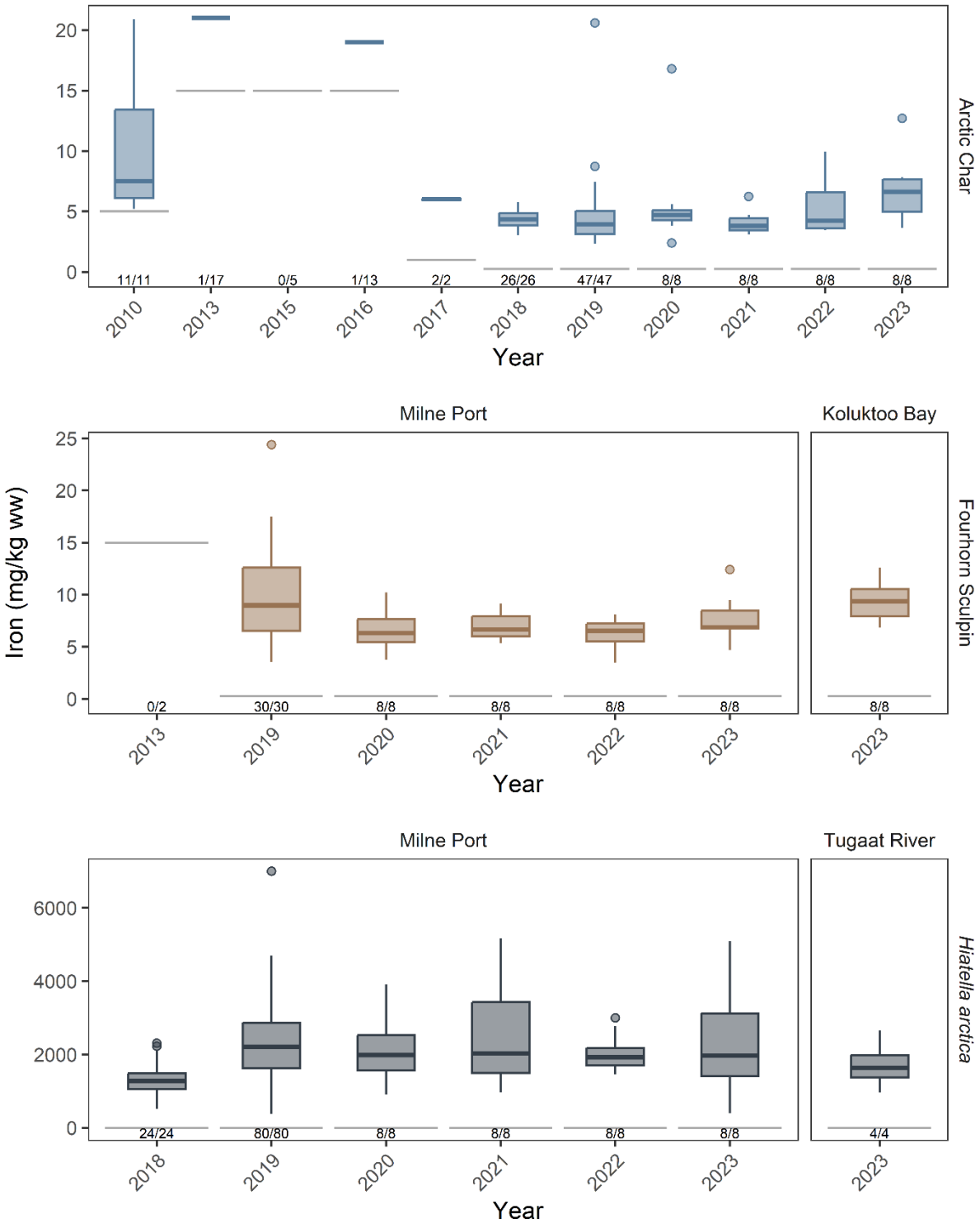
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.2 mg/kg for Arctic Char (2013, 2015, 2016) and Fourhorn Sculpin (2013), and one point for Fourhorn Sculpin (0.211 mg/kg ww; 2022) not shown to allow for clearer visualization of the data.

Figure 7D-11: Concentrations of Cobalt for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



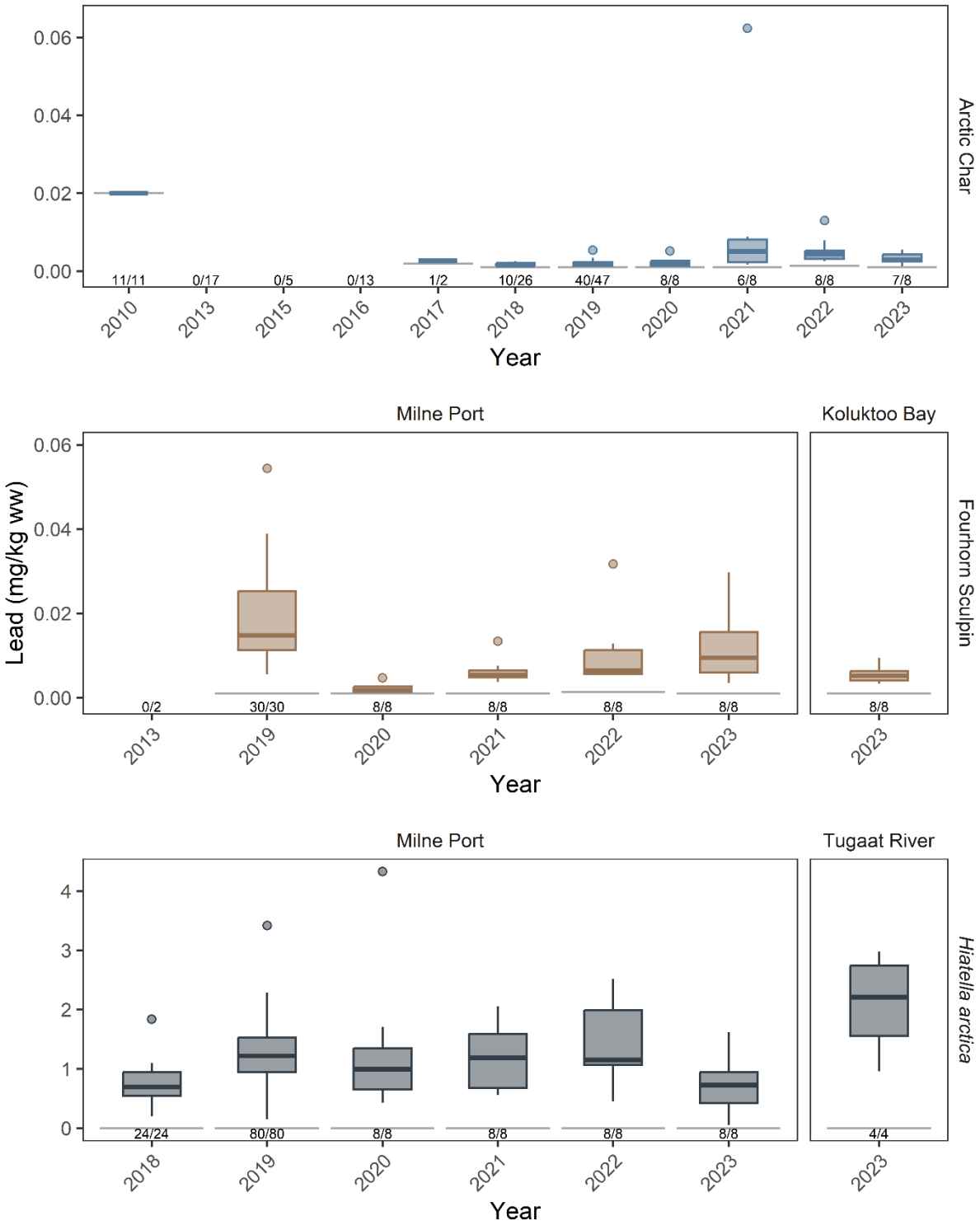
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-12: Concentrations of Copper for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



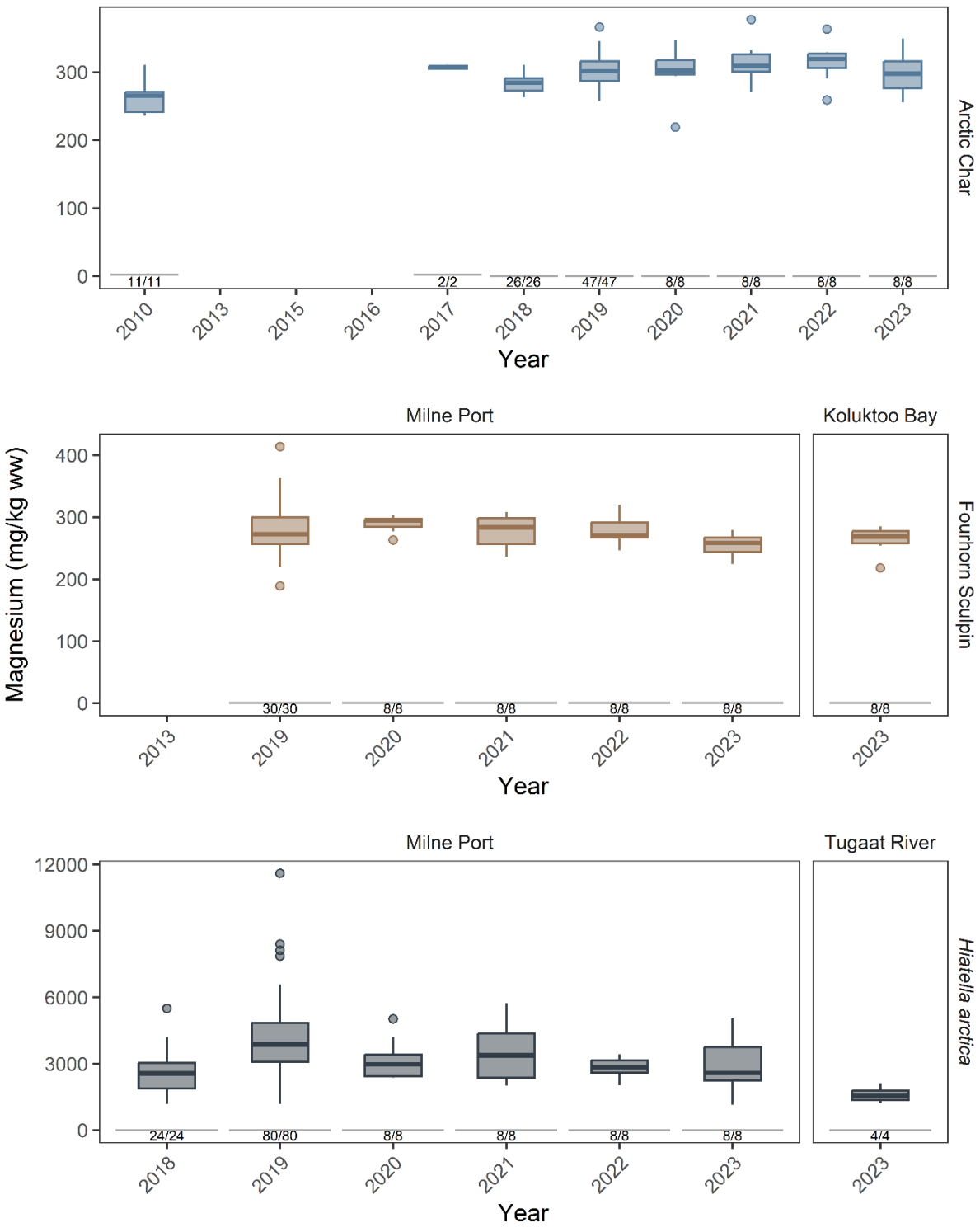
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as "n>DL/n". Values below DL are not shown in the plots. Grey lines indicate detection limits. One Arctic Char sample removed from 2022 (BAFF21UMLNGN06ARCH09, 87.15 mg/kg ww) to improve plotting.

Figure 7D-13: Concentrations of Iron for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



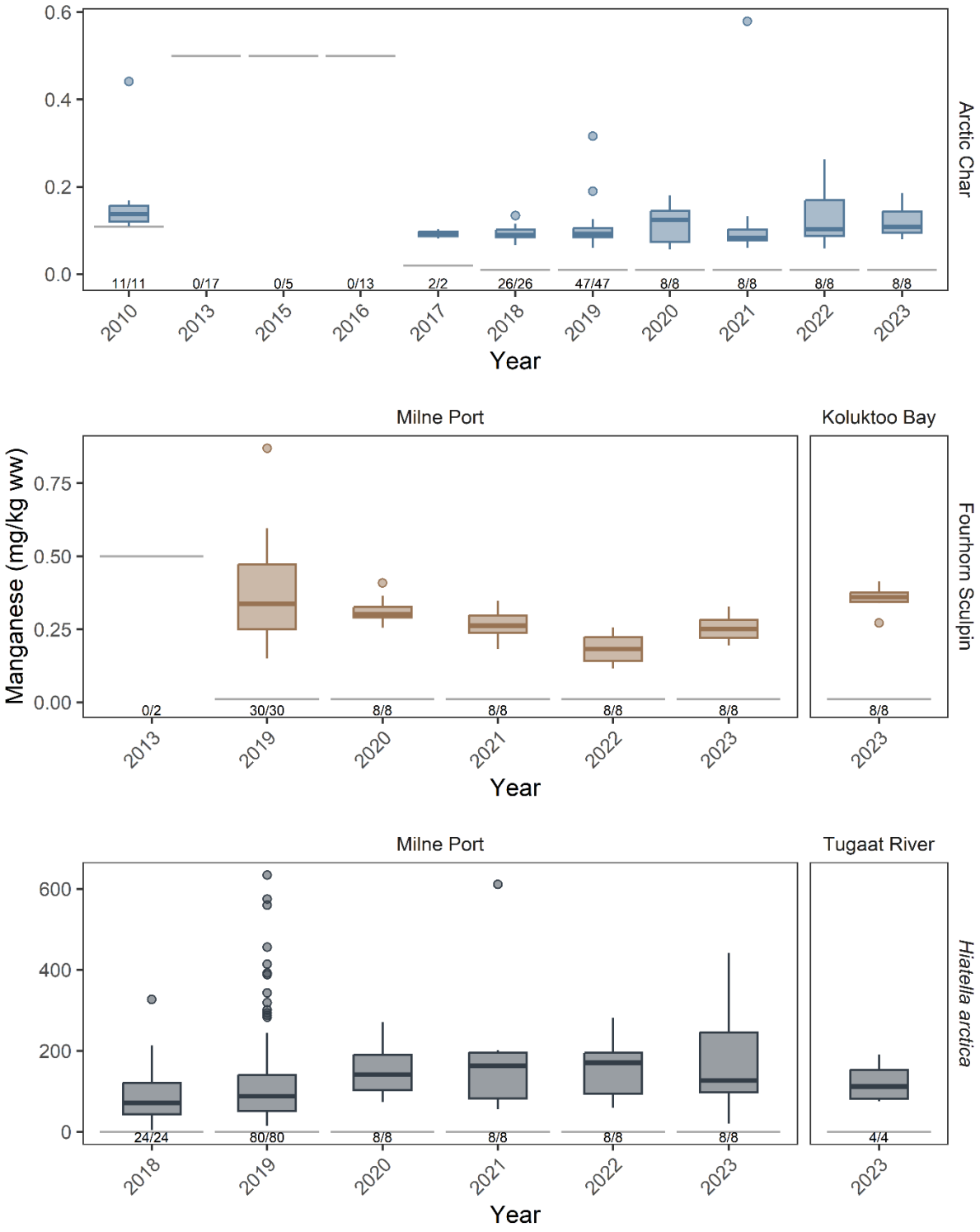
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.2 mg/kg ww for Arctic Char (2013, 2015, 2016) and Fourhorn Sculpin (2013) not shown to allow for clearer visualization of the data.

Figure 7D-14: Concentrations of Lead for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



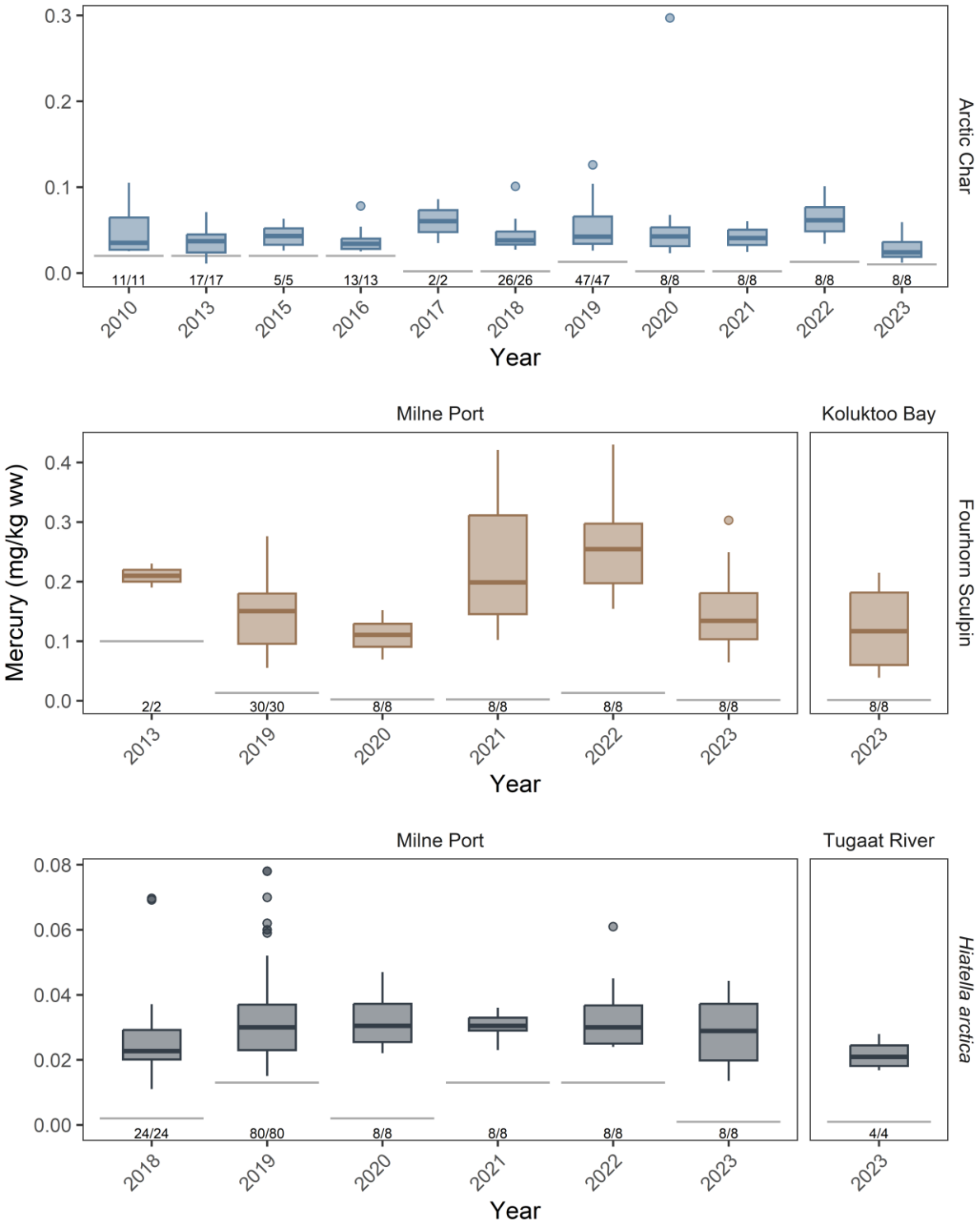
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-15: Concentrations of Magnesium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



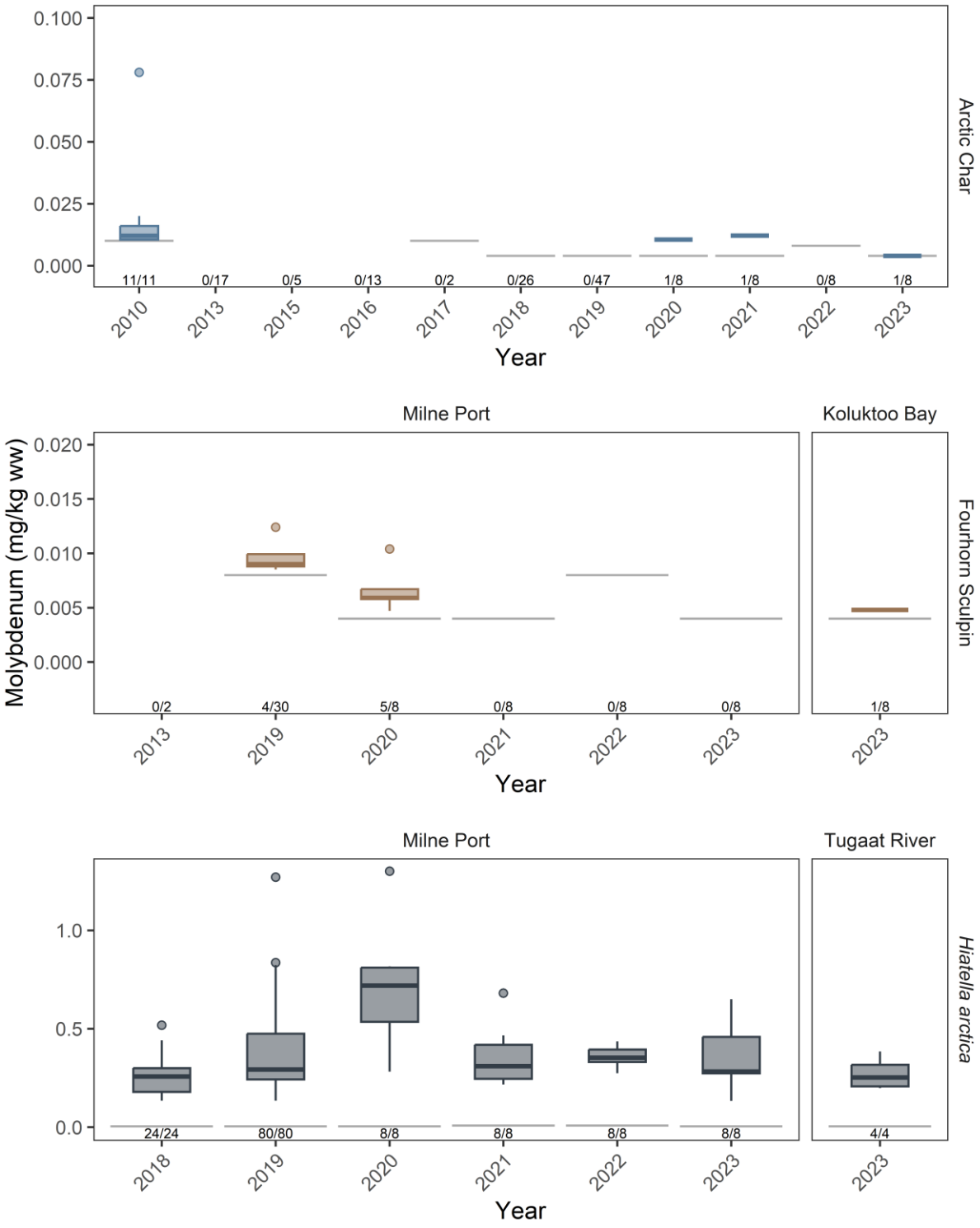
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-16: Concentrations of Manganese for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



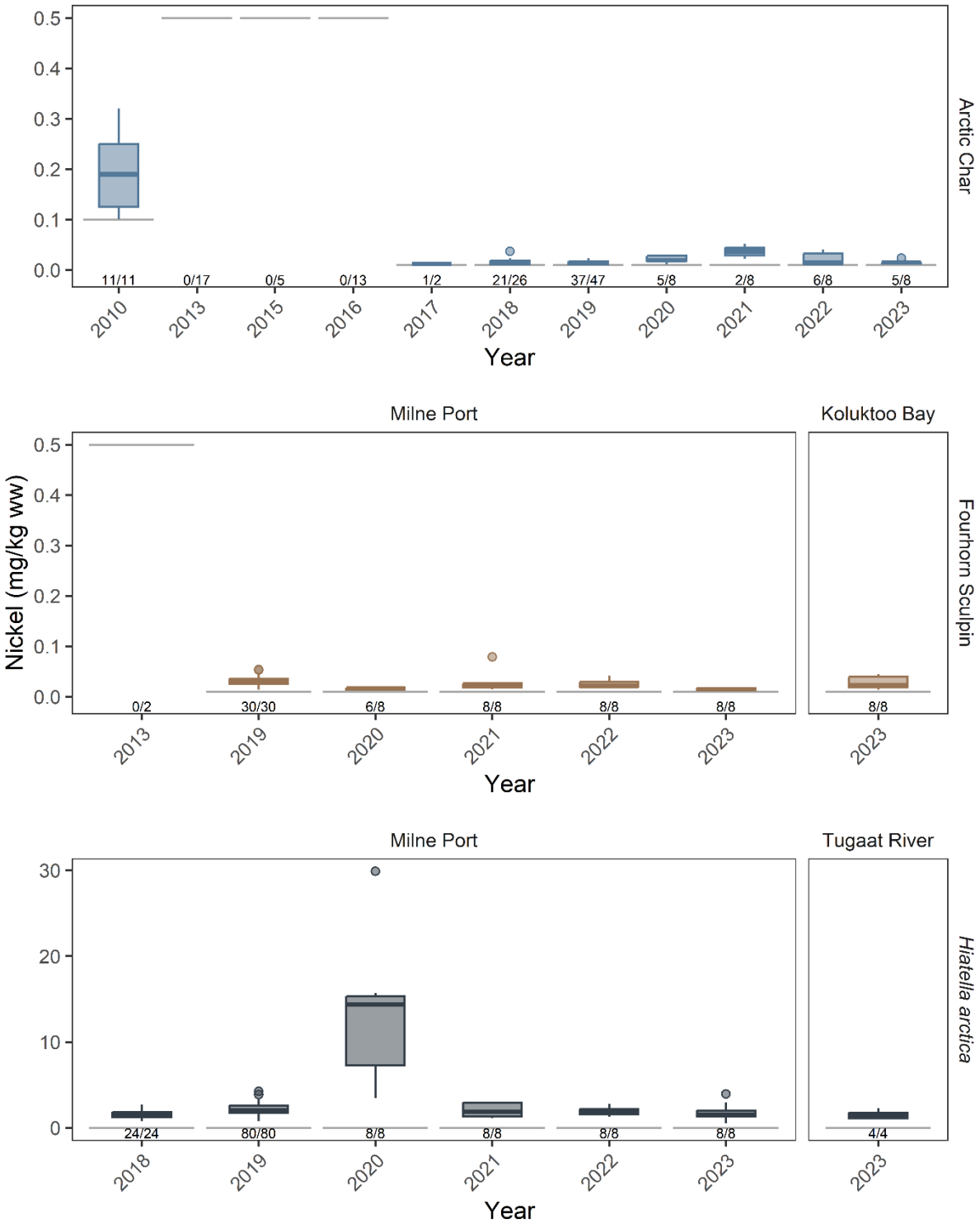
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-17: Concentrations of Mercury for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



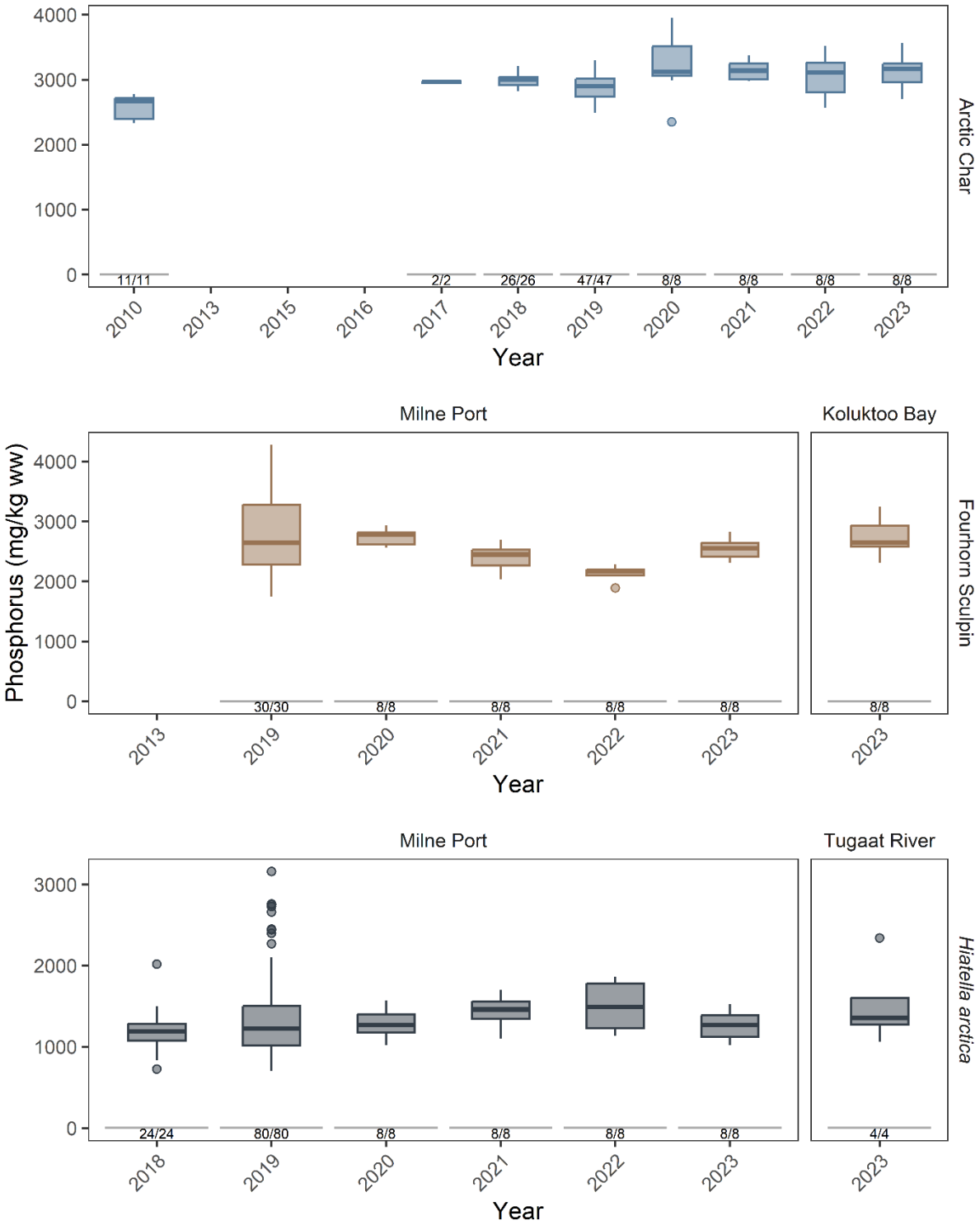
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.5 mg/kg ww for Arctic Char (2013, 2015, 2016) and Fourhorn Sculpin (2013) not shown to allow for clearer visualization of the data.

Figure 7D-18: Concentrations of Molybdenum for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



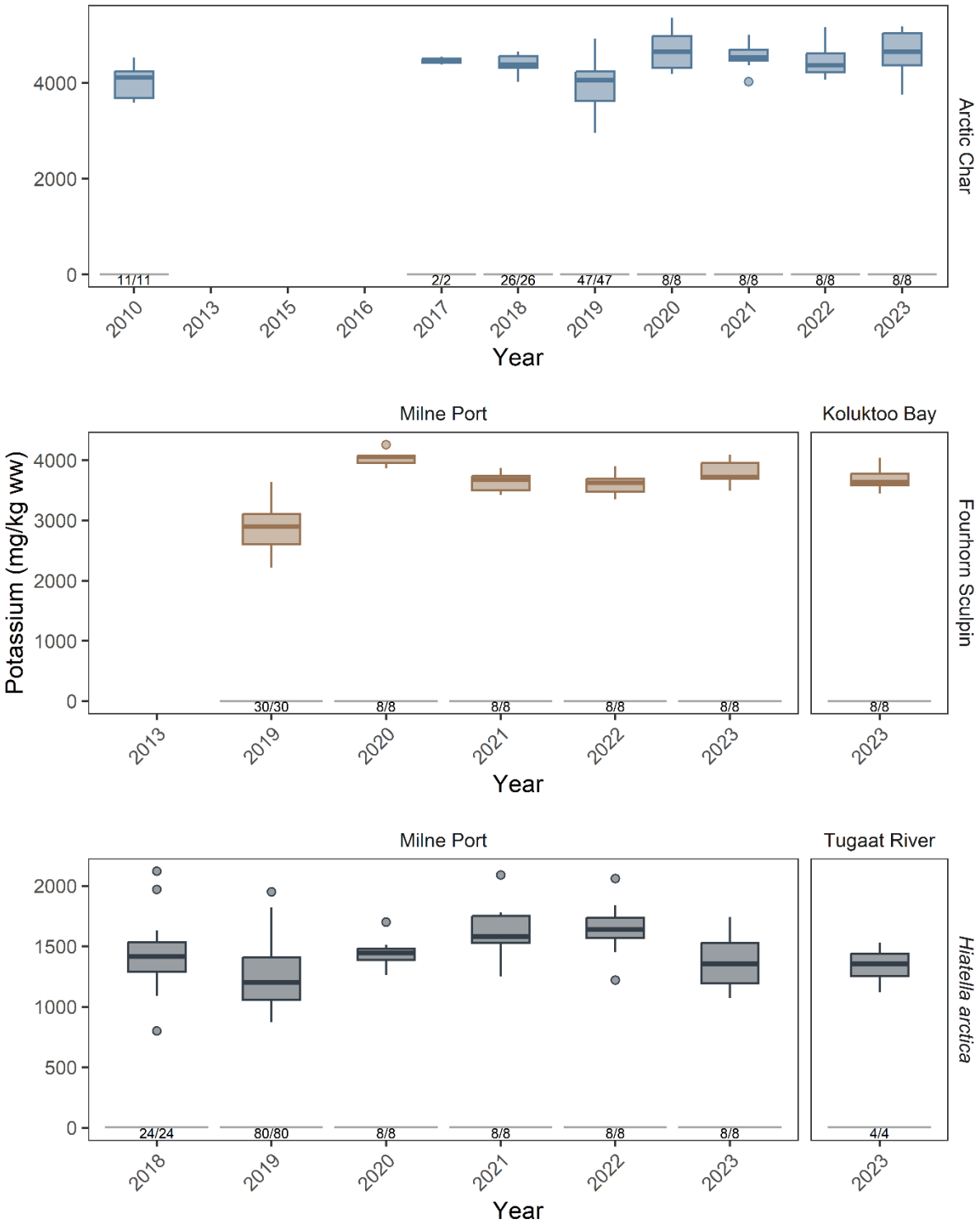
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. One point for Arctic Char (1.62 mg/kg ww; 2010) not shown to allow for clearer visualization of the data.

Figure 7D-19: Concentrations of Nickel for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



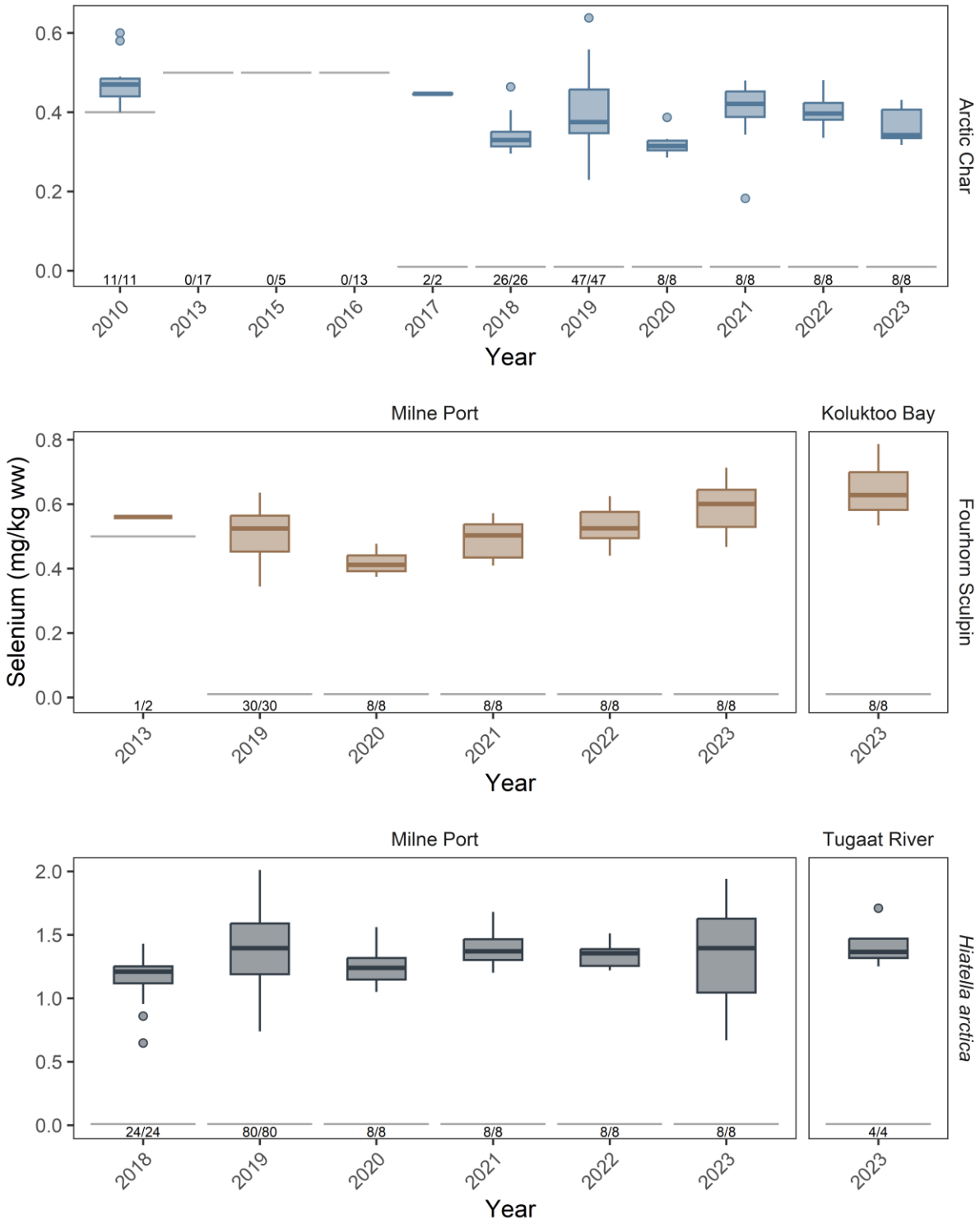
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-20: Concentrations of Phosphorus for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



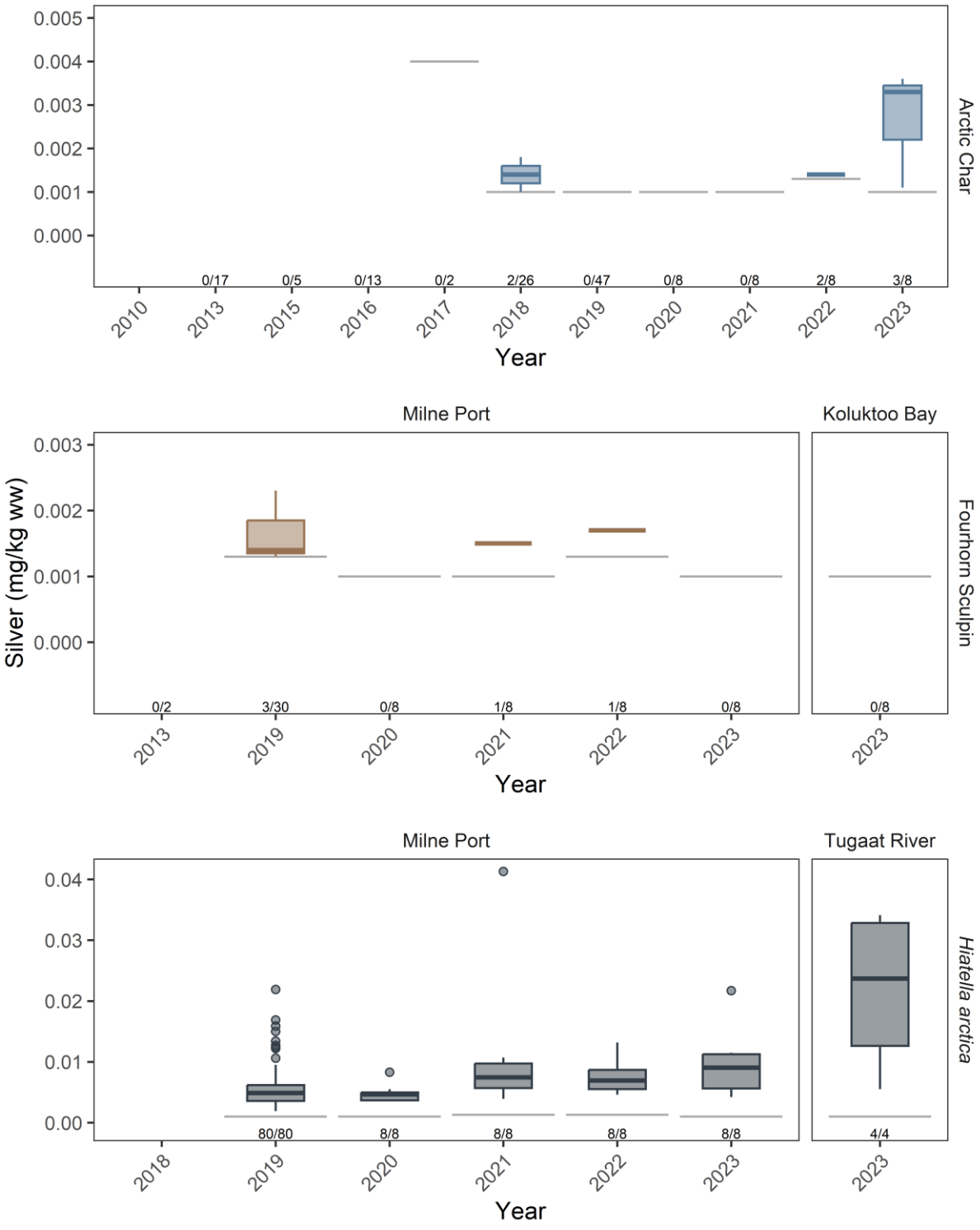
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-21: Concentrations of Potassium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



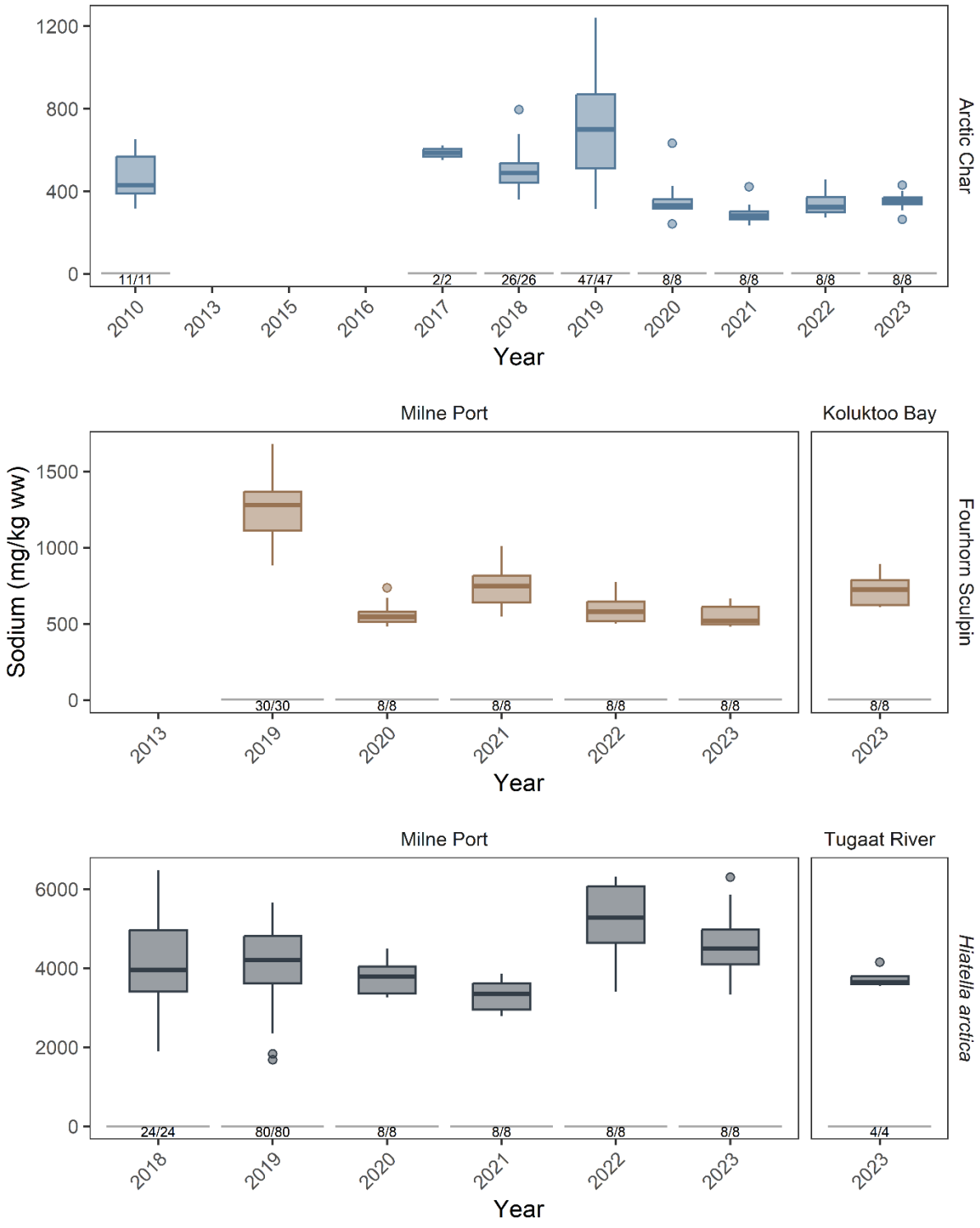
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-22: Concentrations of Selenium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



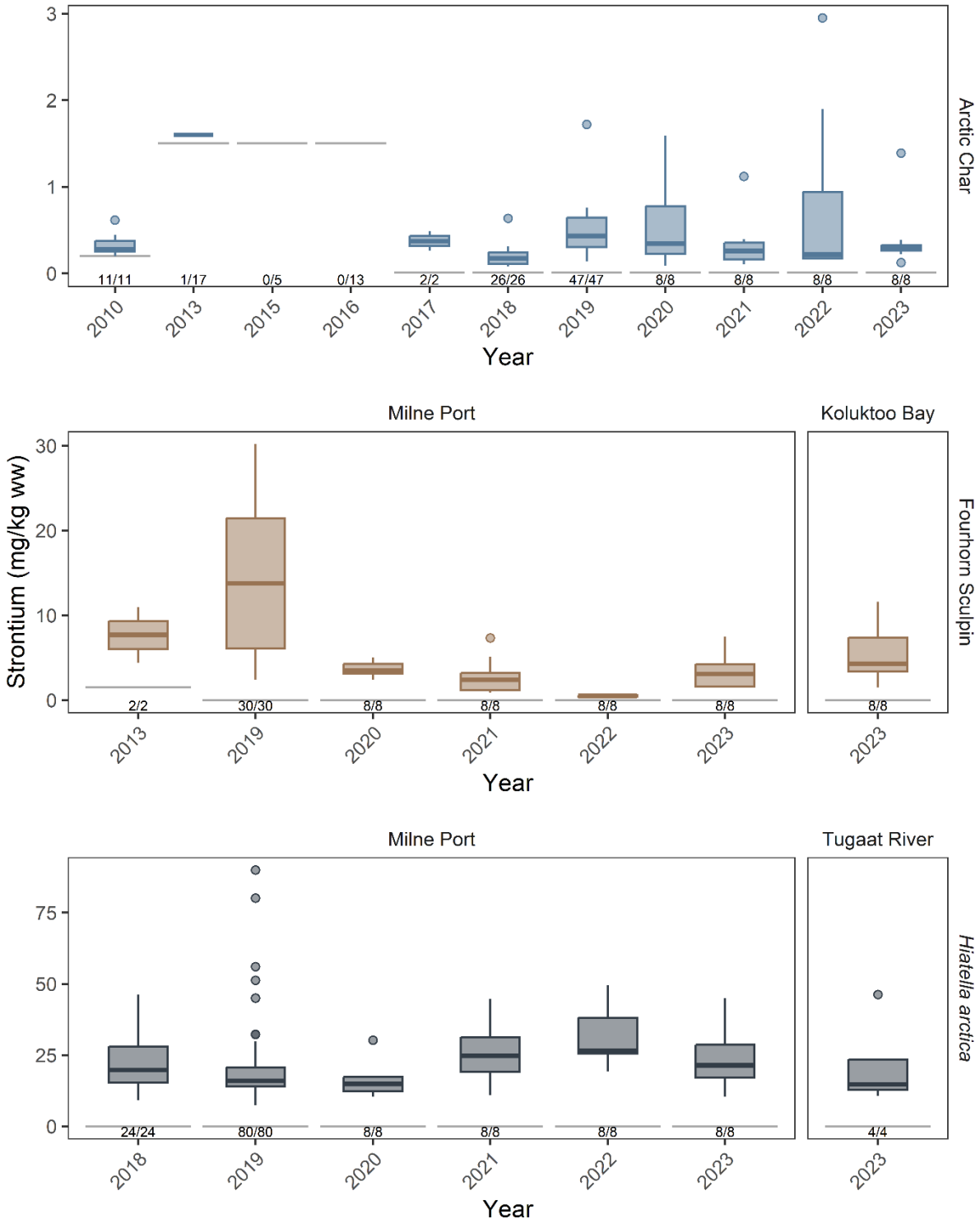
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.12 mg/kg ww for Arctic Char (2013, 2015, 2016) and Fourhorn Sculpin (2013) not shown to allow for clearer visualization of the data.

Figure 7D-23: Concentrations of Silver for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



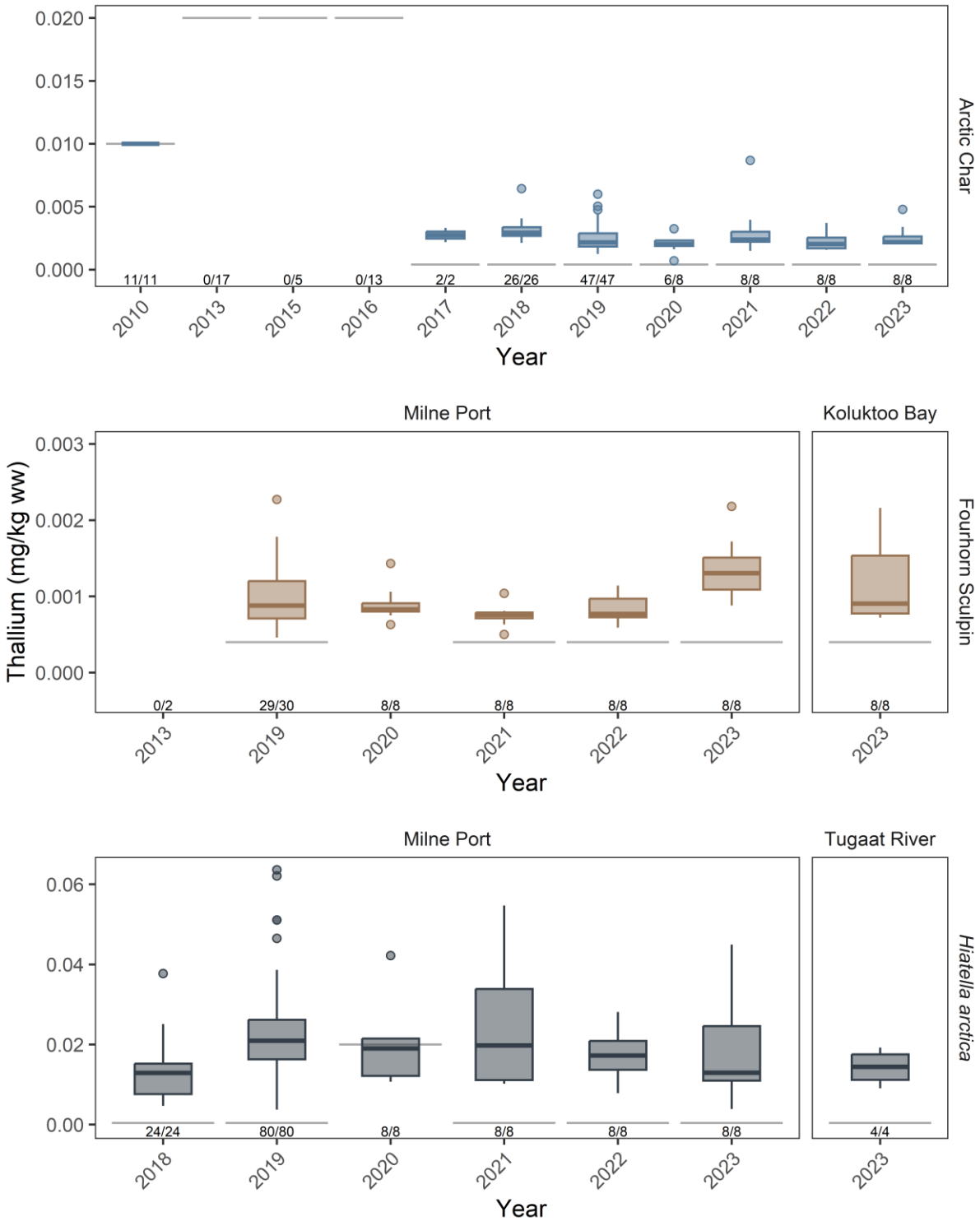
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-24: Concentrations of Sodium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



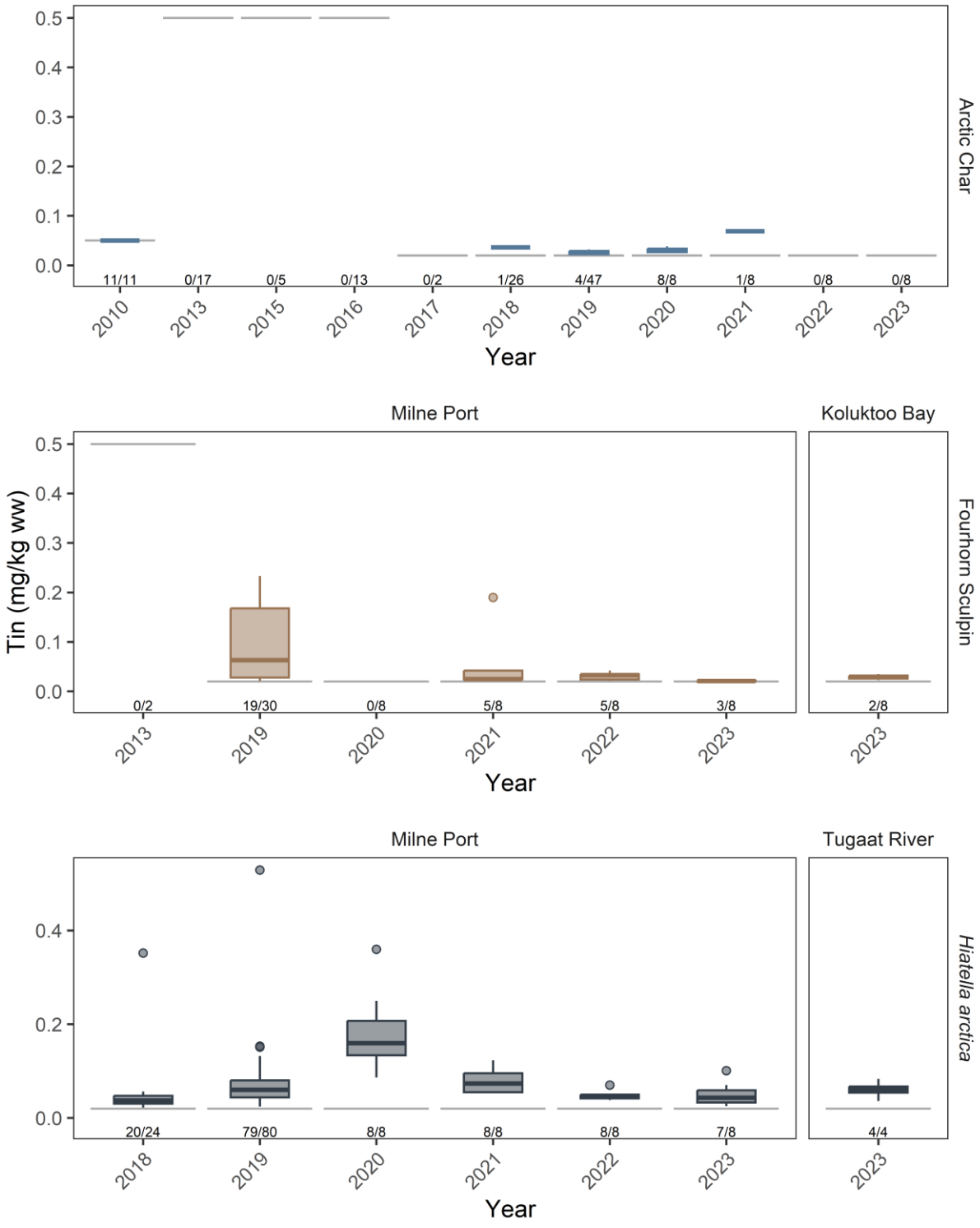
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-25: Concentrations of Strontium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



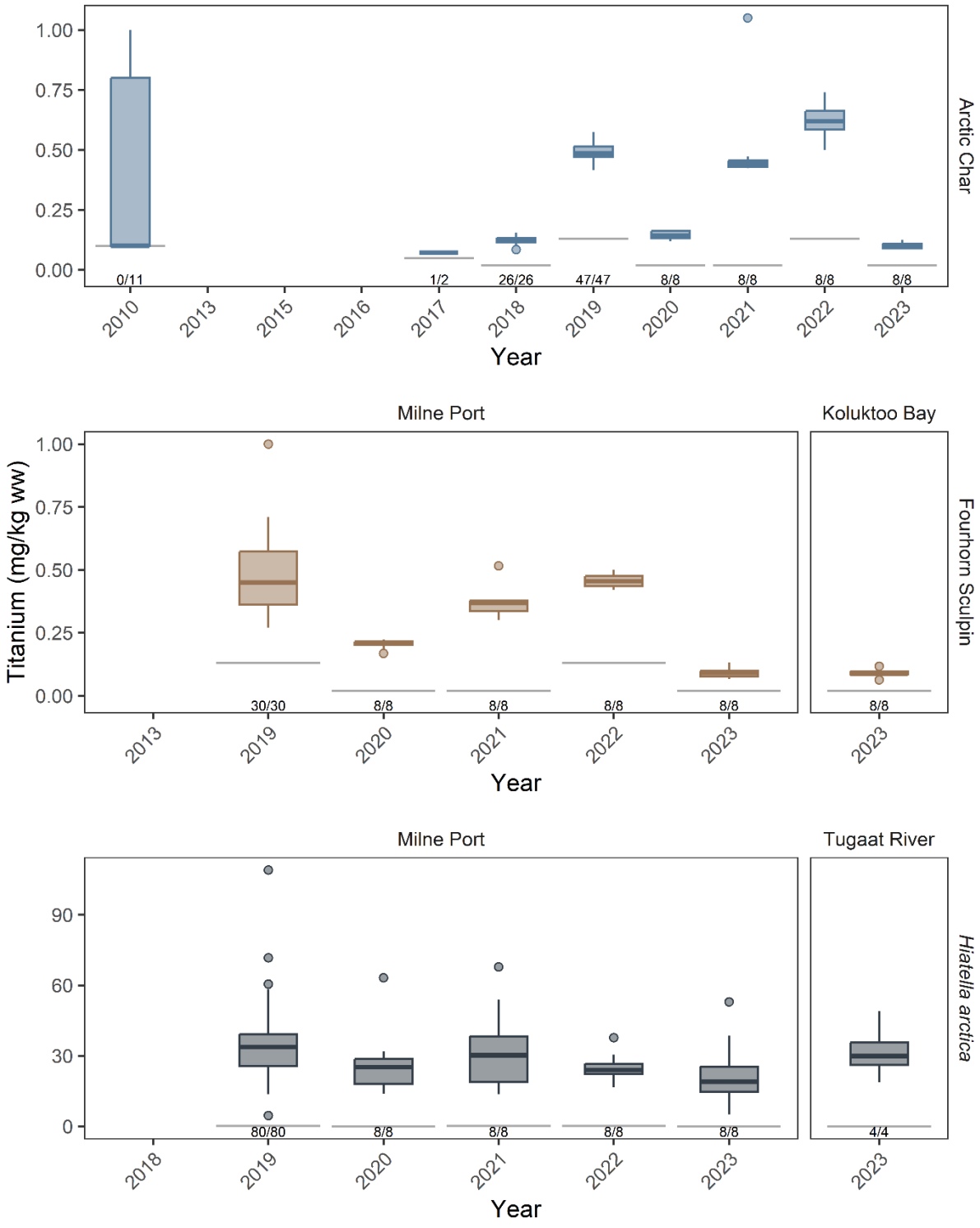
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.02 mg/kg ww for Fourhorn Sculpin (2013, 2020) not shown to allow for clearer visualization of the data.

Figure 7D-26: Concentrations of Thallium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



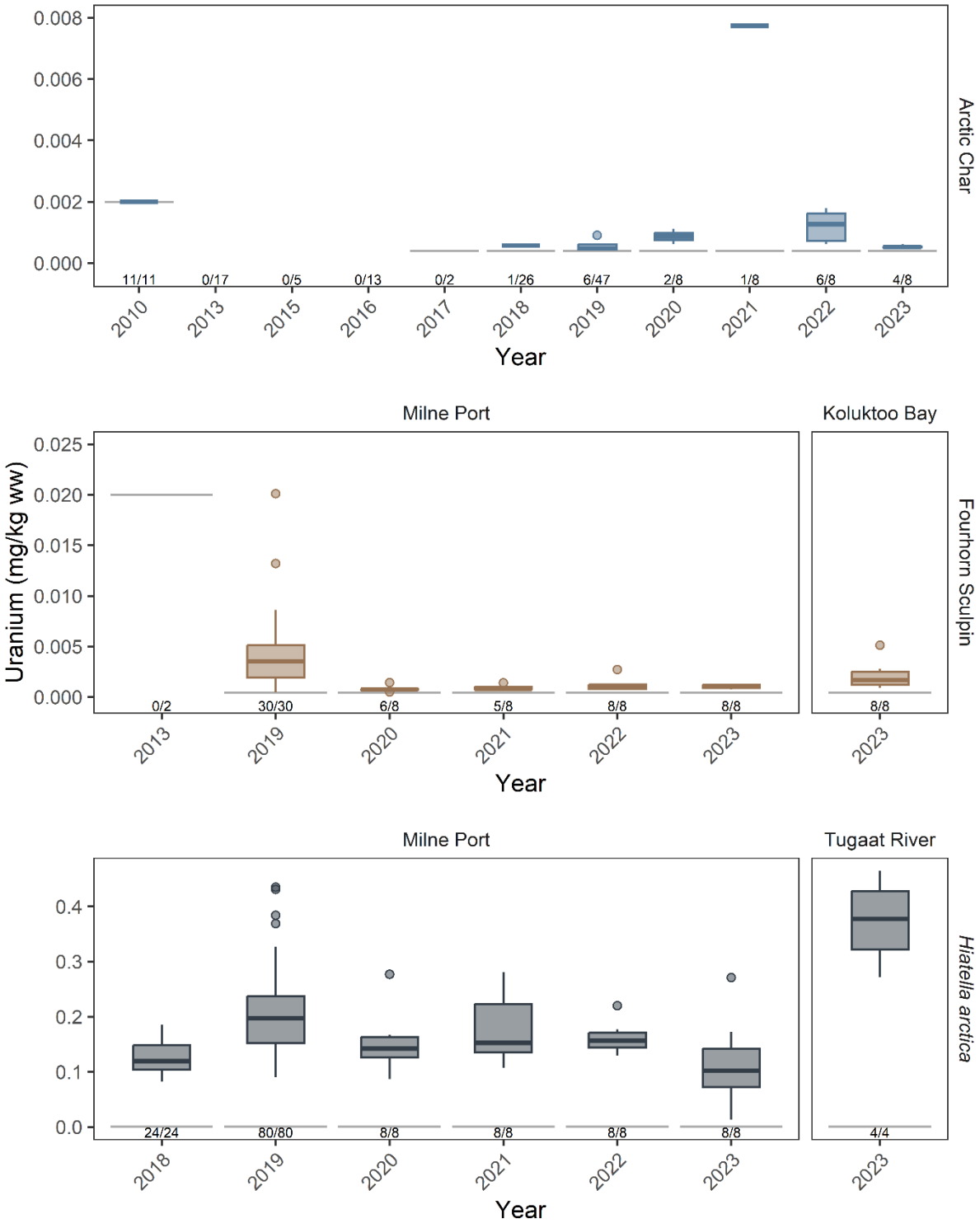
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as "n>DL/n". Values below DL are not shown in the plots. Grey lines indicate detection limits. One point for Fourhorn Sculpin (1.41 mg/kg ww; 2019) not shown to allow for clearer visualization of the data.

Figure 7D-27: Concentrations of Tin for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



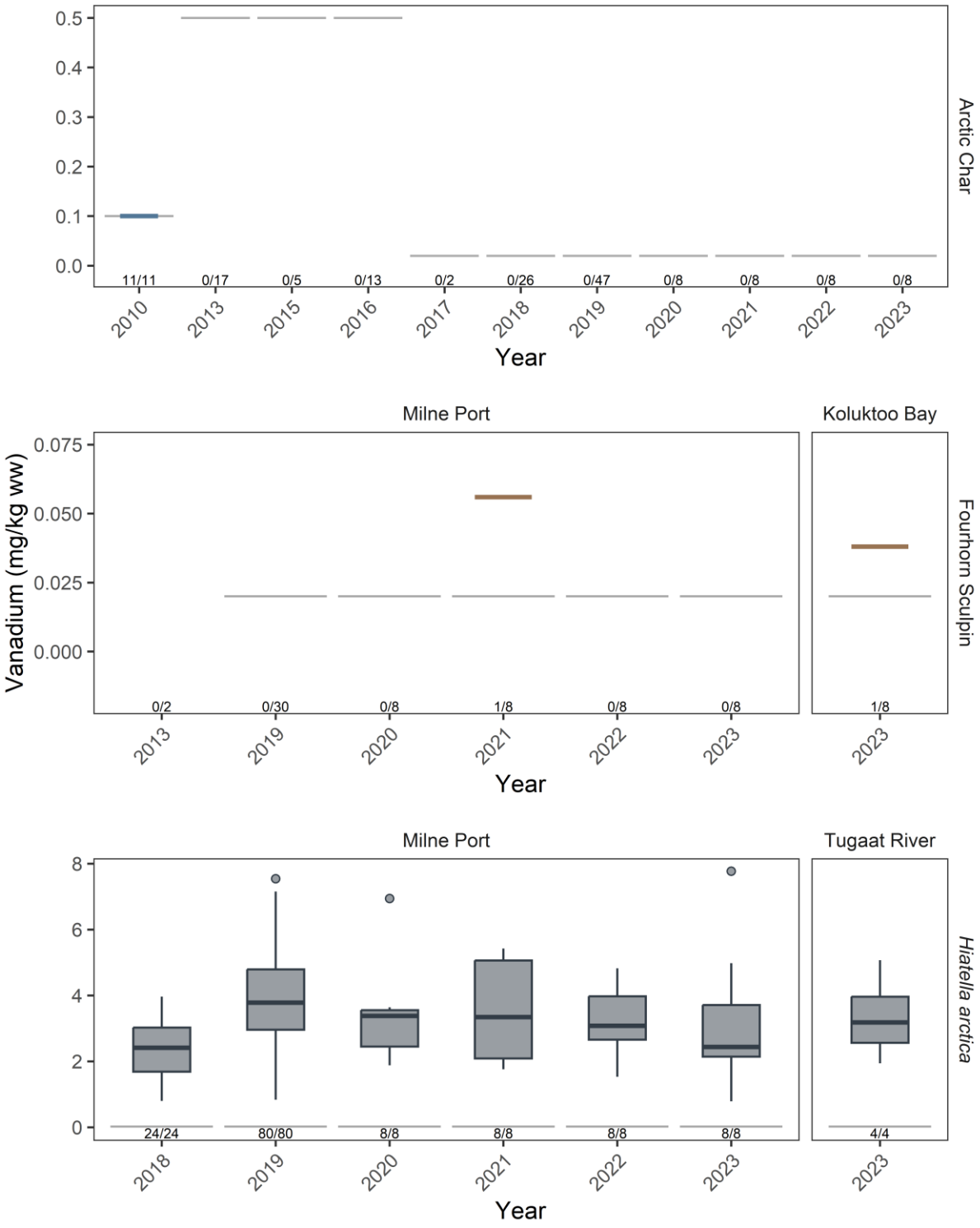
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits.

Figure 7D-28: Concentrations of Titanium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



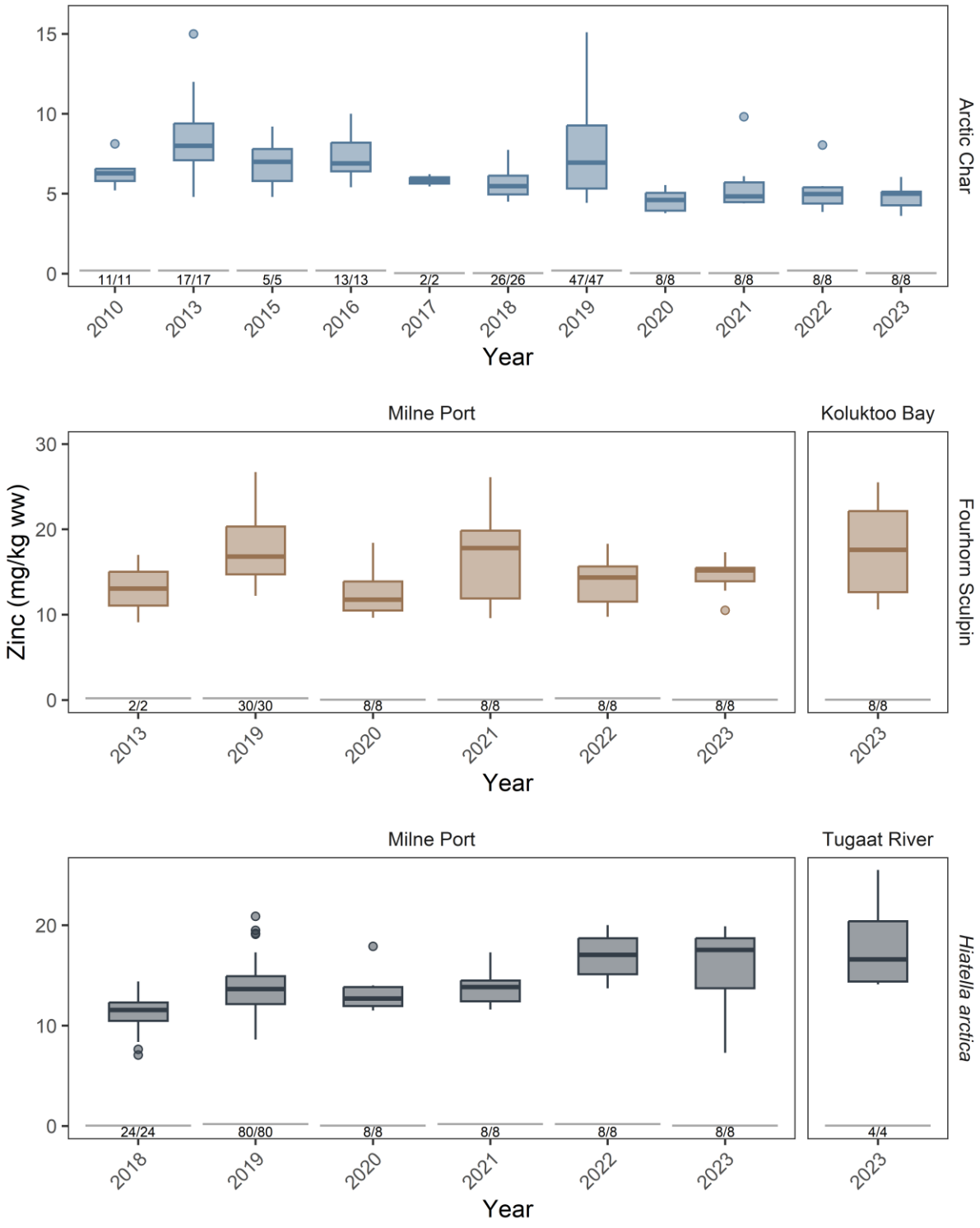
Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.02 mg/kg ww for Arctic Char (2013, 2015, 2016) and Fourhorn Sculpin (2013) not shown to allow for clear visualization of the data.

Figure 7D-29: Concentrations of Uranium for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. Detection limit of 0.5 mg/kg ww for Fourhorn Sculpin (2013) not shown to allow for clearer visualization of the data.

Figure 7D-30: Concentrations of Vanadium for *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023



Total sample size (n) and number of samples above detection limits (n>DL) are shown above the x-axis as “n>DL/n”. Values below DL are not shown in the plots. Grey lines indicate detection limits. One point for Arctic Char (73.2 mg/kg ww; 2010) not shown to allow for clearer visualization of the data.

Figure 7D-31: Concentrations of Zinc for Arctic Char, Fourhorn Sculpin and *Hiatella arctica* Tissue Sampled from the Milne Port Area and Reference Areas, 2010 to 2023

APPENDIX 7E

Certificates of Analysis

Your Project #: 166372402-70000.03
Site#: MINE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08526910, 08526911, 08526912

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2023/11/03
Report #: R3421159
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377865
Received: 2023/09/28, 09:00

Sample Matrix: Tissue
Samples Received: 24

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mercury in Tissue by CVAF - Wet Wt	24	N/A	2023/11/03	BBY7SOP-00012	EPA 245.7
Elements by CRC ICPMS - Tissue Wet Wt	24	2023/10/27	2023/11/01	BBY7SOP-00021 / BBY7SOP-00002	EPA 6020b R2 m
Moisture in Tissue	24	2023/10/27	2023/10/31	BBY8SOP-00017	BCMOE BCLM Dec2000 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 166372402-70000.03
Site#: MINE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08526910, 08526911, 08526912

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2023/11/03
Report #: R3421159
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377865
Received: 2023/09/28, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Melissa McIntosh, Customer Solutions Representative
Email: melissa.mcintosh@bureauveritas.com
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ711	CAJ712	CAJ713		
Sampling Date		2023/07/28 13:15	2023/07/28 14:02	2023/07/28 15:30		
COC Number		08526910	08526910	08526910		
	UNITS	BAFF23UDPFFHSC1001	BAFF23UDPFFHSC1005	BAFF23UDPFFHSC1009	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.158 (1)	0.249 (2)	0.107 (2)	0.010	B174631
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	0.44	0.87	0.45	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	<0.0010	0.0015	0.0014	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	2.83	3.69	4.37	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.037	0.621	0.024	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0012	0.0024	0.0017	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	<0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0093	0.0073	0.0036	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	801	601	379	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	<0.010	<0.010	<0.010	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0066	0.0075	0.0110	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.362	0.470	0.481	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	6.90	12.4	6.83	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0088	0.0242	0.0127	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	264	224	265	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.222	0.195	0.300	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.015	0.017	0.019	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	2770	2430	2600	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	4090	3730	4050	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.508	0.582	0.670	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	502	633	482	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	4.49	3.53	1.65	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00088	0.00137	0.00218	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	<0.020	<0.020	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.096	0.102	0.086	0.020	B173395

RDL = Reportable Detection Limit
(1) Matrix spike non calculable due to high concentration of original analyte.
Detection limits raised due to dilution to bring analyte within the calibrated range.
(2) Detection limits raised due to dilution to bring analyte within the calibrated range.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ711	CAJ712	CAJ713		
Sampling Date		2023/07/28 13:15	2023/07/28 14:02	2023/07/28 15:30		
COC Number		08526910	08526910	08526910		
	UNITS	**BAFF23UDPFFHSC1001**	**BAFF23UDPFFHSC1005**	**BAFF23UDPFFHSC1009**	**RDL**	**QC Batch**
Total (Wet Wt) Uranium (U)	mg/kg	0.00120	0.00121	0.00094	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	<0.020	<0.020	0.020	B173395
Total (Wet Wt) Zinc (Zn)	mg/kg	15.0	15.8	15.4	0.040	B173395
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ714		CAJ715		
Sampling Date		2023/07/28 15:49		2023/07/29 16:23		
COC Number		08526910		08526910		
	UNITS	BAFF23UDPFFHSC1010	RDL	BAFF23UDPFFHSC1022	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0642	0.0010	0.303 (1)	0.010	B174631
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	<0.20	0.20	0.39	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	<0.0010	0.0010	0.0010	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	3.13	0.0040	6.23	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.026	0.010	0.015	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0015	0.0010	0.0023	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0060	0.0010	0.0089	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	601	2.0	298	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	<0.010	0.010	<0.010	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0060	0.0013	0.0092	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.351	0.010	0.474	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	4.68	0.25	6.72	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0101	0.0010	0.0042	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	253	0.40	233	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.277	0.010	0.218	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	0.0040	<0.0040	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.015	0.010	0.012	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	2520	2.0	2310	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	3920	2.0	3700	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.637	0.010	0.713	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	511	2.0	480	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	2.64	0.010	1.48	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00172	0.00040	0.00103	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	0.020	0.020	<0.020	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.076	0.020	0.067	0.020	B173395
Total (Wet Wt) Uranium (U)	mg/kg	0.00078	0.00040	0.00094	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	0.020	<0.020	0.020	B173395

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ714		CAJ715		
Sampling Date		2023/07/28 15:49		2023/07/29 16:23		
COC Number		08526910		08526910		
	UNITS	**BAFF23UDPFFHSC1010**	**RDL**	**BAFF23UDPFFHSC1022**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	10.5	0.040	17.3	0.040	B173395
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ716		CAJ717	CAJ718		
Sampling Date		2023/07/29 17:05		2023/07/30 13:17	2023/07/30 13:35		
COC Number		08526910		08526910	08526910		
	UNITS	BAFF23UDPFFHSC1028	RDL	BAFF23UIPFFHSC1032	BAFF23UIPFFHSC1035	RDL	QC Batch
Mercury by CVAF							
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0912	0.0010	0.146 (1)	0.122 (1)	0.010	B174631
Total Metals by ICPMS							
Total (Wet Wt) Aluminum (Al)	mg/kg	0.39	0.20	0.84	0.76	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	<0.0010	0.0010	0.0010	0.0012	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	2.71	0.0040	4.02	2.21	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.020	0.010	0.039	0.100	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0016	0.0010	0.0036	0.0037	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	0.20	<0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0028	0.0010	0.0021	0.0047	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	363	2.0	722	1260	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	0.013	0.010	0.024	0.026	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0061	0.0013	0.0085	0.0081	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.523	0.010	0.449	0.462	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	6.75	0.25	9.51	8.12	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0035	0.0010	0.0297	0.0065	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	248	0.40	274	279	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.327	0.010	0.264	0.238	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	0.0040	<0.0040	<0.0040	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.012	0.010	0.018	0.013	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	2380	2.0	2590	2830	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	3710	2.0	3680	3490	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.467	0.010	0.620	0.537	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	604	2.0	528	665	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	1.47	0.010	4.19	7.50	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00111	0.00040	0.00144	0.00124	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	0.023	0.020	0.021	<0.020	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.076	0.020	0.097	0.131	0.020	B173395
Total (Wet Wt) Uranium (U)	mg/kg	0.00074	0.00040	0.00128	0.00118	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	0.020	<0.020	<0.020	0.020	B173395

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ716		CAJ717	CAJ718		
Sampling Date		2023/07/29 17:05		2023/07/30 13:17	2023/07/30 13:35		
COC Number		08526910		08526910	08526910		
	UNITS	**BAFF23UDPFFHSC1028**	**RDL**	**BAFF23UIPFFHSC1032**	**BAFF23UIPFFHSC1035**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	12.8	0.040	14.3	15.4	0.040	B173395
RDL = Reportable Detection Limit							

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ720		CAJ721		
Sampling Date		2023/08/01 18:09		2023/08/01 18:35		
COC Number		08526911		08526911		
	UNITS	BAFF23UREFFHSC2018	RDL	BAFF23UREFFHSC2022	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.183 (1)	0.010	0.0385	0.0010	B174631
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	0.90	0.20	0.39	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0016	0.0010	0.0013	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	5.16	0.0040	3.24	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.062	0.010	0.093	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0019	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0143	0.0010	0.0104	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	694	2.0	2410	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	0.023	0.010	<0.010	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0173	0.0013	0.0092	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.527	0.010	0.338	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	12.6	0.25	6.83	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0095	0.0010	0.0052	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	285	0.40	254	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.365	0.010	0.379	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	0.0040	0.0048	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.040	0.010	0.016	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	2630	2.0	3250	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	3610	2.0	3450	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.732	0.010	0.587	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	894	2.0	829	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	4.79	0.010	11.6	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00216	0.00040	0.00072	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	0.035	0.020	<0.020	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.085	0.020	0.090	0.020	B173395
Total (Wet Wt) Uranium (U)	mg/kg	0.00278	0.00040	0.00182	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	0.020	<0.020	0.020	B173395

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ720		CAJ721		
Sampling Date		2023/08/01 18:09		2023/08/01 18:35		
COC Number		08526911		08526911		
	UNITS	**BAFF23UREFFHSC2018**	**RDL**	**BAFF23UREFFHSC2022**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	25.5	0.040	13.1	0.040	B173395
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ722	CAJ723		CAJ724		
Sampling Date		2023/08/01 19:45	2023/08/01 20:07		2023/08/01 20:30		
COC Number		08526911	08526911		08526911		
	UNITS	BAFF23UREFFHSC2032	BAFF23UREFFHSC2035	RDL	BAFF23UREFFHSC2039	RDL	QC Batch
Mercury by CVAF							
Total (Wet Wt) Mercury (Hg)	mg/kg	0.181 (1)	0.150 (1)	0.010	0.0835	0.0010	B174631
Total Metals by ICPMS							
Total (Wet Wt) Aluminum (Al)	mg/kg	0.39	0.54	0.20	0.33	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0021	0.0014	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	7.20	8.48	0.0040	2.35	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.148	0.025	0.010	0.061	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0026	0.0015	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	<0.20	0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0126	0.0124	0.0010	0.0121	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	1650	253	2.0	665	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	<0.010	0.016	0.010	0.010	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0136	0.0182	0.0013	0.0136	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.406	0.642	0.010	0.506	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	8.05	10.0	0.25	7.55	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0051	0.0040	0.0010	0.0041	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	269	218	0.40	268	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.374	0.272	0.010	0.339	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	<0.0040	0.0040	<0.0040	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.020	0.025	0.010	0.020	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	3020	2310	2.0	2640	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	3690	3520	2.0	3640	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.787	0.689	0.010	0.534	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	773	626	2.0	680	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	10.6	1.50	0.010	3.60	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00089	0.00135	0.00040	0.00209	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	<0.020	0.020	0.023	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.094	0.086	0.020	0.063	0.020	B173395
Total (Wet Wt) Uranium (U)	mg/kg	0.00512	0.00127	0.00040	0.00092	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	0.038	<0.020	0.020	<0.020	0.020	B173395

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ722	CAJ723		CAJ724		
Sampling Date		2023/08/01 19:45	2023/08/01 20:07		2023/08/01 20:30		
COC Number		08526911	08526911		08526911		
	UNITS	**BAFF23UREFFHSC2032**	**BAFF23UREFFHSC2035**	**RDL**	**BAFF23UREFFHSC2039**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	21.1	25.3	0.040	18.1	0.040	B173395
RDL = Reportable Detection Limit							

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ725		CAJ726		
Sampling Date		2023/08/08 16:17		2023/08/08 16:29		
COC Number		08526911		08526911		
	UNITS	BAFF23UREFFHSC2041	RDL	BAFF23UREFFHSC2042	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0404	0.0010	0.215 (1)	0.010	B174631
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	1.46	0.20	0.81	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	<0.0010	0.0010	0.0015	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	3.07	0.0040	6.85	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.066	0.010	0.080	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0037	0.0010	0.0055	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	842	2.0	1010	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	0.025	0.010	0.015	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0080	0.0013	0.0100	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.262	0.010	0.523	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	12.1	0.25	9.13	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0061	0.0010	0.0067	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	277	0.40	277	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.414	0.010	0.355	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	0.0040	<0.0040	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.039	0.010	0.045	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	2660	2.0	2900	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	4040	2.0	4030	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.569	0.010	0.627	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	610	2.0	771	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	3.83	0.010	6.33	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00073	0.00040	0.00092	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	0.020	<0.020	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.117	0.020	0.104	0.020	B173395
Total (Wet Wt) Uranium (U)	mg/kg	0.00155	0.00040	0.00240	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	0.020	<0.020	0.020	B173395

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ725		CAJ726		
Sampling Date		2023/08/08 16:17		2023/08/08 16:29		
COC Number		08526911		08526911		
	UNITS	**BAFF23UREFFHSC2041**	**RDL**	**BAFF23UREFFHSC2042**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	10.6	0.040	17.1	0.040	B173395
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ727	CAJ730	CAJ731		
Sampling Date		2023/08/12 18:35	2023/07/29 13:33	2023/07/30 09:40		
COC Number		08526911	08526912	08526912		
	UNITS	BAFF23UREFFHSC2051	BAFF23UDPFARCH3001	BAFF23UIPFARCH3003	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0664	0.0345	0.0254	0.0010	B174631
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	0.70	0.20	<0.20	0.20	B173395
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0011	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Arsenic (As)	mg/kg	3.63	1.11	1.22	0.0040	B173395
Total (Wet Wt) Barium (Ba)	mg/kg	0.043	0.010	<0.010	0.010	B173395
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Bismuth (Bi)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Boron (B)	mg/kg	<0.20	<0.20	<0.20	0.20	B173395
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0033	0.0119	0.0047	0.0010	B173395
Total (Wet Wt) Calcium (Ca)	mg/kg	574	192	184	2.0	B173395
Total (Wet Wt) Chromium (Cr)	mg/kg	<0.010	<0.010	<0.010	0.010	B173395
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0103	0.0020	0.0051	0.0013	B173395
Total (Wet Wt) Copper (Cu)	mg/kg	0.425	0.317	0.543	0.010	B173395
Total (Wet Wt) Iron (Fe)	mg/kg	9.61	3.64	6.40	0.25	B173395
Total (Wet Wt) Lead (Pb)	mg/kg	0.0033	0.0025	0.0025	0.0010	B173395
Total (Wet Wt) Magnesium (Mg)	mg/kg	259	262	255	0.40	B173395
Total (Wet Wt) Manganese (Mn)	mg/kg	0.346	0.095	0.080	0.010	B173395
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	B173395
Total (Wet Wt) Nickel (Ni)	mg/kg	0.014	<0.010	0.013	0.010	B173395
Total (Wet Wt) Phosphorus (P)	mg/kg	2420	2810	2700	2.0	B173395
Total (Wet Wt) Potassium (K)	mg/kg	3640	4580	3760	2.0	B173395
Total (Wet Wt) Selenium (Se)	mg/kg	0.630	0.331	0.341	0.010	B173395
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173395
Total (Wet Wt) Sodium (Na)	mg/kg	615	308	360	2.0	B173395
Total (Wet Wt) Strontium (Sr)	mg/kg	2.82	0.280	0.278	0.010	B173395
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00079	0.00205	0.00203	0.00040	B173395
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	<0.020	<0.020	0.020	B173395
Total (Wet Wt) Titanium (Ti)	mg/kg	0.085	0.085	0.088	0.020	B173395
Total (Wet Wt) Uranium (U)	mg/kg	0.00094	0.00061	<0.00040	0.00040	B173395
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	<0.020	<0.020	0.020	B173395

RDL = Reportable Detection Limit

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ727	CAJ730	CAJ731		
Sampling Date		2023/08/12 18:35	2023/07/29 13:33	2023/07/30 09:40		
COC Number		08526911	08526912	08526912		
	UNITS	**BAFF23UREFFHSC2051**	**BAFF23UDPFARCH3001**	**BAFF23UIPFARCH3003**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	11.3	3.61	4.42	0.040	B173395
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ732	CAJ734		CAJ736		
Sampling Date		2023/08/05 16:20	2023/08/10		2023/08/10		
COC Number		08526912	08526912		08526912		
	UNITS	BAFF23UIPFARCH3004	BAFF23UDPFARCH3009	QC Batch	BAFF23UDPFARCH3010	RDL	QC Batch
Mercury by CVAF							
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0119	0.0591	B174631	0.0229	0.0010	B174633
Total Metals by ICPMS							
Total (Wet Wt) Aluminum (Al)	mg/kg	0.87	0.32	B173395	0.46	0.20	B173991
Total (Wet Wt) Antimony (Sb)	mg/kg	<0.0010	<0.0010	B173395	<0.0010	0.0010	B173991
Total (Wet Wt) Arsenic (As)	mg/kg	0.847	1.25	B173395	0.698	0.0040	B173991
Total (Wet Wt) Barium (Ba)	mg/kg	0.018	<0.010	B173395	0.014	0.010	B173991
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	<0.0010	B173395	<0.0010	0.0010	B173991
Total (Wet Wt) Bismuth (Bi)	mg/kg	<0.0010	<0.0010	B173395	<0.0010	0.0010	B173991
Total (Wet Wt) Boron (B)	mg/kg	<0.20	<0.20	B173395	<0.20	0.20	B173991
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0021	0.0016	B173395	0.0026	0.0010	B173991
Total (Wet Wt) Calcium (Ca)	mg/kg	110	272	B173395	170	2.0	B173991
Total (Wet Wt) Chromium (Cr)	mg/kg	0.013	0.029	B173395	<0.010	0.010	B173991
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0054	0.0026	B173395	0.0054	0.0013	B173991
Total (Wet Wt) Copper (Cu)	mg/kg	0.628	0.291	B173395	0.336	0.010	B173991
Total (Wet Wt) Iron (Fe)	mg/kg	12.7	5.26	B173395	6.86	0.25	B173991
Total (Wet Wt) Lead (Pb)	mg/kg	0.0040	0.0013	B173395	0.0045	0.0010	B173991
Total (Wet Wt) Magnesium (Mg)	mg/kg	288	313	B173395	349	0.40	B173991
Total (Wet Wt) Manganese (Mn)	mg/kg	0.162	0.093	B173395	0.137	0.010	B173991
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	<0.0040	B173395	0.0040	0.0040	B173991
Total (Wet Wt) Nickel (Ni)	mg/kg	0.024	<0.010	B173395	0.011	0.010	B173991
Total (Wet Wt) Phosphorus (P)	mg/kg	3010	3180	B173395	3560	2.0	B173991
Total (Wet Wt) Potassium (K)	mg/kg	4390	5020	B173395	5180	2.0	B173991
Total (Wet Wt) Selenium (Se)	mg/kg	0.317	0.399	B173395	0.430	0.010	B173991
Total (Wet Wt) Silver (Ag)	mg/kg	<0.0010	<0.0010	B173395	0.0033	0.0010	B173991
Total (Wet Wt) Sodium (Na)	mg/kg	430	264	B173395	356	2.0	B173991
Total (Wet Wt) Strontium (Sr)	mg/kg	0.223	0.308	B173395	0.389	0.010	B173991
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00210	0.00238	B173395	0.00338	0.00040	B173991
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	<0.020	B173395	<0.020	0.020	B173991
Total (Wet Wt) Titanium (Ti)	mg/kg	0.103	0.108	B173395	0.124	0.020	B173991
Total (Wet Wt) Uranium (U)	mg/kg	0.00053	0.00050	B173395	<0.00040	0.00040	B173991
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	<0.020	B173395	<0.020	0.020	B173991

RDL = Reportable Detection Limit

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ732	CAJ734		CAJ736		
Sampling Date		2023/08/05 16:20	2023/08/10		2023/08/10		
COC Number		08526912	08526912		08526912		
	UNITS	**BAFF23UIPFARCH3004**	**BAFF23UDPFARCH3009**	**QC Batch**	**BAFF23UDPFARCH3010**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	5.06	3.85	B173395	6.05	0.040	B173991
RDL = Reportable Detection Limit							

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ738	CAJ739	CAJ740		
Sampling Date		2023/08/10	2023/08/08 14:00	2023/08/12 13:11		
COC Number		08526912	08526912	08526912		
	UNITS	BAFF23UDPFARCH3012	BAFF23UKLKARCH4002	BAFF23UKLKARCH4008	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0184 (1)	0.0191	0.0414	0.0010	B174633
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	0.57	0.33	<0.20	0.20	B173991
Total (Wet Wt) Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173991
Total (Wet Wt) Arsenic (As)	mg/kg	0.618	0.628	0.448	0.0040	B173991
Total (Wet Wt) Barium (Ba)	mg/kg	0.012	0.016	<0.010	0.010	B173991
Total (Wet Wt) Beryllium (Be)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173991
Total (Wet Wt) Bismuth (Bi)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	B173991
Total (Wet Wt) Boron (B)	mg/kg	<0.20	<0.20	<0.20	0.20	B173991
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.0015	0.0061	0.0016	0.0010	B173991
Total (Wet Wt) Calcium (Ca)	mg/kg	70.1	533	179	2.0	B173991
Total (Wet Wt) Chromium (Cr)	mg/kg	<0.010	<0.010	<0.010	0.010	B173991
Total (Wet Wt) Cobalt (Co)	mg/kg	0.0039	0.0042	0.0075	0.0013	B173991
Total (Wet Wt) Copper (Cu)	mg/kg	0.331	0.341	0.286	0.010	B173991
Total (Wet Wt) Iron (Fe)	mg/kg	7.62	7.82	4.19	0.25	B173991
Total (Wet Wt) Lead (Pb)	mg/kg	0.0055 (2)	0.0029	<0.0010	0.0010	B173991
Total (Wet Wt) Magnesium (Mg)	mg/kg	325	281	307	0.40	B173991
Total (Wet Wt) Manganese (Mn)	mg/kg	0.120	0.186	0.097	0.010	B173991
Total (Wet Wt) Molybdenum (Mo)	mg/kg	<0.0040	<0.0040	<0.0040	0.0040	B173991
Total (Wet Wt) Nickel (Ni)	mg/kg	0.015	<0.010	0.015	0.010	B173991
Total (Wet Wt) Phosphorus (P)	mg/kg	3380	3150	3200	2.0	B173991
Total (Wet Wt) Potassium (K)	mg/kg	5100	4320	4730	2.0	B173991
Total (Wet Wt) Selenium (Se)	mg/kg	0.343	0.336	0.431	0.010	B173991
Total (Wet Wt) Silver (Ag)	mg/kg	0.0036 (2)	<0.0010	0.0011	0.0010	B173991
Total (Wet Wt) Sodium (Na)	mg/kg	346	353	402	2.0	B173991
Total (Wet Wt) Strontium (Sr)	mg/kg	0.124	1.39	0.297	0.010	B173991
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00221	0.00215	0.00479	0.00040	B173991
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	<0.020	<0.020	0.020	B173991
Total (Wet Wt) Titanium (Ti)	mg/kg	0.115	0.097	0.090	0.020	B173991
Total (Wet Wt) Uranium (U)	mg/kg	<0.00040	0.00051	<0.00040	0.00040	B173991

RDL = Reportable Detection Limit

(1) Matrix spike exceeds acceptance limits due to probable matrix interference.

(2) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CAJ738	CAJ739	CAJ740		
Sampling Date		2023/08/10	2023/08/08 14:00	2023/08/12 13:11		
COC Number		08526912	08526912	08526912		
	UNITS	**BAFF23UDPFARCH3012**	**BAFF23UKLKARCH4002**	**BAFF23UKLKARCH4008**	**RDL**	**QC Batch**
Total (Wet Wt) Vanadium (V)	mg/kg	<0.020	<0.020	<0.020	0.020	B173991
Total (Wet Wt) Zinc (Zn)	mg/kg	4.94	5.22	5.10	0.040	B173991
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

PHYSICAL TESTING (TISSUE)

Bureau Veritas ID		CAJ711	CAJ712	CAJ713	CAJ714		
Sampling Date		2023/07/28 13:15	2023/07/28 14:02	2023/07/28 15:30	2023/07/28 15:49		
COC Number		08526910	08526910	08526910	08526910		
	UNITS	BAFF23UDPFFHSC1001	BAFF23UDPFFHSC1005	BAFF23UDPFFHSC1009	BAFF23UDPFFHSC1010	RDL	QC Batch
Physical Properties							
Moisture	%	78	79	77	81	0.30	B173774
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAJ715	CAJ716	CAJ717	CAJ718		
Sampling Date		2023/07/29 16:23	2023/07/29 17:05	2023/07/30 13:17	2023/07/30 13:35		
COC Number		08526910	08526910	08526910	08526910		
	UNITS	BAFF23UDPFFHSC1022	BAFF23UDPFFHSC1028	BAFF23UIPFFHSC1032	BAFF23UIPFFHSC1035	RDL	QC Batch
Physical Properties							
Moisture	%	80	79	79	80	0.30	B173774
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAJ720	CAJ721	CAJ722	CAJ723		
Sampling Date		2023/08/01 18:09	2023/08/01 18:35	2023/08/01 19:45	2023/08/01 20:07		
COC Number		08526911	08526911	08526911	08526911		
	UNITS	BAFF23UREFFHSC2018	BAFF23UREFFHSC2022	BAFF23UREFFHSC2032	BAFF23UREFFHSC2035	RDL	QC Batch
Physical Properties							
Moisture	%	79	79	79	79	0.30	B173774
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAJ724	CAJ725	CAJ726	CAJ727		
Sampling Date		2023/08/01 20:30	2023/08/08 16:17	2023/08/08 16:29	2023/08/12 18:35		
COC Number		08526911	08526911	08526911	08526911		
	UNITS	BAFF23UREFFHSC2039	BAFF23UREFFHSC2041	BAFF23UREFFHSC2042	BAFF23UREFFHSC2051	RDL	QC Batch
Physical Properties							
Moisture	%	80	78	79	79	0.30	B173774
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAJ730	CAJ731	CAJ732		
Sampling Date		2023/07/29 13:33	2023/07/30 09:40	2023/08/05 16:20		
COC Number		08526912	08526912	08526912		
	UNITS	BAFF23UDPFARCH3001	BAFF23UIPFARCH3003	BAFF23UIPFARCH3004	RDL	QC Batch
Physical Properties						
Moisture	%	78	67	69	0.30	B173774
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

PHYSICAL TESTING (TISSUE)

Bureau Veritas ID		CAJ734		CAJ736	CAJ738		
Sampling Date		2023/08/10		2023/08/10	2023/08/10		
COC Number		08526912		08526912	08526912		
	UNITS	BAFF23UDPFARCH3009	QC Batch	BAFF23UDPFARCH3010	BAFF23UDPFARCH3012	RDL	QC Batch
Physical Properties							
Moisture	%	73	B173774	74	75	0.30	B173170
RDL = Reportable Detection Limit							

Bureau Veritas ID		CAJ739	CAJ740		
Sampling Date		2023/08/08 14:00	2023/08/12 13:11		
COC Number		08526912	08526912		
	UNITS	BAFF23UKLKARCH4002	BAFF23UKLKARCH4008	RDL	QC Batch
Physical Properties					
Moisture	%	70	75	0.30	B173170
RDL = Reportable Detection Limit					

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B173170	ERE	RPD [CAJ740-01]	Moisture	2023/10/31	1.5		%	20
B173395	MEM	QC Standard	Total (Wet Wt) Antimony (Sb)	2023/10/31		99	%	N/A
			Total (Wet Wt) Arsenic (As)	2023/10/31		104	%	N/A
			Total (Wet Wt) Cadmium (Cd)	2023/10/31		98	%	N/A
			Total (Wet Wt) Calcium (Ca)	2023/10/31		102	%	N/A
			Total (Wet Wt) Cobalt (Co)	2023/10/31		91	%	N/A
			Total (Wet Wt) Copper (Cu)	2023/10/31		93	%	N/A
			Total (Wet Wt) Iron (Fe)	2023/10/31		104	%	N/A
			Total (Wet Wt) Lead (Pb)	2023/10/31		101	%	N/A
			Total (Wet Wt) Manganese (Mn)	2023/10/31		97	%	N/A
			Total (Wet Wt) Molybdenum (Mo)	2023/10/31		97	%	N/A
			Total (Wet Wt) Phosphorus (P)	2023/10/31		108	%	N/A
			Total (Wet Wt) Potassium (K)	2023/10/31		106	%	N/A
			Total (Wet Wt) Selenium (Se)	2023/10/31		96	%	N/A
			Total (Wet Wt) Silver (Ag)	2023/10/31		94	%	N/A
			Total (Wet Wt) Sodium (Na)	2023/10/31		106	%	N/A
			Total (Wet Wt) Strontium (Sr)	2023/10/31		109	%	N/A
			Total (Wet Wt) Thallium (Tl)	2023/10/31		95	%	N/A
			Total (Wet Wt) Tin (Sn)	2023/10/31		167	%	N/A
			Total (Wet Wt) Uranium (U)	2023/10/31		109	%	N/A
			Total (Wet Wt) Vanadium (V)	2023/10/31		94	%	N/A
			Total (Wet Wt) Zinc (Zn)	2023/10/31		104	%	N/A
B173395	MEM	Spiked Blank	Total (Wet Wt) Aluminum (Al)	2023/10/31		113	%	75 - 125
			Total (Wet Wt) Antimony (Sb)	2023/10/31		106	%	75 - 125
			Total (Wet Wt) Arsenic (As)	2023/10/31		111	%	75 - 125
			Total (Wet Wt) Barium (Ba)	2023/10/31		111	%	75 - 125
			Total (Wet Wt) Beryllium (Be)	2023/10/31		105	%	75 - 125
			Total (Wet Wt) Bismuth (Bi)	2023/10/31		108	%	75 - 125
			Total (Wet Wt) Boron (B)	2023/10/31		108	%	75 - 125
			Total (Wet Wt) Cadmium (Cd)	2023/10/31		105	%	75 - 125
			Total (Wet Wt) Calcium (Ca)	2023/10/31		110	%	75 - 125
			Total (Wet Wt) Chromium (Cr)	2023/10/31		102	%	75 - 125
			Total (Wet Wt) Cobalt (Co)	2023/10/31		103	%	75 - 125
			Total (Wet Wt) Copper (Cu)	2023/10/31		100	%	75 - 125
			Total (Wet Wt) Iron (Fe)	2023/10/31		113	%	75 - 125
			Total (Wet Wt) Lead (Pb)	2023/10/31		109	%	75 - 125
			Total (Wet Wt) Magnesium (Mg)	2023/10/31		108	%	75 - 125
			Total (Wet Wt) Manganese (Mn)	2023/10/31		106	%	75 - 125
			Total (Wet Wt) Molybdenum (Mo)	2023/10/31		106	%	75 - 125
			Total (Wet Wt) Nickel (Ni)	2023/10/31		102	%	75 - 125
			Total (Wet Wt) Phosphorus (P)	2023/10/31		112	%	75 - 125
			Total (Wet Wt) Potassium (K)	2023/10/31		110	%	75 - 125
			Total (Wet Wt) Selenium (Se)	2023/10/31		99	%	75 - 125
			Total (Wet Wt) Silver (Ag)	2023/10/31		102	%	75 - 125
			Total (Wet Wt) Sodium (Na)	2023/10/31		106	%	75 - 125
			Total (Wet Wt) Strontium (Sr)	2023/10/31		113	%	75 - 125
			Total (Wet Wt) Thallium (Tl)	2023/10/31		106	%	75 - 125
			Total (Wet Wt) Tin (Sn)	2023/10/31		122	%	75 - 125
			Total (Wet Wt) Titanium (Ti)	2023/10/31		104	%	75 - 125
			Total (Wet Wt) Uranium (U)	2023/10/31		111	%	75 - 125
			Total (Wet Wt) Vanadium (V)	2023/10/31		104	%	75 - 125
			Total (Wet Wt) Zinc (Zn)	2023/10/31		102	%	75 - 125
B173395	MEM	Method Blank	Total (Wet Wt) Aluminum (Al)	2023/10/31	<0.20		mg/kg	

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total (Wet Wt) Antimony (Sb)	2023/10/31	<0.0010		mg/kg	
			Total (Wet Wt) Arsenic (As)	2023/10/31	<0.0040		mg/kg	
			Total (Wet Wt) Barium (Ba)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Beryllium (Be)	2023/10/31	<0.0010		mg/kg	
			Total (Wet Wt) Bismuth (Bi)	2023/10/31	<0.0010		mg/kg	
			Total (Wet Wt) Boron (B)	2023/10/31	<0.20		mg/kg	
			Total (Wet Wt) Cadmium (Cd)	2023/10/31	<0.0010		mg/kg	
			Total (Wet Wt) Calcium (Ca)	2023/10/31	<2.0		mg/kg	
			Total (Wet Wt) Chromium (Cr)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Cobalt (Co)	2023/10/31	<0.0013		mg/kg	
			Total (Wet Wt) Copper (Cu)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Iron (Fe)	2023/10/31	<0.25		mg/kg	
			Total (Wet Wt) Lead (Pb)	2023/10/31	<0.0010		mg/kg	
			Total (Wet Wt) Magnesium (Mg)	2023/10/31	<0.40		mg/kg	
			Total (Wet Wt) Manganese (Mn)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Molybdenum (Mo)	2023/10/31	<0.0040		mg/kg	
			Total (Wet Wt) Nickel (Ni)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Phosphorus (P)	2023/10/31	<2.0		mg/kg	
			Total (Wet Wt) Potassium (K)	2023/10/31	<2.0		mg/kg	
			Total (Wet Wt) Selenium (Se)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Silver (Ag)	2023/10/31	<0.0010		mg/kg	
			Total (Wet Wt) Sodium (Na)	2023/10/31	<2.0		mg/kg	
			Total (Wet Wt) Strontium (Sr)	2023/10/31	<0.010		mg/kg	
			Total (Wet Wt) Thallium (Tl)	2023/10/31	<0.00040		mg/kg	
			Total (Wet Wt) Tin (Sn)	2023/10/31	<0.020		mg/kg	
			Total (Wet Wt) Titanium (Ti)	2023/10/31	<0.020		mg/kg	
			Total (Wet Wt) Uranium (U)	2023/10/31	<0.00040		mg/kg	
			Total (Wet Wt) Vanadium (V)	2023/10/31	<0.020		mg/kg	
			Total (Wet Wt) Zinc (Zn)	2023/10/31	<0.040		mg/kg	
B173395	MEM	RPD [CAJ730-01]	Total (Wet Wt) Aluminum (Al)	2023/11/01	22		%	40
			Total (Wet Wt) Antimony (Sb)	2023/11/01	NC		%	40
			Total (Wet Wt) Arsenic (As)	2023/11/01	3.8		%	40
			Total (Wet Wt) Barium (Ba)	2023/11/01	2.4		%	40
			Total (Wet Wt) Beryllium (Be)	2023/11/01	NC		%	40
			Total (Wet Wt) Bismuth (Bi)	2023/11/01	NC		%	40
			Total (Wet Wt) Boron (B)	2023/11/01	NC		%	40
			Total (Wet Wt) Cadmium (Cd)	2023/11/01	12		%	40
			Total (Wet Wt) Calcium (Ca)	2023/11/01	27		%	60
			Total (Wet Wt) Chromium (Cr)	2023/11/01	NC		%	40
			Total (Wet Wt) Cobalt (Co)	2023/11/01	3.8		%	40
			Total (Wet Wt) Copper (Cu)	2023/11/01	12		%	40
			Total (Wet Wt) Iron (Fe)	2023/11/01	1.1		%	40
			Total (Wet Wt) Lead (Pb)	2023/11/01	NC		%	40
			Total (Wet Wt) Magnesium (Mg)	2023/11/01	0.21		%	40
			Total (Wet Wt) Manganese (Mn)	2023/11/01	4.4		%	40
			Total (Wet Wt) Molybdenum (Mo)	2023/11/01	NC		%	40
			Total (Wet Wt) Nickel (Ni)	2023/11/01	NC		%	40
			Total (Wet Wt) Phosphorus (P)	2023/11/01	0.31		%	40
			Total (Wet Wt) Potassium (K)	2023/11/01	0.35		%	40
			Total (Wet Wt) Selenium (Se)	2023/11/01	0.98		%	40
			Total (Wet Wt) Silver (Ag)	2023/11/01	NC		%	40
			Total (Wet Wt) Sodium (Na)	2023/11/01	2.0		%	40
			Total (Wet Wt) Strontium (Sr)	2023/11/01	23		%	60

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total (Wet Wt) Thallium (Tl)	2023/11/01	5.7		%	40
			Total (Wet Wt) Tin (Sn)	2023/11/01	NC		%	40
			Total (Wet Wt) Titanium (Ti)	2023/11/01	3.0		%	40
			Total (Wet Wt) Uranium (U)	2023/11/01	14		%	40
			Total (Wet Wt) Vanadium (V)	2023/11/01	NC		%	40
			Total (Wet Wt) Zinc (Zn)	2023/11/01	2.7		%	40
B173774	ERE	RPD [CAJ734-01]	Moisture	2023/10/31	0.14		%	20
B173991	MEM	QC Standard	Total (Wet Wt) Antimony (Sb)	2023/11/01		95	%	N/A
			Total (Wet Wt) Arsenic (As)	2023/11/01		96	%	N/A
			Total (Wet Wt) Cadmium (Cd)	2023/11/01		90	%	N/A
			Total (Wet Wt) Calcium (Ca)	2023/11/01		93	%	N/A
			Total (Wet Wt) Cobalt (Co)	2023/11/01		85	%	N/A
			Total (Wet Wt) Copper (Cu)	2023/11/01		85	%	N/A
			Total (Wet Wt) Iron (Fe)	2023/11/01		92	%	N/A
			Total (Wet Wt) Lead (Pb)	2023/11/01		87	%	N/A
			Total (Wet Wt) Manganese (Mn)	2023/11/01		88	%	N/A
			Total (Wet Wt) Molybdenum (Mo)	2023/11/01		92	%	N/A
			Total (Wet Wt) Phosphorus (P)	2023/11/01		94	%	N/A
			Total (Wet Wt) Potassium (K)	2023/11/01		97	%	N/A
			Total (Wet Wt) Selenium (Se)	2023/11/01		89	%	N/A
			Total (Wet Wt) Silver (Ag)	2023/11/01		86	%	N/A
			Total (Wet Wt) Sodium (Na)	2023/11/01		96	%	N/A
			Total (Wet Wt) Strontium (Sr)	2023/11/01		99	%	N/A
			Total (Wet Wt) Thallium (Tl)	2023/11/01		87	%	N/A
			Total (Wet Wt) Tin (Sn)	2023/11/01		117	%	N/A
			Total (Wet Wt) Uranium (U)	2023/11/01		96	%	N/A
			Total (Wet Wt) Vanadium (V)	2023/11/01		83	%	N/A
			Total (Wet Wt) Zinc (Zn)	2023/11/01		88	%	N/A
B173991	MEM	Spiked Blank	Total (Wet Wt) Aluminum (Al)	2023/11/01		108	%	75 - 125
			Total (Wet Wt) Antimony (Sb)	2023/11/01		103	%	75 - 125
			Total (Wet Wt) Arsenic (As)	2023/11/01		107	%	75 - 125
			Total (Wet Wt) Barium (Ba)	2023/11/01		107	%	75 - 125
			Total (Wet Wt) Beryllium (Be)	2023/11/01		102	%	75 - 125
			Total (Wet Wt) Bismuth (Bi)	2023/11/01		102	%	75 - 125
			Total (Wet Wt) Boron (B)	2023/11/01		103	%	75 - 125
			Total (Wet Wt) Cadmium (Cd)	2023/11/01		102	%	75 - 125
			Total (Wet Wt) Calcium (Ca)	2023/11/01		109	%	75 - 125
			Total (Wet Wt) Chromium (Cr)	2023/11/01		104	%	75 - 125
			Total (Wet Wt) Cobalt (Co)	2023/11/01		104	%	75 - 125
			Total (Wet Wt) Copper (Cu)	2023/11/01		101	%	75 - 125
			Total (Wet Wt) Iron (Fe)	2023/11/01		111	%	75 - 125
			Total (Wet Wt) Lead (Pb)	2023/11/01		105	%	75 - 125
			Total (Wet Wt) Magnesium (Mg)	2023/11/01		109	%	75 - 125
			Total (Wet Wt) Manganese (Mn)	2023/11/01		103	%	75 - 125
			Total (Wet Wt) Molybdenum (Mo)	2023/11/01		105	%	75 - 125
			Total (Wet Wt) Nickel (Ni)	2023/11/01		103	%	75 - 125
			Total (Wet Wt) Phosphorus (P)	2023/11/01		109	%	75 - 125
			Total (Wet Wt) Potassium (K)	2023/11/01		110	%	75 - 125
			Total (Wet Wt) Selenium (Se)	2023/11/01		104	%	75 - 125
			Total (Wet Wt) Silver (Ag)	2023/11/01		99	%	75 - 125
			Total (Wet Wt) Sodium (Na)	2023/11/01		109	%	75 - 125
			Total (Wet Wt) Strontium (Sr)	2023/11/01		105	%	75 - 125
			Total (Wet Wt) Thallium (Tl)	2023/11/01		103	%	75 - 125

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total (Wet Wt) Tin (Sn)	2023/11/01		99	%	75 - 125
			Total (Wet Wt) Titanium (Ti)	2023/11/01		109	%	75 - 125
			Total (Wet Wt) Uranium (U)	2023/11/01		107	%	75 - 125
			Total (Wet Wt) Vanadium (V)	2023/11/01		105	%	75 - 125
			Total (Wet Wt) Zinc (Zn)	2023/11/01		102	%	75 - 125
B173991	MEM	Method Blank	Total (Wet Wt) Aluminum (Al)	2023/11/01	<0.20		mg/kg	
			Total (Wet Wt) Antimony (Sb)	2023/11/01	<0.0010		mg/kg	
			Total (Wet Wt) Arsenic (As)	2023/11/01	<0.0040		mg/kg	
			Total (Wet Wt) Barium (Ba)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Beryllium (Be)	2023/11/01	<0.0010		mg/kg	
			Total (Wet Wt) Bismuth (Bi)	2023/11/01	<0.0010		mg/kg	
			Total (Wet Wt) Boron (B)	2023/11/01	<0.20		mg/kg	
			Total (Wet Wt) Cadmium (Cd)	2023/11/01	<0.0010		mg/kg	
			Total (Wet Wt) Calcium (Ca)	2023/11/01	<2.0		mg/kg	
			Total (Wet Wt) Chromium (Cr)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Cobalt (Co)	2023/11/01	<0.0013		mg/kg	
			Total (Wet Wt) Copper (Cu)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Iron (Fe)	2023/11/01	<0.25		mg/kg	
			Total (Wet Wt) Lead (Pb)	2023/11/01	<0.0010		mg/kg	
			Total (Wet Wt) Magnesium (Mg)	2023/11/01	<0.40		mg/kg	
			Total (Wet Wt) Manganese (Mn)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Molybdenum (Mo)	2023/11/01	<0.0040		mg/kg	
			Total (Wet Wt) Nickel (Ni)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Phosphorus (P)	2023/11/01	<2.0		mg/kg	
			Total (Wet Wt) Potassium (K)	2023/11/01	<2.0		mg/kg	
			Total (Wet Wt) Selenium (Se)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Silver (Ag)	2023/11/01	<0.0010		mg/kg	
			Total (Wet Wt) Sodium (Na)	2023/11/01	<2.0		mg/kg	
			Total (Wet Wt) Strontium (Sr)	2023/11/01	<0.010		mg/kg	
			Total (Wet Wt) Thallium (Tl)	2023/11/01	<0.00040		mg/kg	
			Total (Wet Wt) Tin (Sn)	2023/11/01	<0.020		mg/kg	
			Total (Wet Wt) Titanium (Ti)	2023/11/01	<0.020		mg/kg	
			Total (Wet Wt) Uranium (U)	2023/11/01	<0.00040		mg/kg	
			Total (Wet Wt) Vanadium (V)	2023/11/01	<0.020		mg/kg	
			Total (Wet Wt) Zinc (Zn)	2023/11/01	<0.040		mg/kg	
B173991	MEM	RPD [CAJ738-01]	Total (Wet Wt) Aluminum (Al)	2023/11/01	NC		%	40
			Total (Wet Wt) Antimony (Sb)	2023/11/01	NC		%	40
			Total (Wet Wt) Arsenic (As)	2023/11/01	11		%	40
			Total (Wet Wt) Barium (Ba)	2023/11/01	16		%	40
			Total (Wet Wt) Beryllium (Be)	2023/11/01	NC		%	40
			Total (Wet Wt) Bismuth (Bi)	2023/11/01	NC		%	40
			Total (Wet Wt) Boron (B)	2023/11/01	NC		%	40
			Total (Wet Wt) Cadmium (Cd)	2023/11/01	25		%	40
			Total (Wet Wt) Calcium (Ca)	2023/11/01	40		%	60
			Total (Wet Wt) Chromium (Cr)	2023/11/01	NC		%	40
			Total (Wet Wt) Cobalt (Co)	2023/11/01	8.9		%	40
			Total (Wet Wt) Copper (Cu)	2023/11/01	8.1		%	40
			Total (Wet Wt) Iron (Fe)	2023/11/01	36		%	40
			Total (Wet Wt) Lead (Pb)	2023/11/01	113 (1)		%	40
			Total (Wet Wt) Magnesium (Mg)	2023/11/01	0.72		%	40
			Total (Wet Wt) Manganese (Mn)	2023/11/01	1.3		%	40
			Total (Wet Wt) Molybdenum (Mo)	2023/11/01	NC		%	40
			Total (Wet Wt) Nickel (Ni)	2023/11/01	7.9		%	40

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total (Wet Wt) Phosphorus (P)	2023/11/01	1.4		%	40
			Total (Wet Wt) Potassium (K)	2023/11/01	1.1		%	40
			Total (Wet Wt) Selenium (Se)	2023/11/01	5.9		%	40
			Total (Wet Wt) Silver (Ag)	2023/11/01	112 (1)		%	40
			Total (Wet Wt) Sodium (Na)	2023/11/01	1.8		%	40
			Total (Wet Wt) Strontium (Sr)	2023/11/01	52		%	60
			Total (Wet Wt) Thallium (Tl)	2023/11/01	4.4		%	40
			Total (Wet Wt) Tin (Sn)	2023/11/01	NC		%	40
			Total (Wet Wt) Titanium (Ti)	2023/11/01	3.9		%	40
			Total (Wet Wt) Uranium (U)	2023/11/01	NC		%	40
			Total (Wet Wt) Vanadium (V)	2023/11/01	NC		%	40
			Total (Wet Wt) Zinc (Zn)	2023/11/01	1.9		%	40
B174631	CJY	Matrix Spike [CAJ711-01]	Total (Wet Wt) Mercury (Hg)	2023/11/03		66 (1)	%	75 - 125
B174631	CJY	QC Standard	Total (Wet Wt) Mercury (Hg)	2023/11/03		78	%	59 - 141
B174631	CJY	Spiked Blank	Total (Wet Wt) Mercury (Hg)	2023/11/03		99	%	75 - 125
B174631	CJY	Method Blank	Total (Wet Wt) Mercury (Hg)	2023/11/03	<0.0010		mg/kg	
B174631	CJY	RPD [CAJ730-01]	Total (Wet Wt) Mercury (Hg)	2023/11/03	1.8		%	40
B174633	CJY	Matrix Spike [CAJ738-01]	Total (Wet Wt) Mercury (Hg)	2023/11/03		67 (1)	%	75 - 125
B174633	CJY	QC Standard	Total (Wet Wt) Mercury (Hg)	2023/11/03		90	%	59 - 141
B174633	CJY	Spiked Blank	Total (Wet Wt) Mercury (Hg)	2023/11/03		97	%	75 - 125
B174633	CJY	Method Blank	Total (Wet Wt) Mercury (Hg)	2023/11/03	<0.0010		mg/kg	
B174633	CJY	RPD [CAJ738-01]	Total (Wet Wt) Mercury (Hg)	2023/11/03	8.2		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377865
Report Date: 2023/11/03

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

08526910

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required
Company:	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only							Depot Reception
	YES	NO	Cooler ID				
Seal Present		✓					
Seal Intact	N/A		Temp	5	6	5	
Cooling Media		✓					
	YES	NO	Cooler ID				
Seal Present							
Seal Intact			Temp				
Cooling Media							
	YES	NO	Cooler ID				
Seal Present							
Seal Intact			Temp				
Cooling Media							

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	VOC / BTEX / VPH	MTBE	VOC / BTEX / F1	LEPH / HEPH / PAH	F2 - F4	Preserved?	Preserved?	Field Preserved?	Field Preserved?	Sulphate	COD	Alkalinity	Ammonia							HOLD - DO NOT ANALYZE	Special Instructions
						BTEXS / VPH		BTEX F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Alkylated PAHs								
1	BAFF23UDPFFHSC1001	2023/07/28	13:15	Tissue	1								X													
2	BAFF23UDPFFHSC1005	2023/07/28	14:02	Tissue	1								X													
3	BAFF23UDPFFHSC1009	2023/07/28	15:30	Tissue	1								X													
4	BAFF23UDPFFHSC1010	2023/07/28	15:49	Tissue	1								X													
5	BAFF23UDPFFHSC1022	2023/07/29	16:23	Tissue	1								X													
6	BAFF23UDPFFHSC1028	2023/07/29	17:05	Tissue	1								X													
7	BAFF23UIPFFHSC1032	2023/07/30	13:17	Tissue	1								X													
8	BAFF23UIPFFHSC1035	2023/07/30	13:35	Tissue	1								X													
9																										
10																										

Regulatory Criteria: ☐ BC CSR ☐ YK CSR ☐ CCME ☐ Drinking Water ☐ BC Water Quality ☐ Other

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
			Hm HARIGNA JOSHI	2023/09/28	09:00	

COC-1020

C377865_COC

08526911

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required
Company:	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Mine Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		✓				
Seal Intact	N/A		Temp	5	6	5
Cooling Media		✓				
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	VOC / BTEXS / VPH	MTBE	BTEXS / VPH	VOC / BTEX / F1	BTEX F1	EPH / HEPH / PAH	PAH	F2 - F4	TEH	EPH	Preserved?	Filtered?	Preserved?	Filtered?	Dissolved Metals	Field Preserved?	Dissolved Mercury	Field Preserved?	Total Metals	Total Mercury	Sulphate	Fluoride	COD	BOD	TDS	Alkalinity	Conductivity	pH	Ammonia	Nitrate	Nitrite	Alkylated PAHs	HOLD - DO NOT ANALYZE
1	✓ BAFF23UREFFHSC2018	2023/08/01	18:09	Tissue	1																			X														
2	✓ BAFF23UREFFHSC2022	2023/08/01	18:35	Tissue	1																			X														
3	✓ BAFF23UREFFHSC2032	2023/08/01	19:45	Tissue	1																			X														
4	✓ BAFF23UREFFHSC2035	2023/08/01	20:07	Tissue	1																			X														
5	✓ BAFF23UREFFHSC2039	2023/08/01	20:30	Tissue	1																			X														
6	✓ BAFF23UREFFHSC2041	2023/08/08	16:17	Tissue	1																			X														
7	✓ BAFF23UREFFHSC2042	2023/08/08	16:29	Tissue	1																			X														
8	✓ BAFF23UREFFHSC2051	2023/08/12	18:35	Tissue	1																			X														
9																																						
10																																						

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

Special Instructions

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
			Hrmi HARIGNA JOSHI	2023/09/28	09:00	

COC-1020

C377865_COC

08526912

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AI, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		✓				
Seal Intact	N/A		Temp	5	6	5
Cooling Media	✓					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	VOC / BTEXS / VPH	MTBE	BTEXS / VPH	VOC / BTEX / F1	BTEX F1	LEPH / HEPH / PAH	PAH	F2 - F4	TEH	EPH	Preserved?	Filtered?	Dissolved Metals	Preserved?	Filtered?	Dissolved Mercury	Total Metals	Field Preserved?	Total Metals	Field Preserved?	Total Mercury	Sulphate	Fluoride	Chloride	COD	BOD	TDS	TSS	Alkalinity	Conductivity	pH	Ammonia	Nitrate	Nitrite	Alkylated PAHs	HOLD - DO NOT ANALYZE	Special Instructions
1	✓ BAFF23UDPFARCH3001	2023/07/29	13:33	Tissue	1																	X																			
2	✓ BAFF23UIPFARCH3003	2023/07/30	9:40	Tissue	1																	X																			
3	✓ BAFF23UIPFARCH3004	2023/08/05	16:20	Tissue	1																	X																			
4	✓ BAFF23UDPFARCH3009	2023/08/10	not recorded	Tissue	1																	X																			
5	✓ BAFF23UDPFARCH3010	2023/08/10	not recorded	Tissue	1																	X																			
6	✓ BAFF23UDPFARCH3012	2023/08/10	not recorded	Tissue	1																	X																			
7	✓ BAFF23UKLKARCH4002	2023/08/08	14:00	Tissue	1																	X																			
8	✓ BAFF23UKLKARCH4008	2023/08/12	13:11	Tissue	1																	X																			
9																																									
10																																									

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-end-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
			HARIGNA JOSHI	2023/09/28	09:00	

COC-1020

C377865_COC

Your Project #: 166372402-70000.03
Site#: MILNE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08528094, 08528095

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2023/12/08
Report #: R3438574
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C391810
Received: 2023/11/09, 11:40

Sample Matrix: Tissue
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mercury in Tissue by CVAF - Wet Wt	12	N/A	2023/12/08	BBY7SOP-00012	EPA 245.7
Elements by ICPMS - Tissue Plug Wet Wt	12	2023/11/28	2023/12/01	BBY7SOP-00021 / BBY7SOP-00002	EPA 6020b R2 m
Moisture in Tissue - Freeze Drying	11	2023/11/28	2023/11/28	BBY7SOP-00021	BCMOE BCLM Aug 2014
Moisture in Tissue - Freeze Drying	1	2023/11/28	2023/11/30	BBY7SOP-00021	BCMOE BCLM Aug 2014

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 166372402-70000.03
Site#: MILNE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08528094, 08528095

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2023/12/08
Report #: R3438574
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C391810
Received: 2023/11/09, 11:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Melissa McIntosh, Customer Solutions Representative
Email: melissa.mcintosh@bureauveritas.com
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Job #: C391810
Report Date: 2023/12/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED034	CED035	CED036		
Sampling Date		2023/08/05	2023/08/05	2023/08/05		
COC Number		08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-1	MLN-HTAR-COMP-METALS-2	MLN-HTAR-COMP-METALS-3	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0273	0.0372	0.0305	0.0010	B215575
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	591	442	1050	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0161	0.0193	0.0441	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	2.23	4.43	5.26	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	6.25	14.5	13.3	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0308	0.0250	0.0508	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0075	0.0081	0.0127	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	6.61	7.00	10.9	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	1.10	1.00	0.518	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	4630	4680	9550	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	1.84	1.45	2.71	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	0.936	1.75	2.00	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	2.08	2.34	3.19	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	1740	2210	4880	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	0.840	1.14	1.62	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	2500	2260	4090	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	110	291	230	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.037	0.042	0.039	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.276	0.414	0.593	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	1.68	1.70	2.94	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1260	1530	1500	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1480	1490	1740	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	1.28	1.77	1.58	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0060	0.0112	0.0078	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	4570	5850	6300	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	18.8	26.0	45.0	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0125	0.0257	0.0242	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	0.043	0.037	0.070	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	19.3	14.1	38.5	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	0.0911	0.132	0.172	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	2.48	3.29	4.98	0.020	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2023/12/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED034	CED035	CED036		
Sampling Date		2023/08/05	2023/08/05	2023/08/05		
COC Number		08528094	08528094	08528094		
	UNITS	**MLN-HTAR-COMP-METALS-1**	**MLN-HTAR-COMP-METALS-2**	**MLN-HTAR-COMP-METALS-3**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	18.5	18.0	17.1	0.20	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED037	CED038	CED039		
Sampling Date		2023/08/05	2023/08/05	2023/08/07		
COC Number		08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-4	MLN-HTAR-COMP-METALS-5	MLN-HTAR-COMP-METALS-6	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0443	0.0373	0.0135	0.0010	B215575
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	421	1770	551	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0108	0.0442	0.0115	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	3.34	4.43	1.67	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	8.37	14.7	2.92	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0265	0.0849	0.0283	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0052	0.0274	0.0062	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	5.52	13.9	5.92	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.823	0.932	0.424	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	5400	10400	7510	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	1.20	4.47	1.54	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	1.04	4.12	1.12	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	1.89	4.04	1.68	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	1240	5090	1470	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	0.612	5.30	0.877	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	2660	5040	3640	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	120	442	133	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.049	0.045	0.015	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.279	0.650	0.268	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	1.34	3.95	1.40	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1150	1350	1050	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1200	1640	1070	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	1.94	1.51	0.668	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0045	0.0217	0.0115	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	4420	4680	3330	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	24.0	36.4	18.6	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0110	0.0449	0.0134	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	0.025	0.101	0.029	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	15.0	52.9	21.0	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	0.113	0.271	0.0753	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	2.17	7.77	2.39	0.020	B215567

RDL = Reportable Detection Limit

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2023/12/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED037	CED038	CED039		
Sampling Date		2023/08/05	2023/08/05	2023/08/07		
COC Number		08528094	08528094	08528094		
	UNITS	**MLN-HTAR-COMP-METALS-4**	**MLN-HTAR-COMP-METALS-5**	**MLN-HTAR-COMP-METALS-6**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	19.3	19.9	7.28	0.20	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2023/12/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED040	CED041	CED042		
Sampling Date		2023/08/07	2023/08/10	2023/08/10		
COC Number		08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-7	MLN-HTAR-COMP-METALS-8	REF-HTAR-COMP-METALS-1	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0155	0.0213	0.0279	0.0010	B215575
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	156	522	501	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0102	0.0097	0.0132	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	1.45	1.77	3.35	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	2.34	5.53	12.0	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0070	0.0257	0.0378	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0028	0.0060	0.0074	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	3.01	5.34	4.17	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.665	0.515	1.79	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	2000	4340	1900	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	0.411	1.51	1.17	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	0.285	0.771	0.854	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	1.41	1.57	1.76	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	397	2540	959	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	0.196	0.494	0.958	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	1140	2150	1220	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	20.1	57.9	75.5	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.018	0.199	0.066	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.133	0.286	0.198	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	0.538	1.36	1.03	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1280	1020	2340	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1230	1170	1410	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	1.06	0.999	1.71	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0042	0.0658	0.0324	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	4130	3990	4150	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	10.3	12.7	13.6	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	0.00388	0.0109	0.00903	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	<0.020	0.048	0.036	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	5.10	18.7	18.7	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	0.0132	0.0622	0.338	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	0.784	2.07	1.94	0.020	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2023/12/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED040	CED041	CED042		
Sampling Date		2023/08/07	2023/08/10	2023/08/10		
COC Number		08528094	08528094	08528094		
	UNITS	**MLN-HTAR-COMP-METALS-7**	**MLN-HTAR-COMP-METALS-8**	**REF-HTAR-COMP-METALS-1**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	10.8	14.7	14.1	0.20	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED043	CED055	CED056		
Sampling Date		2023/08/10	2023/08/11	2023/08/11		
COC Number		08528094	08528095	08528095		
	UNITS	REF-HTAR-COMP-METALS-2	REF-HTAR-COMP-METALS-3	REF-HTAR-COMP-METALS-4	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0233	0.0168	0.0186	0.0010	B215575
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	1190	685	894	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0317	0.0150	0.0165	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	3.56	2.23	2.88	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	12.0	4.83	13.4	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0858	0.0508	0.0634	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0162	0.0091	0.0132	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	7.37	4.17	5.67	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.873	0.698	0.585	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	5950	1630	2590	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	2.63	1.45	1.78	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	1.38	0.928	2.09	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	3.19	2.19	2.72	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	2650	1520	1760	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	2.98	1.76	2.66	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	2110	1420	1690	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	141	82.6	190	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.030	0.020	0.028	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.294	0.211	0.384	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	2.27	1.14	1.59	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1360	1350	1060	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1300	1530	1120	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	1.39	1.25	1.34	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.309	0.0055	0.0150	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	3670	3540	3620	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	46.2	10.7	15.9	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0192	0.0119	0.0170	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	0.083	0.060	0.062	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	48.9	28.6	31.2	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	0.465	0.272	0.416	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	5.07	2.77	3.59	0.020	B215567

RDL = Reportable Detection Limit

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED043	CED055	CED056		
Sampling Date		2023/08/10	2023/08/11	2023/08/11		
COC Number		08528094	08528095	08528095		
	UNITS	**REF-HTAR-COMP-METALS-2**	**REF-HTAR-COMP-METALS-3**	**REF-HTAR-COMP-METALS-4**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	25.5	14.5	18.7	0.20	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

PHYSICAL TESTING (TISSUE)

Bureau Veritas ID		CED034	CED035	CED036	CED037		
Sampling Date		2023/08/05	2023/08/05	2023/08/05	2023/08/05		
COC Number		08528094	08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-1	MLN-HTAR-COMP-METALS-2	MLN-HTAR-COMP-METALS-3	MLN-HTAR-COMP-METALS-4	RDL	QC Batch
Physical Properties							
Sample Wet Weight	%	0.24	0.29	0.22	0.31	N/A	B215572
Moisture	%	78	78	74	77	0.30	B215572

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas ID		CED038	CED039	CED040	CED041		
Sampling Date		2023/08/05	2023/08/07	2023/08/07	2023/08/10		
COC Number		08528094	08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-5	MLN-HTAR-COMP-METALS-6	MLN-HTAR-COMP-METALS-7	MLN-HTAR-COMP-METALS-8	RDL	QC Batch
Physical Properties							
Sample Wet Weight	%	0.40	0.39	0.26	0.38	N/A	B215572
Moisture	%	72	83	61	73	0.30	B215572

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas ID		CED042	CED043	CED055	CED056		
Sampling Date		2023/08/10	2023/08/10	2023/08/11	2023/08/11		
COC Number		08528094	08528094	08528095	08528095		
	UNITS	REF-HTAR-COMP-METALS-1	REF-HTAR-COMP-METALS-2	REF-HTAR-COMP-METALS-3	REF-HTAR-COMP-METALS-4	RDL	QC Batch
Physical Properties							
Sample Wet Weight	%	0.23	0.26	0.27	0.26	N/A	B215572
Moisture	%	76	76	77	78	0.30	B215572

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B215567	MEM	QC Standard	Total (Wet Wt) Antimony (Sb)	2023/12/01		65	%	N/A
			Total (Wet Wt) Arsenic (As)	2023/12/01		92	%	N/A
			Total (Wet Wt) Cadmium (Cd)	2023/12/01		88	%	N/A
			Total (Wet Wt) Calcium (Ca)	2023/12/01		90	%	N/A
			Total (Wet Wt) Cobalt (Co)	2023/12/01		87	%	N/A
			Total (Wet Wt) Copper (Cu)	2023/12/01		91	%	N/A
			Total (Wet Wt) Iron (Fe)	2023/12/01		98	%	N/A
			Total (Wet Wt) Lead (Pb)	2023/12/01		94	%	N/A
			Total (Wet Wt) Manganese (Mn)	2023/12/01		93	%	N/A
			Total (Wet Wt) Mercury (Hg)	2023/12/01		80	%	N/A
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01		93	%	N/A
			Total (Wet Wt) Phosphorus (P)	2023/12/01		92	%	N/A
			Total (Wet Wt) Potassium (K)	2023/12/01		100	%	N/A
			Total (Wet Wt) Selenium (Se)	2023/12/01		87	%	N/A
			Total (Wet Wt) Silver (Ag)	2023/12/01		89	%	N/A
			Total (Wet Wt) Sodium (Na)	2023/12/01		104	%	N/A
			Total (Wet Wt) Strontium (Sr)	2023/12/01		90	%	N/A
			Total (Wet Wt) Thallium (Tl)	2023/12/01		86	%	N/A
			Total (Wet Wt) Tin (Sn)	2023/12/01		87	%	N/A
			Total (Wet Wt) Uranium (U)	2023/12/01		0.00000	%	N/A
			Total (Wet Wt) Vanadium (V)	2023/12/01		89	%	N/A
			Total (Wet Wt) Zinc (Zn)	2023/12/01		87	%	N/A
B215567	MEM	Spiked Blank	Total (Wet Wt) Aluminum (Al)	2023/12/01		108	%	80 - 120
			Total (Wet Wt) Antimony (Sb)	2023/12/01		103	%	80 - 120
			Total (Wet Wt) Arsenic (As)	2023/12/01		101	%	80 - 120
			Total (Wet Wt) Barium (Ba)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Beryllium (Be)	2023/12/01		100	%	80 - 120
			Total (Wet Wt) Bismuth (Bi)	2023/12/01		102	%	80 - 120
			Total (Wet Wt) Boron (B)	2023/12/01		107	%	80 - 120
			Total (Wet Wt) Cadmium (Cd)	2023/12/01		99	%	80 - 120
			Total (Wet Wt) Calcium (Ca)	2023/12/01		108	%	80 - 120
			Total (Wet Wt) Chromium (Cr)	2023/12/01		105	%	80 - 120
			Total (Wet Wt) Cobalt (Co)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Copper (Cu)	2023/12/01		101	%	80 - 120
			Total (Wet Wt) Iron (Fe)	2023/12/01		110	%	80 - 120
			Total (Wet Wt) Lead (Pb)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Magnesium (Mg)	2023/12/01		109	%	80 - 120
			Total (Wet Wt) Manganese (Mn)	2023/12/01		105	%	80 - 120
			Total (Wet Wt) Mercury (Hg)	2023/12/01		102	%	80 - 120
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Nickel (Ni)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Phosphorus (P)	2023/12/01		100	%	80 - 120
			Total (Wet Wt) Potassium (K)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Selenium (Se)	2023/12/01		100	%	80 - 120
			Total (Wet Wt) Silver (Ag)	2023/12/01		103	%	80 - 120
			Total (Wet Wt) Sodium (Na)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Strontium (Sr)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Thallium (Tl)	2023/12/01		105	%	80 - 120
			Total (Wet Wt) Tin (Sn)	2023/12/01		103	%	80 - 120
			Total (Wet Wt) Titanium (Ti)	2023/12/01		110	%	80 - 120
			Total (Wet Wt) Uranium (U)	2023/12/01		107	%	80 - 120
			Total (Wet Wt) Vanadium (V)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Zinc (Zn)	2023/12/01		101	%	80 - 120

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B215567	MEM	Method Blank	Total (Wet Wt) Aluminum (Al)	2023/12/01	<0.50		mg/kg	
			Total (Wet Wt) Antimony (Sb)	2023/12/01	<0.0020		mg/kg	
			Total (Wet Wt) Arsenic (As)	2023/12/01	<0.0050		mg/kg	
			Total (Wet Wt) Barium (Ba)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Beryllium (Be)	2023/12/01	<0.0020		mg/kg	
			Total (Wet Wt) Bismuth (Bi)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Boron (B)	2023/12/01	<0.20		mg/kg	
			Total (Wet Wt) Cadmium (Cd)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Calcium (Ca)	2023/12/01	<4.0		mg/kg	
			Total (Wet Wt) Chromium (Cr)	2023/12/01	<0.025		mg/kg	
			Total (Wet Wt) Cobalt (Co)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Copper (Cu)	2023/12/01	<0.013		mg/kg	
			Total (Wet Wt) Iron (Fe)	2023/12/01	<0.25		mg/kg	
			Total (Wet Wt) Lead (Pb)	2023/12/01	0.0020, RDL=0.0013 (1)		mg/kg	
			Total (Wet Wt) Magnesium (Mg)	2023/12/01	<0.40		mg/kg	
			Total (Wet Wt) Manganese (Mn)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Mercury (Hg)	2023/12/01	<0.013		mg/kg	
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01	<0.0080		mg/kg	
			Total (Wet Wt) Nickel (Ni)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Phosphorus (P)	2023/12/01	<2.0		mg/kg	
			Total (Wet Wt) Potassium (K)	2023/12/01	<2.5		mg/kg	
			Total (Wet Wt) Selenium (Se)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Silver (Ag)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Sodium (Na)	2023/12/01	<2.5		mg/kg	
			Total (Wet Wt) Strontium (Sr)	2023/12/01	<0.013		mg/kg	
			Total (Wet Wt) Thallium (Tl)	2023/12/01	<0.00040		mg/kg	
			Total (Wet Wt) Tin (Sn)	2023/12/01	<0.020		mg/kg	
			Total (Wet Wt) Titanium (Ti)	2023/12/01	<0.13		mg/kg	
			Total (Wet Wt) Uranium (U)	2023/12/01	<0.00040		mg/kg	
			Total (Wet Wt) Vanadium (V)	2023/12/01	<0.020		mg/kg	
			Total (Wet Wt) Zinc (Zn)	2023/12/01	<0.20		mg/kg	
B215567	MEM	RPD [CED034-01]	Total (Wet Wt) Aluminum (Al)	2023/12/01	3.4		%	40
			Total (Wet Wt) Antimony (Sb)	2023/12/01	16		%	40
			Total (Wet Wt) Arsenic (As)	2023/12/01	2.3		%	40
			Total (Wet Wt) Barium (Ba)	2023/12/01	2.5		%	40
			Total (Wet Wt) Beryllium (Be)	2023/12/01	9.4		%	40
			Total (Wet Wt) Bismuth (Bi)	2023/12/01	4.1		%	40
			Total (Wet Wt) Boron (B)	2023/12/01	10		%	40
			Total (Wet Wt) Cadmium (Cd)	2023/12/01	2.7		%	40
			Total (Wet Wt) Calcium (Ca)	2023/12/01	5.8		%	60
			Total (Wet Wt) Chromium (Cr)	2023/12/01	4.4		%	40
			Total (Wet Wt) Cobalt (Co)	2023/12/01	3.7		%	40
			Total (Wet Wt) Copper (Cu)	2023/12/01	4.3		%	40
			Total (Wet Wt) Iron (Fe)	2023/12/01	5.3		%	40
			Total (Wet Wt) Lead (Pb)	2023/12/01	2.6		%	40
			Total (Wet Wt) Magnesium (Mg)	2023/12/01	3.6		%	40
			Total (Wet Wt) Manganese (Mn)	2023/12/01	3.6		%	40
			Total (Wet Wt) Mercury (Hg)	2023/12/01	14		%	40
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01	2.2		%	40
			Total (Wet Wt) Nickel (Ni)	2023/12/01	5.5		%	40
			Total (Wet Wt) Phosphorus (P)	2023/12/01	3.1		%	40
			Total (Wet Wt) Potassium (K)	2023/12/01	3.3		%	40

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total (Wet Wt) Selenium (Se)	2023/12/01	2.4		%	40
			Total (Wet Wt) Silver (Ag)	2023/12/01	1.7		%	40
			Total (Wet Wt) Sodium (Na)	2023/12/01	3.0		%	40
			Total (Wet Wt) Strontium (Sr)	2023/12/01	2.4		%	60
			Total (Wet Wt) Thallium (Tl)	2023/12/01	1.5		%	40
			Total (Wet Wt) Tin (Sn)	2023/12/01	13		%	40
			Total (Wet Wt) Titanium (Ti)	2023/12/01	4.8		%	40
			Total (Wet Wt) Uranium (U)	2023/12/01	2.6		%	40
			Total (Wet Wt) Vanadium (V)	2023/12/01	2.8		%	40
			Total (Wet Wt) Zinc (Zn)	2023/12/01	1.5		%	40
B215572	ERE	RPD [CED034-01]	Sample Wet Weight	2023/11/28	0.66		%	N/A
			Moisture	2023/11/28	1.5		%	20
B215575	CJY	Matrix Spike [CED034-01]	Total (Wet Wt) Mercury (Hg)	2023/12/08		81	%	80 - 120
B215575	CJY	QC Standard	Total (Wet Wt) Mercury (Hg)	2023/12/08		73	%	59 - 141
B215575	CJY	Spiked Blank	Total (Wet Wt) Mercury (Hg)	2023/12/08		108	%	80 - 120
B215575	CJY	Method Blank	Total (Wet Wt) Mercury (Hg)	2023/12/08	<0.0010		mg/kg	
B215575	CJY	RPD [CED034-01]	Total (Wet Wt) Mercury (Hg)	2023/12/08	5.6		%	40

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

(1) Method Blank exceeds acceptance limits. Sample values are >10x the concentration of the method blank and the contamination is considered irrelevant.

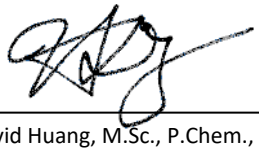
Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2023/12/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

08528094

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required	
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)	
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)	
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days	
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days	
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:	
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:	

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		—				
Seal Intact		—	Temp	9	8	6
Cooling Media	—					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	☐ BTEXS / VPH	☐ VOC / BTEXS / VPH	☐ BTEX F1	☐ VOC / BTEX / F1	☐ PAH	☐ LEPH / HEPH / PAH	☐ EPH	☐ TEH	☐ F2 - F4	☐ Dissolved Metals	☐ Filtered?	☐ Preserved?	☐ Dissolved Mercury	☐ Filtered?	☐ Preserved?	☑ Total Metals	☐ Field Preserved?	☐ Total Mercury	☐ Field Preserved?	☐ Chloride	☐ Fluoride	☐ Sulphate	☐ TSS	☐ TDS	☐ COD	☐ BOD	☐ pH	☐ Alkalinity	☐ Conductivity	☐ Nitrite	☐ Ammonia	☐ Nitrate	☐ Alkylated PAHs	☐	☐	☐	☐	☐	☐	HOLD - DO NOT ANALYZE	Special Instructions *Composite based on following composite #s*
1	BAFF23UMLNHTAR1502			Tissue	1																X																									MLN-HTAR-COMP-METALS-6
2	BAFF23UMLNHTAR1504			Tissue	1																X																									MLN-HTAR-COMP-METALS-1
3	BAFF23UMLNHTAR1506			Tissue	1																X																									MLN-HTAR-COMP-METALS-3
4	BAFF23UMLNHTAR1507			Tissue	1																X																									MLN-HTAR-COMP-METALS-2
5	BAFF23UMLNHTAR1508			Tissue	1																X																									MLN-HTAR-COMP-METALS-2
6	BAFF23UMLNHTAR1518			Tissue	1																X																									MLN-HTAR-COMP-METALS-1
7	BAFF23UMLNHTAR1519			Tissue	1																X																									MLN-HTAR-COMP-METALS-5
8	BAFF23UMLNHTAR1523			Tissue	1																X																									MLN-HTAR-COMP-METALS-4
9	BAFF23UMLNHTAR1524			Tissue	1																X																									MLN-HTAR-COMP-METALS-4
10	BAFF23UMLNHTAR1525			Tissue	1																X																									MLN-HTAR-COMP-METALS-7

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
Micayla Drew Micayla Drew	2023/11/08	13:00	Marta Zamora	2023/11/09	11:40	

COC-1020

ICE frozen

C391810_COC

08528095

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required	
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)	
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)	
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days	
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days	
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:	
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:	

Laboratory Use Only							Depot Reception
	YES	NO	Cooler ID				
Seal Present		~	Temp	9	8	6	
Seal Intact		~					
Cooling Media	~						
	YES	NO	Cooler ID				
Seal Present			Temp				
Seal Intact							
Cooling Media							
	YES	NO	Cooler ID				
Seal Present			Temp				
Seal Intact							
Cooling Media							

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	BTEXS / VPH	VOC / BTEXS / VPH	BTEX F1	VOC / BTEX / F1	PAH	LEPH / HEPH / PAH	EPH	F2 - F4	TEH	Dissolved Metals	Filtered?	Preserved?	Dissolved Mercury	Filtered?	Preserved?	Total Metals	Field Preserved?	Total Mercury	Field Preserved?	Chloride	Fluoride	Sulphate	TSS	TDS	COD	BOD	pH	Conductivity	Alkalinity	Nitrite	Nitrate	Ammonia	Alkylated PAHs					HOLD - DO NOT ANALYZE	Regulatory Criteria / Special Instructions
						☐	☐ VOC / BTEXS / VPH	☐	☐ VOC / BTEX / F1	☐	☐ LEPH / HEPH / PAH	☐	☐ F2 - F4	☐ TEH	☐	☐ Filtered?	☐ Preserved?	☐	☐ Filtered?	☐ Preserved?	☐	☐ Field Preserved?	☐	☐ Field Preserved?	☐	☐ Fluoride	☐	☐ TDS	☐	☐ BOD	☐	☐ Conductivity	☐	☐ Nitrite	☐ Nitrate	☐	☐						☐ BC CSR ☐ YK CSR ☐ CCME ☐ Drinking Water ☐ BC Water Quality ☐ Other
1	BAFF23UMLNHTAR1526			Tissue	1																X																						MLN-HTAR-COMP-METALS-3
2	BAFF23UMLNHTAR1527			Tissue	1																X																						MLN-HTAR-COMP-METALS-6
3	BAFF23UMLNHTAR1528			Tissue	1																X																						MLN-HTAR-COMP-METALS-4
4	BAFF23UMLNHTAR1530			Tissue	1																X																						MLN-HTAR-COMP-METALS-8
5	BAFF23UMLNHTAR1531			Tissue	1																X																						MLN-HTAR-COMP-METALS-5
6	BAFF23UMLNHTAR1532			Tissue	1																X																						MLN-HTAR-COMP-METALS-7
7	BAFF23UMLNHTAR1534			Tissue	1																X																						MLN-HTAR-COMP-METALS-6
8	BAFF23UMLNHTAR1537			Tissue	1																X																						MLN-HTAR-COMP-METALS-8
9	BAFF23UMLNHTAR1540			Tissue	1																X																						MLN-HTAR-COMP-METALS-7
10																																											

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):
Micayla Drew Micayla Drew	2023/11/08	13:00	Maria Zerrou	2023/11/09	11:40

COC-1020

ICE frozen

C391810_COC

08528096

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required
Company:	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		~				
Seal Intact		~	Temp	9	8	6
Cooling Media	~					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	BTEX / VPH	VOC / BTEX / VPH	BTEX F1	VOC / BTEX / F1	PAH	LEPH / HEPH / PAH	EPH	F2 - F4	TEH	Dissolved Metals	Filtered?	Dissolved Mercury	Filtered?	Total Metals	Preserved?	Total Mercury	Field Preserved?	Chloride	Fluoride	TSS	TDS	pH	Conductivity	Nitrite	Nitrate	Alkylated PAHs	MTBE	COD	BOD	Alkalinity	Ammonia	HOLD - DO NOT ANALYZE	Regulatory Criteria / Special Instructions
1 BAFF23UREFHTAR2501			Tissue	1														X																			REF-HTAR-COMP-METALS-1
2 BAFF23UREFHTAR2505			Tissue	1														X																			REF-HTAR-COMP-METALS-4
3 BAFF23UREFHTAR2507			Tissue	1														X																			REF-HTAR-COMP-METALS-2
4 BAFF23UREFHTAR2508			Tissue	1														X																			REF-HTAR-COMP-METALS-1
5 BAFF23UREFHTAR2511			Tissue	1														X																			REF-HTAR-COMP-METALS-4
6 BAFF23UREFHTAR2513			Tissue	1														X																			REF-HTAR-COMP-METALS-2
7 BAFF23UREFHTAR2514			Tissue	1														X																			REF-HTAR-COMP-METALS-3
8 BAFF23UREFHTAR2515			Tissue	1														X																			REF-HTAR-COMP-METALS-3
9 BAFF23UREFHTAR2516			Tissue	1														X																			REF-HTAR-COMP-METALS-3
10																																					

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):
Micayla Drew Micayla Drew	2023/11/08	13:00	Marta Zarnoch	2023/11/09	11:40

COC-1020

ICE frozen.

C391810_COC

Your Project #: 166372402-70000.03
Site#: MILNE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08528094, 08528095

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2024/01/23
Report #: R3454687
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C391810
Received: 2023/11/09, 11:40

Sample Matrix: Tissue
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mercury in Tissue by CVAF - Wet Wt	12	N/A	2023/12/08	BBY7SOP-00012	EPA 245.7
Elements by ICPMS - Tissue Plug Wet Wt	12	2023/11/28	2023/12/01	BBY7SOP-00021 / BBY7SOP-00002	EPA 6020b R2 m
Moisture in Tissue - Freeze Drying	11	2023/11/28	2023/11/28	BBY7SOP-00021	BCMOE BCLM Aug 2014
Moisture in Tissue - Freeze Drying	1	2023/11/28	2023/11/30	BBY7SOP-00021	BCMOE BCLM Aug 2014

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 166372402-70000.03
Site#: MILNE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08528094, 08528095

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2024/01/23
Report #: R3454687
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C391810
Received: 2023/11/09, 11:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Melissa McIntosh, Customer Solutions Representative
Email: melissa.mcintosh@bureauveritas.com
Phone# (604) 734 7276

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Job #: C391810
Report Date: 2024/01/23

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED034	CED035	CED036		
Sampling Date		2023/08/05	2023/08/05	2023/08/05		
COC Number		08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-1	MLN-HTAR-COMP-METALS-2	MLN-HTAR-COMP-METALS-3	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0273	0.0372	0.0305	0.0010	B215575
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	591	442	1050	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0161	0.0193	0.0441	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	2.23	4.43	5.26	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	6.25	14.5	13.3	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0308	0.0250	0.0508	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0075	0.0081	0.0127	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	6.61	7.00	10.9	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	1.10	1.00	0.518	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	4630	4680	9550	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	1.84	1.45	2.71	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	0.936	1.75	2.00	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	2.08	2.34	3.19	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	1740	2210	4880	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	0.840	1.14	1.62	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	2500	2260	4090	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	110	291	230	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.037	0.042	0.039	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.276	0.414	0.593	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	1.68	1.70	2.94	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1260	1530	1500	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1480	1490	1740	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	1.28	1.77	1.58	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0060	0.0112	0.0078	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	4570	5850	6300	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	18.8	26.0	45.0	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0125	0.0257	0.0242	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	0.043	0.037	0.070	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	19.3	14.1	38.5	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	0.0911	0.132	0.172	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	2.48	3.29	4.98	0.020	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED034	CED035	CED036		
Sampling Date		2023/08/05	2023/08/05	2023/08/05		
COC Number		08528094	08528094	08528094		
	UNITS	**MLN-HTAR-COMP-METALS-1**	**MLN-HTAR-COMP-METALS-2**	**MLN-HTAR-COMP-METALS-3**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	18.5	18.0	17.1	0.20	B215567
RDL = Reportable Detection Limit						

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED037	CED038		CED038		
Sampling Date		2023/08/05	2023/08/05		2023/08/05		
COC Number		08528094	08528094		08528094		
	UNITS	MLN-HTAR-COMP-METALS-4	MLN-HTAR-COMP-METALS-5	QC Batch	MLN-HTAR-COMP-METALS-5 REPEAT	RDL	QC Batch
Mercury by CVAF							
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0443	0.0373	B215575	N/A	0.0010	B215575
Total Metals by ICPMS							
Total (Wet Wt) Aluminum (Al)	mg/kg	421	1770	B215567	N/A	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0108	0.0442	B215567	N/A	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	3.34	4.43	B215567	N/A	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	8.37	14.7	B215567	N/A	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0265	0.0849	B215567	N/A	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0052	0.0274	B215567	N/A	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	5.52	13.9	B215567	N/A	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.823	0.932	B215567	N/A	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	5400	10400	B215567	N/A	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	1.20	4.47	B215567	N/A	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	1.04	4.12	B215567	N/A	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	1.89	4.04	B215567	N/A	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	1240	5090	B215567	N/A	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	0.612	5.30	B215567	1.97	0.0013	B251581
Total (Wet Wt) Magnesium (Mg)	mg/kg	2660	5040	B215567	N/A	0.40	N/A
Total (Wet Wt) Manganese (Mn)	mg/kg	120	442	B215567	N/A	0.010	N/A
Total (Wet Wt) Mercury (Hg)	mg/kg	0.049	0.045	B215567	N/A	0.013	N/A
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.279	0.650	B215567	N/A	0.0080	N/A
Total (Wet Wt) Nickel (Ni)	mg/kg	1.34	3.95	B215567	N/A	0.010	N/A
Total (Wet Wt) Phosphorus (P)	mg/kg	1150	1350	B215567	N/A	2.0	N/A
Total (Wet Wt) Potassium (K)	mg/kg	1200	1640	B215567	N/A	2.5	N/A
Total (Wet Wt) Selenium (Se)	mg/kg	1.94	1.51	B215567	N/A	0.010	N/A
Total (Wet Wt) Silver (Ag)	mg/kg	0.0045	0.0217	B215567	N/A	0.0013	N/A
Total (Wet Wt) Sodium (Na)	mg/kg	4420	4680	B215567	N/A	2.5	N/A
Total (Wet Wt) Strontium (Sr)	mg/kg	24.0	36.4	B215567	N/A	0.013	N/A
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0110	0.0449	B215567	N/A	0.00040	N/A
Total (Wet Wt) Tin (Sn)	mg/kg	0.025	0.101	B215567	N/A	0.020	N/A
Total (Wet Wt) Titanium (Ti)	mg/kg	15.0	52.9	B215567	N/A	0.13	N/A
Total (Wet Wt) Uranium (U)	mg/kg	0.113	0.271	B215567	N/A	0.00040	N/A
Total (Wet Wt) Vanadium (V)	mg/kg	2.17	7.77	B215567	N/A	0.020	N/A

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED037	CED038		CED038		
Sampling Date		2023/08/05	2023/08/05		2023/08/05		
COC Number		08528094	08528094		08528094		
	UNITS	**MLN-HTAR-COMP-METALS-4**	**MLN-HTAR-COMP-METALS-5**	**QC Batch**	**MLN-HTAR-COMP-METALS-5 REPEAT**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	19.3	19.9	B215567	N/A	0.20	N/A

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2024/01/23

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED038		CED039	CED040		
Sampling Date		2023/08/05		2023/08/07	2023/08/07		
COC Number		08528094		08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-5 REPEAT	QC Batch	MLN-HTAR-COMP-METALS-6	MLN-HTAR-COMP-METALS-7	RDL	QC Batch
Mercury by CVAF							
Total (Wet Wt) Mercury (Hg)	mg/kg	N/A	B215575	0.0135	0.0155	0.0010	B215575
Total Metals by ICPMS							
Total (Wet Wt) Aluminum (Al)	mg/kg	N/A	B215567	551	156	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	N/A	B215567	0.0115	0.0102	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	N/A	B215567	1.67	1.45	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	N/A	B215567	2.92	2.34	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	N/A	B215567	0.0283	0.0070	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	N/A	B215567	0.0062	0.0028	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	N/A	B215567	5.92	3.01	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	N/A	B215567	0.424	0.665	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	N/A	B215567	7510	2000	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	N/A	B215567	1.54	0.411	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	N/A	B215567	1.12	0.285	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	N/A	B215567	1.68	1.41	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	N/A	B215567	1470	397	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	<0.0013	B259747	0.877	0.196	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	N/A	N/A	3640	1140	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	N/A	N/A	133	20.1	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	N/A	N/A	0.015	0.018	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	N/A	N/A	0.268	0.133	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	N/A	N/A	1.40	0.538	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	N/A	N/A	1050	1280	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	N/A	N/A	1070	1230	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	N/A	N/A	0.668	1.06	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	N/A	N/A	0.0115	0.0042	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	N/A	N/A	3330	4130	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	N/A	N/A	18.6	10.3	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	N/A	N/A	0.0134	0.00388	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	N/A	N/A	0.029	<0.020	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	N/A	N/A	21.0	5.10	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	N/A	N/A	0.0753	0.0132	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	N/A	N/A	2.39	0.784	0.020	B215567

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED038		CED039	CED040		
Sampling Date		2023/08/05		2023/08/07	2023/08/07		
COC Number		08528094		08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-5 REPEAT	QC Batch	MLN-HTAR-COMP-METALS-6	MLN-HTAR-COMP-METALS-7	RDL	QC Batch
Total (Wet Wt) Zinc (Zn)	mg/kg	N/A	N/A	7.28	10.8	0.20	B215567

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED041		CED041		
Sampling Date		2023/08/10		2023/08/10		
COC Number		08528094		08528094		
	UNITS	MLN-HTAR-COMP-METALS-8	QC Batch	MLN-HTAR-COMP-METALS-8 REPEAT	RDL	QC Batch
Mercury by CVAF						
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0213	B215575	N/A	0.0010	B215575
Total Metals by ICPMS						
Total (Wet Wt) Aluminum (Al)	mg/kg	522	B215567	N/A	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0097	B215567	N/A	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	1.77	B215567	N/A	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	5.53	B215567	N/A	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0257	B215567	N/A	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0060	B215567	N/A	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	5.34	B215567	N/A	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.515	B215567	N/A	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	4340	B215567	N/A	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	1.51	B215567	N/A	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	0.771	B215567	N/A	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	1.57	B215567	N/A	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	2540	B215567	N/A	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	0.494	B215567	N/A	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	2150	B215567	N/A	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	57.9	B215567	N/A	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.199	B215567	N/A	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.286	B215567	N/A	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	1.36	B215567	N/A	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1020	B215567	N/A	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1170	B215567	N/A	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	0.999	B215567	N/A	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0658	B215567	0.0164	0.0013	B251581
Total (Wet Wt) Sodium (Na)	mg/kg	3990	B215567	N/A	2.5	N/A
Total (Wet Wt) Strontium (Sr)	mg/kg	12.7	B215567	N/A	0.013	N/A
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0109	B215567	N/A	0.00040	N/A
Total (Wet Wt) Tin (Sn)	mg/kg	0.048	B215567	N/A	0.020	N/A
Total (Wet Wt) Titanium (Ti)	mg/kg	18.7	B215567	N/A	0.13	N/A
Total (Wet Wt) Uranium (U)	mg/kg	0.0622	B215567	N/A	0.00040	N/A
Total (Wet Wt) Vanadium (V)	mg/kg	2.07	B215567	N/A	0.020	N/A

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED041		CED041		
Sampling Date		2023/08/10		2023/08/10		
COC Number		08528094		08528094		
	UNITS	**MLN-HTAR-COMP-METALS-8**	**QC Batch**	**MLN-HTAR-COMP-METALS-8 REPEAT**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	14.7	B215567	N/A	0.20	N/A

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED041		CED042	CED043		
Sampling Date		2023/08/10		2023/08/10	2023/08/10		
COC Number		08528094		08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-8 REPEAT	QC Batch	REF-HTAR-COMP-METALS-1	REF-HTAR-COMP-METALS-2	RDL	QC Batch
Mercury by CVAF							
Total (Wet Wt) Mercury (Hg)	mg/kg	N/A	B215575	0.0279	0.0233	0.0010	B215575
Total Metals by ICPMS							
Total (Wet Wt) Aluminum (Al)	mg/kg	N/A	B215567	501	1190	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	N/A	B215567	0.0132	0.0317	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	N/A	B215567	3.35	3.56	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	N/A	B215567	12.0	12.0	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	N/A	B215567	0.0378	0.0858	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	N/A	B215567	0.0074	0.0162	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	N/A	B215567	4.17	7.37	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	N/A	B215567	1.79	0.873	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	N/A	B215567	1900	5950	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	N/A	B215567	1.17	2.63	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	N/A	B215567	0.854	1.38	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	N/A	B215567	1.76	3.19	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	N/A	B215567	959	2650	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	N/A	B215567	0.958	2.98	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	N/A	B215567	1220	2110	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	N/A	B215567	75.5	141	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	N/A	B215567	0.066	0.030	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	N/A	B215567	0.198	0.294	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	N/A	B215567	1.03	2.27	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	N/A	B215567	2340	1360	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	N/A	B215567	1410	1300	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	N/A	B215567	1.71	1.39	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0065	B259747	0.0324	0.309	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	N/A	N/A	4150	3670	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	N/A	N/A	13.6	46.2	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	N/A	N/A	0.00903	0.0192	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	N/A	N/A	0.036	0.083	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	N/A	N/A	18.7	48.9	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	N/A	N/A	0.338	0.465	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	N/A	N/A	1.94	5.07	0.020	B215567

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED041		CED042	CED043		
Sampling Date		2023/08/10		2023/08/10	2023/08/10		
COC Number		08528094		08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-8 REPEAT	QC Batch	REF-HTAR-COMP-METALS-1	REF-HTAR-COMP-METALS-2	RDL	QC Batch
Total (Wet Wt) Zinc (Zn)	mg/kg	N/A	N/A	14.1	25.5	0.20	B215567

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas ID		CED043		CED043		
Sampling Date		2023/08/10		2023/08/10		
COC Number		08528094		08528094		
	UNITS	REF-HTAR-COMP-METALS-2 REPEAT	QC Batch	REF-HTAR-COMP-METALS-2 REPEAT	RDL	QC Batch
Total Metals by ICPMS						
Total (Wet Wt) Silver (Ag)	mg/kg	0.0304	B251581	0.0383	0.0013	B259747

RDL = Reportable Detection Limit

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED055	CED056		
Sampling Date		2023/08/11	2023/08/11		
COC Number		08528095	08528095		
	UNITS	REF-HTAR-COMP-METALS-3	REF-HTAR-COMP-METALS-4	RDL	QC Batch
Mercury by CVAF					
Total (Wet Wt) Mercury (Hg)	mg/kg	0.0168	0.0186	0.0010	B215575
Total Metals by ICPMS					
Total (Wet Wt) Aluminum (Al)	mg/kg	685	894	0.50	B215567
Total (Wet Wt) Antimony (Sb)	mg/kg	0.0150	0.0165	0.0020	B215567
Total (Wet Wt) Arsenic (As)	mg/kg	2.23	2.88	0.0050	B215567
Total (Wet Wt) Barium (Ba)	mg/kg	4.83	13.4	0.010	B215567
Total (Wet Wt) Beryllium (Be)	mg/kg	0.0508	0.0634	0.0020	B215567
Total (Wet Wt) Bismuth (Bi)	mg/kg	0.0091	0.0132	0.0013	B215567
Total (Wet Wt) Boron (B)	mg/kg	4.17	5.67	0.20	B215567
Total (Wet Wt) Cadmium (Cd)	mg/kg	0.698	0.585	0.0013	B215567
Total (Wet Wt) Calcium (Ca)	mg/kg	1630	2590	4.0	B215567
Total (Wet Wt) Chromium (Cr)	mg/kg	1.45	1.78	0.025	B215567
Total (Wet Wt) Cobalt (Co)	mg/kg	0.928	2.09	0.0013	B215567
Total (Wet Wt) Copper (Cu)	mg/kg	2.19	2.72	0.013	B215567
Total (Wet Wt) Iron (Fe)	mg/kg	1520	1760	0.25	B215567
Total (Wet Wt) Lead (Pb)	mg/kg	1.76	2.66	0.0013	B215567
Total (Wet Wt) Magnesium (Mg)	mg/kg	1420	1690	0.40	B215567
Total (Wet Wt) Manganese (Mn)	mg/kg	82.6	190	0.010	B215567
Total (Wet Wt) Mercury (Hg)	mg/kg	0.020	0.028	0.013	B215567
Total (Wet Wt) Molybdenum (Mo)	mg/kg	0.211	0.384	0.0080	B215567
Total (Wet Wt) Nickel (Ni)	mg/kg	1.14	1.59	0.010	B215567
Total (Wet Wt) Phosphorus (P)	mg/kg	1350	1060	2.0	B215567
Total (Wet Wt) Potassium (K)	mg/kg	1530	1120	2.5	B215567
Total (Wet Wt) Selenium (Se)	mg/kg	1.25	1.34	0.010	B215567
Total (Wet Wt) Silver (Ag)	mg/kg	0.0055	0.0150	0.0013	B215567
Total (Wet Wt) Sodium (Na)	mg/kg	3540	3620	2.5	B215567
Total (Wet Wt) Strontium (Sr)	mg/kg	10.7	15.9	0.013	B215567
Total (Wet Wt) Thallium (Tl)	mg/kg	0.0119	0.0170	0.00040	B215567
Total (Wet Wt) Tin (Sn)	mg/kg	0.060	0.062	0.020	B215567
Total (Wet Wt) Titanium (Ti)	mg/kg	28.6	31.2	0.13	B215567
Total (Wet Wt) Uranium (U)	mg/kg	0.272	0.416	0.00040	B215567
Total (Wet Wt) Vanadium (V)	mg/kg	2.77	3.59	0.020	B215567
RDL = Reportable Detection Limit					

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Bureau Veritas ID		CED055	CED056		
Sampling Date		2023/08/11	2023/08/11		
COC Number		08528095	08528095		
	UNITS	**REF-HTAR-COMP-METALS-3**	**REF-HTAR-COMP-METALS-4**	**RDL**	**QC Batch**
Total (Wet Wt) Zinc (Zn)	mg/kg	14.5	18.7	0.20	B215567
RDL = Reportable Detection Limit					

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

PHYSICAL TESTING (TISSUE)

Bureau Veritas ID		CED034	CED035	CED036	CED037		
Sampling Date		2023/08/05	2023/08/05	2023/08/05	2023/08/05		
COC Number		08528094	08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-1	MLN-HTAR-COMP-METALS-2	MLN-HTAR-COMP-METALS-3	MLN-HTAR-COMP-METALS-4	RDL	QC Batch
Physical Properties							
Sample Wet Weight	%	0.24	0.29	0.22	0.31	N/A	B215572
Moisture	%	78	78	74	77	0.30	B215572

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas ID		CED038	CED039	CED040	CED041		
Sampling Date		2023/08/05	2023/08/07	2023/08/07	2023/08/10		
COC Number		08528094	08528094	08528094	08528094		
	UNITS	MLN-HTAR-COMP-METALS-5	MLN-HTAR-COMP-METALS-6	MLN-HTAR-COMP-METALS-7	MLN-HTAR-COMP-METALS-8	RDL	QC Batch
Physical Properties							
Sample Wet Weight	%	0.40	0.39	0.26	0.38	N/A	B215572
Moisture	%	72	83	61	73	0.30	B215572

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas ID		CED042	CED043	CED055	CED056		
Sampling Date		2023/08/10	2023/08/10	2023/08/11	2023/08/11		
COC Number		08528094	08528094	08528095	08528095		
	UNITS	REF-HTAR-COMP-METALS-1	REF-HTAR-COMP-METALS-2	REF-HTAR-COMP-METALS-3	REF-HTAR-COMP-METALS-4	RDL	QC Batch
Physical Properties							
Sample Wet Weight	%	0.23	0.26	0.27	0.26	N/A	B215572
Moisture	%	76	76	77	78	0.30	B215572

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

GENERAL COMMENTS

Version 2: Report reissued to include the reworked results for the following samples (2024/01/23)
MLN-HTAR-COMP-METALS-5: Lead
MLN-HTAR-COMP-METALS-8: Silver
REF-HTAR-COMP-METALS-2: Silver

Sample CED038, Elements by ICPMS - Tissue Plug Wet Wt: Test repeated.
Sample CED041, Elements by ICPMS - Tissue Plug Wet Wt: Test repeated.
Sample CED043, Elements by ICPMS - Tissue Plug Wet Wt: Test repeated.

Results relate only to the items tested.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B215567	MEM	QC Standard	Total (Wet Wt) Antimony (Sb)	2023/12/01		65	%	N/A
			Total (Wet Wt) Arsenic (As)	2023/12/01		92	%	N/A
			Total (Wet Wt) Cadmium (Cd)	2023/12/01		88	%	N/A
			Total (Wet Wt) Calcium (Ca)	2023/12/01		90	%	N/A
			Total (Wet Wt) Cobalt (Co)	2023/12/01		87	%	N/A
			Total (Wet Wt) Copper (Cu)	2023/12/01		91	%	N/A
			Total (Wet Wt) Iron (Fe)	2023/12/01		98	%	N/A
			Total (Wet Wt) Lead (Pb)	2023/12/01		94	%	N/A
			Total (Wet Wt) Manganese (Mn)	2023/12/01		93	%	N/A
			Total (Wet Wt) Mercury (Hg)	2023/12/01		80	%	N/A
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01		93	%	N/A
			Total (Wet Wt) Phosphorus (P)	2023/12/01		92	%	N/A
			Total (Wet Wt) Potassium (K)	2023/12/01		100	%	N/A
			Total (Wet Wt) Selenium (Se)	2023/12/01		87	%	N/A
			Total (Wet Wt) Silver (Ag)	2023/12/01		89	%	N/A
			Total (Wet Wt) Sodium (Na)	2023/12/01		104	%	N/A
			Total (Wet Wt) Strontium (Sr)	2023/12/01		90	%	N/A
			Total (Wet Wt) Thallium (Tl)	2023/12/01		86	%	N/A
			Total (Wet Wt) Tin (Sn)	2023/12/01		87	%	N/A
			Total (Wet Wt) Uranium (U)	2023/12/01		0.00000	%	N/A
			Total (Wet Wt) Vanadium (V)	2023/12/01		89	%	N/A
			Total (Wet Wt) Zinc (Zn)	2023/12/01		87	%	N/A
B215567	MEM	Spiked Blank	Total (Wet Wt) Aluminum (Al)	2023/12/01		108	%	80 - 120
			Total (Wet Wt) Antimony (Sb)	2023/12/01		103	%	80 - 120
			Total (Wet Wt) Arsenic (As)	2023/12/01		101	%	80 - 120
			Total (Wet Wt) Barium (Ba)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Beryllium (Be)	2023/12/01		100	%	80 - 120
			Total (Wet Wt) Bismuth (Bi)	2023/12/01		102	%	80 - 120
			Total (Wet Wt) Boron (B)	2023/12/01		107	%	80 - 120
			Total (Wet Wt) Cadmium (Cd)	2023/12/01		99	%	80 - 120
			Total (Wet Wt) Calcium (Ca)	2023/12/01		108	%	80 - 120
			Total (Wet Wt) Chromium (Cr)	2023/12/01		105	%	80 - 120
			Total (Wet Wt) Cobalt (Co)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Copper (Cu)	2023/12/01		101	%	80 - 120
			Total (Wet Wt) Iron (Fe)	2023/12/01		110	%	80 - 120
			Total (Wet Wt) Lead (Pb)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Magnesium (Mg)	2023/12/01		109	%	80 - 120
			Total (Wet Wt) Manganese (Mn)	2023/12/01		105	%	80 - 120
			Total (Wet Wt) Mercury (Hg)	2023/12/01		102	%	80 - 120
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Nickel (Ni)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Phosphorus (P)	2023/12/01		100	%	80 - 120
			Total (Wet Wt) Potassium (K)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Selenium (Se)	2023/12/01		100	%	80 - 120
			Total (Wet Wt) Silver (Ag)	2023/12/01		103	%	80 - 120
			Total (Wet Wt) Sodium (Na)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Strontium (Sr)	2023/12/01		106	%	80 - 120
			Total (Wet Wt) Thallium (Tl)	2023/12/01		105	%	80 - 120
			Total (Wet Wt) Tin (Sn)	2023/12/01		103	%	80 - 120
			Total (Wet Wt) Titanium (Ti)	2023/12/01		110	%	80 - 120
			Total (Wet Wt) Uranium (U)	2023/12/01		107	%	80 - 120
			Total (Wet Wt) Vanadium (V)	2023/12/01		104	%	80 - 120
			Total (Wet Wt) Zinc (Zn)	2023/12/01		101	%	80 - 120

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B215567	MEM	Method Blank	Total (Wet Wt) Aluminum (Al)	2023/12/01	<0.50		mg/kg	
			Total (Wet Wt) Antimony (Sb)	2023/12/01	<0.0020		mg/kg	
			Total (Wet Wt) Arsenic (As)	2023/12/01	<0.0050		mg/kg	
			Total (Wet Wt) Barium (Ba)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Beryllium (Be)	2023/12/01	<0.0020		mg/kg	
			Total (Wet Wt) Bismuth (Bi)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Boron (B)	2023/12/01	<0.20		mg/kg	
			Total (Wet Wt) Cadmium (Cd)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Calcium (Ca)	2023/12/01	<4.0		mg/kg	
			Total (Wet Wt) Chromium (Cr)	2023/12/01	<0.025		mg/kg	
			Total (Wet Wt) Cobalt (Co)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Copper (Cu)	2023/12/01	<0.013		mg/kg	
			Total (Wet Wt) Iron (Fe)	2023/12/01	<0.25		mg/kg	
			Total (Wet Wt) Lead (Pb)	2023/12/01	0.0020, RDL=0.0013 (1)		mg/kg	
			Total (Wet Wt) Magnesium (Mg)	2023/12/01	<0.40		mg/kg	
			Total (Wet Wt) Manganese (Mn)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Mercury (Hg)	2023/12/01	<0.013		mg/kg	
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01	<0.0080		mg/kg	
			Total (Wet Wt) Nickel (Ni)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Phosphorus (P)	2023/12/01	<2.0		mg/kg	
			Total (Wet Wt) Potassium (K)	2023/12/01	<2.5		mg/kg	
			Total (Wet Wt) Selenium (Se)	2023/12/01	<0.010		mg/kg	
			Total (Wet Wt) Silver (Ag)	2023/12/01	<0.0013		mg/kg	
			Total (Wet Wt) Sodium (Na)	2023/12/01	<2.5		mg/kg	
			Total (Wet Wt) Strontium (Sr)	2023/12/01	<0.013		mg/kg	
			Total (Wet Wt) Thallium (Tl)	2023/12/01	<0.00040		mg/kg	
			Total (Wet Wt) Tin (Sn)	2023/12/01	<0.020		mg/kg	
			Total (Wet Wt) Titanium (Ti)	2023/12/01	<0.13		mg/kg	
			Total (Wet Wt) Uranium (U)	2023/12/01	<0.00040		mg/kg	
			Total (Wet Wt) Vanadium (V)	2023/12/01	<0.020		mg/kg	
			Total (Wet Wt) Zinc (Zn)	2023/12/01	<0.20		mg/kg	
B215567	MEM	RPD [CED034-01]	Total (Wet Wt) Aluminum (Al)	2023/12/01	3.4		%	40
			Total (Wet Wt) Antimony (Sb)	2023/12/01	16		%	40
			Total (Wet Wt) Arsenic (As)	2023/12/01	2.3		%	40
			Total (Wet Wt) Barium (Ba)	2023/12/01	2.5		%	40
			Total (Wet Wt) Beryllium (Be)	2023/12/01	9.4		%	40
			Total (Wet Wt) Bismuth (Bi)	2023/12/01	4.1		%	40
			Total (Wet Wt) Boron (B)	2023/12/01	10		%	40
			Total (Wet Wt) Cadmium (Cd)	2023/12/01	2.7		%	40
			Total (Wet Wt) Calcium (Ca)	2023/12/01	5.8		%	60
			Total (Wet Wt) Chromium (Cr)	2023/12/01	4.4		%	40
			Total (Wet Wt) Cobalt (Co)	2023/12/01	3.7		%	40
			Total (Wet Wt) Copper (Cu)	2023/12/01	4.3		%	40
			Total (Wet Wt) Iron (Fe)	2023/12/01	5.3		%	40
			Total (Wet Wt) Lead (Pb)	2023/12/01	2.6		%	40
			Total (Wet Wt) Magnesium (Mg)	2023/12/01	3.6		%	40
			Total (Wet Wt) Manganese (Mn)	2023/12/01	3.6		%	40
			Total (Wet Wt) Mercury (Hg)	2023/12/01	14		%	40
			Total (Wet Wt) Molybdenum (Mo)	2023/12/01	2.2		%	40
			Total (Wet Wt) Nickel (Ni)	2023/12/01	5.5		%	40
			Total (Wet Wt) Phosphorus (P)	2023/12/01	3.1		%	40
			Total (Wet Wt) Potassium (K)	2023/12/01	3.3		%	40

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total (Wet Wt) Selenium (Se)	2023/12/01	2.4		%	40
			Total (Wet Wt) Silver (Ag)	2023/12/01	1.7		%	40
			Total (Wet Wt) Sodium (Na)	2023/12/01	3.0		%	40
			Total (Wet Wt) Strontium (Sr)	2023/12/01	2.4		%	60
			Total (Wet Wt) Thallium (Tl)	2023/12/01	1.5		%	40
			Total (Wet Wt) Tin (Sn)	2023/12/01	13		%	40
			Total (Wet Wt) Titanium (Ti)	2023/12/01	4.8		%	40
			Total (Wet Wt) Uranium (U)	2023/12/01	2.6		%	40
			Total (Wet Wt) Vanadium (V)	2023/12/01	2.8		%	40
			Total (Wet Wt) Zinc (Zn)	2023/12/01	1.5		%	40
B215572	ERE	RPD [CED034-01]	Sample Wet Weight	2023/11/28	0.66		%	N/A
			Moisture	2023/11/28	1.5		%	20
B215575	CJY	Matrix Spike [CED034-01]	Total (Wet Wt) Mercury (Hg)	2023/12/08		81	%	80 - 120
B215575	CJY	QC Standard	Total (Wet Wt) Mercury (Hg)	2023/12/08		73	%	59 - 141
B215575	CJY	Spiked Blank	Total (Wet Wt) Mercury (Hg)	2023/12/08		108	%	80 - 120
B215575	CJY	Method Blank	Total (Wet Wt) Mercury (Hg)	2023/12/08	<0.0010		mg/kg	
B215575	CJY	RPD [CED034-01]	Total (Wet Wt) Mercury (Hg)	2023/12/08	5.6		%	40
B251581	MEM	QC Standard	Total (Wet Wt) Lead (Pb)	2024/01/10		88	%	75 - 125
			Total (Wet Wt) Silver (Ag)	2024/01/10		86	%	75 - 125
B251581	MEM	Spiked Blank	Total (Wet Wt) Lead (Pb)	2024/01/10		96	%	80 - 120
			Total (Wet Wt) Silver (Ag)	2024/01/10		98	%	80 - 120
B251581	MEM	Method Blank	Total (Wet Wt) Lead (Pb)	2024/01/10	<0.0013		mg/kg	
			Total (Wet Wt) Silver (Ag)	2024/01/10	<0.0013		mg/kg	
B259747	MEM	QC Standard	Total (Wet Wt) Lead (Pb)	2024/01/20		88	%	75 - 125
			Total (Wet Wt) Silver (Ag)	2024/01/20		92	%	75 - 125
B259747	MEM	Spiked Blank	Total (Wet Wt) Lead (Pb)	2024/01/20		97	%	80 - 120
			Total (Wet Wt) Silver (Ag)	2024/01/20		100	%	80 - 120
B259747	MEM	Method Blank	Total (Wet Wt) Lead (Pb)	2024/01/20	<0.0013		mg/kg	
			Total (Wet Wt) Silver (Ag)	2024/01/20	<0.0013		mg/kg	

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

(1) Method Blank exceeds acceptance limits. Sample values are >10x the concentration of the method blank and the contamination is considered irrelevant.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391810
Report Date: 2024/01/23

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

08528094

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required	
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)	
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)	
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days	
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days	
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:	
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:	

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		—				
Seal Intact		—	Temp	9	8	6
Cooling Media	—					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	☐ BTEXS / VPH	☐ VOC / BTEXS / VPH	☐ BTEX F1	☐ VOC / BTEX / F1	☐ PAH	☐ LEPH / HEPH / PAH	☐ EPH	☐ TEH	☐ F2 - F4	☐ Dissolved Metals	☐ Filtered?	☐ Preserved?	☐ Dissolved Mercury	☐ Filtered?	☐ Preserved?	☑ Total Metals	☐ Field Preserved?	☐ Total Mercury	☐ Field Preserved?	☐ Chloride	☐ Fluoride	☐ TSS	☐ TDS	☐ Sulphate	☐ pH	☐ COD	☐ BOD	☐ Alkalinity	☐ Conductivity	☐ Ammonia	☐ Nitrite	☐ Nitrate	☐ Alkylated PAHs	☐	☐	☐	☐	☐	☐	HOLD - DO NOT ANALYZE	Special Instructions *Composite based on following composite #s*
1 BAFF23UMLNHTAR1502			Tissue	1															X																									MLN-HTAR-COMP-METALS-6
2 BAFF23UMLNHTAR1504			Tissue	1															X																									MLN-HTAR-COMP-METALS-1
3 BAFF23UMLNHTAR1506			Tissue	1															X																									MLN-HTAR-COMP-METALS-3
4 BAFF23UMLNHTAR1507			Tissue	1															X																									MLN-HTAR-COMP-METALS-2
5 BAFF23UMLNHTAR1508			Tissue	1															X																									MLN-HTAR-COMP-METALS-2
6 BAFF23UMLNHTAR1518			Tissue	1															X																									MLN-HTAR-COMP-METALS-1
7 BAFF23UMLNHTAR1519			Tissue	1															X																									MLN-HTAR-COMP-METALS-5
8 BAFF23UMLNHTAR1523			Tissue	1															X																									MLN-HTAR-COMP-METALS-4
9 BAFF23UMLNHTAR1524			Tissue	1															X																									MLN-HTAR-COMP-METALS-4
10 BAFF23UMLNHTAR1525			Tissue	1															X																									MLN-HTAR-COMP-METALS-7

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
Micayla Drew Micayla Drew	2023/11/08	13:00	Marta Zamora	2023/11/09	11:40	

COC-1020

ICE frozen

C391810_COC

08528095

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required	
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)	
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)	
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days	
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days	
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:	
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:	

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		~				
Seal Intact		~	Temp	9	8	6
Cooling Media	~					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	VOC / BTEXS / VPH	BTEXS / VPH	VOC / BTEX / F1	BTEX F1	LEPH / HEPH / PAH	PAH	F2 - F4	TEH	EPH	Preserved?	Filtered?	Dissolved Metals	Preserved?	Filtered?	Dissolved Mercury	Field Preserved?	Total Metals	Field Preserved?	Total Mercury	Sulphate	Fluoride	Chloride	COD	BOD	TDS	TSS	Alkalinity	Conductivity	pH	Ammonia	Nitrate	Nitrite	Alkylated PAHs					HOLD - DO NOT ANALYZE	Regulatory Criteria / Special Instructions
1 BAFF23UMLNHTAR1526			Tissue	1																X																						MLN-HTAR-COMP-METALS-3
2 BAFF23UMLNHTAR1527			Tissue	1																X																						MLN-HTAR-COMP-METALS-6
3 BAFF23UMLNHTAR1528			Tissue	1																X																						MLN-HTAR-COMP-METALS-4
4 BAFF23UMLNHTAR1530			Tissue	1																X																						MLN-HTAR-COMP-METALS-8
5 BAFF23UMLNHTAR1531			Tissue	1																X																						MLN-HTAR-COMP-METALS-5
6 BAFF23UMLNHTAR1532			Tissue	1																X																						MLN-HTAR-COMP-METALS-7
7 BAFF23UMLNHTAR1534			Tissue	1																X																						MLN-HTAR-COMP-METALS-6
8 BAFF23UMLNHTAR1537			Tissue	1																X																						MLN-HTAR-COMP-METALS-8
9 BAFF23UMLNHTAR1540			Tissue	1																X																						MLN-HTAR-COMP-METALS-7
10																																											

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):
Micayla Drew Micayla Drew	2023/11/08	13:00	Maria Zerrora	2023/11/09	11:40

COC-1020

ICE frozen

C391810_COC

08528096

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required
Company:	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		~				
Seal Intact		~	Temp	9	8	6
Cooling Media	~					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	BTEXS / VPH	VOC / BTEXS / VPH	MTBE	BTEX F1	VOC / BTEX / F1	PAH	LEPH / HEPH / PAH	EPH	F2 - F4	TEH	Dissolved Metals	Preserved?	Filtered?	Dissolved Mercury	Preserved?	Filtered?	Total Metals	Field Preserved?	Total Mercury	Field Preserved?	Chloride	Fluoride	Sulphate	TSS	TDS	BOD	COD	pH	Conductivity	Alkalinity	Nitrite	Nitrate	Ammonia	Alkylated PAHs	HOLD - DO NOT ANALYZE
1 BAFF23UREFHTAR2501			Tissue	1																	X																	
2 BAFF23UREFHTAR2505			Tissue	1																	X																	
3 BAFF23UREFHTAR2507			Tissue	1																	X																	
4 BAFF23UREFHTAR2508			Tissue	1																	X																	
5 BAFF23UREFHTAR2511			Tissue	1																	X																	
6 BAFF23UREFHTAR2513			Tissue	1																	X																	
7 BAFF23UREFHTAR2514			Tissue	1																	X																	
8 BAFF23UREFHTAR2515			Tissue	1																	X																	
9 BAFF23UREFHTAR2516			Tissue	1																	X																	
10																																						

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

Special Instructions
Composite based on following composite #s

1	REF-HTAR-COMP-METALS-1
2	REF-HTAR-COMP-METALS-4
3	REF-HTAR-COMP-METALS-2
4	REF-HTAR-COMP-METALS-1
5	REF-HTAR-COMP-METALS-4
6	REF-HTAR-COMP-METALS-2
7	REF-HTAR-COMP-METALS-3
8	REF-HTAR-COMP-METALS-3
9	REF-HTAR-COMP-METALS-3

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):
Micayla Drew Micayla Drew	2023/11/08	13:00	Marta Zarora	2023/11/03	11:40

COC-1020

ICE frozen.

C391810_COC

Your Project #: 166372402-70000.03
Site#: MINE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08526907, 08526908, 08526909

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2023/11/08
Report #: R3423956
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377879
Received: 2023/09/28, 09:00

Sample Matrix: Tissue
Samples Received: 24

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
PAH in Tissue by GC/MS (SIM) (1, 2)	8	2023/11/01	2023/11/05	ATL SOP 00104	EPA 8270E R6 m
PAH in Tissue by GC/MS (SIM) (1, 2)	1	2023/11/02	2023/11/04	ATL SOP 00104	EPA 8270E R6 m
PAH in Tissue by GC/MS (SIM) (1, 2)	15	2023/11/02	2023/11/05	ATL SOP 00104	EPA 8270E R6 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Bedford, Bureau Veritas Bedford, 200 Bluewater Rd. Suite 105, Bedford, NS, Canada, B4B 1G9
(2) Results are reported on an as received basis unless otherwise indicated.

Your Project #: 166372402-70000.03
Site#: MINE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08526907, 08526908, 08526909

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2023/11/08
Report #: R3423956
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377879
Received: 2023/09/28, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Melissa McIntosh, Customer Solutions Representative
Email: melissa.mcintosh@bureauveritas.com
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ766	CAJ767	CAJ768		
Sampling Date		2023/07/28 13:15	2023/07/28 14:02	2023/07/28 15:30		
COC Number		08526907	08526907	08526907		
	UNITS	BAFF23UDPFFHSC1001	BAFF23UDPFFHSC1005	BAFF23UDPFFHSC1009	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	87	84	85	N/A	B191199
D8-ACENAPHTHYLENE (sur.)	%	88	84	86	N/A	B191199
TERPHENYL-D14 (sur.)	%	90	89	90	N/A	B191199

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ769	CAJ770	CAJ771		
Sampling Date		2023/07/28 15:49	2023/07/29 16:23	2023/07/29 17:05		
COC Number		08526907	08526907	08526907		
	UNITS	BAFF23UDPFFHSC1010	BAFF23UDPFFHSC1022	BAFF23UDPFFHSC1028	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	87	91	88	N/A	B191199
D8-ACENAPHTHYLENE (sur.)	%	87	89	87	N/A	B191199
TERPHENYL-D14 (sur.)	%	90	95	90	N/A	B191199

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ772	CAJ773	CAJ785	CAJ786		
Sampling Date		2023/07/30 13:17	2023/07/30 13:35	2023/08/01 18:09	2023/08/01 18:35		
COC Number		08526907	08526907	08526908	08526908		
	UNITS	BAFF23UIPFFHSC1032	BAFF23UIPFFHSC1035	BAFF23UREFFHSC2018	BAFF23UREFFHSC2022	RDL	QC Batch
Polycyclic Aromatics							
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Perylene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Naphthalene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Fluorene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Chrysene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	<0.050	0.050	B191199
Surrogate Recovery (%)							
D10-ANTHRACENE (sur.)	%	86	91	90	86	N/A	B191199
D8-ACENAPHTHYLENE (sur.)	%	87	89	89	87	N/A	B191199
TERPHENYL-D14 (sur.)	%	89	94	94	90	N/A	B191199

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ787	CAJ788	CAJ789		
Sampling Date		2023/08/01 19:45	2023/08/01 20:07	2023/08/01 20:30		
COC Number		08526908	08526908	08526908		
	UNITS	BAFF23UREFFHSC2032	BAFF23UREFFHSC2035	BAFF23UREFFHSC2039	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	86	87	88	N/A	B191199
D8-ACENAPHTHYLENE (sur.)	%	88	88	87	N/A	B191199
TERPHENYL-D14 (sur.)	%	91	90	91	N/A	B191199

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ790	CAJ791	CAJ792		
Sampling Date		2023/08/08 16:17	2023/08/08 16:29	2023/08/12 18:35		
COC Number		08526908	08526908	08526908		
	UNITS	BAFF23UREFFHSC2041	BAFF23UREFFHSC2042	BAFF23UREFFHSC2051	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191199
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	88	89	89	N/A	B191199
D8-ACENAPHTHYLENE (sur.)	%	88	88	88	N/A	B191199
TERPHENYL-D14 (sur.)	%	91	94	92	N/A	B191199

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ795	CAJ796	CAJ797		
Sampling Date		2023/07/29 13:33	2023/07/30 09:40	2023/08/05 16:20		
COC Number		08526909	08526909	08526909		
	UNITS	BAFF23UDPFARCH3001	BAFF23UIPFARCH3003	BAFF23UIPFARCH3004	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	90	86	85	N/A	B191201
D8-ACENAPHTHYLENE (sur.)	%	88	82	79	N/A	B191201
TERPHENYL-D14 (sur.)	%	90	84	82	N/A	B191201

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C377879
Report Date: 2023/11/08

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: DV

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ798	CAJ799	CAJ800		
Sampling Date		2023/08/10	2023/08/10	2023/08/10		
COC Number		08526909	08526909	08526909		
	UNITS	BAFF23UDPFARCH3009	BAFF23UDPFARCH3010	BAFF23UDPFARCH3012	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B191201
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	89	88	87	N/A	B191201
D8-ACENAPHTHYLENE (sur.)	%	87	85	83	N/A	B191201
TERPHENYL-D14 (sur.)	%	88	87	84	N/A	B191201

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CAJ801	CAJ802		
Sampling Date		2023/08/08 14:00	2023/08/12 13:11		
COC Number		08526909	08526909		
	UNITS	BAFF23UKLKARCH4002	BAFF23UKLKARCH4008	RDL	QC Batch
Polycyclic Aromatics					
1-Methylnaphthalene	mg/kg	<0.050	<0.050	0.050	B191201
2-Methylnaphthalene	mg/kg	<0.050	<0.050	0.050	B191201
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	0.050	B191201
Perylene	mg/kg	<0.050	<0.050	0.050	B191201
Naphthalene	mg/kg	<0.050	<0.050	0.050	B191201
Acenaphthylene	mg/kg	<0.050	<0.050	0.050	B191201
Acenaphthene	mg/kg	<0.050	<0.050	0.050	B191201
Fluorene	mg/kg	<0.050	<0.050	0.050	B191201
Phenanthrene	mg/kg	<0.050	<0.050	0.050	B191201
Anthracene	mg/kg	<0.050	<0.050	0.050	B191201
Fluoranthene	mg/kg	<0.050	<0.050	0.050	B191201
Pyrene	mg/kg	<0.050	<0.050	0.050	B191201
Benzo(a)anthracene	mg/kg	<0.050	<0.050	0.050	B191201
Chrysene	mg/kg	<0.050	<0.050	0.050	B191201
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	0.050	B191201
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	0.050	B191201
Benzo(a)pyrene	mg/kg	<0.050	<0.050	0.050	B191201
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	0.050	B191201
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	0.050	B191201
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	0.050	B191201
Surrogate Recovery (%)					
D10-ANTHRACENE (sur.)	%	85	89	N/A	B191201
D8-ACENAPHTHYLENE (sur.)	%	81	83	N/A	B191201
TERPHENYL-D14 (sur.)	%	83	85	N/A	B191201

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B191199	EPA	Reagent Blank	1-Methylnaphthalene	2023/11/04	<0.050		mg/kg	
			2-Methylnaphthalene	2023/11/04	<0.050		mg/kg	
			Benzo(j)fluoranthene	2023/11/04	<0.050		mg/kg	
			D10-ANTHRACENE (sur.)	2023/11/04		83	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/04		83	%	50 - 130
			Perylene	2023/11/04	<0.050		mg/kg	
			TERPHENYL-D14 (sur.)	2023/11/04		83	%	50 - 130
			Naphthalene	2023/11/04	<0.050		mg/kg	
			Acenaphthylene	2023/11/04	<0.050		mg/kg	
			Acenaphthene	2023/11/04	<0.050		mg/kg	
			Fluorene	2023/11/04	<0.050		mg/kg	
			Phenanthrene	2023/11/04	<0.050		mg/kg	
			Anthracene	2023/11/04	<0.050		mg/kg	
			Fluoranthene	2023/11/04	<0.050		mg/kg	
			Pyrene	2023/11/04	<0.050		mg/kg	
			Benzo(a)anthracene	2023/11/04	<0.050		mg/kg	
			Chrysene	2023/11/04	<0.050		mg/kg	
			Benzo(b)fluoranthene	2023/11/04	<0.050		mg/kg	
			Benzo(k)fluoranthene	2023/11/04	<0.050		mg/kg	
			Benzo(a)pyrene	2023/11/04	<0.050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2023/11/04	<0.050		mg/kg	
			Dibenz(a,h)anthracene	2023/11/04	<0.050		mg/kg	
			Benzo(g,h,i)perylene	2023/11/04	<0.050		mg/kg	
B191199	EPA	Matrix Spike [CAJ766-01]	1-Methylnaphthalene	2023/11/04		94	%	50 - 130
			2-Methylnaphthalene	2023/11/04		101	%	50 - 130
			Benzo(j)fluoranthene	2023/11/04		79	%	50 - 130
			D10-ANTHRACENE (sur.)	2023/11/04		85	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/04		88	%	50 - 130
			Perylene	2023/11/04		77	%	50 - 130
			TERPHENYL-D14 (sur.)	2023/11/04		88	%	50 - 130
			Naphthalene	2023/11/04		96	%	50 - 130
			Acenaphthylene	2023/11/04		104	%	50 - 130
			Acenaphthene	2023/11/04		93	%	50 - 130
			Fluorene	2023/11/04		96	%	50 - 130
			Phenanthrene	2023/11/04		97	%	50 - 130
			Anthracene	2023/11/04		107	%	50 - 130
			Fluoranthene	2023/11/04		102	%	50 - 130
			Pyrene	2023/11/04		99	%	50 - 130
			Benzo(a)anthracene	2023/11/04		103	%	50 - 130
			Chrysene	2023/11/04		101	%	50 - 130
			Benzo(b)fluoranthene	2023/11/04		84	%	50 - 130
			Benzo(k)fluoranthene	2023/11/04		79	%	50 - 130
			Benzo(a)pyrene	2023/11/04		83	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2023/11/04		81	%	50 - 130
			Dibenz(a,h)anthracene	2023/11/04		80	%	50 - 130
			Benzo(g,h,i)perylene	2023/11/04		80	%	50 - 130
B191199	EPA	Spiked Blank	1-Methylnaphthalene	2023/11/04		96	%	50 - 130
			2-Methylnaphthalene	2023/11/04		101	%	50 - 130
			Benzo(j)fluoranthene	2023/11/04		79	%	50 - 130
			D10-ANTHRACENE (sur.)	2023/11/04		85	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/04		89	%	50 - 130
			Perylene	2023/11/04		77	%	50 - 130
			TERPHENYL-D14 (sur.)	2023/11/04		85	%	50 - 130

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Naphthalene	2023/11/04		98	%	50 - 130
			Acenaphthylene	2023/11/04		104	%	50 - 130
			Acenaphthene	2023/11/04		93	%	50 - 130
			Fluorene	2023/11/04		96	%	50 - 130
			Phenanthrene	2023/11/04		96	%	50 - 130
			Anthracene	2023/11/04		106	%	50 - 130
			Fluoranthene	2023/11/04		101	%	50 - 130
			Pyrene	2023/11/04		99	%	50 - 130
			Benzo(a)anthracene	2023/11/04		100	%	50 - 130
			Chrysene	2023/11/04		100	%	50 - 130
			Benzo(b)fluoranthene	2023/11/04		81	%	50 - 130
			Benzo(k)fluoranthene	2023/11/04		79	%	50 - 130
			Benzo(a)pyrene	2023/11/04		83	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2023/11/04		79	%	50 - 130
			Dibenz(a,h)anthracene	2023/11/04		78	%	50 - 130
			Benzo(g,h,i)perylene	2023/11/04		78	%	50 - 130
B191199	EPA	Method Blank	1-Methylnaphthalene	2023/11/04	<0.050		mg/kg	
			2-Methylnaphthalene	2023/11/04	<0.050		mg/kg	
			Benzo(j)fluoranthene	2023/11/04	<0.050		mg/kg	
			D10-ANTHRACENE (sur.)	2023/11/04		94	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/04		91	%	50 - 130
			Perylene	2023/11/04	<0.050		mg/kg	
			TERPHENYL-D14 (sur.)	2023/11/04		96	%	50 - 130
			Naphthalene	2023/11/04	<0.050		mg/kg	
			Acenaphthylene	2023/11/04	<0.050		mg/kg	
			Acenaphthene	2023/11/04	<0.050		mg/kg	
			Fluorene	2023/11/04	<0.050		mg/kg	
			Phenanthrene	2023/11/04	<0.050		mg/kg	
			Anthracene	2023/11/04	<0.050		mg/kg	
			Fluoranthene	2023/11/04	<0.050		mg/kg	
			Pyrene	2023/11/04	<0.050		mg/kg	
			Benzo(a)anthracene	2023/11/04	<0.050		mg/kg	
			Chrysene	2023/11/04	<0.050		mg/kg	
			Benzo(b)fluoranthene	2023/11/04	<0.050		mg/kg	
			Benzo(k)fluoranthene	2023/11/04	<0.050		mg/kg	
			Benzo(a)pyrene	2023/11/04	<0.050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2023/11/04	<0.050		mg/kg	
			Dibenz(a,h)anthracene	2023/11/04	<0.050		mg/kg	
			Benzo(g,h,i)perylene	2023/11/04	<0.050		mg/kg	
B191199	EPA	RPD [CAJ766-01]	1-Methylnaphthalene	2023/11/04	NC		%	50
			2-Methylnaphthalene	2023/11/04	NC		%	50
			Benzo(j)fluoranthene	2023/11/04	NC		%	50
			Perylene	2023/11/04	NC		%	50
			Naphthalene	2023/11/04	NC		%	50
			Acenaphthylene	2023/11/04	NC		%	50
			Acenaphthene	2023/11/04	NC		%	50
			Fluorene	2023/11/04	NC		%	50
			Phenanthrene	2023/11/04	NC		%	50
			Anthracene	2023/11/04	NC		%	50
			Fluoranthene	2023/11/04	NC		%	50
			Pyrene	2023/11/04	NC		%	50
			Benzo(a)anthracene	2023/11/04	NC		%	50
			Chrysene	2023/11/04	NC		%	50

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(b)fluoranthene	2023/11/04	NC		%	50
			Benzo(k)fluoranthene	2023/11/04	NC		%	50
			Benzo(a)pyrene	2023/11/04	NC		%	50
			Indeno(1,2,3-cd)pyrene	2023/11/04	NC		%	50
			Dibenz(a,h)anthracene	2023/11/04	NC		%	50
			Benzo(g,h,i)perylene	2023/11/04	NC		%	50
B191201	EPA	Reagent Blank	1-Methylnaphthalene	2023/11/05	<0.050		mg/kg	
			2-Methylnaphthalene	2023/11/05	<0.050		mg/kg	
			Benzo(j)fluoranthene	2023/11/05	<0.050		mg/kg	
			D10-ANTHRACENE (sur.)	2023/11/05		82	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/05		82	%	50 - 130
			Perylene	2023/11/05	<0.050		mg/kg	
			TERPHENYL-D14 (sur.)	2023/11/05		81	%	50 - 130
			Naphthalene	2023/11/05	<0.050		mg/kg	
			Acenaphthylene	2023/11/05	<0.050		mg/kg	
			Acenaphthene	2023/11/05	<0.050		mg/kg	
			Fluorene	2023/11/05	<0.050		mg/kg	
			Phenanthrene	2023/11/05	<0.050		mg/kg	
			Anthracene	2023/11/05	<0.050		mg/kg	
			Fluoranthene	2023/11/05	<0.050		mg/kg	
			Pyrene	2023/11/05	<0.050		mg/kg	
			Benzo(a)anthracene	2023/11/05	<0.050		mg/kg	
			Chrysene	2023/11/05	<0.050		mg/kg	
			Benzo(b)fluoranthene	2023/11/05	<0.050		mg/kg	
			Benzo(k)fluoranthene	2023/11/05	<0.050		mg/kg	
			Benzo(a)pyrene	2023/11/05	<0.050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2023/11/05	<0.050		mg/kg	
			Dibenz(a,h)anthracene	2023/11/05	<0.050		mg/kg	
			Benzo(g,h,i)perylene	2023/11/05	<0.050		mg/kg	
B191201	EPA	Matrix Spike [CAJ795-01]	1-Methylnaphthalene	2023/11/05		91	%	50 - 130
			2-Methylnaphthalene	2023/11/05		100	%	50 - 130
			Benzo(j)fluoranthene	2023/11/05		78	%	50 - 130
			D10-ANTHRACENE (sur.)	2023/11/05		85	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/05		85	%	50 - 130
			Perylene	2023/11/05		76	%	50 - 130
			TERPHENYL-D14 (sur.)	2023/11/05		84	%	50 - 130
			Naphthalene	2023/11/05		93	%	50 - 130
			Acenaphthylene	2023/11/05		101	%	50 - 130
			Acenaphthene	2023/11/05		90	%	50 - 130
			Fluorene	2023/11/05		92	%	50 - 130
			Phenanthrene	2023/11/05		95	%	50 - 130
			Anthracene	2023/11/05		105	%	50 - 130
			Fluoranthene	2023/11/05		101	%	50 - 130
			Pyrene	2023/11/05		98	%	50 - 130
			Benzo(a)anthracene	2023/11/05		101	%	50 - 130
			Chrysene	2023/11/05		99	%	50 - 130
			Benzo(b)fluoranthene	2023/11/05		80	%	50 - 130
			Benzo(k)fluoranthene	2023/11/05		78	%	50 - 130
			Benzo(a)pyrene	2023/11/05		82	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2023/11/05		80	%	50 - 130
			Dibenz(a,h)anthracene	2023/11/05		78	%	50 - 130
			Benzo(g,h,i)perylene	2023/11/05		78	%	50 - 130
B191201	EPA	Spiked Blank	1-Methylnaphthalene	2023/11/05		94	%	50 - 130

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			2-Methylnaphthalene	2023/11/05		103	%	50 - 130
			Benzo(j)fluoranthene	2023/11/05		80	%	50 - 130
			D10-ANTHRACENE (sur.)	2023/11/05		87	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/05		86	%	50 - 130
			Perylene	2023/11/05		79	%	50 - 130
			TERPHENYL-D14 (sur.)	2023/11/05		87	%	50 - 130
			Naphthalene	2023/11/05		95	%	50 - 130
			Acenaphthylene	2023/11/05		104	%	50 - 130
			Acenaphthene	2023/11/05		93	%	50 - 130
			Fluorene	2023/11/05		96	%	50 - 130
			Phenanthrene	2023/11/05		98	%	50 - 130
			Anthracene	2023/11/05		107	%	50 - 130
			Fluoranthene	2023/11/05		102	%	50 - 130
			Pyrene	2023/11/05		101	%	50 - 130
			Benzo(a)anthracene	2023/11/05		104	%	50 - 130
			Chrysene	2023/11/05		102	%	50 - 130
			Benzo(b)fluoranthene	2023/11/05		84	%	50 - 130
			Benzo(k)fluoranthene	2023/11/05		80	%	50 - 130
			Benzo(a)pyrene	2023/11/05		85	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2023/11/05		83	%	50 - 130
			Dibenz(a,h)anthracene	2023/11/05		81	%	50 - 130
			Benzo(g,h,i)perylene	2023/11/05		80	%	50 - 130
B191201	EPA	Method Blank	1-Methylnaphthalene	2023/11/05	<0.050		mg/kg	
			2-Methylnaphthalene	2023/11/05	<0.050		mg/kg	
			Benzo(j)fluoranthene	2023/11/05	<0.050		mg/kg	
			D10-ANTHRACENE (sur.)	2023/11/05		95	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2023/11/05		92	%	50 - 130
			Perylene	2023/11/05	<0.050		mg/kg	
			TERPHENYL-D14 (sur.)	2023/11/05		96	%	50 - 130
			Naphthalene	2023/11/05	<0.050		mg/kg	
			Acenaphthylene	2023/11/05	<0.050		mg/kg	
			Acenaphthene	2023/11/05	<0.050		mg/kg	
			Fluorene	2023/11/05	<0.050		mg/kg	
			Phenanthrene	2023/11/05	<0.050		mg/kg	
			Anthracene	2023/11/05	<0.050		mg/kg	
			Fluoranthene	2023/11/05	<0.050		mg/kg	
			Pyrene	2023/11/05	<0.050		mg/kg	
			Benzo(a)anthracene	2023/11/05	<0.050		mg/kg	
			Chrysene	2023/11/05	<0.050		mg/kg	
			Benzo(b)fluoranthene	2023/11/05	<0.050		mg/kg	
			Benzo(k)fluoranthene	2023/11/05	<0.050		mg/kg	
			Benzo(a)pyrene	2023/11/05	<0.050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2023/11/05	<0.050		mg/kg	
			Dibenz(a,h)anthracene	2023/11/05	<0.050		mg/kg	
			Benzo(g,h,i)perylene	2023/11/05	<0.050		mg/kg	
B191201	EPA	RPD [CAJ795-01]	1-Methylnaphthalene	2023/11/05	NC		%	50
			2-Methylnaphthalene	2023/11/05	NC		%	50
			Benzo(j)fluoranthene	2023/11/05	NC		%	50
			Perylene	2023/11/05	NC		%	50
			Naphthalene	2023/11/05	NC		%	50
			Acenaphthylene	2023/11/05	NC		%	50
			Acenaphthene	2023/11/05	NC		%	50
			Fluorene	2023/11/05	NC		%	50

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Phenanthrene	2023/11/05	NC		%	50
			Anthracene	2023/11/05	NC		%	50
			Fluoranthene	2023/11/05	NC		%	50
			Pyrene	2023/11/05	NC		%	50
			Benzo(a)anthracene	2023/11/05	NC		%	50
			Chrysene	2023/11/05	NC		%	50
			Benzo(b)fluoranthene	2023/11/05	NC		%	50
			Benzo(k)fluoranthene	2023/11/05	NC		%	50
			Benzo(a)pyrene	2023/11/05	NC		%	50
			Indeno(1,2,3-cd)pyrene	2023/11/05	NC		%	50
			Dibenz(a,h)anthracene	2023/11/05	NC		%	50
			Benzo(g,h,i)perylene	2023/11/05	NC		%	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Reagent Blank: A blank matrix containing all reagents used in the analytical procedure. Used to determine any analytical contamination.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Phil Deveau, Scientific Specialist (Organics)

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

08526907

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required
Company:	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		✓				
Seal Intact	N/A		Temp	5	6	5
Cooling Media		✓				
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	☐ BTEXS / VPH	☐ VOC / BTEXS / VPH	☐ BTEX F1	☐ VOC / BTEX / F1	☑ PAH	☐ EPH	☐ LEPH / HEPH / PAH	☐ TEH	☐ F2 - F4	☐ Dissolved Metals	☐ Filtered?	☐ Dissolved Mercury	☐ Filtered?	☐ Total Metals	☐ Field Preserved?	☐ Total Mercury	☐ Field Preserved?	☐ Chloride	☐ Fluoride	☐ Sulphate	☐ TSS	☐ BOD	☐ COD	☐ pH	☐ Conductivity	☐ Alkalinity	☐ Nitrite	☐ Nitrate	☐ Alkylated PAHs	☐ Ammonia	☐	☐	☐	☐	☐	☐ HOLD - DO NOT ANALYZE	Special Instructions
1	✓ BAFF23UDPFFHSC1001	2023/07/28	13:15	Tissue	1					X																															
2	✓ BAFF23UDPFFHSC1005	2023/07/28	14:02	Tissue	1					X																															
3	✓ BAFF23UDPFFHSC1009	2023/07/28	15:30	Tissue	1					X																															
4	✓ BAFF23UDPFFHSC1010	2023/07/28	15:49	Tissue	1					X																															
5	✓ BAFF23UDPFFHSC1022	2023/07/29	16:23	Tissue	1					X																															
6	✓ BAFF23UDPFFHSC1028	2023/07/29	17:05	Tissue	1					X																															
7	✓ BAFF23UIPFFHSC1032	2023/07/30	13:17	Tissue	1					X																															
8	BAFF23UIPFFHSC1035	2023/07/30	13:35	Tissue	1					X																															
9																																								
10																																								

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgement and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
			Hm HARIGNA JOSHI	2023/09/28	09:00	

COC-1020

C377879_COC

08526908

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present						
Seal Intact	N/A		Temp	5	6	5
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	BTEXS / VPH	VOC / BTEXS / VPH	BTEX F1	VOC / BTEX / F1	PAH	LEPH / HEPH / PAH	EPH	TEH	F2 - F4	Dissolved Metals	Filtered?	Preserved?	Dissolved Mercury	Filtered?	Preserved?	Total Metals	Field Preserved?	Total Mercury	Field Preserved?	Chloride	Fluoride	TSS	TDS	BOD	COD	pH	Conductivity	Alkalinity	Nitrite	Nitrate	Alkylated PAHs	Ammonia	HOLD - DO NOT ANALYZE
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1 ✓ BAFF23UREFFHSC2018	2023/08/01	18:09	Tissue	1					X																											
2 ✓ BAFF23UREFFHSC2022	2023/08/01	18:35	Tissue	1					X																											
3 ✓ BAFF23UREFFHSC2032	2023/08/01	19:45	Tissue	1					X																											
4 ✓ BAFF23UREFFHSC2035	2023/08/01	20:07	Tissue	1					X																											
5 ✓ BAFF23UREFFHSC2039	2023/08/01	20:30	Tissue	1					X																											
6 ✓ BAFF23UREFFHSC2041	2023/08/08	16:17	Tissue	1					X																											
7 ✓ BAFF23UREFFHSC2042	2023/08/08	16:29	Tissue	1					X																											
8 ✓ BAFF23UREFFHSC2051	2023/08/12	18:35	Tissue	1					X																											
9																																				
10																																				

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

Special Instructions

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):
			Hrj MARIGNA JOSHI	2023/09/28	09:00

BV Job #

C377879_COC

COC-1020

08526909

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from Invoice)		Project Information		Turnaround Time (TAT) Required
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AI, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		✓				
Seal Intact	N/A		Temp	5	6	5
Cooling Media	✓					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	BTEXS / VPH	BTEX F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Alkylated PAHs						HOLD - DO NOT ANALYZE
1	✓ BAFF23UDPFARCH3001	2023/07/29	13:33	Tissue	1			X																
2	✓ BAFF23UIPFARCH3003	2023/07/30	9:40	Tissue	1			X																
3	✓ BAFF23UIPFARCH3004	2023/08/05	16:20	Tissue	1			X																
4	✓ BAFF23UDPFARCH3009	2023/08/10	not recorded	Tissue	1			X																
5	✓ BAFF23UDPFARCH3010	2023/08/10	not recorded	Tissue	1			X																
6	✓ BAFF23UDPFARCH3012	2023/08/10	not recorded	Tissue	1			X																
7	✓ BAFF23UKLKARCH4002	2023/08/08	14:00	Tissue	1			X																
8	✓ BAFF23UKLKARCH4008	2023/08/12	13:11	Tissue	1			X																
9																								
10																								

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

Special Instructions

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):
			HM MARIGNA JOSN	2023/07/28	09:00

BV Job #

C377879_COC

COC-1020

Your Project #: 166372402-70000.03
Site#: MILNE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08528091

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2024/01/23
Report #: R3454469
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C391830
Received: 2023/11/09, 11:40

Sample Matrix: Tissue
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
PAH in Tissue by GC/MS (SIM) (1, 2)	3	2024/01/15	2024/01/16	ATL SOP 00104	EPA 8270E R6 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Bedford, Bureau Veritas Bedford, 200 Bluewater Rd. Suite 105, Bedford, NS, Canada, B4B 1G9
(2) Results are reported on an as received basis unless otherwise indicated.

Your Project #: 166372402-70000.03
Site#: MILNE PORT/REFERENCE SITE
Site Location: BAFFINLAND IRON MINE
Your C.O.C. #: 08528091

Attention: Collin Arens

WSP Canada Inc.
16820-107 AVE
EDMONTON, AB
CANADA T5P 4C3

Report Date: 2024/01/23
Report #: R3454469
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C391830
Received: 2023/11/09, 11:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Melissa McIntosh, Customer Solutions Representative
Email: melissa.mcintosh@bureauveritas.com
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Job #: C391830
Report Date: 2024/01/23

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: MD

RESULTS OF CHEMICAL ANALYSES OF TISSUE

Bureau Veritas ID		CHI818	CHI819	CHI820		
Sampling Date		2023/08/05	2023/08/05	2023/08/12		
COC Number		08528091	08528091	08528091		
	UNITS	MLN-HTAR-PAH-A	MLN-HTAR-PAH-B	REF-HTAR-PAH-A	RDL	QC Batch
Polycyclic Aromatics						
1-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
2-Methylnaphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Benzo(j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Acenaphthene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Phenanthrene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Chrysene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Benzo(b)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	B258665
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	100	84	91	N/A	B258665
D8-ACENAPHTHYLENE (sur.)	%	98	81	90	N/A	B258665
TERPHENYL-D14 (sur.)	%	101	84	88	N/A	B258665

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B258665	éOO	Reagent Blank	1-Methylnaphthalene	2024/01/15	<0.050		mg/kg	
			2-Methylnaphthalene	2024/01/15	<0.050		mg/kg	
			Benzo(j)fluoranthene	2024/01/15	<0.050		mg/kg	
			D10-ANTHRACENE (sur.)	2024/01/15		102	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2024/01/15		99	%	50 - 130
			Perylene	2024/01/15	<0.050		mg/kg	
			TERPHENYL-D14 (sur.)	2024/01/15		101	%	50 - 130
			Naphthalene	2024/01/15	<0.050		mg/kg	
			Acenaphthylene	2024/01/15	<0.050		mg/kg	
			Acenaphthene	2024/01/15	<0.050		mg/kg	
			Fluorene	2024/01/15	<0.050		mg/kg	
			Phenanthrene	2024/01/15	<0.050		mg/kg	
			Anthracene	2024/01/15	<0.050		mg/kg	
			Fluoranthene	2024/01/15	<0.050		mg/kg	
			Pyrene	2024/01/15	<0.050		mg/kg	
			Benzo(a)anthracene	2024/01/15	<0.050		mg/kg	
			Chrysene	2024/01/15	<0.050		mg/kg	
			Benzo(b)fluoranthene	2024/01/15	<0.050		mg/kg	
			Benzo(k)fluoranthene	2024/01/15	<0.050		mg/kg	
			Benzo(a)pyrene	2024/01/15	<0.050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2024/01/15	<0.050		mg/kg	
			Dibenz(a,h)anthracene	2024/01/15	<0.050		mg/kg	
			Benzo(g,h,i)perylene	2024/01/15	<0.050		mg/kg	
B258665	éOO	Matrix Spike	1-Methylnaphthalene	2024/01/15		86	%	50 - 130
			2-Methylnaphthalene	2024/01/15		94	%	50 - 130
			Benzo(j)fluoranthene	2024/01/15		70	%	50 - 130
			D10-ANTHRACENE (sur.)	2024/01/15		86	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2024/01/15		86	%	50 - 130
			Perylene	2024/01/15		70	%	50 - 130
			TERPHENYL-D14 (sur.)	2024/01/15		84	%	50 - 130
			Naphthalene	2024/01/15		87	%	50 - 130
			Acenaphthylene	2024/01/15		93	%	50 - 130
			Acenaphthene	2024/01/15		91	%	50 - 130
			Fluorene	2024/01/15		97	%	50 - 130
			Phenanthrene	2024/01/15		95	%	50 - 130
			Anthracene	2024/01/15		93	%	50 - 130
			Fluoranthene	2024/01/15		86	%	50 - 130
			Pyrene	2024/01/15		87	%	50 - 130
			Benzo(a)anthracene	2024/01/15		82	%	50 - 130
			Chrysene	2024/01/15		85	%	50 - 130
			Benzo(b)fluoranthene	2024/01/15		74	%	50 - 130
			Benzo(k)fluoranthene	2024/01/15		73	%	50 - 130
			Benzo(a)pyrene	2024/01/15		81	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2024/01/15		57	%	50 - 130
			Dibenz(a,h)anthracene	2024/01/15		47 (1)	%	50 - 130
			Benzo(g,h,i)perylene	2024/01/15		66	%	50 - 130
B258665	éOO	Spiked Blank	1-Methylnaphthalene	2024/01/15		93	%	50 - 130
			2-Methylnaphthalene	2024/01/15		103	%	50 - 130
			Benzo(j)fluoranthene	2024/01/15		86	%	50 - 130
			D10-ANTHRACENE (sur.)	2024/01/15		95	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2024/01/15		94	%	50 - 130
			Perylene	2024/01/15		87	%	50 - 130
			TERPHENYL-D14 (sur.)	2024/01/15		92	%	50 - 130

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Naphthalene	2024/01/15		95	%	50 - 130
			Acenaphthylene	2024/01/15		100	%	50 - 130
			Acenaphthene	2024/01/15		99	%	50 - 130
			Fluorene	2024/01/15		105	%	50 - 130
			Phenanthrene	2024/01/15		101	%	50 - 130
			Anthracene	2024/01/15		108	%	50 - 130
			Fluoranthene	2024/01/15		98	%	50 - 130
			Pyrene	2024/01/15		98	%	50 - 130
			Benzo(a)anthracene	2024/01/15		92	%	50 - 130
			Chrysene	2024/01/15		96	%	50 - 130
			Benzo(b)fluoranthene	2024/01/15		88	%	50 - 130
			Benzo(k)fluoranthene	2024/01/15		89	%	50 - 130
			Benzo(a)pyrene	2024/01/15		93	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2024/01/15		81	%	50 - 130
			Dibenz(a,h)anthracene	2024/01/15		82	%	50 - 130
			Benzo(g,h,i)perylene	2024/01/15		83	%	50 - 130
B258665	éOO	Method Blank	1-Methylnaphthalene	2024/01/15	<0.050		mg/kg	
			2-Methylnaphthalene	2024/01/15	<0.050		mg/kg	
			Benzo(j)fluoranthene	2024/01/15	<0.050		mg/kg	
			D10-ANTHRACENE (sur.)	2024/01/15		96	%	50 - 130
			D8-ACENAPHTHYLENE (sur.)	2024/01/15		92	%	50 - 130
			Perylene	2024/01/15	<0.050		mg/kg	
			TERPHENYL-D14 (sur.)	2024/01/15		95	%	50 - 130
			Naphthalene	2024/01/15	<0.050		mg/kg	
			Acenaphthylene	2024/01/15	<0.050		mg/kg	
			Acenaphthene	2024/01/15	<0.050		mg/kg	
			Fluorene	2024/01/15	<0.050		mg/kg	
			Phenanthrene	2024/01/15	<0.050		mg/kg	
			Anthracene	2024/01/15	<0.050		mg/kg	
			Fluoranthene	2024/01/15	<0.050		mg/kg	
			Pyrene	2024/01/15	<0.050		mg/kg	
			Benzo(a)anthracene	2024/01/15	<0.050		mg/kg	
			Chrysene	2024/01/15	<0.050		mg/kg	
			Benzo(b)fluoranthene	2024/01/15	<0.050		mg/kg	
			Benzo(k)fluoranthene	2024/01/15	<0.050		mg/kg	
			Benzo(a)pyrene	2024/01/15	<0.050		mg/kg	
			Indeno(1,2,3-cd)pyrene	2024/01/15	<0.050		mg/kg	
			Dibenz(a,h)anthracene	2024/01/15	<0.050		mg/kg	
			Benzo(g,h,i)perylene	2024/01/15	<0.050		mg/kg	

Reagent Blank: A blank matrix containing all reagents used in the analytical procedure. Used to determine any analytical contamination.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) Matrix Spike: < 10 % of compounds in multi-component analysis in violation.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Bureau Veritas Job #: C391830
Report Date: 2024/01/23

WSP Canada Inc.
Client Project #: 166372402-70000.03
Site Location: BAFFINLAND IRON MINE
Sampler Initials: MD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Phil Deveau, Scientific Specialist (Organics)

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, Senior Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

08528091

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required
Company:	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID
Seal Present		✓	Temp 9 8 6
Seal Intact		✓	
Cooling Media	✓		
	YES	NO	Cooler ID
Seal Present			Temp
Seal Intact			
Cooling Media			
	YES	NO	Cooler ID
Seal Present			Temp
Seal Intact			
Cooling Media			

Depot Reception

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	BTEXS / VPH	BTEX F1	PAH	EPH	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	HOLD - DO NOT ANALYZE	Special Instructions (Composite based on following composite #s)
1 BAFF23UMLNHTAR1501			Tissue	1			X											MLN-HTAR-COMP-PAH-2
2 BAFF23UMLNHTAR1503			Tissue	1			X											MLN-HTAR-COMP-PAH-4
3 BAFF23UMLNHTAR1505			Tissue	1			X											MLN-HTAR-COMP-PAH-8
4 BAFF23UMLNHTAR1509			Tissue	1			X											MLN-HTAR-COMP-PAH-6
5 BAFF23UMLNHTAR1510			Tissue	1			X											MLN-HTAR-COMP-PAH-5
6 BAFF23UMLNHTAR1511			Tissue	1			X											MLN-HTAR-COMP-PAH-8
7 BAFF23UMLNHTAR1512			Tissue	1			X											MLN-HTAR-COMP-PAH-2
8 BAFF23UMLNHTAR1513			Tissue	1			X											MLN-HTAR-COMP-PAH-5
9 BAFF23UMLNHTAR1514			Tissue	1			X											MLN-HTAR-COMP-PAH-4
10 BAFF23UMLNHTAR1515			Tissue	1			X											MLN-HTAR-COMP-PAH-2

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
Micayla Drew Micayla Drew	2023/11/08	13:00	Marta Zarrara	2023/11/09	11:40	

COC-1020

ICE frozen

C391830_COC

08528092

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		✓				
Seal Intact		✓	Temp	9	8	6
Cooling Media	✓					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

Analysis Requested

Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	☐ BTEXS / VPH	☐ VOC / BTEXS / VPH	☐ BTEX F1	☐ VOC / BTEX / F1	☑ PAH	☐ LEPH / HEPH / PAH	☐ EPH	☐ TEH	☐ F2 - F4	☐ Filtered?	☐ Preserved?	☐ Filtered?	☐ Preserved?	☐ Dissolved Metals	☐ Field Preserved?	☐ Dissolved Mercury	☐ Field Preserved?	☐ Total Metals	☐ Total Mercury	☐ Chloride	☐ Fluoride	☐ Sulphate	☐ TSS	☐ TDS	☐ COD	☐ BOD	☐ pH	☐ Conductivity	☐ Alkalinity	☐ Nitrite	☐ Nitrate	☐ Ammonia						HOLD - DO NOT ANALYZE	Special Instructions *Composite based on following composite #s*
1 BAFF23UMLNHTAR1516			Tissue	1					X																																			MLN-HTAR-COMP-PAH-7
2 BAFF23UMLNHTAR1517			Tissue	1					X																																			MLN-HTAR-COMP-PAH-4
3 BAFF23UMLNHTAR1520			Tissue	1					X																																			MLN-HTAR-COMP-PAH-1
4 BAFF23UMLNHTAR1521			Tissue	1					X																																			MLN-HTAR-COMP-PAH-1
5 BAFF23UMLNHTAR1522			Tissue	1					X																																			MLN-HTAR-COMP-PAH-1
6 BAFF23UMLNHTAR1529			Tissue	1					X																																			MLN-HTAR-COMP-PAH-3
7 BAFF23UMLNHTAR1533			Tissue	1					X																																			MLN-HTAR-COMP-PAH-5
8 BAFF23UMLNHTAR1535			Tissue	1					X																																			MLN-HTAR-COMP-PAH-7
9 BAFF23UMLNHTAR1536			Tissue	1					X																																			MLN-HTAR-COMP-PAH-6
10 BAFF23UMLNHTAR1538			Tissue	1					X																																			MLN-HTAR-COMP-PAH-8

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
Micayla Draw Micayla Draw	2023/11/08	13:00	Marta Zamora	2023/11/09	11:40	

COC-1020

ICE Frozen

C391830_COC

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Toll Free (800) 665 8566
Victoria: 460 Tennyson Place, Unit 1, Victoria, BC V8Z 6S8 Toll Free (866) 385-6112
bvlabs.com

08528093

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)		Project Information		Turnaround Time (TAT) Required
Company :	WSP Canada Inc.	Company:		Quotation	C21928	☑ 5 - 7 Days Regular (Most analyses)
Contact Name:	Collin Arens	Contact Name:		P.O. #/AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	16820 107 Ave.	Address:				Rush TAT (Surcharges will be applied)
	Edmonton, AB PC: T5P 4C3		PC:	Project #:	166372402-70000.03	☐ Same Day ☐ 2 Days
Phone/Fax:	(780) 237-9638	Phone/Fax:		Site Location:	Baffinland Iron Mine	☐ 1 Day ☐ 3-4 Days
Email:	collin.arens@wsp.com	Email:		Site #:	Milne Port/Reference Site	Date Required:
Copies:	rainie.sharpe@wsp.com	Copies:		Sampled By:	DV, AL, NOB	Rush Confirmation #:

Laboratory Use Only

	YES	NO	Cooler ID			
Seal Present		~				
Seal Intact		~	Temp	9	8	6
Cooling Media	~					
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						
	YES	NO	Cooler ID			
Seal Present						
Seal Intact			Temp			
Cooling Media						

Depot Reception

Analysis Requested

	Sample Identification	Date Sampled (yyyy/mm/dd)	Time Sampled (hh:mm)	Matrix	# of Containers	☐ VOC / BTEXS / VPH	☐ BTEXS / VPH	☐ VOC / BTEX / F1	☐ BTEX F1	☐ LEPH / HEPH / PAH	☑ PAH	☐ MTBE	☐ F2 - F4	☐ TEH	☐ EPH	☐ Preserved?	☐ Filtered?	☐ Preserved?	☐ Filtered?	☐ Field Preserved?	☐ Dissolved Metals	☐ Field Preserved?	☐ Dissolved Mercury	☐ Sulphate	☐ Fluoride	☐ COD	☐ BOD	☐ TDS	☐ Alkalinity	☐ Conductivity	☐ Ammonia	☐ Nitrate	☐	☐	HOLD - DO NOT ANALYZE	Special Instructions / Composite based on following composite #s
1	BAFF23UMLNHTAR1539			Tissue	1						X																								MLN-HTAR-COMP-PAH-3
2	BAFF23UREFHTAR2502			Tissue	1						X																								REF-HTAR-COMP-PAH-3
3	BAFF23UREFHTAR2503			Tissue	1						X																								REF-HTAR-COMP-PAH-2
4	BAFF23UREFHTAR2504			Tissue	1						X																								REF-HTAR-COMP-PAH-1
5	BAFF23UREFHTAR2506			Tissue	1						X																								REF-HTAR-COMP-PAH-3
6	BAFF23UREFHTAR2509			Tissue	1						X																								REF-HTAR-COMP-PAH-4
7	BAFF23UREFHTAR2510			Tissue	1						X																								REF-HTAR-COMP-PAH-4
8	BAFF23UREFHTAR2512			Tissue	1						X																								REF-HTAR-COMP-PAH-2
9	BAFF23UREFHTAR2517			Tissue	1						X																								REF-HTAR-COMP-PAH-1
10																																			

Regulatory Criteria

☐ BC CSR
☐ YK CSR
☐ CCME
☐ Drinking Water
☐ BC Water Quality
☐ Other

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

Relinquished by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	Received by: (Signature/ Print)	Date (yyyy/mm/dd):	Time (hh:mm):	BV Job #
Micayla Drew Micayla Drew	2023/11/08	13:00	Marta Zamora	2023/11/09	11:40	

COC-1020

ICE Frozen.

C391830_COC



wsp.com

REPORT

Chapter 8.0 Non-Indigenous Species and Aquatic Invasive Species (NIS/AIS) Monitoring Program

2023 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

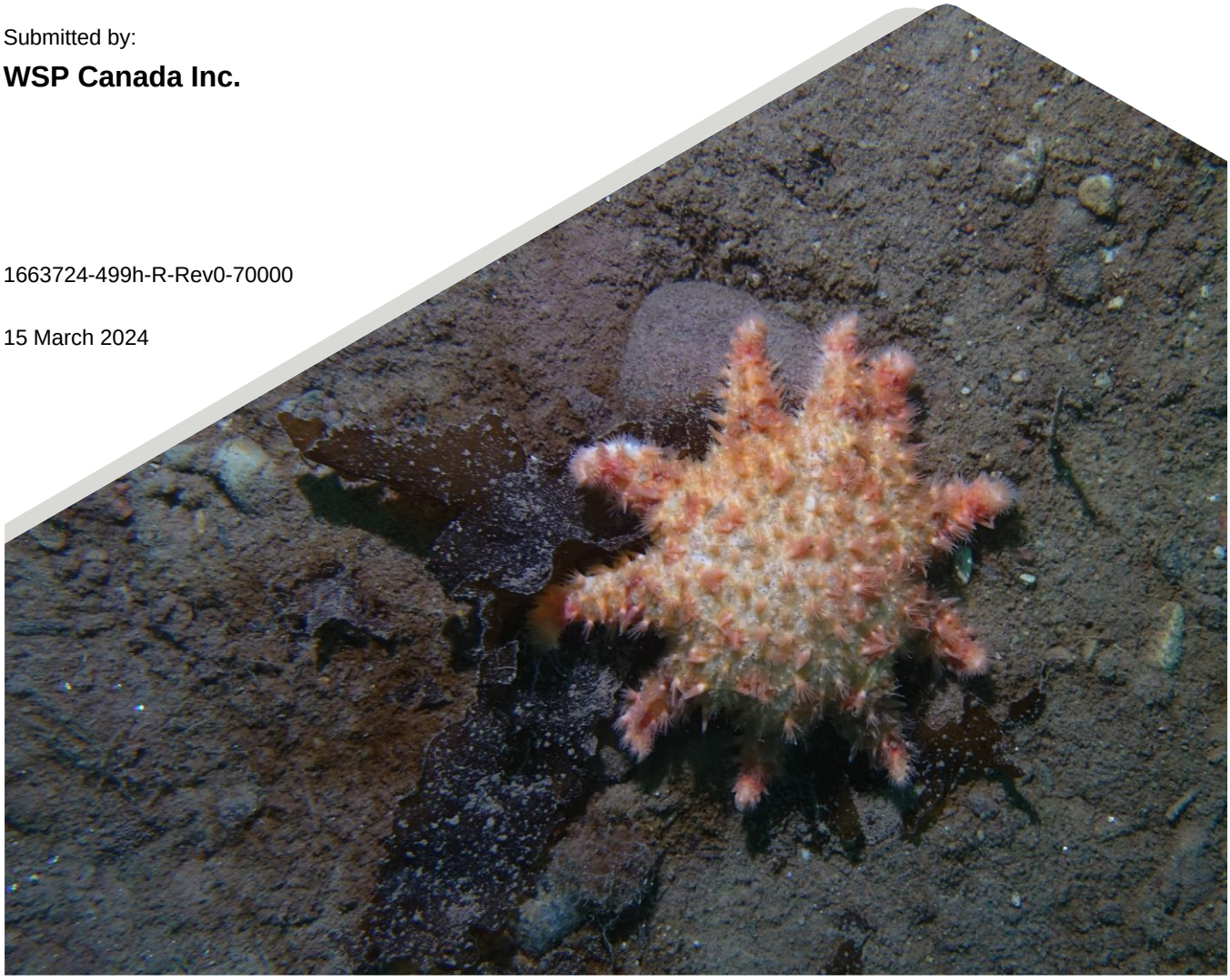
Submitted to:

Baffinland Iron Mines Corporation

360 Oakville Place Drive, Suite 300
Oakville, Ontario
Canada
L6H 6K8

Submitted by:

WSP Canada Inc.



1663724-499h-R-Rev0-70000

15 March 2024

Table of Contents

8.0 NON-INDIGENOUS SPECIES/AQUATIC INVASIVE SPECIES (NIS/AIS) 1

8.1.1 Objectives 1

8.1.2 Definitions 1

8.2 Study Design 3

8.2.1 Modifications to the Program (2023) 6

8.2.2 Indicators and Thresholds 7

8.3 Materials and Methods 7

8.3.1 Sample Collection for Taxonomic Identification 7

8.3.1.1 Benthic Infauna, Macroflora and Benthic Epifauna, Fish and Incidentals 7

8.3.1.2 Settlement Substrates 7

8.3.1.3 Zooplankton 11

8.3.2 Samples Collected for Genetic Analysis 12

8.3.3 Data Analysis 14

8.3.3.1 Risk Condition Categories, Thresholds, and Responses 14

8.3.3.2 Detection 17

8.3.3.3 Literature Review 18

8.3.3.3.1 Distribution Categories 19

8.3.3.3.2 Limitations 21

8.3.3.4 Independent Verification of Identification 24

8.4 Results 24

8.4.1 Taxonomic Identification 24

8.4.1.1 Benthic Infauna 24

8.4.1.2 Macroflora and Benthic Epifauna 32

8.4.1.3 Settlement Substrates 34

8.4.1.4 Zooplankton 36

8.4.1.5 Fish and Incidentals 40

8.4.2 Genetic Identification 42

8.4.3 Independent Verification and Identifications 42
8.5 Discussion 43
8.5.1 Limitations 43
8.5.2 Taxonomic Identification 44
8.5.2.1 Benthic Infauna 44
8.5.2.2 Macroflora and Benthic Epifauna 47
8.5.2.3 Settlement Substrates 47
8.5.2.4 Zooplankton 48
8.5.2.5 Fish and Incidentals 49
8.5.3 Genetic Identification 50
8.5.4 Independent Verifications and Program Watch List 50
8.5.4.1 Sosane wireni 52
8.5.4.2 Paramphitrite birulai 52
8.5.4.3 Hesperonoe sp. 53
8.5.4.4 Bryophyta indet. 53
8.5.4.5 Crassicorophium sp./Monocorophium sp. 53
8.5.4.6 Marenzelleria sp. 54
8.5.4.7 cf. Punctaria latifolia 56
8.5.4.8 cf. Stictyosiphon soriferus 56
8.6 Conclusions and Recommendations 57
8.7 Closure 58
8.8 References 59

TABLES

Table 8-1: Summary of Settlement Basket and Plate Stations 10
Table 8-2: Zooplankton Sampling Locations 2023 12
Table 8-3: Benthic Stations Selected for DNA Barcoding and Targeted Taxa (Putative Identifications) 12
Table 8-4: Settlement Substrates Collected for Genetic Analysis 14
Table 8-5: Risk Condition Categories and Responses to Detections of New Taxa Records in the NIS/AIS Monitoring Program 15

Table 8-6: List of Newly Recorded Benthic Infauna Taxa Identified at Milne Inlet in 2023, with Description of Distribution on Record....26

Table 8-7: List of Newly Recorded Taxa Identified In Quadrat Surveys at Milne Inlet in 2023, with Description of Distribution on Record....33

Table 8-8: List of Newly Recorded Taxa Identified on Settlement Substrates at Milne Inlet in 2023, with Description of Distribution on Record....35

Table 8-9: Zooplankton Taxa Presence in Milne Inlet During NIS/AIS Monitoring in 2023 Compared to Previous Survey Years (Baseline years, 2016-2020, 2022)....36

Table 8-10: List of Newly Recorded Zooplankton Taxa Identified at Milne Inlet in 2023, with Description of Distribution on Record....39

Table 8-11: Newly Recorded Incidental Taxa Identified in Milne Inlet in 2023....41

Table 8-12: Record of Results of Independent Review of Taxa Collected in Milne Port....42

Table 8-13: Summary of External Taxa Verifications (2022 and 2023)....51

FIGURES

Figure 8-1: Specific Nonindigenous Species/ Aquatic Invasive Species (NIS/AIS) Sampling Locations in Milne Port, 2023....4

Figure 8-2: MEEMP Sampling Locations in Milne Inlet Used to Inform Nonindigenous Species/ Aquatic Invasive Species (NIS/AIS) Program Species Inventories, 2023....5

Figure 8-3: Quadrat settlement baskets and plates at Q4, settlement baskets from Q11, and settlement plates being retrieved from Q1....9

Figure 8-4: Approximate regions for taxonomic distribution categories used to define closest records. Adapted from Goldsmit et al. (2014)....21

Figure 8-5: Arctic species datasets available through ArcOD (the centralized international database and species inventory of Arctic Ocean Diversity, www.arcodiv.org), one of the sources of information reviewed for species records, illustrating the discrepancy between the number of published studies in Canadian waters (right side) compared to other areas of the Arctic Ocean (left side). Image produced by ArcOD (2024). Yellow star indicates Project area....23

Figure 8-6: Example of differences in growth on rocks from settlement baskets at station West-M (left) and settlement plates at station West-D (right) located on the Freight Dock following one-year (top) and three-year (bottom) deployment times....34

APPENDICES

APPENDIX 8A-1
Benthic Infauna Presence/Absence from Survey Years 2010-2023

APPENDIX 8A-2
Benthic Infauna Laboratory Data 2023

APPENDIX 8A-3
Benthic Infauna Laboratory Methods

APPENDIX 8B-1
Incidental Taxa Identifications 2023

APPENDIX 8B-2
Quadrat and Trawl Laboratory Data 2023

APPENDIX 8B-3
Fish Stomach Laboratory Data 2023

APPENDIX 8C-1
Taxa Presence/Absence on Settlement Substrates 2021-2023

APPENDIX 8C-2
Settlement Substrate Laboratory Data 2023

APPENDIX 8B-3
Settlement Substrate Laboratory Methods

APPENDIX 8D-1
Zooplankton Taxa Presence/Absence from Survey Years 2010-2023

APPENDIX 8D-2
Zooplankton Laboratory Data 2023

APPENDIX 8D-3
Zooplankton Laboratory Methods

APPENDIX 8E-1
Record of Risk Status

APPENDIX 8E-2
Record of Independent Verifications

APPENDIX 8E-3
Program Watch List

DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
AIS	Aquatic Invasive Species
ArcOD	Arctic Ocean Diversity
ARMS	Arctic Register of Marine Species
Biologica	Biological Environmental Services Ltd.
BOLD	Barcode of Life Data
CBDD	Convention of Biological Diversity Decision VI/23
CD	Chart Datum
c.f.	Compare with (taxonomy)
DFO	Fisheries and Oceans Canada
DNA	Deoxyribonucleic Acid
EEM	Environmental Effects Monitoring
EOL	Encyclopedia of Life
GBIF	Global Biodiversity Information Facility
GISD	Global Invasive Species Database
Indet.	Indeterminate (taxonomy)
ISSG	Invasive Species Specialist Group
IUCN	International Union for Conservation of Nature
Laval	Benthic Ecology Lab at Université Laval
MEEMP	Marine Environmental Effects Monitoring Program
MEWG	Marine Environment Working Group
NCCOS	National Centers for Coastal Ocean Science
NEMESIS	National Exotic Marine and Estuarine Species Information System
NIS	Non-Indigenous Species
OBIS	Ocean Biogeographic Information System
PC	Project Certificate
sp.	Species (taxonomy)
sp. nr.	Species near (taxonomy)
WoRMS	World Register of Marine Species
WRIMS	World Register of Introduced Marine Species

8.0 NON-INDIGENOUS SPECIES/AQUATIC INVASIVE SPECIES (NIS/AIS)

This chapter presents the results of the Non-Indigenous Species (NIS) and Aquatic Invasive Species (AIS) monitoring program as a part of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted at Milne Port and in Milne Inlet during the 2023 open-water season. This monitoring component was developed to achieve the requirements outlined in the Project Certificate (PC) Conditions described in Chapter 1.0, Table 1-2, and specifically PC Conditions No. 76, 87, 89, 91, 99 (a), and 99 (c).

8.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 for the overall program. The objectives specific to the NIS/AIS monitoring program include the following:

- Sample marine environment to screen for potential Project-related introductions of taxa that are invasive or non-indigenous.
- Update taxonomic inventory of marine biota (i.e., list of organisms observed) for Milne Inlet.
- Communicate outcomes for specimens sent for independent verification.

8.1.2 Definitions

Definitions are provided below for technical terms used throughout this chapter. Definitions are written to align with federal and international standards, based on the Convention of Biological Diversity Decision VI/23 (CBDD) and Invasive Alien Species Strategy for Canada (Government of Canada 2004).

Aquatic invasive species (AIS): harmful non-indigenous species whose introduction or spread threatens the environment, the economy, or society (Government of Canada 2004).

cf.: “compare with”, in taxonomy refers to a taxonomic designation that indicates an inexact match to the indicated taxon. The specimen may represent a similar related species, an undescribed morph, or the specimen may be lacking characteristics (due to damage, lack of development of the features, or immaturity) that allow for a positive identification.

Cryptogenic: a species that is not demonstrably native or introduced, a species with an obscure or unknown natural range (Carlton 1996).

forma (f.): or form, indicating a secondary rank classification that designates a group with a noticeable morphological deviation.

Homotypic synonym: where there is more than one species name on record based on the same type taxon or species description. May occur when the taxon is independently described by separate taxonomists, or when species are moved from one genus to another.

indet.: “indeterminate”, used to indicate the specimen can be identified only to the listed taxonomic level, used for indeterminate taxonomic designations above genus. This is typically used for samples that were damaged, juvenile, or missing features preventing a conclusive identification beyond the indicated taxonomic level.

Non-indigenous species (NIS): species introduced by human action outside their natural past or present distribution (Government of Canada 2004).

sp.: "Species", used to indicate the species name is indeterminate. This is typically used for samples identifiable to genus that were damaged, juvenile, or missing features preventing a conclusive identification to species level.

sp. nr.: "species near", similar to "cf.", but representing a species that is similar to the described species, however there are indications that the species is not a correct match. This may occur in poorly or newly described taxonomic groups where a specimen clearly matches the genus description but does not necessarily match the described species within it. May indicate a species that is new to science and lacks a description on record.

Other terms used throughout the report include the following:

Flagged taxa: Taxa are flagged where there is low confidence in their identifications, uncertainties in the range on record, or presence on any of the AIS databases.

High risk: A species is considered "High Risk" if it is:

- not reported to be present in the Canadian Arctic
- capable of using shipping vectors
- listed as an AIS in other areas
- well-documented to have potentially serious invasive behaviours elsewhere, and/or showing invasive behaviours in Milne Inlet

Low risk: A species is considered "Low Risk" if it is:

- not reported to be present in the Canadian Arctic or there is low certainty as to its presence, or identity is uncertain, or taxon is undergoing natural range expansion
- not listed on AIS databases, or (in the case of higher taxon identification, with one or more representative species listed on an AIS database) the representative species is/are unlikely to establish in the Arctic (e.g., tropical/subtropical)

Moderate risk: A species is considered "Moderate Risk" if it is:

- not reported to be present in the Canadian Arctic
- capable of using shipping vectors
- listed as an AIS in other areas, but has shown no invasive behaviours in Milne Inlet

No risk: A species is considered "No Risk" if it is:

- reported to be present in the Canadian Arctic (or, its distribution in waters adjacent to the Canadian Arctic provides high certainty that its range includes the Canadian Arctic), prior to Project operations or in areas outside the Project's area of influence
- not listed on AIS databases, or if listed it is native to Canadian Arctic or (in the case of higher taxon identification, with one or more representative species listed on an AIS database) the representative species is/are unlikely to establish in the Arctic (e.g., tropical/subtropical)

Trigger List: a list of High-Risk taxa that are showing invasive behaviour in Milne Inlet or have shown invasive behaviour in similar ecosystems. Responsive actions will be species specific and proportional to the risk. There are currently no species on the Trigger List and, therefore, no species-specific response or action plans have been developed to date. Should a species be added to the Trigger List, a species-specific response plan would be developed in consultation with Fisheries and Oceans Canada (DFO).

Watch List: a list of taxa identified in Milne Inlet that are subject to a heightened level of monitoring, which may include targeted sampling for DNA analysis or population assessment. Taxa on this list may be considered to be Low Risk, Medium Risk or High Risk.

8.2 Study Design

NIS/AIS monitoring is conducted annually. Annual monitoring increases the data available for Milne Port, and is also important from a regional perspective, as this program currently represents the most intensive sampling for NIS/AIS in the Canadian Arctic and has contributed to filling regional data gaps on biodiversity.

The NIS/AIS monitoring program is designed to detect potential introductions of non-indigenous and/or invasive species from potential Project-related vectors such as ballast water discharges or ship hull biofouling. Since ballast water releases only occur at the anchorages and the Ore Dock in Milne Port, sampling conducted to date has largely focused on southern Milne Inlet as the area with highest likelihood of a potential marine invasion.

NIS/AIS monitoring involves a combination of dedicated surveys as well as screening all specimens caught during surveys for all MEEMP components.

Dedicated surveys (Figure 8-1) conducted for the NIS/AIS program involve the following:

i) Sampling zooplankton at Milne Port and at Ragged Island

ii) Recruitment surveying using settlement substrates deployed around Milne Port and at Ragged Island

iii) Collecting benthic infauna at four stations near the anchorage location at Ragged Island.

Specimens collected during the following MEEMP components (Figure 8-2) are screened for the NIS/AIS monitoring program:

i) Benthic infaunal survey (Chapter 4.0)

ii) Epifaunal and macroalgal survey (Chapter 5.0)

iii) Fish community survey (Chapter 6.0)

iv) Fish health survey (i.e., taxa found in fish stomachs, fish parasites) (Chapter 7.0).

NIS/AIS monitoring therefore involves data collection across multiple trophic levels – marine vegetation, invertebrates, zooplankton, and fish – to establish a comprehensive inventory of existing marine biota in the Project area that serves as a point of reference for any new species/taxa identified (herein referred to as the “Milne Inlet Taxonomic Inventory”). The Milne Inlet Taxonomic Inventory was initially populated with the list of organisms identified during baseline studies in 2008 through 2014, and has been updated annually since 2015 with new records collected during MEEMP surveys.

MILNE PORT MAP

RAGGED ISLAND MAP

MILNE INLET MAP

ZH-01
ZH-02
ZH-03
ZH-04
ZH-05
ZH-06
ZV-01
ZV-02
ZV-03
ZV-04
ZV-05
ZV-06
WEST M1
WEST D1
WEST S
CENTRE M
CENTRE D
EAST D
EAST M
EAST S
CENTRE S
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
MH1
BR01
BR02
BR1
BR2
BR3
BR03
BR4
ZH-07
ZH-08
Tremblay Sound
Eclipse Sound
Ragged Island
Milne Inlet
Stephens Island
Bruce Head
Koluktoo Bay
Poirier Island
SEE RAGGED ISLAND MAP
SEE MILNE PORT MAP
MILNE PORT

0 500 1,000
1:50,000 METRES

0 500 1,000
1:20,000 METRES

0 10 20
1:735,000 KILOMETRES

LEGEND

SETTLEMENT SUBSTRATES
- ANNUAL SUBSTRATES
- ANNUAL AND MULTI-YEAR SUBSTRATES
- MULTI-YEAR SUBSTRATES
- SUBSTRATES NOT RECOVERED

ZOOPLANKTON
- VERTICAL TOW
- VERTICAL TOW - NOT SAMPLED
- HORIZONTAL TOW
- HORIZONTAL TOW - NOT SAMPLED

- BATHYMETRIC CONTOUR (25 m INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- WATERBODY

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	CB
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
SPECIFIC NONINDIGENOUS SPECIES/ AQUATIC INVASIVE SPECIES (NIS/AIS) SAMPLING LOCATIONS IN MILNE PORT, 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	8-1

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig8_1_NIS_AIS_Sampling_Rev0.aprx PRINTED ON: AT: 5:12:03 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
25mm
0

MILNE PORT MAP

RAGGED ISLAND MAP

MILNE INLET MAP

Tremblay Sound

Eclipse Sound

SEE RAGGED ISLAND MAP

Ragged Island

Milne Inlet

Stephens Island

Bruce Head

Koluktoo Bay

Poirier Island

SEE MILNE PORT MAP

MILNE PORT

MM1-1

0 500 1,000
1:20,000 METRES

0 500 1,000
1:50,000 METRES

0 10 20
1:735,000 KILOMETRES

LEGEND

- BENTHIC INFAUNA
- BENTHIC INFAUNA - NOT SAMPLED
- QUADRAT
- QUADRAT - NOT SURVEYED

FISHING EFFORT

- ANGLING (JIGGING)
- FUKUI TRAP
- HOOP NET
- ANGLING (JIGGING)
- ANGLING (TROLLING)
- GILL NET
- TRAWLING

- BATHYMETRIC CONTOUR (25 m INTERVAL)
- INTERMITTENT WATERCOURSE
- WATERCOURSE
- WATERBODY

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20230730 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

CONSULTANT
wsp

YYYY-MM-DD	2024-03-21
DESIGNED	CB
PREPARED	AA
REVIEWED	AL
APPROVED	AL

TITLE
MEEMP SAMPLING LOCATIONS IN MILNE INLET USED TO INFORM NONINDIGENOUS SPECIES/ AQUATIC INVASIVE SPECIES (NIS/AIS) PROGRAM SPECIES INVENTORIES, 2023

PROJECT NO.	CONTROL	REV.	FIGURE
166372402	70000-04	0	8-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

PATH: I:\2016\166372\4\Mapping\MXD\70000_2023MEEMP\166372402_70000_04_2023MEEMP_Fig8_2_MEEMPSampling Totefom_INIS_AIS_Rev0.aprx, PRINTED ON: Fri, 5:12:07 PM

8.2.1 Modifications to the Program (2023)

Several modifications were made to the sampling program due to logistical limitations that arose during field work (see Chapters 4.0 and 5.0), as well as some new monitoring commitments. Sampling locations used for the 2023 NIS/AIS monitoring program are shown in Figure 8-1 (dedicated surveys) and Figure 8-2 (MEEMP components).

The 2023 benthic infaunal program (Chapter 4.0) was intended to collect samples from the full-scale benthic community radial sampling design consisting of 60 stations[1], however, due to limitations during field work, sample collection only occurred at 41 of these stations. Sampling was spaced along the radial transects to increase coverage throughout Milne Port, with greater emphasis on stations adjacent to the Ore Dock. Additionally, four benthic infauna stations at Ragged Island specific to the NIS/AIS program that were planned for sampling in 2023 could not be completed.

Additional benthic infauna samples, not part of the radial sampling design, were collected in 2023 after Baffinland committed to monitoring sediment and benthic infauna for scouring effects potentially associated with the use of large (Baby Cape and Capesize) ore carriers. This monitoring is to occur for three years after the initial use of the large ore carriers (Chapters 3.0 and 4.0). Two new stations (SCV-1 and SCV-2) were established to the west of the Ore Dock (see “Capesize Station Only” on Figure 3-2). A previously established station (SE-18-1), that was not part of the radial sampling design, was also sampled for Capesize effects monitoring. With this sampling added to the benthic radial sampling design, a total of 44 benthic stations were screened for occurrence of potential NIS/AIS in 2023.

Logistical issues also limited the number of quadrats that were surveyed by divers for the epifauna and macroalgae sampling to 18 of the 26 quadrats (Chapter 5.0). Settlement substrates co-located with quadrats that could not be surveyed were also not sampled in 2023.

Program delays and time constraints in 2021 and 2022 had prevented collection of annual settlement substrates on the planned schedule at several stations. These substrates were collected in 2023 to align the program with the intended rotation. As these substrates were deployed for longer than a year, they were not representative of annual recruitment and were instead preserved as a source of additional DNA samples.

Zooplankton sampling was increased from a single collection event to three events over the open water season to capture variability in zooplankton populations. Six oblique (horizontal) and six vertical zooplankton samples were collected in Milne Port during each collection event. The zooplankton collection event planned for Ragged Island could not be conducted due to ice cover and delays to the program.

A collaboration with the research laboratory of Dr. Gary Saunders at the University of New Brunswick to conduct a study of macroalgae collected during Baffinland’s monitoring programs commenced in 2023. All macroalgae collected during MEEMP and NIS/AIS field programs are being provided to Dr. Saunders for identification by molecular and/or microscopic taxonomic methodologies, as appropriate. Archived specimens from previous years of monitoring will also be reviewed.

[1] The monitoring frequency of the benthic infauna sampling program is every 3 years, as multiple years of monitoring data have revealed no adverse trends in benthic community indicators related to Project construction and operations, and for consistency with routine biological sampling for other mining effects monitoring programs (e.g., the federal Environmental Effects Monitoring Program [EEM]). In the years when the full benthic infauna sampling program is not conducted, a smaller number of samples is collected. See Chapter 4.0 for full description of the program.

8.2.2 Indicators and Thresholds

The NIS/AIS monitoring program was initially designed as a surveillance survey but over time has developed into an adaptive NIS/AIS management process. The process described below has been adjusted to align with terminology in Baffinland's Trigger Action Response Plan (TARP) (Baffinland 2021; Baffinland 2023).

The performance indicator of this program is "occurrence of an NIS/AIS in the Milne Inlet environment". Detection of a new taxonomic record that could potentially represent introduction of an NIS or AIS will initiate a response protocol aimed to assess the risk and determine the appropriate course of action.

Terminology for risk categories used in the NIS/AIS monitoring program has been updated since the 2022 MEEMP report (WSP 2023). The former risk categories for the NIS/AIS Monitoring Program were Low Risk / High Risk / Trigger List, but these have now been renamed to align with the risk categories used for other indicators in the TARP. Levels of risk are now named No Risk / Low Risk / Moderate Risk / High Risk.

Details of the risk condition categories, thresholds and pre-defined responses are presented in section 8.3.3.1.

8.3 Materials and Methods

8.3.1 Sample Collection for Taxonomic Identification

Sampling for the 2023 MEEMP and NIS/AIS monitoring programs was conducted between 20 July and 21 August by a field team composed of eight WSP biologists including biologist/SCUBA divers, a BIM vessel operator, and two local Inuit field technicians from Pond Inlet, NU (BIM employees). Sampling was conducted from a 9.1-m aluminum vessel (research vessel) in addition to two inflatable tender vessels (6.1 m and 4.9 m) based at the Milne Port facility. Additional sampling for zooplankton was performed by Baffinland's environmental technicians during September.

8.3.1.1 Benthic Infauna, Macroflora and Benthic Epifauna, Fish and Incidentals

Screening to determine NIS/AIS status was conducted for all specimens caught or observed during surveys for MEEMP components, including benthic infaunal and epifaunal invertebrates (Chapter 4.0 and Chapter 5.0, respectively), macroflora (Chapter 5.0), fish species (Chapter 6.0), fish parasites and taxa found in fish stomachs (Chapter 7.0). Methodologies for these collections are described in the respective chapters of this report.

Incidental samples were also collected opportunistically during SCUBA surveys for macroflora and epifauna as well as during fishing efforts. Specimens of all collected incidental taxa were preserved in 10% formalin and submitted to Biologica Environmental Services Ltd. (henceforth referred to as "Biologica"; a Canadian marine and freshwater taxonomy laboratory) for taxonomic identification.

8.3.1.2 Settlement Substrates

Settlement substrates deployed from 2020 to 2022 in various locations throughout Milne Port were sampled in 2023 to monitor for recruitment of fouling taxa. Stations were located between -3 and -12 m water depth, along the east, north, and west faces of the Freight Dock as well as various depths co-located with the quadrats for epifauna and macroalgal monitoring (Figure 8-1, Table 8-1, Chapter 5.0). Three stations situated at the Ragged Island anchorage were not sampled in 2023 due to logistical constraints.

Each station was configured as three to five settlement baskets filled with locally sourced cobble and three to five settlement plates (each comprised of a 20 L plastic bucket lid oriented horizontally) attached to a line with a subtidal buoy (Figure 8-3). Settlement baskets and plates are sampled on annual and multi-year (ideally, three-year) schedules. Sampling involved retrieval of one settlement basket and one settlement plate that was deployed for three years, and their replacement with a clean settlement basket and plate. In subsequent years, the next settlement basket and plate in the series will be collected, which will have been deployed for three years to represent short to medium term colonization. An additional plate and basket were collected annually and replaced with a new plate and basket to represent immediate term colonization.

The first settlement substrates were deployed in 2020 at the Freight Dock and quadrats Q1-Q10. Due to supply chain limitations associated with COVID-19 in 2020, the addition of new stations in 2021, and the loss of some sampling locations in 2021 and 2022, full sets of annual and multi-year plates and baskets were not available for all stations. Deployment year and soak time at recovery for all settlement substrates recovered in 2023 are described in Table 8-1.

Plates were cut underwater to detach from the center line and placed within a collection bag and brought to the surface where they were placed in a clean sandbag with ambient water (to separate samples) and then placed in a tote of water. An internal label was created for each sample and added to the containers for later identification. The plates were photographed prior to being cut into quarters using a knife and then placed in a 4 L sample bucket.

Baskets were brought to the surface and placed in clean 4 L buckets with ambient water. The cobbles were removed from the basket and photographed prior to being placed into a 4 or 8 L sample bucket. As possible, visible macroalgae were removed with forceps and placed into labelled vials with silica gel for genetic and microscopic identification at the University of New Brunswick (Dr. Gary Saunders).

Samples were preserved with 10% formalin. The buckets were sealed and inverted several times to promote homogenization with the formalin. The buckets were labeled internally and externally with water-resistant labels and sent to Biologica for taxonomic analysis of attached and motile invertebrates. Macroalgae were removed from the sample by Biologica and will be sent to the University of New Brunswick for taxonomic analysis.

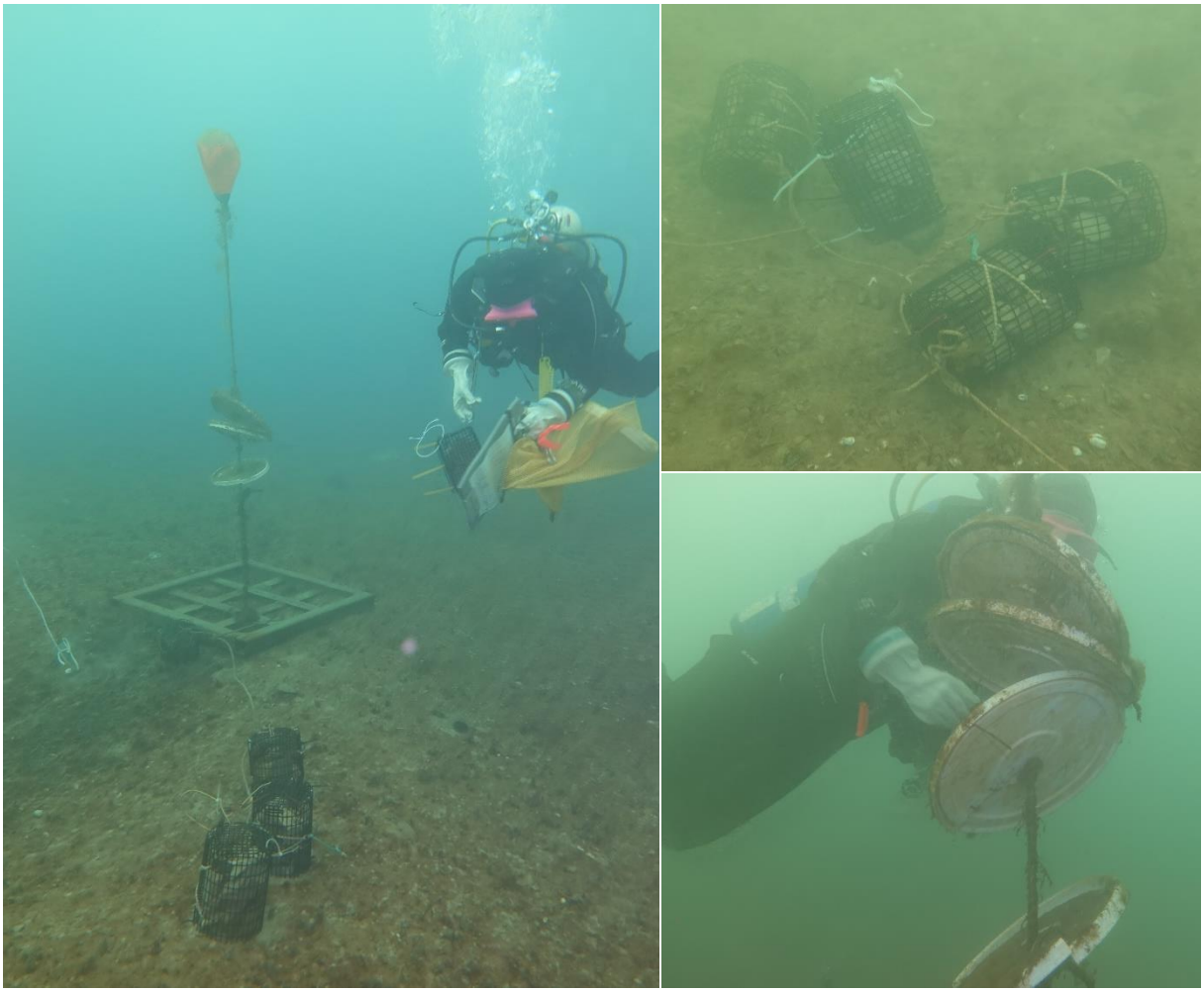


Figure 8-3: Quadrat settlement baskets and plates at Q4, settlement baskets from Q11, and settlement plates being retrieved from Q1.

Table 8-1: Summary of Settlement Basket and Plate Stations

Station	Location (NAD 83 UTM 17W)		Depth (m below CD)	Substrate Sample Collected	Date Deployed	Date Recovered
	Easting (m)	Northing (m)				
West S	503927	7976662	-4.5	Annual Basket and Plate	August 2022	31 July 2023
				Multi-year Basket and Plate	August 2020	
West M[1]	503926	7976690	-9.0	Annual Basket and Plate	August 2022	31 July 2023
				Multi-year Basket and Plate	August 2020	
West D[1]	503926	7976690	-9.7	Annual Basket and Plate	August 2022	31 July 2023
				Multi-year Basket and Plate	August 2020	
Centre S	504005	7976670	-3.1	Annual Basket and Plate	August 2022	28 July 2023
				Multi-year Basket and Plate	August 2020	
Centre M[2]	504003	7976689	-7.1	Multi-year Basket and Plate	August 2020	28 July 2023
Centre D[2,3]	504008	7976708	-10.1	Multi-year Basket and Plate	August 2020	30 July 2023
East S	504031	7976679	-7.1	Annual Basket and Plate	August 2022	28 July 2023
				Multi-year Basket and Plate	August 2020	
East M	504029	7976700	-10.4	Annual Basket and Plate	August 2022	28 July 2023
				Multi-year Plate[4]	August 2020	
East D	504033	7976717	-11.4	Annual Basket and Plate	August 2022	28 July 2023
				Multi-year Basket and Plate	August 2020	
Q1	502828	7976382	-8.8	Annual Basket and Plate	August 2022	27 July 2023
				Multi-year Basket and Plate	August 2020	
Q2	502843	7976385	-12.3	Not Recovered[5]	August 2022	N/A
Q3	504208	7976659	-10.2	Annual Basket and Plate	August 2022	31 July 2023
				Multi-year Basket and Plate	August 2020	
Q4	504363	7976611	-11.6	Annual Basket and Plate	August 2022	25 July 2023
				Multi-year Basket and Plate	August 2020	
Q5	504802	7976731	-12.6	Annual Basket and Plate	August 2022	26 July 2023
				Multi-year Basket and Plate	August 2020	
Q6	506563	7979107	-18.3	Not Recovered[5]	August 2020	N/A
Q7	506774	7979170	-9.9	Annual Basket and Plate	August 2022	29 July 2023
				Multi-year Basket and Plate	August 2020	
Q8	506957	7979457	-10.3	Annual Basket and Plate	August 2022	29 July 2023
				Multi-year Basket and Plate	August 2020	
Q9	506962	7979448	-7.9	Annual Basket and Plate	August 2022	29 July 2023
				Multi-year Basket and Plate	August 2020	
Q10	506584	7979115	-6.4	Annual Basket and Plate	August 2022	31 July 2023
				Multi-year Basket[6]	August 2020	
Q11	502820	7976371	-6.5	Annual Basket and Plate	August 2022	27 July 2023
Q12	503034	7976479	-10.4	Annual Basket and Plate	August 2022	2 August 2023
Q13	504210	7976643	-7.8	Annual Basket and Plate	August 2021	31 July 2023

Station	Location (NAD 83 UTM 17W)		Depth (m below CD)	Substrate Sample Collected	Date Deployed	Date Recovered
	Easting (m)	Northing (m)				
Q14	504350	7976589	-7.3	Annual Basket and Plate	August 2021	25 July 2023
Q15	504800	7976721	-6.8	Annual Basket and Plate	August 2021	26 July 2023
Q16	506558	7979093	-11.8	Not Recovered[7]	August 2021	N/A
Q17	506774	7979163	-8.6	Annual Basket and Plate	August 2022	29 July 2023
Q18	506956	7979452	-9.7	Annual Basket and Plate	August 2022	29 July 2023
Q19	506953	7979447	-10.1	Annual Basket and Plate	August 2022	29 July 2023
Q20	506588	7979125	-10.4	Annual Basket and Plate	August 2022	31 July 2023

[1]West M and D Stations were co-located.

[2]No annual substrates were collected at Centre M and Centre D as they were not replaced in 2022.

[3]Centre D Station was moved shallower in 2023.

[4] Two baskets were lost off East M Station in 2022 when the station moved from its original location into deeper water. New baskets were added in 2023 as replacements.

[5] Due to program timing issues, these quadrats' settlement substrates were not able to be recovered in 2023.

[6] Q10 plate was out of sync due to not being collected in 2022.

[7] Q16 had moved to deeper depths in 2022 due to vessel anchor dragging and due to program timing issues, could not be redeployed or sampled in 2023.

8.3.1.3 Zooplankton

Zooplankton samples were collected using vertical and horizontal oblique tows over three sampling events at the beginning, middle, and end of the open water season (Figure 8-1, Table 8-2). Vertical hauls were conducted at six sampling stations in Milne Port by lowering a 0.3 m diameter (64 µm mesh size) plankton net to a depth of 1 m to 3 m above the bottom and then raising the net by hand to the surface at a rate of approximately 1 m/s (visually estimated). Three replicate hauls were conducted at each station and combined into a single composite sample following methodology from previous years (WSP 2023).

Oblique tows were conducted by towing a 0.5 m diameter net (250 µm mesh size) for a period of 10-12 minutes per tow. The net was towed in a sinusoidal fashion by means of regular transitions in tow speed (1-minute towing at a speed of 8-10 km/h, 1-minute idling), which allowed the weighted net to periodically sink and rise during active sampling. This helped avoid sampling only in the upper few metres of the water column. The sinusoidal oblique tow approach and larger mesh size is used to help catch a more representative sample of larger zooplankton in the water column and to catch faster moving larvae (e.g., fish larvae, larger crustaceans) than is possible with the vertical tow method. Where required, transects were towed in sections to allow for clearing of the plankton net, and samples were carefully flushed into a sample container as a single composite sample for each transect.

Once the sample was transferred to the sample container, ambient seawater was splashed or sprayed on the outside of the net to rinse any remaining sample into the container. Between each tow, the nets and bottles were rinsed (either flushed with sea water or by using a spray bottle filled with sea water through the net mesh to exclude organisms). All zooplankton samples were preserved in 5% formalin and submitted to Biologica for taxonomic identification. Laboratory methodologies are detailed in Appendix 8D-3.

Table 8-2: Zooplankton Sampling Locations 2023

Station Name	Sampling Dates (2023)	UTM Coordinates			
		Start		End	
		Easting	Northing	Easting	Northing
Horizontal ObliqueTows[1]					
ZH-01	31 July, 11 August,1 September	502500	7976624	502319	7976768
ZH-02	31 July, 11 August,1 September	502253	7977175	502537	7976876
ZH-03	31 July, 11 August,1 September	502427	7977036	502755	7976731
ZH-04	31 July, 13 August, 1 September	503615	7976841	503224	7977030
ZH-05	31 July, 13 August, 1 September	504364	7978031	504077	7977774
ZH-06	31 July, 13 August, 1 September	504778	7977802	504487	7977484
Vertical Tows					
ZV-01	1 August, 11 August, 1 September	502768	7976524	-	-
ZV-02	1 August, 11 August, 1 September	502866	7976548	-	-
ZV-03	31 July, 11 August,1 September	503028	7976580	-	-
ZV-04	31 July, 11 August,1 September	503563	7976741	-	-
ZV-05	31 July, 11 August,1 September	503793	7976782	-	-
ZV-06	1 August, 11 August, 1 September	504551	7976804	-	-

[1]Waypoints for horizontal oblique tows are targeted coordinates. Actual survey track varied between each survey event.

8.3.2 Samples Collected for Genetic Analysis

In 2023, targeted benthic infaunal sampling occurred at six stations in Milne Port where potential high-risk taxa that were placed on the program Watch List had been collected in previous years (Table 8-3).

Table 8-3: Benthic Stations Selected for DNA Barcoding and Targeted Taxa (Putative Identifications)

Station	UTM Coordinates (17W)		Taxa of Interest
	Easting	Northing	
SW-2	503064	7976526	*Marenzelleria* sp.
SW-12	502037	7976473	*Marenzelleria* sp. *Ampharete petersenae*
SW-13	501920	7976428	*Marenzelleria* sp. *Ampharete petersenae*
SE-1	503907	7976727	*Paramphitrite/Amphitrite birulai* *Ampharete petersenae*
SNE-7	504189	7977629	*Oncousoecia* sp. *Sosane wireni*
SNE-10	504364	7978043	*Oncousoecia* sp. *Sosane wireni*

These samples were collected and processed in a manner similar to the other benthic infauna samples (Chapter 4.0), however, the samples were preserved in 95% ethanol, rather than formalin, to allow for DNA analysis should specimens resembling the flagged taxa be identified.

All benthic infauna samples collected for DNA analysis were sorted by Biologica following the same procedures for benthic infauna samples. Targeted taxa, if present in the samples, were removed to separate vials to be sent for barcoding. Targeted taxa included potential NIS/AIS species that were placed on the Watch List after being flagged in previous surveys and included other potential invasive taxa for Nunavut compiled from a high-risk species brochure (Government of Nunavut 2016).

Settlement substrates that were otherwise not required for 2023 sampling were preserved as a source of additional DNA samples (Table 8-4). Substrates that were not required included annual and multi-year substrates that were not collected in 2022 due to time constraints and represented a two-year deployment time or were extraneous to the substrates already collected at those stations (e.g., the multi-year plate from 2022 where the multi-year plate from 2023 was already collected). A subset of plate samples was archived for future DNA analysis and processed in a similar manner to other settlement substrate samples (Section 8.3.1.2); however, the plate pieces belonging to the same station were placed within a tube of nylon netting and tied to contain organisms and prevent cross-contamination with other samples. These samples are referred to as ‘preserved whole’ samples (Table 8-4). Samples from multiple stations were then added to one 8 L bucket and preserved with 95% ethanol. The remaining DNA sample substrates were ‘scraped’ (Table 8-4) as follows:

- Identifiable larger epifauna taxa were picked off the substrate and added to 52 mL vials and preserved with 95% ethanol. These samples, and “preserved whole” samples were reviewed by Biologica for target taxa (as described above). Additionally, to help address difficulties in monitoring for introductions of biofouling organisms and to further build the taxonomic inventory, specimens from encrusting-type taxa (i.e., tunicates and bryozoans) or difficult to identify taxa were selected for DNA analysis. Morphological identification prior to preparation for DNA analysis was only performed on large or robust specimens to prevent the loss of viable material.
- Macroalgae was separated, when possible, by taxonomic group (brown, red and green algae if identifiable) and placed in labelled 1.5 mL centrifuge tubes with silica gel. These samples were sent to the University of New Brunswick for microscopic and genetic identification.
- The remainder of the sample was scraped with a paint scraper into 52 mL vials and preserved with 95% ethanol. These samples were archived. Future analysis of these samples may include targeted analysis for sequences of interest, or broader meta-barcoding.

Whole specimen or tissue samples of taxa sent for DNA verification, other than macroalgae, will be sent to the Canadian Centre for DNA Barcoding (CCDB) at the University of Guelph for barcoding. Macroalgae will be sent to the University of New Brunswick for barcoding.

Table 8-4: Settlement Substrates Collected for Genetic Analysis

Station	Substrate Sample Collected	Preservation Method	Preservative
Centre M	Annual Plate	Preserved whole	Ethanol (95%)
	Annual Basket	Scraped	Ethanol (95%)
Centre D	Annual Plate	Scraped	Silica Gel Ethanol (95%)
	Multi-year Basket	Scraped	Ethanol (95%)
Q10	Multi-year Plate	Preserved whole	Ethanol (95%)
Q11	Multi-year Basket	Scraped	Ethanol (95%)
	Multi-year Plate	Scraped	Ethanol (95%)
Q12	Multi-year Basket and Plate	Scraped	Ethanol (95%)
Q13	Multi-year Plate	Scraped	Ethanol (95%)
	Multi-year Basket	Scraped	Silica Gel Ethanol (95%)
Q14	Multi-year Basket	Scraped	Ethanol (95%)
Q15	Multi-year Basket	Scraped	Ethanol (95%)
	Multi-year Plate	Preserved whole	Ethanol (95%)
Q17	Multi-year Basket	Scraped	Ethanol (95%)
	Multi-year Plate	Preserved whole	Ethanol (95%)
Q18	Multi-year Basket and Plate	Scraped	Ethanol (95%)
Q19	Multi-year Basket	Scraped	Silica Gel Ethanol (95%)
	Multi-year Plate	Scraped	Ethanol (95%)
Q20	Multi-year Basket	Scraped	Ethanol (95%)
	Multi-year Plate	Preserved whole	Ethanol (95%)

8.3.3 Data Analysis

8.3.3.1 Risk Condition Categories, Thresholds, and Responses

As stated in section 8.2.2, the terminology used in the 2023 NIS/AIS monitoring program has been updated from the 2022 MEEMP report (WSP 2023). Levels of risk are now defined as No Risk / Low Risk / Moderate Risk / High Risk.

Definitions of the risk condition categories, thresholds, and pre-defined responses are as follows (Table 8-5):

Table 8-5: Risk Condition Categories and Responses to Detections of New Taxa Records in the NIS/AIS Monitoring Program

(a) No Risk

Description of Risk Condition	Response
Taxon was previously reported in Canadian Arctic prior to Project operations, and/or in the Canadian Arctic outside of the Project's area of influence[2]. AND The identified species or representative species[3] of the taxon are not listed in an Aquatic Invasive Species database.	Taxon is added to the taxonomic inventory for Milne Inlet.
OR	
Taxon was reported in Canadian Arctic prior to Project Operations and/or in the Canadian Arctic outside of the Project's area of influence[4]. AND Species or representative species are listed in an Aquatic Invasive Species database but the native range (or range prior to Project operations) includes the Project area OR targeted literature review has determined that the AIS-listed species (including representative species) is unlikely to establish in the ecosystem conditions of the Project area. AND Targeted literature review of the taxon has determined low likelihood of identification matching the list of known AIS and/or low likelihood of establishment of the listed AIS in the Project area.	Targeted literature review is conducted. Taxon is added to the taxonomic inventory for Milne Inlet.

[2] Area of influence is considered to include Milne Inlet and areas potentially influenced by Project shipping routes (including, but not limited to, areas of Baffin Bay and Eclipse Sound).

[3] Representative species are used in the case where identification of a collected organism to the species level has not been possible. If, at the level to which the organism is identifiable, any species in the taxon are listed in an invasive species database, a targeted literature review will be conducted for all listed species (i.e., these listed species are considered representative species for this taxon).

[4] Area of influence is considered to include Milne Inlet and areas potentially influenced by Project shipping routes (including, but not limited to, areas of Baffin Bay and Eclipse Sound).

(b) Low Risk

Description of Risk Condition	Response
At least one of the following must be met. Taxon is not reported as present in Canadian Arctic or there is low certainty as to its presence. OR There is low confidence in the identification (includes species pending verification), where related species are listed in AIS databases and there is potential for survival in the Project area. OR Taxon is undergoing range expansion into Milne Inlet that is attributed to factors or vectors unrelated to Project shipping (e.g., climate change).	Specimens are sent for independent taxonomic verification, and if possible, DNA analysis. Targeted literature review of the taxon (when first detected, and updated in subsequent years when taxon is detected). Ongoing monitoring, including routine sampling in MEEMP with attention to areas where the taxon was previously detected, to determine if it is established in Milne Inlet, and detect any indicators of invasive behaviour (e.g., from community metrics and distribution data). Taxon is added to Project Watch List. The risk status of the taxon will be reassessed each year it is detected.

(c) Moderate Risk

Description of Risk Condition	Response
Taxon is not reported as present in Canadian Arctic. AND Taxon is capable of using shipping vector(s). AND Taxon is listed as an AIS in other locations. AND Taxon is not yet confirmed to show those behaviours in Milne Inlet.	Specimens are sent for independent taxonomic verification, and if possible, DNA analysis. Targeted literature review (when first detected and repeated annually, even if not detected in that year). Heightened monitoring (i.e., annual targeted sampling at sites where taxon has been previously observed, to monitor for changes in community metrics and distribution data). Taxon is added to Project Watch List. The risk status of the taxon will be reassessed each year it is detected

(d) High Risk

Description of Risk Condition	Response
Taxon is not reported as present in Canadian Arctic. AND Taxon is capable of using shipping vector(s). AND Taxon is listed as an AIS in other locations. AND <u>At least one of the following</u> Taxon or closely related species has well-documented and potentially serious invasive behaviours (e.g., habitat disruption or displacement of native species) in other areas. OR Taxon shows evidence of invasive behaviour in Milne Inlet including but not limited to the species dominating the relative abundance, or reductions in species diversity and richness at sites where the species occurs; competition or predation on native taxa; habitat destruction; and/or dispersal/establishment from site of initial detection.	Specimens are sent for independent taxonomic verification, and if possible, DNA analysis. Targeted literature review (when first detected and repeated annually, even if not detected in that year). Heightened monitoring (i.e., annual targeted sampling at sites where taxon has been previously observed, to monitor for changes in community metrics and distribution data). The risk status of the taxon will be reassessed each year even it is not detected. Taxon is added to Project Watch List and is considered for addition to Trigger List. Taxon will be added to Trigger List if it shows invasive behaviours in Milne Port. Addition to the Trigger List triggers development of a Rapid Response Plan for the taxon, to be determined in consultation with DFO in accordance with the most updated version of Canadian Rapid Response Framework for Aquatic Invasive Species (i.e., updates to Locke et al. 2011).

8.3.3.2 Detection

Data analysis focused on taxa presence, rather than enumeration. Should a potential NIS/AIS be detected, relative abundance and related metrics will be examined as part of heightened monitoring.

All specimens except for macroalgae were initially sent to Biologica for taxonomic identification, with specimens identified to the lowest possible taxonomic level. Macroalgal specimens removed from samples sorted by Biologica or those sorted in the field will be sent to the University of New Brunswick for identification.

Detection involved screening the taxonomic list received from annual survey efforts against the Milne Inlet Taxonomic Inventory (all taxa observed across all baseline and monitoring surveys) to identify new records (taxa that have not been observed previously) and taxa that have been previously flagged for heightened monitoring which would require an updated review. Taxa are subjected to a process of investigation to assess risk as outlined in Table 8-5.

8.3.3.3 Literature Review

Taxa were assessed further through literature review to determine if their known distributions and ranges included North Atlantic, Arctic and/or Canadian Arctic waters, whether the taxon had a history as an AIS somewhere else in the world, and to check for changes in the taxonomic nomenclature. The Milne Port Taxonomic Inventory was updated to include any new or updated accepted species names for any previously identified species.

Information on general species biology and distributions for the literature review was sourced from the following:

- World Register of Marine Species (WoRMS 2024)
- Global Biodiversity Information Facility (GBIF 2024)
- Encyclopedia of Life (EOL 2024)
- SeaLifeBase (Palomares and Pauly 2023)
- National Centers for Coastal Ocean Science (NCCOS 2023)
- Arctic Register of Marine Species (ARMS) compiled by the Arctic Ocean Diversity (ArcOD 2023, Sirenko et al. 2024)
- Arctic species inventories published or accessed through the Ocean Biogeographic Information System (UNESCO 2024)

In addition, specimens were also compared against the following global and domestic AIS databases and resources:

- Global invasive species database (Molnar et al. 2008)
- National Exotic Marine and Estuarine Species Information System (NEMESIS; Fofonoff et al. 2018)
- Global Invasive Species Database (GISD) published by the IUCN Invasive Species Specialist Group (ISSG 2024)
- Known invasive species list within the National Risk Assessment for Introduction of Aquatic Nonindigenous Species to Canada by Ballast Water (Casas-Monroy et al. 2014)
- High-risk AIS in the Hudson Bay Region and Canadian Arctic identified using the Canadian Marine Invasive Screening Tool (CMIST) (Goldsmit et al. 2021)
- World Register of Introduced Marine Species (WRIMS; Costello et al. 2024)
- Invasive Species Compendium published by CABI (Centre for Agriculture and Bioscience International; CABI 2024)
- AquaNIS information system on aquatic non-indigenous and cryptogenic species (CRPI 2024)
- The Arctic Invasive Alien Species: Strategy and Action Plan developed by CAFF (Conservation of Arctic Flora and Fauna) and PAME (Protection of the Arctic Marine Environment) (CAFF and PAME 2017)
- Regional specific invasive species Watch List informational brochure (Government of Nunavut 2016).

8.3.3.3.1 Distribution Categories

Based on the range on record for each taxon, a value was assigned to each new observation to express the distance to the closest record as a descriptor of distribution. Methods for describing the distribution categories followed those of Goldsmit et al. (2014), adjusted for the Project location (Figure 8-4). Each taxon was assigned a value of 1 to 5 based on the locations of the closest records to the project area, where:

- A value of 1 indicated there were previous records "Within the Region". The region was defined as Milne Inlet between the Milne Port Site and Ragged Island[5].
- A value of 2 indicated that there was no record within the immediate region, however there was a record from the "Surrounding Region". Boundaries for the surrounding region included the Eastern Canadian Arctic and Davis Strait.
- A value of 3 indicated that records existed for the taxon in other regions of the Canadian Arctic, or "Arctic Outside Region". Boundaries included the Western Canadian Arctic and Hudson Bay.
- A value of 4 indicated the taxon had a "Circumpolar/Circumboreal Distribution" on record, indicating the taxon was recorded in other locations within the Arctic, or had a generally described Arctic distribution, with no georeferenced collections in the Arctic Outside Region.
- A value of 5 indicated the taxon had a "Wider Distribution" on record that did not clearly include records within circumpolar or circumboreal regions.

Supporting information on distribution for each taxon (as requested by MEWG members) was summarized by indicating the closest Marine Ecoregions of the World (MEOW; Spalding et al. 2007) where specimens had been recorded in the scientific literature or databases listed above. Based on biology or ecosystem connectivity, species in nine Arctic ecoregions listed below were considered to have a reasonable probability of having a natural range that would include Milne Port. All ecoregions represent coastal and shelf waters shallower than 200 m, with seaward boundaries extending 370 km (200 nautical miles) offshore or to 200 m depth (whichever is further offshore). Relevant Arctic Ecoregions applicable to MEEMP surveys are as follows (in approximate order of proximity to the Project area):

- **Baffin Bay–Davis Strait** – Davis Strait north of Cape Dyer to the northern extent of Baffin Bay, including the eastern extent of Lancaster Sound. Milne Port is located within this ecoregion. This ecoregion falls within the boundaries of distribution categories 1 and 2.
- **Lancaster Sound** – The Lancaster Sound region of the southern Arctic Archipelago, including Devon Island, Sommerset Island, Cornwallis Island, as well as the eastern and southern coastlines of Prince of Wales Island and Bathurst Island. This ecoregion falls within the boundaries of distribution categories 1, 2 and 3.
- **High Arctic Archipelago** – The Arctic Archipelago north of Lancaster Sound and Viscount Melville Sound. This ecoregion falls within the boundaries of distribution categories 2, 3 and 4.
- **Northern Labrador** – Northern Labrador Sea at Davis Inlet to Southern Davis Strait at Cape Dyer, including the eastern extent of Hudson Strait. This ecoregion includes Iqaluit and Frobisher Bay. This ecoregion falls within the boundaries of distribution categories 2 and 4.

[5] Due to the limited number of species surveys that have occurred in this region in comparison to MEEMP survey efforts, it is anticipated that most new observations in the program will not fall into this category.

- **Hudson Complex** – Includes the waters of Hudson Bay, James Bay, Hudson Strait, and Foxe Basin, as well as the eastern extent of Fury and Hecla Strait. This ecoregion falls within the boundaries of distribution category 3.
- **West Greenland Shelf** – Coastal and shelf waters of Western Greenland approximately between Cape York and Nûk. This ecoregion falls within the boundaries of distribution categories 2 and 4.
- **North Greenland** – Coastal and shelf waters of North Greenland approximately between Cape York and Danmarkshavn. This ecoregion falls within the boundaries of distribution categories 2 and 4.
- **East Greenland Shelf** – Coastal and shelf waters of North Greenland approximately between Danmarkshavn and Nûk. This ecoregion falls within the boundaries of distribution category 4.
- **Beaufort–Amundsen–Viscount Melville–Queen Maud** – The southern Arctic Archipelago west of the Lancaster Sound ecoregion, extending west past Cape Perry. This ecoregion falls within the boundaries of distribution category 3.

An uncertainty value was also provided to indicate the confidence in the available data used to place the specific taxon within the appropriate distribution category.

- **Low uncertainty** indicates that the available data are robust and well reviewed. It is assumed that the range on record is an accurate description for the taxon.
- **Moderate uncertainty** indicates that there is some uncertainty in the range on record or limited collection records, and that there is a reasonable probability that range may be broader or narrower than described in the available literature.
- **High uncertainty** indicates that the range on record is likely incomplete and not representative of the probable range. High uncertainty will be more likely for newly described species, or rarer species that are underrepresented in collections.

Taxa with distribution categories of 1 and 2 were generally assumed to be “No Risk” and were not subjected to further review. Further review of taxa with a value of 3 may occur where there is moderate to high uncertainty in the range on record. Any taxon with a distribution category value of 4 was flagged for further literature review, and potential independent external review. Any taxon with a distribution category value of 5 was automatically flagged for independent external review. Moderate to High uncertainty scores were applied to uncertain taxonomic designations (i.e., “cf.” taxa).

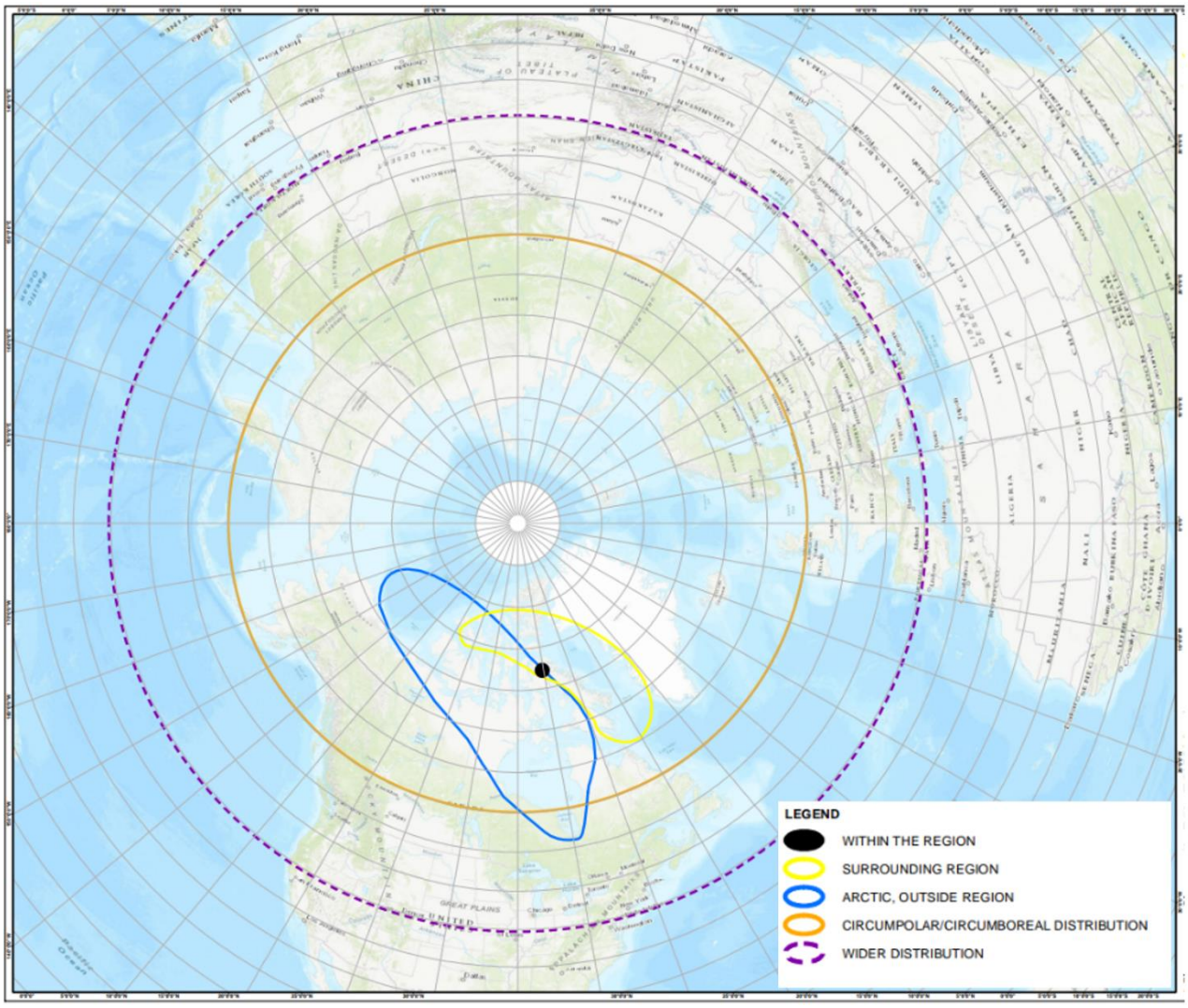


Figure 8-4: Approximate regions for taxonomic distribution categories used to define closest records. Adapted from Goldsmit et al. (2014).

8.3.3.3.2 Limitations

Specimens were not always identified to the species level due to a variety of limitations such as incomplete or disputed morphological descriptions available for some taxonomic groups, missing or undeveloped (juvenile) features, or damage to specimens. These specimens were recorded to the lowest practical taxonomic level as indet. (indeterminate) or sp. (species) when identifiable to the genus level. When an inexact match to a species was made, the designations cf. (compare with) and sp. nr. (species near) were used to indicate the specimen was similar to or represented an unknown species near to the indicated taxon, respectively (see Section 8.1.2 Definitions). For literature review, where taxa were not identifiable to the species level, the distribution or range of the higher taxon to which the specimen was identified was examined. For example, if a specimen from Milne Inlet could only be identified to genus, and the databases revealed that no species within that genus had ranges that included the Canadian Arctic, the specimen was flagged for further review.

Determining the status of some taxa was complicated by lack of data as well as poor or unreliable records. Biodiversity and species assemblages in the Canadian Arctic are not well studied, particularly in comparison to the Eurasian Arctic (Sirenko et al. 2024, Figure 8-5). Surveys and species inventories in the Canadian Arctic are not exhaustive, and species descriptions may not include a comprehensive description of range. Rarer and more recently described taxa may not have a report of occurrence or range on record within Canadian Arctic waters despite having the potential to be present. In many areas of the Canadian Arctic, much of the survey effort was undertaken in the 1970s or 1980s, and species inventories reflect the taxonomy of the time which may have changed due to subsequent taxonomic revisions, sometimes leading to uncertainty as to which species is recorded.

Species where the native range is unknown, disputed, or uncertain are considered cryptogenic, being unable to be classified as native or introduced in a given region (Carlton, 1996). The introduction status of these species is unknown either due to lack of information or disagreement among multiple lines of evidence and may represent a substantial proportion of species in an area, for example, cryptogenic species in San Francisco Bay, California, represented 37% of the total of introduced and cryptogenic species, despite over 30 years of study of NIS in the area (Carlton, 1996). In this study, a species may be considered cryptogenic to the Project area if the described range includes the Western North Atlantic and Arctic waters outside of the Eastern Canadian Arctic.

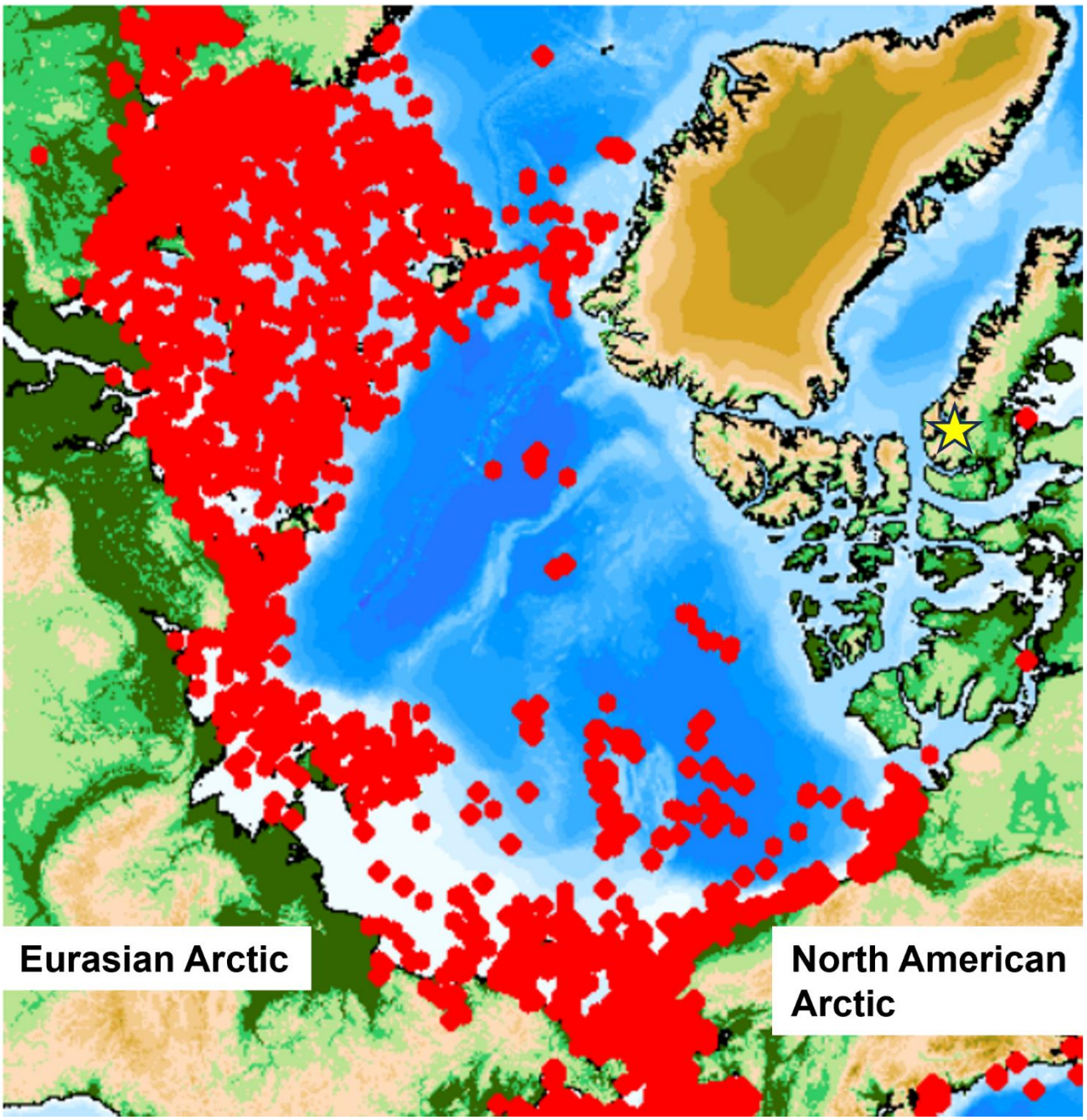


Figure 8-5: Arctic species datasets available through ArcOD (the centralized international database and species inventory of Arctic Ocean Diversity, www.arcodiv.org), one of the sources of information reviewed for species records, illustrating the discrepancy between the number of published studies in Canadian waters (right side) compared to other areas of the Arctic Ocean (left side). Image produced by ArcOD (2024). Yellow star indicates Project area.

8.3.3.4 Independent Verification of Identification

Following literature review, specimens that were flagged as requiring closer examination underwent secondary taxonomic review by Biologica and were sent for independent verification to the Benthic Ecology Lab at Université Laval (Laval). Following review by Laval, specimens were forwarded to specialists in specific taxonomic groups if further clarification was required.

Samples were sent for independent verification if they were flagged as potential non-indigenous or invasive species. Other reasons for independent verification included the existence of a new species description in the scientific literature which might affect a previous identification, limited information on the distribution, or uncertainty in the identification.

Specimens sent to specialists in 2023 were additional specimens of taxa identified during the 2022 MEEMP and NIS/AIS program that were pending verification with specialists.

8.4 Results

8.4.1 Taxonomic Identification

8.4.1.1 Benthic Infauna

Benthic infaunal sampling in 2023 was conducted at 31 stations in Milne Port, yielding a total abundance of 160,026 infaunal organisms representing 334 taxa, or 223 unique taxa (i.e., where a higher taxonomic level was not also represented by a lower taxon) (Appendix 8A-1, 8A-2). Of these, 25 taxa were considered “new records”, four of which were new species records, meaning they were not found in previous surveys in Milne Inlet; the new records are presented in Table 8-6, along with a description of the distribution on record.

All newly recorded taxa were confirmed to have ranges that included the Canadian Arctic or the North Atlantic extending past Greenland and Southern Baffin Island (at least one record in the ecoregions of interest). Ranges were considered to have a high probability of including the Project area if the limited collections on record were georeferenced to Arctic waters or were spread across a wide geographic range that could reasonably include Canadian Arctic waters. Table 8-6 describes the recorded distribution categories and relevant ecoregions for each taxa along with an uncertainty score that indicated the level of confidence in the available data describing the range on record.

Other taxa of note that were not new observations included one taxon with a revised species name. The Lumbrinerid polychaete genus *Scoletoma* has undergone recent revision, notably with the species *S. impatiens* now considered a junior synonym for *Scoletoma laurentiana* (WoRMS 2024). Species records are not fully updated to include the accepted range for specimens identified under former names resulting in the distribution range of *S. laurentiana* appearing to be Mediterranean and Atlantic (WoRMS 2024, GBIF 2024). However, *S. impatiens* is well documented in the Canadian Arctic, with collection in the Northern Labrador, Hudson Complex, West Greenland Shelf ecoregions, as well as observations in Milne Port MEEMP surveys since 2016 (WSP 2023, Miller and Nozères 2024, Gagnon and Torgersen 2021).

Additionally, four taxa from the Watch List were collected. In 2023, a single specimen of the ampharetid *Sosane wireni* was collected. *S. wireni* was first observed in 2019 and placed on the Watch List, and again in 2020. Independent review of the specimens in 2019 and 2020 confirmed the identification. *S. wireni* had been flagged initially due to uncertainties in the range on record. The accepted range description was limited to New England; however, collection records under superseded names indicated a broader range that included Arctic waters (GBIF

2024, WoRMS 2024). No specimens were collected in 2021 and 2022 despite targeted collections in the areas where the taxon was previously observed.

Specimens of the terebellid polychaete *Paramphitrite birulai* were collected in 2023. Collection records for this species indicated a broad range including the European North Atlantic, the Western North American Arctic, and the European Arctic (WoRMS 2024; GBIF 2024, Jirkov 2020), as well as indications of a cryptogenic presence in the Adriatic Sea (Costello et al. 2024, Loia et al. 2017). Independent review of specimens in 2023 by Dr. Julio Parapar, a specialist in terebellid polychaetes, concluded that while the specimen closely matched the most recent descriptions for *P. birulai*, features required for positive identification were missing (Parapar 2023). Additionally, Dr. Parapar noted features on the third segment that are not described for any of the known species in this genus, indicating further review is required to determine whether these specimens represent an undescribed species.

An unidentified *Hesperonoe* species was first observed in 2020 benthic infauna samples and placed on the Watch List at that time. Subsequently observed in 2022, this taxon was flagged due to uncertainties in its range resulting from a limited collection record. *Hesperonoe* are commensal polychaetes (scale worms), frequently associated with urchins and shrimp, which are not typically collected in benthic samples in significant numbers, resulting in a poor identification record. At least one species has been recorded in the Canadian Arctic, but records are limited to the Beaufort Sea (Chapman and Kostylev 2008). Specimens from 2020 were sent for independent review by Laval, where the specimens were identified as *Bylgides* sp., a genus known to occur in the Project area. This identification was disputed by Biologica based on features present on the specimens that should exclude the identification of *Bylgides* (Golder 2021). Specimens from 2022 were flagged for verification, however, a specialist was not identified in time for completion of the 2022 report. *Hesperonoe* was identified in samples again in 2023, and these will be sent for verification along with 2022 specimens when an expert is identified.

Additionally, four specimens of *Marenzelleria* sp. were identified in benthic samples from two stations near Phillips Creek and one of the new Capesize vessel stations. *Marenzelleria* is a spionid polychaete genus with multiple species that naturally occur in the Canadian Arctic but has representative species (i.e., *M. viridis*) invasive to other regions including the Baltic Sea (WoRMS 2024, GBIF 2024, Thomson 1982, Sikorski and Bick 2004). *Marenzelleria* sp. were first recorded in Milne Port in 2016 but were not flagged for review until the tentative identification of *M. viridis* in 2018. Due to morphological similarities between species in this genus and the tendency of specimens to be damaged during collection, identification to species can be difficult. Specimens from 2018 through 2021 were subsequently corrected to the Arctic species *M. wireni* (via genetic analysis) and likely *M. arctia* (via morphological examination) by a specialist in the taxonomic group. The 2023 specimens were not in a condition allowing them to be identified to species.

An unidentified *Crassicorophium* specimen was collected at a station near the Ore Dock on the western transect, and on a settlement plate along the Freight Dock. This genus naturally occurs in the Canadian Arctic and was first identified in baseline surveys (*C. bonellii,* as *Corophium bonellii*) at Milne Port, but was added to the Watch List following concerns from DFO of morphological similarities to *Monocorophium*. *Monocorophium* was also identified in baseline surveys at Milne Port, however (as *Corophium insidiosum;* SEM 2016). DNA analysis conducted in 2021 on tentative *C. bonellii* specimens was inconclusive to species, but samples were a genetic match to unidentified amphipods collected from Victoria Island, Nunavut, presumed to be *C. clarencense* (Golder 2022).

Table 8-6: List of Newly Recorded Benthic Infauna Taxa Identified at Milne Inlet in 2023, with Description of Distribution on Record

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Annelida							
Polychaeta / Phyllodocida	Chrysopetalidae	*Dysponetus* sp.	Broadly distributed and recorded in all oceans, this genus includes at least one species with occurrence records that include the Eastern Canadian Arctic	1, 2, 3, 4, 5	2 Surrounding Region	1, 4, 5, 6, 7	Low
Polychaeta / Phyllodocida	Phyllodocidae	*Mystides borealis*	Limited collection records indicate that this species is widespread and occurs in the Eastern Canadian Arctic	1, 2, 3, 4, 5	2 Surrounding Region	4, 5	Low
Polychaeta / Phyllodocida	Sphaerodoridae	*Sphaerodoridium minutum*	Phyllodocid worm with a broad range in the northern hemisphere. Records includes various georeferenced specimens around Baffin Island	1, 2, 3, 4	2 Surrounding Region	1, 2, 4, 5, 9	Low
Polychaeta / Phyllodocida	Sphaerodoridae	*Sphaerodorum gracilis*	Phyllodocid worm with a broad range in the northern hemisphere. Records includes various georeferenced specimens around Baffin Island	1, 2, 3, 4, 5, 15	2 Surrounding Region	1, 3, 4, 5, 6, 9	Low
Polychaeta / -	Maldanidae	*Praxillura* sp.	Globally distributed genus of maldanid worms that contains representative species with ranges that include the Canadian Arctic and representative collections from Baffin Island.	1, 2, 3, 4, 5	2 Surrounding Region	1, 4, 5, 6	Low

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Arthropoda							
Hexanauplia / Siphonostomatoida	-	Siphonostomatoida indet.	Order of parasitic copepods with a broad global distribution. Multiple species are known to occur in the Eastern Canadian Arctic. Some species are recorded as NIS, however they are linked with transfer of the host species, and are unlikely to be introduced through project related vectors	1, 2, 3, 6, 7	2 Surrounding Region	2, 4, 5, 6, 9	Low
Insecta / Diptera	Chironomidae	*Cladopelma* sp.	Non-biting midge species with freshwater larval stages. Genus has been recorded in the Eastern Canadian Arctic at Bylot Island	2, 8, 9	2 Surrounding Region	1, 5, 9	Low
Insecta / Diptera	Chironomidae	*Corynocera* sp.	Non-biting midge species with freshwater larval stages. Genus has been recorded in the Eastern Canadian Arctic, including unidentified species collected near Kugaaruk and Cambridge Bay	2, 8	3 Arctic, Outside Region	2, 7, 9	Low
Insecta / Diptera	Chironomidae	*Paratanytarsus* sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic, including Bylot Island, and documented in streams and lakes around the Mary River Mine site	2, 10, 11, 21	1 Within the Region	1, 2, 3, 4, 5, 8, 9	Low
Insecta / Diptera	Chironomidae	*Rheotanytarsus* sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic, and documented in streams and lakes around the Mary River Mine site	2, 10, 11, 21	1 Within the Region	1, 2, 5, 9	Low

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Insecta / Diptera	Chironomidae	*Stictochironomus* sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic, and documented in streams and lakes around the Mary River Mine site	2, 10, 11, 12	1 Within the Region	1, 2, 5, 9	Low
Insecta / Diptera	Chironomidae	*Pseudokiefferiella* sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic, and documented in streams and lakes around the Mary River Mine site	2, 10, 11, 21	1 Within the Region	1, 2, 3, 4, 5, 7, 8, 9	Low
Insecta / Diptera	Chironomidae	*Heterotrissocladius* sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic, and documented in streams and lakes around the Mary River Mine site	2, 10, 11, 12, 21	1 Within the Region	1, 2, 3, 4, 5, 6, 8, 9	Low
Insecta / Diptera	Chironomidae	*Hydrosmittia* sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic, and documented in streams and lakes around the Mary River Mine site	2, 10, 21	1 Within the Region	1, 3	Low
Insecta / Diptera	Chironomidae	*Parakiefferiella* sp.	Specimen did not match any described species within the genus. Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic and documented in streams and lakes around the Mary River Mine site. Records in the Eastern Canadian Arctic are largely unidentified species or cf. taxon	2, 10, 11, 12, 21	1 Within the Region	1, 2, 3, 4, 5, 9	Low

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Insecta / Diptera	Chironomidae	Pentaneurini indet.	Tribe of non-biting midges with a broad global distribution. Multiple genera within this tribe have been recorded in the Eastern Canadian Arctic and documented in streams and lakes around the Mary River Mine site.	2, 10, 11, 12	1 Within the Region	1, 2, 3, 4, 5, 6, 9	Low
Insecta / Diptera	Chironomidae	*Thienemannimyia* group sp.	Genus of non-biting midges with a broad global distribution. Recorded in the Eastern Canadian Arctic and documented in streams and lakes around the Mary River Mine site	2, 10, 11, 21	1 Within the Region	1, 4	Low
Insecta / Diptera	Tipulidae	*Tipula* (*Arctotipula*) sp.	An Arctic/Boreal subgenus of craneflies, with multiple species in the Canadian Arctic, including documented occurrences on Baffin Island. *Tipula* sp. are documented in streams and lakes around the Mary River Mine site.	2, 10, 11, 13	2 Surrounding Region	1, 2, 4, 5, 9	Low
Insecta / Plecoptera	Chloroperlidae	Chloroperlidae indet.	Stonefly family found primarily throughout the northern hemisphere. Recorded through the Canadian Arctic	2	3 Arctic, Outside Region	4, 5, 9	Low
Malacostraca / Amphipoda	Isaeidae	Isaeidae indet.	Records of this amphipod family in the Canadian Arctic are ambiguous due to multiple taxonomic revisions resulting in some Isaeidaen species being revised to new families. Records in the Eastern Canadian Arctic are not resolved beyond family.	1, 2, 5, 14, 15	3 Arctic, Outside Region	5	Moderate

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Malacostraca / Nebaliacea	Nebaliidae	*Nebalia* sp.	Leptostracan genus with a broad range on record. This genus is well documented in the Eastern Canadian Arctic	1, 2, 3, 5, 15	2 Surrounding Region	4, 5, 6, 8, 9	Low
Chordata							
Teleostei / Perciformes	Stichaeidae	*Anisarchus medius*	Stout Eelblenny is well documented throughout the Canadian Arctic and around Baffin Island	1, 2, 3, 16, 17, 18	2 Surrounding Region	4, 5, 6, 9	Low
Echinodermata							
Asteroidea / Paxillosida	Ctenodiscidae	*Ctenodiscus crispatus*	Seastar species with a broad range throughout the northern Hemisphere. Records in the Eastern Canadian Arctic include Davis Strait, Baffin Island and Lancaster Sound	1, 2, 3, 5, 17, 19, 20	2 Surrounding Region	1, 3, 4, 5, 6	Low
Asteroidea / Valvatida	Solasteridae	Solasteridae indet.	Family of seastars with a broad global range and multiple species within the Canadian Arctic. Eastern Canadian Arctic collections include specimens from Koluktoo Bay. *Crossaster papposus* observed in quadrat surveys in 2023 (Section 8.4.1.2)	1, 2, 3, 5, 14, 17	1 Within the Region	1, 2, 3, 4, 5, 6, 7, 8, 9	Low

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Mollusca							
Caudofoveata / Chaetodermatida	Chaetodermatidae	*Chaetoderma nitidulum*	An aplacophoran mollusc species that is well documented in the Canadian Arctic and has also been documented in Davis Strait in Western Greenland. Unknown species from the genus *Chaetoderma* have been observed in Milne Port benthic infaunal samples since 2015.	1, 2, 3, 19	2 Surrounding Region	6, 9	Low

Notes: Taxa identified to the lowest practical taxonomic level; *indicates non-unique taxa; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species.
[a] Distribution categories indicate the proximity to the Project of the closest georeferenced collection of the taxon, where category 1: Within the Region, 2: Surrounding Region, 3: Arctic, Outside Region, 4: Circumpolar/Circumboreal Distribution, 5: Wider Distribution. Distribution categories are defined in Section 8.3.2.1.1
[b] Ecoregion are delineated in Spalding et al. 2007 and herein refer to 1. Baffin Bay-Davis Strait; 2. Lancaster Sound; 3. High Arctic Archipelago; 4. Northern Labrador; 5. Hudson Complex; 6. West Greenland Shelf; 7. North Greenland Shelf; 8. East Greenland Shelf; 9. Beaufort-Amundson-Viscount Melville-Queen Maud
[c] Uncertainty indicates confidence in the data available for the range on record. Uncertainty categories (Low, Moderate, and High) are described in Section 8.3.2.1.1
Taxa distribution references: 1: WoRMS 2024, 2: GBIF 2024, 3: Miller and Nozères 2024, 4. Gagnon and Torgersen 2021; 5. Cusson 2018.; 6. Stewart and Bernier 1999; 7. Chain et al. 2016; 8. Medeiros and Quinlan 2011; 9. ISU 2024; 10. Minnow 2020; 11. NSC 2012; 12. Fortin and Gajewski 2011; 13. Brodo et al. 2022; 14. Stewart 2013; 15. Goldsmit 2016; 16. Stewart et al. 1985; 17, DFO 2019, 18. Coad and Reist 2008; 19. Sejr 2009; 20. Roy et al. 2015; 21. Namanyandeh et al. 2016
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2018, ISSG 2024, Costello et al. 2024, Molnar et al. 2008, Casas-Monroy et al. 2014.

8.4.1.2 Macroflora and Benthic Epifauna

A total of 47 distinct macroflora and epifauna taxa were recorded during quadrat surveys in Milne Inlet in 2022, 19 of which were identifiable to the species level. The complete list of identified taxa is presented along with the fish and incidental taxa in Appendix 8B-1. Of these, only one taxon (*Crossaster papposus*) was considered a new record for Milne Inlet, meaning it was not found in previous surveys in Milne Inlet; the new record is presented in Table 8-7, along with a description of the distribution on record.

No taxa from the Program Watch List were detected during permanent quadrat surveys and no taxa were flagged for review.

Table 8-7: List of Newly Recorded Taxa Identified In Quadrat Surveys at Milne Inlet in 2023, with Description of Distribution on Record

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Echinodermata							
Asteroidea / Valvatida	Solasteridae	*Crossaster papposus*	Common sunstar species in the Canadian Arctic, collection records include specimens from Koluktoo Bay	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1 Within Region	Low

Notes: Taxa identified to the lowest practical taxonomic level; *indicates non-unique taxa; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species.
[a] Distribution categories indicate the proximity to the Project of the closest georeferenced collection of the taxon, where category 1: Within the Region, 2: Surrounding Region, 3: Arctic, Outside Region, 4: Circumpolar/Circumboreal Distribution, 5: Wider Distribution. Distribution categories are defined in Section 8.3.2.1.1
[b] Ecoregion are delineated in Spalding et al. 2007 and herein refer to 1. Baffin Bay-Davis Strait; 2. Lancaster Sound; 3. High Arctic Archipelago; 4. Northern Labrador; 5. Hudson Complex; 6. West Greenland Shelf; 7. North Greenland Shelf; 8. East Greenland Shelf; 9. Beaufort-Amundson-Viscount Melville-Queen Maud
[c] Uncertainty indicates confidence in the data available for the range on record. Uncertainty categories (Low, Moderate, and High) are described in Section 8.3.2.1.1
Taxa distribution references: 1: WoRMS 2024; 2: GBIF 2024; 3: Stewart 2013; 4. OBIS 2011; 5. Roy et al. 2015; 6. Stewart et al. 1985; 7. Miller and Nozères 2024; 8. DFO 2019; 9. Cusson 2018..
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2018, ISSG 2024, Costello et al. 2024, Molnar et al. 2008, Casas-Monroy et al. 2014.

8.4.1.3 Settlement Substrates

A total of 42 plates and 38 baskets were recovered following either one year of deployment or a multi-year soak period[6]. Comparable to observations in 2022, multi-year substrates appeared to have greater recruitment and percent cover between substrates collected at the same station (Appendix 8C-2), and generally had higher taxonomic richness compared to annual plates based on qualitative observations (Figure 8-6).

A total of 81 invertebrate taxa were identified on settlement substrates (Appendix 8C-1). Of these, 61 were unique records and only one taxon was considered a new record (*Eucratea loricata*), meaning it was not found in previous surveys in Milne Inlet; the new record is presented in Table 8-8, along with a description of the distribution on record. Macroalgae identifications remain pending.



Figure 8-6: Example of differences in growth on rocks from settlement baskets at station West-M (left) and settlement plates at station West-D (right) located on the Freight Dock following one-year (top) and three-year (bottom) deployment times.

[6] Multi-year deployments were three years. Due to field limitations in 2022, some annual deployments were two-year soaks.

Table 8-8: List of Newly Recorded Taxa Identified on Settlement Substrates at Milne Inlet in 2023, with Description of Distribution on Record

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Bryozoa							
Gymnolaemata / Cheilostomatida	Eucrateidae	*Eucratea loricata*	Well documented in the Eastern Canadian Arctic, this bryozoan species has been recorded in various locations around Baffin Island	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 9	2 Surrounding Region	Low

Notes: Taxa identified to the lowest practical taxonomic level; *indicates non-unique taxa; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species.
[a] Distribution categories indicate the proximity to the Project of the closest georeferenced collection of the taxon, where category 1: Within the Region, 2: Surrounding Region, 3: Arctic, Outside Region, 4: Circumpolar/Circumboreal Distribution, 5: Wider Distribution. Distribution categories are defined in Section 8.3.2.1.1
[b] Ecoregion are delineated in Spalding et al. 2007 and herein refer to 1. Baffin Bay-Davis Strait; 2. Lancaster Sound; 3. High Arctic Archipelago; 4. Northern Labrador; 5. Hudson Complex; 6. West Greenland Shelf; 7. North Greenland Shelf; 8. East Greenland Shelf; 9. Beaufort-Amundson-Viscount Melville-Queen Maud
[c] Uncertainty indicates confidence in the data available for the range on record. Uncertainty categories (Low, Moderate, and High) are described in Section 8.3.2.1.1
Taxa distribution references: 1: WoRMS 2024; 2: GBIF 2024; 3: Stewart 2013; 4. Goldsmit 2016; 5. Roy et al. 2015; 6. Charette et al. 2020.
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2018, ISSG 2024, Costello et al. 2024, Molnar et al. 2008, Casas-Monroy et al. 2014.

8.4.1.4 Zooplankton

Taxonomic data of zooplankton collected from 12 stations in Milne Port are presented in Appendix 8D-2. Zooplankton taxa presence/absence from baseline years to 2023 is presented below in Table 8-9, with a complete list provided in Appendix 8D-1.

A total of seventy zooplankton taxa were observed in 2023 samples, the majority of which had been detected previously in Project monitoring and were known to have natural ranges that include the Project area. The number of taxa identified in 2023 was an increase relative to all previous survey years where collections were limited to a single event.

Several taxa (Oweniidae indet., Acari indet., Clausocalinidae indet., Cyclopidae indet., *Cyclops* sp., *Hyperia* sp., Hydrozoa indet., Corymorphidae indet., Asteroidea indet., and *Clione* sp.) were observed for the first time in zooplankton samples in 2022, but these taxa, or representative lower taxonomic levels, have been observed previously in other survey methods in Milne Port. No taxa from the Program Watch List were detected and no taxa were flagged for review.

New observations included an unknown copepod species from the family Diaptomidae as well as a copepod from the genus *Monstrilla* (Table 8-10)

Table 8-9: Zooplankton Taxa Presence in Milne Inlet During NIS/AIS Monitoring in 2023 Compared to Previous Survey Years (Baseline years, 2016-2020, 2022)

Taxa	Baseline[(a)]	2016	2017	2018	2019	2020	2022	2023
Polychaeta indet.*	x	x	x	x	x	x	x	x
Oweniidae indet.*								x
Acari indet.*								x
Crustacea indet.*			x	x	x		x	x
Bosminidae indet.**			x			x	x	x
Daphnia sp.***	x					x	x	x
Copepoda indet.*	x	x		x	x	x	x	x
Calanoida indet.*	x		x	x	x	x	x	x
Acartia longiremis	x	x	x		x	x	x	x
Acartia sp.*	x	x	x	x	x	x		x
Calanus finmarchicus	x	x	x	x	x	x	x	x
Calanus glacialis	x	x	x	x	x	x	x	x
Calanus hyperboreus	x	x	x	x	x	x	x	x
Calanus sp.*			x	x	x	x	x	x
Centropages sp.	x			x				x
Limnocalanus macrurus						x	x	x
Clausocalinidae indet.*								x
Pseudocalanus sp. *	x	x	x	x	x	x	x	x

Taxa	Baseline[a]	2016	2017	2018	2019	2020	2022	2023
Diaptomidae indet.								x
Metridia sp.	x		x	x				x
Cyclopoida indet.*			x	x	x	x	x	x
Cyclopidae indet.*								x
Cyclops sp.*								x
Oithona similis	x	x	x	x	x	x		x
Oithona sp.*	x	x	x	x	x	x	x	x
Oncaea sp.*	x		x	x	x	x		x
Oncaeidae indet.*		x	x					x
Triconia borealis		x	x					x
Harpacticoida indet.*		x		x	x	x	x	x
Microsetella norvegica	x	x	x	x	x	x	x	x
Microsetella sp.			x	x	x			x
***Monstrilla* sp.**								x
Amphipoda indet.*	x	x	x					x
Hyperia sp.*								x
Hyperia medusarum			x					x
Hyperiidae indet.*				x	x		x	x
Themisto sp.	x		x	x			x	x
Sabinea septemcarinata			x	x			x	x
Isopoda indet.*			x	x	x	x	x	x
Mysis sp.*				x		x	x	x
Ostracoda indet.				x				x
Balanomorpha indet.*			x	x	x	x	x	x
Chironomidae indet.***						x		x
Bryozoa indet.*				x				x
Chaetognatha indet.		x						x
Parasagitta elegans	x		x	x	x	x	x	x
Fritillaria sp.*	x	x		x	x	x		x
Ascidiacea indet.*							x	x
Ammodytes sp.*				x		x	x	x
Cottidae indet.			x					x

Taxa	Baseline[(a)]	2016	2017	2018	2019	2020	2022	2023
Hydrozoa indet.*								x
Corymorphidae indet.*								x
Euphysa sp.	x			x	x		x	x
Pandeidae indet.*						x	x	x
Aeginopsis laurentii			x	x	x		x	x
Aglantha digitale	x		x	x	x	x	x	x
Scyphozoa indet.*							x	x
Ctenophora indet.	x				x		x	x
Beroe sp.*				x			x	x
Echinoidea indet.*			x	x	x	x		x
Asteroidea indet.*								x
Ophiuroidea indet.*							x	x
Bivalvia indet.*	x	x	x	x	x	x	x	x
Gastropoda indet.*			x	x	x	x	x	x
Gymnosomata indet.	x							x
Clione sp.*								x
Clione limacina	x		x	x	x	x	x	x
Limacina helicina	x		x	x	x	x	x	x
Limacina sp.*	x	x	x			x	x	x
Nemertea indet.			x					x

Notes: Taxa in bold indicate the first observation of the taxa during MEEMP and NIS/AIS surveys. Taxa identified to the lowest practical taxonomic level; presence/absence for previous years taken from SEM 2015, 2016, 2017, Golder 2018, Golder 2019, Golder 2020, Golder 2021, WSP 2023. *=Species or taxa from lower taxonomic levels identified in other survey years and/or in other survey methods; **=Freshwater taxon; ***= Incidental (benthic or terrestrial taxa or life stages); indet.= indeterminate (taxa could not be identified beyond the taxonomic level listed); sp.=species.

(a) Baseline includes zooplankton observations in 2008, 2010, 2014, and 2015.

Table 8-10: List of Newly Recorded Zooplankton Taxa Identified at Milne Inlet in 2023, with Description of Distribution on Record

Phylum Class/Order	Family	Taxon	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Arthropoda							
Copepoda / Calanoida	Diaptomidae	Diaptomidae indet.	Freshwater family of copepods. Limited information is available on distribution records, however multiple specimens have been collected from the Eastern Canadian Arctic as part of the International Barcode of Life Project. Representative species were documented in streams and lakes around the Mary River Mine site during baseline surveys.	2, 3, 4, 5	1, 2, 4, 5, 9	1 Within the Region	Low
Copepoda / Monstrilloida	Monstrillidae	*Monstrilla* sp.	Poorly described genus of copepods, with limited georeferenced collections and multiple taxonomic revisions. Records in the Canadian Arctic include at least two described species, in addition to multiple collections of unidentified species from the genus.	1, 2, 6, 7, 8	1, 2, 4, 5, 9	2 Surrounding Region	Moderate

Notes: Taxa identified to the lowest practical taxonomic level; *indicates non-unique taxa; indet. = indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species.
[a] Distribution categories indicate the proximity to the Project of the closest georeferenced collection of the taxon, where category 1: Within the Region, 2: Surrounding Region, 3: Arctic, Outside Region, 4: Circumpolar/Circumboreal Distribution, 5: Wider Distribution. Distribution categories are defined in Section 8.3.2.1.1
[b] Ecoregion are delineated in Spalding et al. 2007 and herein refer to 1. Baffin Bay-Davis Strait; 2. Lancaster Sound; 3. High Arctic Archipelago; 4. Northern Labrador; 5. Hudson Complex; 6. West Greenland Shelf; 7. North Greenland Shelf; 8. East Greenland Shelf; 9. Beaufort-Amundson-Viscount Melville-Queen Maud
[c] Uncertainty indicates confidence in the data available for the range on record. Uncertainty categories (Low, Moderate, and High) are described in Section 8.3.2.1.1
Taxa distribution references: 1: WoRMS 2024; 2: GBIF 2024; 3: Stewart 2013; 4. Chain et al. 2016; 5. NSC 2012; 6. Miller and Nozères 2024. 7. Grainger et al. 1985, 8. Buchanan and Sekerak 1982
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2018, ISSG 2024, Costello et al. 2024, Molnar et al. 2008, Casas-Monroy et al. 2014.

8.4.1.5 Fish and Incidentals

Throughout fish surveys at Milne Inlet, some species were targeted and caught intentionally (such as fish sampled for fish community and fish health monitoring; reported in Chapters 6.0 and 7.0) while other species were collected or observed incidentally. In 2023 MEEMP surveys, 41 taxa were collected, captured, or observed incidentally and of these, three taxa were newly recorded in MEEMP surveys (Table 8-11). The full list of incidental taxa (also including macroflora and epifauna described in Section 8.4.1.2) is available in Appendix 8B-1; laboratory results are in Appendices 8B-2 and 8B-3.

All taxa observed or caught incidentally in MEEMP and NIS/AIS surveys were screened against a global database of marine invasive species and none of the taxa were identified as a globally-recognized invasive species (Molnar et al. 2008) or an invasive species in Canada according to the National Risk Assessment for Introduction of Aquatic Nonindigenous Species to Canada by Ballast Water (Casas-Monroy et al. 2014). In addition to these databases, each taxon was researched independently in the literature for their known habitats and distributions to detect taxa that may be considered non-native to the Arctic region. For taxa that were not identified to the species level, it was confirmed that the identified higher-level taxa had at least one representative species with a distribution that included Arctic waters.

Table 8-11: Newly Recorded Incidental Taxa Identified in Milne Inlet in 2023

Phylum Class/Order	Family	Taxa	Capture Method	Description	Distribution References	Distribution Category[a]	Relevant Ecoregions on Record[b]	Uncertainty[c]
Arthropoda								
Malacostraca / Amphipoda	Pleustidae	Pleustidae indet.	Fish Stomach Contents	Amphipod family with multiple representative species in the Eastern Canadian Arctic. Two species within the family are recorded NIS to the Pacific Northwest and to the North Sea. No impacts have been reported.	1, 2, 3, 4, 5, 6	2, 3, 4, 5, 6, 8, 9	2 Surrounding Region	Low
Echinodermata								
Asteroidea / Forcipulatida	Asteriidae	*Leptasterias (Hexasterias) polaris*	Incidentals (Trawl)	North American temperate and polar species of six-armed stars. Collection records included specimens from Koluktoo Bay	1, 2, 4, 5, 7	1, 2, 3, 4, 5, 6, 9	1 Within Region	Low
Asteroidea / Paxillosida	Benthopectinidae	*Pontaster tenuispinus*	Incidentals (Trawl)	North American temperate and polar species of seastars. Collection records included specimens from Baffin Bay and Davis Strait	1, 2, 4, 7, 8	1, 2, 3, 4, 9	2 Surrounding Region	Low

Notes: Taxa identified to the lowest practical taxonomic level; *indicates non-unique taxa; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species.
[a] Distribution categories indicate the proximity to the Project of the closest georeferenced collection of the taxon, where category 1: Within the Region, 2: Surrounding Region, 3: Arctic, Outside Region, 4: Circumpolar/Circumboreal Distribution, 5: Wider Distribution. Distribution categories are defined in Section 8.3.2.1.1
[b] Ecoregion are delineated in Spalding et al. 2007 and herein refer to 1. Baffin Bay-Davis Strait; 2. Lancaster Sound; 3. High Arctic Archipelago; 4. Northern Labrador; 5. Hudson Complex; 6. West Greenland Shelf; 7. North Greenland Shelf; 8. East Greenland Shelf; 9. Beaufort-Amundson-Viscount Melville-Queen Maud
[c] Uncertainty indicates confidence in the data available for the range on record. Uncertainty categories (Low, Moderate, and High) are described in Section 8.3.2.1.1
Taxa distribution references: 1: WoRMS 2024; 2: GBIF 2024; 3: OBIS 2011; 4. DFO 2019; 5. Cusson 2018; 6. Hopcroft 2019; 7. Miller and Nozères 2024, 8. Roy et al. 2015.
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2018, ISSG 2024, Costello et al. 2024, Molnar et al. 2008, Casas-Monroy et al. 2014.

8.4.2 Genetic Identification

Samples collected for DNA analysis are in the process of being sorted by Biologica for taxa of interest. Taxa of interest include general fouling, attached, and encrusting taxa such as macroalgae, bryozoans and tunicates where morphological identification may be generally challenging, in addition to Watch List taxa (Appendix 8E-3). The results of DNA analysis remain pending. This report will be updated as results become available. Updated taxonomic information will be presented in revisions to the 2024 monitoring report and, in the event that a potential NIS/AIS taxon is found in the pending data before the publication of the 2024 report, it will be presented to MEWG.

8.4.3 Independent Verification and Identifications

No newly identified taxa in 2023 surveys were flagged for further review due to concerns about NIS/AIS status or range on record. Several taxa from the Watch List were identified again in benthic and settlement substrate samples (*Marenzelleria* sp., *Sosane wireni*, *Crassicorophium* sp. and *Paramphitrite birulai*). These taxa had all previously been sent for independent review and the new specimens were either damaged or immature, lacking morphological features that would allow for further resolution by these experts. However, literature reviews for these taxa were updated for 2023, and where new information was available this was used to review their Watch List status.

Updates to specimens sent for verification from 2022 surveys were provided where there was new information available since submission of the 2022 report. A reviewer for *Hesperonoe* could not be identified for these specimens. The specimens were held to be sent with additional specimens from 2023 samples, should a reviewer be determined. A bryophyte specimen was sent to Dr. Terry MacIntosh, a consulting bryophyte expert with the UBC Herbarium, Beaty Biodiversity Museum in 2023; results of the independent review remain pending. An unidentified species from the bryozoan superfamily Buguloidea specimen flagged for review in 2023 was not sent for review because it was determined that the specimen was in too poor of a condition to resolve further.

Macroalgae specimens from previous years will be sent to Dr. Gary Saunders at the University of New Brunswick (UNB) along with those collected in 2023.

Table 8-12: Record of Results of Independent Review of Taxa Collected in Milne Port

Biologica's Identification	Reviewer	Result of Verification	Description	Reference
Annelida				
Hesperonoe sp.	TBD	TBD	TBD	TBD
Bryophyta				
Bryophyta indet.	Dr. Terry MacIntosh – UBC Herbarium, Beaty Biodiversity Museum	TBD	TBD	TBD
Bryozoa				
Buguloidea indet.	N/A	N/A	N/A	N/A
Ochrophyta				
cf. *Punctaria latifolia*	Dr. Gary Saunders, UNB	TBD	TBD	TBD
cf. *Stictyosiphon soriferus*	Dr. Gary Saunders, UNB	TBD	TBD	TBD

8.5 Discussion

8.5.1 Limitations

It is not always possible to identify specimens to the species level due to a variety of limitations. Species descriptions are often based on adult stages, and immature specimens may lack the features present in the adult that are required for specific identification (Steinerstauch 2019, pers. comm.). Fragmented samples, or samples damaged during collection, may also be missing identifying features that would be used to determine species. Incomplete species records and descriptions also lead to limitations in species identification (Steinerstauch 2019, pers. comm.).

The level of resolution possible for identifications may be dependent also on the number of individual specimens of the same type that are collected. This is for two general reasons: first, higher incidence of a type of specimen often translates to a higher incidence of specimens with diagnostic characters, and thus improved identification resolution; and second, the increase in incidence of identifiable taxa allows for more distinctions to be made about like and unlike taxa. For example, with bryozoans, a single incidence of a small colony or fragment observed in a sample is less likely to be identified to genus than it would be in a sample with a high incidence, in which opportunities to compare and contrast morphologies are greater (Macdonald 2022a, pers. comm.).

Ranges on record are not complete for all taxa. In particular, recently described or uncommon taxa may have a limited range description based on a few sites where specimens have been found, with a broader range inferred based on biological characteristics and tolerances. Additionally, with some taxa it can be difficult to determine if a species is originally from the area in which it is found, or if it was introduced from another location. In cases where the original native range cannot be conclusively determined, a species is considered cryptogenic.

Flora and fauna of the Canadian Arctic are not thoroughly described, and surveys of species in the Canadian Arctic are severely lacking relative to surveys in other Arctic and sub-Arctic regions, particularly in comparison to surveys in Northern Europe. Figure 8-5 shows the large gap in the Canadian Arctic where few datasets are represented in ArcOD, the international Arctic Ocean biodiversity database. Even for megabenthos, arguably one of the better sampled components of Arctic Canadian marine biota, 42% of the taxa in Baffin Bay and 59% in the Eastern Archipelago are estimated to remain undocumented, while even the Beaufort Sea (relatively well-studied (by Canadian Arctic comparisons) is estimated to have 34% of its benthic megafaunal taxa undocumented (Roy et al., 2015). Surveys in the Canadian Arctic are also frequently limited by methodology, focusing on methods such as benthic grabs and zooplankton tows that exclude larger hard substrates. Encrusting or fouling taxa such as bryozoans and some tunicate species may be underrepresented in the datasets due to these methodological biases. These limitations in Arctic sampling lower the confidence in the ranges on record, particularly for less common or recently described species that may be cryptogenic to a broader area, but due to their rarity and the relative survey effort, have not yet been described outside the range on record.

Difficulties in determining the historic range of a species may also be related to changes or inconsistencies in species descriptions. The range on record may be linked to a previous name or description and databases are not always updated as new descriptions are accepted. Alternatively, multiple conflicting descriptions or names for the same taxa may further confound records. New species descriptions occur when an update to the taxonomic record is accepted. This may be due to a variety of reasons including acceptance of a more senior description, DNA analysis combining (two species merging under one species name) or separating species descriptions (one species being divided into two distinct species or subspecies), or reclassification due to the identification of features that match a different taxonomic group (such as reclassification to a different genus). These limitations

may be more pronounced in certain taxonomic groups such as bryozoans and marine algae (i.e., macroflora) where there are fewer experts focused on refining the taxonomy or more variation in reporting relative to other more well-defined groups.

Identification of species by genetic means is often suggested as an alternative to traditional taxonomic methods but requires reliable, accurate reference sequences in an accessible database. Currently, there are some barriers slowing the process of populating reference databases such as the Barcode of Life Database (BOLD). First, obtaining quality DNA sequences reliably can be difficult. Macroalgae, for example, are a diverse taxonomic group, and many taxa require specialized extraction protocols and primer design. The second barrier to progress is that once the sequences are obtained, the rigour of the original identification for reference specimens must be considered, as can often be misleading due to the limitations of morphological identifications, as discussed earlier. Therefore, improvement is an iterative process, with understanding of molecular and morphological diversity developing hand in hand (MacDonald 2022a, pers. comm.).

Availability of publications may further impact descriptions, more recently published works may not be readily available or accepted by the larger taxonomic community, and updates may not be reflected in the identification keys used by the taxonomic labs.

8.5.2 Taxonomic Identification

8.5.2.1 Benthic Infauna

A total of 352 taxa were identified in benthic samples in Milne Inlet, including 25 taxa that had not previously been recorded in the Project area, six of which were new species records for the Project. An analysis of the available literature indicated each of the new records had a clearly described range and collection records that included Arctic waters. Results for the taxa sent for independent verification are discussed in Section 8.5.3.

The following were the 25 newly recorded taxa:

- An annelid worm from the genus *Dysponetus* was identified at a single station on the eastern transect. Species from this genus are recorded in all oceans, and at least one species has been collected in the Eastern Canadian Arctic (WoRMS 2024; GBIF 2024; Miller and Nozères 2024; Gagnon and Torgersen 2021; Cusson 2018).
  - ***Dysponetus* sp. is not considered to be a taxon of concern for Milne Port**
- Based on limited collection records, *Mystides borealis* is a broadly distributed species of phyllodocid worm ranging from the Antarctic to the Arctic. Records include multiple specimens from the Canadian Arctic, including Iqaluit, Hudson Strait, and Tuktoyaktuk (WoRMS 2024; GBIF 2024; Miller and Nozères 2024; Gagnon and Torgersen 2021; Cusson 2018).
  - ***Mystides borealis* is not considered to be a taxon of concern for Milne Port**
- *Sphaerodoridium minutum* is a phyllodocid worm with a broad range throughout the northern hemisphere. Records include multiple collections around Baffin Island (WoRMS 2024; GBIF 2024; Miller and Nozères 2024; Gagnon and Torgersen 2021).
  - ***Sphaerodoridium minutum* is not considered to be a taxon of concern for Milne Port**

- *Sphaerodorum gracilis* is a phyllodocid worm with a broad range throughout the northern hemisphere. Records include multiple collections around Baffin Island (WoRMS 2024; GBIF 2024; Miller and Nozères 2024; Gagnon and Torgersen 2021, Goldsmit 2016).
  - ***Sphaerodorum gracilis* is not considered to be a taxon of concern for Milne Port**
- *Praxillura* is a broadly distributed genus of maldanid worms with representative species in the Eastern Canadian Arctic (WoRMS 2024; GBIF 2024; Miller and Nozères 2024; Gagnon and Torgersen 2021; Cusson 2018).
  - ***Praxillura* sp. is not considered to be a taxon of concern for Milne Port**
- Siphonostomatoida is an order of parasitic copepods with representative species in the Canadian Arctic, including species from the genera *Coregonicola* and *Salmonicola*, which are parasitic to fish (WoRMS 2024; GBIF 2024; Stewart and Bernier 1999). Records in the Eastern Canadian Arctic include *Artotrogus orbicularis* and *Choniostoma paradoxum*, whose hosts species are not recorded (OBIS 2024, GBIF 2024). Multiple species in this order are recorded as NIS, however due to a relative lack of free-swimming behaviour, invasion risk is largely linked to introduction of the host fish species (Costello et al. 2024, NSC 2006), which is unlikely to occur through Project-related vectors. Notably, *Salmincola lotae* which is considered to be a Eurasian species is a parasite which is recorded as a potential invader to the Canadian Arctic (NSC 2006), where its host species burbot (*Lota lota*), is already naturally present. However, there are indications that this species' native range may include Canadian waters (Stewart and Bernier 1999; Kipp et al. 2024).
  - **Siphonostomatoida indet. is not considered to be a taxon of concern for Milne Port**
- Benthic infaunal samples contained multiple specimens of freshwater associated insect taxa. While these taxa represented new observations in marine surveys, *Paratanytarsus* sp., *Rheotanytarsus* sp., *Stictochironomus* sp., *Pseudokiefferiella* sp., *Heterotrissocladius* sp., *Parakiefferiella* sp., Pentaneurini indet., and *Thienemannimyia* sp. were all identified in baseline surveys of freshwater aquatic habitat associated with the Mary River Mine site and are not considered new observations for the Project (NSC 2012).
  - ***Paratanytarsus* sp., *Rheotanytarsus* sp., *Stictochironomus* sp., *Pseudokiefferiella* sp., *Heterotrissocladius* sp., *Parakiefferiella* sp., *Pentaneurini* sp., and *Thienemannimyia* sp. are not considered taxa of concern for Milne Port**
- *Cladopelma* is a genus of non-biting midges with species that occur in the Canadian Arctic (GBIF 2024, ISU 2024. Records include an unidentified species collected at Bylot Island (GBIF 2024).
  - ***Cladopelma* sp. is not considered a taxon of concern for Milne Port.**
- *Corynocera* is a poorly described genus of midges with limited collection records. However, records do include unidentified species from this genus in the Canadian Arctic in the Lancaster Sound ecoregion, as well as fossil specimens from Eastern Greenland (GBIF 2024). Biologica indicated that the specimen collected at Milne Port might be *C. oliveri*, however the specimen was lacking features to make a positive identification. *C. oliveri* is associated with northern and cold-water lakes (Wilson and Gajewski 2004, Barley et al. 2006, Fortin and Gajewski 2011). Records indicate that this species, or a morphologically similar species (referred to as *Corynocera oliveri* type) occurs in northern Canada (north of 60 degrees latitude) and is known to occur on Baffin Island (Nishikawa 2022, Barley et al. 2006).

- **_Corynocera_ sp. is not considered a taxon of concern for Milne Port.**

- *Hydrosmittia* is a genus of non-biting midges with a broad global distribution inferred from a limited collection record. Studies of Eastern Canadian Arctic chironomids indicate that at least four species occur on Baffin Island and the high Arctic Archipelago (Namayandeh et al. 2016).
  - **_Hydrosmittia_ sp. is not considered a taxon of concern for Milne Port.**
- At least one species from the subgenus *Tipula* (*Arctotipula*) is confirmed to occur on Baffin Island (Brodo et al. 2022). *Tipula* was confirmed to occur in the Project area during freshwater aquatic habitat baseline surveys, however, these surveys did not resolve identification for most taxa beyond the genus level. It is uncertain whether the *Tipula* sp. observed would be considered from the same subgenus.
  - **_Tipula_ (_Arctotipula_) sp. is not considered to be a taxon of concern for Milne Port**
- Stoneflies, including green stoneflies (family Chloroperlidae) are generally described as restricted to lower latitudes in the Arctic. Within the Canadian Arctic, Chloroperlidae has not been recorded off the mainland (GBIF 2024). Plecopterans (stoneflies) in general are considered rare off the mainland, with studies of EPT (Ephemeroptera, Plecoptera, and Trichoptera) diversity finding a complete lack of Plecoptera in freshwater locations on Baffin Island (e.g., Namayandeh and Quinlan 2011). However freshwater baseline studies indicate that Plecopterans are present in lakes and streams around the Mary River mine site in very low abundances. These findings indicate it is possible that the range for Chloroperliidae may similarly extend further north and include rare occurrences around the Project area.
  - **Chloroperlidae indet. is not considered a taxon of concern for Milne Port**
- The amphipod family Isaeidae has undergone multiple revisions and currently contains two accepted genera with very limited descriptions. Due to the revisions, occurrence records for this family are uncertain. For example, Cusson (2018) reports *Eurystheus melanops* in the Canadian Arctic, however, this species is now accepted as *Gammaropsis melanops,* which is in the family Photidae. Stewart (2013) describes *Protomedeia fasciata* as present in the Tarium Niryutait Marine Protected Area, but this species is from the family Corophiidae. Other records in the Canadian Arctic are limited to unidentified Isaeidaens and it is uncertain if those records would also be revised (Goldsmit 2016, GBIF 2024, OBIS 2024).
  - **Isaeidae indet. is not considered a taxon of concern for Milne Port.**
- *Nebalia* is a Leptostracan genus with a broad global range. While Biologica was unable to make a conclusive identification, the specimen had features that indicated it was potentially *N. bipes*, a species with a distribution record that includes the Eastern Canadian Arctic. NEMESIS lists *Nebalia* sp. A as under review, with no indications of the location for potential introduction or rationale for why the taxon is under review (Foffonof et al. 2018).
  - **_Nebalia_ sp. is not considered a taxon of concern for Milne Port.**
- The Stout Eelblenny (*Anisarchus medius*) is a northern fish species with a robust record throughout the Arctic (WoRMS 2024; GBIF 2024). In the Canadian Arctic, Stout Eelblenny is particularly common around southern Baffin Island (Coad and Reist 2008).
  - **_Anisarchus medius_ is not considered a taxon of concern for Milne Port.**

- *Ctenodiscus crispatus*, the common mudstar, is a prolific sea star species with a broad global range (WoRMS 2024; GBIF 2024). Eastern Canadian Arctic records included multiple specimens collected throughout Davis Strait, Baffin Bay, and Lancaster Sound.
  - ***Ctenodiscus crispatus* is not considered a taxon of concern for Milne Port.**
- Solasteridae is a seastar family with a broad global range that includes multiple species within the Canadian Arctic. Eastern Canadian Arctic collections include *Solaster papposus* (now accepted as *Crossaster papposus*) collected in Koluktoo Bay. *Crossaster papposus* was also observed for the first time in MEEMP surveys in quadrat surveys in 2023 (see Section 8.4.1.2).
  - **Solasteridae indet. is not considered a taxon of concern for Milne Port.**
- *Chaetoderma nitidulum* is an Aplacophoran (shell-less molluscs) species with a broad range that includes the Canadian Arctic Unidentified specimens from the genus *Chaetoderma* have been observed in benthic surveys since 2015 (WSP 2023).
  - ***Chaetoderma nitidulum* is not considered a taxon of concern for Milne Port.**

8.5.2.2 Macroflora and Benthic Epifauna

Dive surveys of the permanent quadrats, performed to assess for presence of macroflora and epifauna species, included collection of algae and invertebrate specimens for taxonomic assessment. Among the 48 distinct macroflora and epifauna taxa recorded during quadrat surveys in Milne Inlet in 2023, there was the following new species observation:

- The rose star or common sunstar, *Crossaster papposus* is broadly distributed and common throughout the Canadian Arctic. Eastern Canadian Arctic collections include specimens collected in Koluktoo Bay under its former name *Solaster papposus* (Miller and Nozères 2024).
  - ***Crossaster papposus* is not considered a taxon of concern for Milne Port.**

8.5.2.3 Settlement Substrates

Previous experience with settlement substrates in Milne Port indicated that deployment duration is a large factor in the ability to detect organisms (WSP 2023). In most years, a single year of deployment has not resulted in many successful identifications of organisms using visual taxonomic methods. The program was adjusted in 2020 to focus on longer term deployments, with plates and baskets soaking for three years prior to recovery. Plates and baskets collected in 2023 represent the first year of the planned three-year soak time for the adjusted program. Additional plates and baskets have been collected annually to aid in early detection of recruitment of NIS/AIS in Milne Port. Due to limitations in previous years, including loss of deployments or logistical constraints, some annual substrates were collected following a two-year deployment (see Table 8-1 for details).

Overall, the fouling community observed on multi-year substrates demonstrated greater recruitment, percent cover, and taxonomic richness compared to annual substrates. Additionally, invertebrates on multi-year substrates were more likely to be at later developmental stages, facilitating identification. A higher proportion of taxa on multi-year substrates were able to be identified to species level compared to those on annual

deployments (31.1% compared to 26.6%). A total of 81 animal taxa were identified on settlement substrates, one of which was a new observation in Milne Port surveys. An analysis of the available literature indicated the following new record had a clearly described range and collection records that included Arctic waters:

- Two colonies of the bryozoan species *Eucratea loricata* were found on settlement substrates deployed at two stations along the Freight Dock. *E. loricata* has a broad range throughout the northern hemisphere. Collection records indicate that the species has a well-established circumpolar presence, including georeferenced specimens collected from the Eastern Canadian Arctic, including Baffin Island (WoRMS 2024, GBIF 2024, Roy et al. 2015). The genus *Eucratea* was observed previously in MEEMP surveys in 2020 and 2022 (Golder 2021; WSP 2023)
    - ***Eucratea loricata* is not considered a taxon of concern for Milne Port**

Macroalgae identifications based on morphological and genetic assessment are pending and will be updated as results become available. Updated taxonomic information will be presented in revisions to the 2024 report and, in the event that a potential NIS/AIS taxon is detected, it will be presented to MEWG.

8.5.2.4 Zooplankton

A total of 70 zooplankton taxa were observed in 2023 samples. The majority of taxa had been observed in previous surveys in Milne Port and were known to have natural ranges that include the Project area. No taxa from the Program Watch List were detected and no taxa were flagged for review.

The following were new records:

- Diaptomidae is a family of freshwater copepods with limited collection records in the Canadian Arctic, however these records indicate there are multiple species present (GBIF 2024). At least one diaptomid species (*Diaptomus minutus*) was observed in freshwater baseline surveys in multiple lakes and streams around the Mary River Mine site (NSC 2012).
    - **Diaptomidae indet. is not considered a taxon of concern for Milne Port**
- The copepod genus *Monstrilla* has undergone many taxonomic revisions and many species within this genus are poorly described and have no described range on record (WoRMS 2024, Suárez-Morales and Grygier 2021). At least two species (*M. longa* and *M. nasuta*) have been recorded in the Eastern Canadian Arctic (GBIF (2024). AquaNIS lists three species (*M. grandis, M. helgolandica* and *M. longicornis*) from this genus as NIS taxa (CRPI 2024), although one species (*M. helgolandica*) is no longer accepted as a *Monstrilla* species. These records of NIS *Monstrilla* may be cryptogenic morphologically related species or incorrectly inferred from limited collection data, as discussed by Suárez-Morales and Grygier (2021).
    - ***Monstrilla* sp. is not considered a taxon of concern for Milne Port**

Survey efforts in 2023 were expanded to cover a broader range of the open water season, in an effort to more accurately represent the variability of zooplankton populations throughout the season. Rather than a single collection at each station, three collections were made at each station between late July and early September. This resulted in an increase in the number of zooplankton taxa identified in 2023 relative to all previous survey years. Additionally, close to 33% of all observed taxa were observed in only one of the three survey events, highlighting the variance in zooplankton populations over time. It is recommended that this expanded survey be repeated in future years to better characterise the zooplankton populations in Milne Port.

8.5.2.5 Fish and Incidentals

All taxa observed during marine surveys at Milne Port are considered under the NIS/AIS program. This includes fish captures, non-targeted captures during fishing efforts, as well as taxa found in stomach contents. Of the 41 taxa collected, captured, or observed incidentally, three taxa were newly recorded in MEEMP surveys (i.e., not previously reported in the Milne Inlet Taxonomic Inventory).

All taxa observed incidentally in MEEMP and NIS/AIS surveys were cross-checked against marine invasive species databases. None of the taxa observed were identified as globally recognized invasive species (Molnar et al. 2008) or as domestically recognized invasive species according to the National Risk Assessment for Introduction of Aquatic Nonindigenous Species to Canada by Ballast Water (Casas-Monroy et al. 2014). In addition to these databases, the distribution and habitat preferences of each taxon was researched independently in the literature for signs of NIS status in the Arctic region. For specimens that could not be resolved to species, review efforts focused on confirming that the higher-level classification (e.g., genus) had at least one species with a distribution that included Arctic waters.

The following were new records:

- *Leptasterias* (*Hexasterias*) *polaris*, the polar six-rayed star, was observed as an incidental capture during trawl surveys. *L. polaris* is a North American temperate and Arctic seastar with a well-documented presence in the Eastern Canadian Arctic (WoRMS 2024; GBIF 2024). Eastern Canadian Arctic records included multiple specimens collected throughout Davis Strait, Baffin Bay, the high Arctic Archipelago, and Lancaster Sound, as well as collections from Koluktoo Bay (Miller and Nozères 2024).
    - ***Leptasterias* (*Hexasterias*) polaris is not considered a taxon of concern for Milne Port.**
- *Pontaster tenuispinus*, is a polar seastar often found in deeper waters and as by-catch in benthic trawls. *P. tenuispinus* has been recorded throughout the Canadian Arctic, including within Baffin Bay, Davis Strait, and Lancaster Sound (WoRMS 2024; GBIF 2024).
    - ***Pontaster tenuispinus* is not considered a taxon of concern for Milne Port.**
- An unidentified amphipod from the family Pleustidae was observed in stomach contents from two fourhorn sculpin specimens captured in the Koluktoo Bay reference area. An unidentified amphipod found in settlement substrates was also tentatively identified as from this family. Multiple representative species from this family have been recorded in the Eastern Canadian Arctic (WoRMS 2024; GBIF 2024). Two species, *Incisocalliope derzhavini* and *I. aestuarius*, have been reported as NIS to Pacific North America and the North Sea, respectively. The invasive status of *I. derzhavini* is questionable, as museum collections indicate that the species was present in San Francisco Bay almost 40 years prior to the species first description in Japan and 65 years prior to it being first observed and considered introduced to North America (Carlton and Schwindt 2024, Fofonoff et al. 2018). *I. aestuarius* has a poorly described native range along the North American Atlantic coast inferred from 15 specimens (GBIF 2024).
    - **Pleustidae indet. is not considered a taxon of concern for Milne Port.**

8.5.3 Genetic Identification

Results of genetic identification remain pending.

8.5.4 Independent Verifications and Program Watch List

Results of independent verification through morphological assessment are pending and will be updated as reviews become available. Updated results will be presented in revisions to the 2023 report and, in the event that updated information alters the NIS/AIS status of a taxon found at Milne Port such that it could be added or removed from the Watch List or Trigger List, will be presented to MEWG. The NIS/AIS program is conducted at a surveillance level and designed to flag potential invasive or non-indigenous species; the independent verification process is a crucial element of the program, ensuring third party review by global specialists in particular taxa. A summary of specimens flagged for review is provided in Table 8-13 and results of verifications will be updated as they become available. A summary of all newly recorded taxa in 2023 and their risk statuses is presented in Appendix 8E-1 and the record of verifications is available in Appendix 8E-2. A complete list of the Project Watch List for Milne Port is included in Appendix 8E-3.

Table 8-13: Summary of External Taxa Verifications (2022 and 2023)

Initial ID	Year(s) Present	Verification Method	Independent ID (Reviewer)	Risk[1]	Action	Rationale
Annelida						
Hesperonoe sp.	2020, 2022, 2023	Morphological assessment	TBD	Low Risk	Watch List	Unidentified species from the genus *Hesperonoe* were flagged in 2020 due to *Hesperonoe* being a poorly described genus with limited georeferenced collection records. Specimens were collected again in 2022 and sent for independent review. Currently the identification is considered unresolved and the taxon remains on the Watch List as Low Risk.
Bryophyta						
Bryophyta indet.	2022	Morphological assessment	TBD	No Risk	None	Global phylum of mosses, collection records include specimens from the Eastern Canadian Arctic, including Baffin Island in close proximity to Milne Port and at Ragged Island. Sent for independent review with a specialist at University of British Columbia to further resolve the identification.
Ochrophyta						
cf. *Punctaria latifolia*	2022	Morphological assessment	TBD (UNB)	Low Risk	Watch List	Specimen was an inexact match to *Punctaria latifolia*, a filamentous brown alga that has no records of occurrence in the Canadian Arctic. Listed on an AIS database as cryptogenic in Australia. Currently the identification is considered unresolved, and the taxon has been precautionarily placed on the Watch List as Low Risk.
cf. *Stictyosiphon soriferus*	2022	Morphological assessment	TBD (UNB)	Low Risk	Watch List	Specimen was an inexact match to *Stictyosiphon soriferus*, a brown alga that has a single record of occurrence in the Canadian Sub-Arctic (Churchill). Listed on an AIS database as Introduced in Australia. Currently the identification is considered unresolved, and the taxon has been precautionarily placed on the Watch List as Low Risk.

[1] Risk category refers to the taxonomic description following independent verification.

8.5.4.1 Sosane wireni

The ampharetid polychaete *Sosane wireni* was first observed in 2019 and again in 2020. Independent review of the specimens in 2019 and 2020 confirmed the identification although the identification was left as *Sosane* sp. nr. *wireni*, indicating an uncertain match (Golder 2020). The accepted range description was limited to New England; however, collection records under superseded names indicated a broader range that included Arctic waters (GBIF 2024, WoRMS 2024), as well as collections from Western Greenland (Sejr 2009). Laval University confirmed the identification of *S. wireni* in 2020 *Sosane* sp. nr. *wireni* was placed on the Watch List for further monitoring due to the range uncertainties, although it was not considered a taxon of concern (Golder 2021). No specimens were collected in 2021 and 2022 despite targeted collections in the areas where it was previously observed.

Based on the broad Atlantic and Arctic distribution, in particular the collections from Western Greenland, it is considered unlikely that these specimens represent an introduction in Canadian Arctic waters. *Sosane wireni* is designated No Risk and will be removed from the program Watch List.

- ***Sosane wireni* is designated as No Risk and is not considered a species of concern in Milne Inlet.**

8.5.4.2 Paramphitrite birulai

The terebellid polychaete *Paramphitrite birulai* is poorly described with a limited taxonomic record. No range description exists for this species, but collection records indicate the range may be wide and include the European North Atlantic and high Arctic oceans (WoRMS 2024; Jirkov 2020). There are also potential indications of introductions in the Adriatic Sea, where it is described as non-indigenous, but not invasive (Costello et al. 2024, Loia 2017). Uncertainty in the range of this taxa is compounded by disagreement in the accepted name, with some sources indicating the species is *Amphitrite birulai*, which has a narrower range on record, with type localities in Scandinavian waters (WoRMS 2024). Collection records in North America are limited to a single specimen collected off the coast of Labrador in 1987 (Gagnon and Torgersen 2021) and in Yukon/Alaska under the junior synonym *P. tetrabranchiata* (GBIF 2024). There are also indications that the taxonomic record for *Paramphitrite* species is incomplete and requires further review (LaVesque et al. 2021).

The specimen was flagged for independent verification in 2020 as a precaution due to uncertainty in the described range on record; however, the wide high-Arctic range derived from a few collection events indicates this is unlikely to be a species of concern. Laval confirmed the identification under the alternative name *Amphitrite birulai*. *Paramphitrite/Amphitrite birulai* is considered Low Risk and has been placed on the Watch List because it has potentially been flagged as alien in the Adriatic Sea (Costello et al. 2024, Loia 2017) and has an uncertain record in the Canadian Arctic.

In 2023, the specimens were forwarded to Dr. Julio Parapar, a specialist in terebellid polychaetes who originally described *P. tetrabranchiata,* for further review. Dr. Parapar concluded the specimens closely matched the most recent descriptions for *P. birulai*, however, features required for positive identification were missing (Parapar 2023). Additionally, Dr. Parapar noted features on the third segment that are not described for any of the known species in this genus, indicating that these specimens may represent a currently undescribed species, highlighting the requirement for further review of *Paramphitrite*. *P. birulai* will remain on the Watch List pending further review of the genus. Similar to previous years, *P. birulai* was found in low abundances at a range of stations along the eastern and western transects, indicating no meaningful trend in abundance or distribution has been observed in Milne Port since the genus was first recorded in 2020.

- ***Paramphitrite/Amphitrite birulai* is designated Low Risk and will remain on the Watch List.**

8.5.4.3 *Hesperonoe* sp.

Unidentified species from the genus *Hesperonoe* were flagged in benthic infauna samples in 2020 due to a limited range on record. Generally, the genus is considered Arctic-Boreal; however, collections are limited to Arctic waters near Alaska and Russia (GBIF 2024, WoRMS 2024, Degan and Faultwetter 2021).

In 2020, the specimen was sent for independent verification as a precaution due to uncertainty in the taxonomic record and Laval indicated that the specimens could instead be from the genus *Bylgides*, which had been observed previously in the Milne Port baseline and MEEMP surveys (WoRMS 2024, GBIF 2024, Golder 2020). However, Biologica disagreed with the corrected identification, believing the specimens to have visible characteristics that differentiated them from the genus *Bylgides* and were consistent with *Hesperonoe* (MacDonald 2021, pers. comm.). The identification was considered unresolved.

No species of *Hesperonoe* are listed in AIS databases. However, *Hesperonoe* was placed on the Watch List as a Low Risk taxon due to uncertainties in its identification, in the range on record and because it does not have a documented distribution in the Canadian Arctic.

Hesperonoe specimens identified in 2022 surveys were flagged for verification, however, a specialist has not been identified. *Hesperonoe* was identified in samples again in 2023, and these will be sent for verification along with 2022 specimens when an expert is identified. Results of independent review will be presented when available.

- ***Hesperonoe* sp. was designated Low Risk and was placed on the Watch List in 2020, the status remains unchanged pending independent verification.**

8.5.4.4 Bryophyta indet.

An unidentified bryophyte specimen was collected from quadrats located at the mouth of Phillips Creek in 2022. Bryophytes are generally terrestrial and freshwater organisms, and Biologica was unable to definitively identify the species. The bryophyte specimen was set aside to be sent for independent review by a specialist. Results of the independent review remain pending.

There are hundreds of potential species of bryophyte with well-documented natural ranges that include the Eastern Canadian Arctic, including records from terrestrial locations within the region near Ragged Island and Milne Port. Therefore, Bryophyta indet. is tentatively considered to not be a taxon of concern, pending independent review.

- **Bryophyta indet. is designated No Risk and is not considered a taxon of concern in Milne Port.**

8.5.4.5 *Crassicorophium* sp./*Monocorophium* sp.

An amphipod crustacean was identified in 2013 and 2017 samples as *Monocorophium insidiosum* (2013 specimens were identified as *Corophium insidiosum* but corrected to *M. insidiosum* in 2017; Golder 2018). In 2018, individuals from the same genus were found with their identifying features missing and therefore only identified to the genus level. No species within this genus have confirmed distributions that include Arctic waters. *M. insidiosum* is a tube-building gammarid amphipod and a well-known fouling invasive species with a wide global distribution that is possibly non-indigenous to the Canadian Arctic (Molnar et al. 2008). Vectors for introduction

and spread are through biofouling of ship hulls and hard substrates in harbours and ports and possibly also through accidental transplant (Fofonoff et al. 2018, Molnar et al. 2008).

Independent review by Laval of *Monocorophium* specimens suggested that the specimens identified in Milne Port may have been *Crassicorophium bonellii* or *Crassicorophium* sp., although the identification was considered uncertain by Biologica (MacDonald 2020, pers. comm.). This genus naturally occurs in the Canadian Arctic and was first identified in baseline surveys (*C. bonellii,* as *Corophium bonellii*) at Milne Port. *C. bonellii* has a known range similar to *M. insidiosum*, covering Eastern North America and the Northeastern Atlantic Ocean, but is not considered invasive in these locations (GBIF 2024, ETI 2021, Sirenko et al. 2024). The genus *Crassicorophium* contains at least two species (*C. clarencense* and *C. crassicorne*) with a native range that includes Arctic Canada (GBIF 2024, WoRMS 2024).

In 2021, specimens tentatively identified as *Crassicorophium bonellii* were collected for molecular analysis. Results were inconclusive, but indicated the specimens were not *Monocorophium* species or *Crassicorophium bonellii*. The closest match was to unidentified specimens collected from Victoria Island in Nunavut, which were thought to be *C. clarencense* (MacDonald 2022b, pers. comm.). Specimens were also sent to Dr. Craig Straude at Friday Harbor Laboratories at the University of Washington for morphological assessment. Dr. Straude confirmed the identification for *C. clarencense* for specimens analysed based on several validating features (MacDonald 2022c, pers. comm.).

Crassicorophium sp. and *C. clarencense* were observed in Milne Port in 2023.

- ***Crassicorophium* sp. is designated Low Risk and will remain on the Watch List**
- ***Crassicorophium clarencense* is designated No Risk and is not considered a taxon of concern in Milne Port**

8.5.4.6 Marenzelleria sp.

Four specimens of *Marenzelleria* sp. were identified in benthic samples in 2023. *Marenzelleria* is a spionid polychaete genus with a representative species (i.e., *M. viridis*) on the Watch List. *Marenzelleria* sp. were first recorded in Milne Port in 2016 but were not flagged for review until the tentative identification of *M. viridis* in 2018. Specimens from 2018 through 2021 were subsequently corrected to the Arctic species *M. wireni* and potentially *M. arctia* and *M. neglecta* by a specialist in the taxonomic group, with the identification of *M. wireni* further confirmed through DNA analysis. The correction was further supported by environmental conditions at Milne Port matching habitat preferences for *M. wireni, M. neglecta*, and *M. arctia.*

Benthic sampling stations are focussed on repetitive sampling in the same locations to detect changes in abundances or diversity at specific locations. In years where a limited sampling program occurs, station selection includes specific stations targeted where Watch List taxa have previously been observed. Three *Marenzelleria* specimens were collected at two target stations near Phillips Creek where *M. arctia* had previously been detected. While no specimens were collected at target locations surrounding the Ore Dock, one specimen was collected nearby at a new Capesize Station. Since its first detection in 2016, *Marenzelleria* remains difficult to resample, with sporadic collections in low abundances despite targeted sampling, reinforcing the observation that invasive behaviour is not apparent in *Marenzelleria* in Milne Port. No meaningful trend in abundance or distribution has been observed in Milne Port since the genus was first recorded in 2016.

Marenzelleria has an established presence in the Eastern Canadian Arctic, prior to project operations. *Marenzelleria wireni* has been documented at Philpots Island, Lancaster Sound and Scott Inlet, Baffin Island in 1978 (Thomson 1982; Thomson and Cross 1980) in samples that were verified by a polychaete expert at the Canadian Museum of Nature. More recently, a DFO report appears to indicate the genus was detected by genetic means in Lancaster Sound in 2017 and in Hudson Bay in 2016, although supporting information on these detections is not provided by the authors (Morrison et al. 2023). *Marenzelleria* (as *M. viridis*) was also detected in Churchill using metabarcoding in 2011 (Chain et al. 2016), as well as morphology-based identifications in Gjoa Haven (Brown et al. 2011) and in Davis Strait (reported as *Scolelepides viridis* and later updated to *M. viridis,* Stewart et al. 1985).

In the Western Canadian Arctic, *M. arctia* has been found in DFO surveys of Tuktoyaktuk Harbour and Mason Bay, NT in 1980, 1982, 1985, and 1986 (Hopky et al., 1992; Canadian Museum of Nature collections). Specimens from the 1982 surveys were also documented as *Marenzelleria* cf. *viridis*, with the 'c.f.' designation indicating uncertainty that this was the correct nomenclature at the species level (ZSRO 2024). The type specimen of *M. arctia* (as *Scolecolepides arctius*) was collected in Collinson Point, Alaska (approximately 170 km west of the Canadian border), by the Canadian Arctic Expedition in 1913 (Chamberlin, 1920). The California Academy of Sciences collection contains *M. arctia* and *M. wireni* specimens from multiple sites along the Alaska coast of the Beaufort Sea collected in the 1970s and for which the species identity was verified to modern taxonomic descriptions in 2015.

The genus *Marenzelleria* appears from these historical records to have been widely established in the Canadian Arctic, including the Eastern Canadian Arctic, well before the commencement of Baffinland's operations, and the evidence points to at least some members of the genus (*M. arctia, M. wireni*) being native to the region. The status of *M. viridis* in the Canadian Arctic is less clear, as its native range is evidently the Atlantic coast of North America. However, there is a strong possibility it has been misidentified in a number of instances. Identification to the genus level is more certain than identification to species for polychaetes in the genus *Marenzelleria.* Taxonomic keys published for the northeastern coast of North America, and commonly used for identification of Arctic species in the absence of keys to Arctic species, identify all members of *Marenzelleria* genus as the species *M. viridis*. Thus, there is a risk that morphological identifications of *M. viridis* represent potentially misidentified specimens of *M. wireni* or *M. arctia*. *Marenzelleria* sp. can be difficult to distinguish based simply on morphology due to a combination of limited descriptions, overlapping morphological traits, lack of differentiating features in immature specimens, and hybridization between species (Sikorski and Bick 2004; Bick 2005; Blank et al. 2008). *M. viridis*, *M. neglecta*, and *M. arctia* in particular are morphologically similar, resulting in the three species being part of a cryptic sibling species complex (Sikorski and Bick 2004, Bick 2005, Green 2015). The redescriptions of the genus, descriptions of new species based on historical collections (*M. bastropi* and *M. neglecta*), incorrect species nomenclature used in reporting, and synonymization of the former description of *M. jonesi* with *M. viridis* lead to uncertainty in the historical specimen records, particularly where distributions overlap (Blank et al. 2008, Sikorski and Bick 2004). As many historically collected specimens are no longer available, there is an inherent uncertainty as to which species may be represented by these original collections.

Marenzelleria species are known successful invaders to European waters, mediated by ballast water, and thus this genus is listed in AIS databases. Accordingly, this genus is designated as High Risk. However, biogeographic evidence suggests multiple species are indigenous to the Canadian Arctic or may be cryptogenic, while ecological evidence indicates the genus is not showing invasive behaviour in Milne Port. Further, documented occurrences of the genus in waters around Baffin Island prior to the commencement of shipping operations confirm this is not a Project-related introduction (if it is to be considered an introduction at all). For these reasons*, Marenzelleria wireni*

and *Marenzelleria arctia* are designated No Risk and will not be placed on the Program Watch List, however, other members of the genus *Marenzelleria*, and *M. viridis* in particular, will remain on the Watch List where it is subject to heightened monitoring efforts, as a precaution.

- ***Marenzelleria wireni* and *Marenzelleria arctia* are designated No Risk and are not considered taxa of concern in Milne Port.**

8.5.4.7 cf. *Punctaria latifolia*

In 2022, specimens tentatively classified as cf. *Punctaria latifolia* were identified on settlement substrates. While the specimens were an inexact match to the species, *P. latifolia* is a species of bladed brown algae with a broad global range that includes records from the North Atlantic and Greenland Sea (WoRMS 2024, GBIF 2024, AlgaeBase 2023). No records of this species exist in the Canadian Arctic, and it is present on at least one AIS database as cryptogenic in Australia. Due to the limitations in algal taxonomy and Canadian Arctic surveys described in Section 8.3.3.3.2, there is uncertainty in whether this species can be considered alien to the Canadian Arctic, however, the specimens were flagged for further review as a precaution.

As the specimens were not an exact match to *P. latifolia*, it may be that these specimens are of a morphologically related species that is not yet described. Notably, DNA barcoding of algae collected in Churchill identified the presence of a *Punctaria* species that was not able to be matched to any currently described species, resulting in the authors suggesting that it may be a new species (Saunders and McDevit 2013).

- ***Punctaria latifolia* is designated Low Risk and has been placed on the Watch List.**

8.5.4.8 cf. *Stictyosiphon soriferus*

In 2022, cf. *Stictyosiphon soriferus* was tentatively identified on the settlement substrates. While the specimens were an inexact match to the species, *Stictyosiphon soriferus* is a species of brown algae with a broad range on record throughout the North Atlantic and Greenland Sea (WoRMS 2024, GBIF 2024, AlgaeBase 2023). However, although there is a single record of occurrence record in the surrounding region (Churchill), no records exist for this species in the Eastern Canadian Arctic (Saunders and McDevit 2013). Additionally, this species has been recorded as introduced to Australia, likely through the vector of hull fouling (Hewitt et al. 2004).

As the specimens were not an exact match to *S. soriferus*, it may be that these specimens are of a morphologically related species that is not yet described. Due to the limitations in algal taxonomy and Canadian Arctic surveys described in Section 8.3.3.3.2, there is uncertainty in whether this species can be considered alien to the Canadian Arctic, however, the specimens were flagged for further review as a precaution.

- ***Stictyosiphon soriferus* is designated Low Risk and has been placed on the Watch List.**

8.6 Conclusions and Recommendations

The NIS/AIS program addresses Project Terms and Conditions Nos. 87, 89, and 91. Detection is conducted at a surveillance level and designed to flag potential invasive or non-indigenous species introduced through Project-related vectors. Approximately 1,062 taxa (including 410 identifiable to species) have been observed in Milne Inlet through monitoring surveys to date. The vast majority of these taxa have been designated as “No Risk” and are not considered to be of concern. Taxonomic sampling at Milne Port remains one of the most comprehensive multi-trophic level species inventory programs in the Canadian Arctic, a region historically under-sampled in comparison to Eurasian Arctic and Sub-Arctic regions.

Directed literature review of newly observed taxa in 2023 has resulted in no taxa being added to the Project Watch List for increased monitoring effort, such as review by specialists or DNA analysis, and the removal of one taxon (*Sosane wireni*) from the Watch List. However, identification for macroalgal, DNA analysis results, and independent taxonomic verifications for 2023 specimens remain pending.

The complete program Watch List, consisting of eight taxa, is presented in Appendix 8E-3. As yet, there has not been confirmation of Project-related introduction of an NIS/AIS species documented at Milne Port and no species have been placed on the Trigger List to initiate rapid response. Based on the number of specimens flagged and sent for independent verification, monitoring is considered to be effective and is functioning as intended.

The following are recommendations for the ongoing NIA/AIS program:

- **Continue sampling across multiple trophic levels (including zooplankton sampling as conducted in 2023) in 2024.**
- **Continue expanding the Milne Inlet Taxonomic Inventory.**
- **Continue screening flagged specimens for known geographic ranges and NIS/AIS status.**
- **Continue collecting and reviewing genetic evidence for *Marenzelleria* sp. and *Monocorophium* sp., in addition to macroflora, bryozoan, and tunicate taxa in general, including targeted sampling to obtain specimens for DNA barcoding to further resolve these taxonomic groups in Milne Port.**

8.7 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.



Christine Bylenga, PhD
Biologist



Andrea Locke, PhD
Senior Marine Biologist



Bart DeFreitas, RPBio
Principal Fisheries Biologist

CB/AL/BDF/asd

https://golderassociates.sharepoint.com/sites/11206g/deliverables (do not use)/issued to client_for wp/400-499/1663724-499-r-rev0-70000/1663724-499h-r-rev0-70000/1663724-499h-r-rev0-70000-2023 meemp_8.0 nis_ais 15mar_24.docx

8.8 References

ArcOD (Arctic Ocean Diversity). 2024. Arctic Ocean Diversity. Available at http://www.arcodiv.org/Database/Data_overview.html. Accessed February 2024.

Baffinland. 2021. Marine Mammal Trigger Action Response Plan (TARP) and Action Toolkits. *In* Baffinland Responses to Post-Hearing Questions related to Phase 2. 22 March 2021.

Baffinland. 2034. Marine Monitoring Plan (MMP) - Draft. Document #: BAF-PH1-830-P16-0046. NIRB File No. 08MN053. Public Registry Identification No. 344992.

Barley EM, Walker IR, Kurek J, Cwynar LC, Matthews RW, Gajewski K, Finney BP. 2006. A northwest North American training set: distribution of freshwater midges in relation to air temperature and lake depth. Journal of Paleolimnology

Bick A. 2005. A New Spionidae (Polychaeta) from North Carolina, and a Redescription of *Marenzelleria wireni* Augner, 1913, from Spitsbergen, with a key for all species of *Marenzelleria*. Helgoland Marine Research 59: 265-272.

Blank M, Bastrop R. 2008. Phylogeny of the Mud Worm Genus *Marenzelleria* (Polychaeta, Spionidae) Inferred from Mitochondrial DNA Sequences. Zoologica Scripta.

Brodo F, Lantsov VI, Khruleva OA. 2022. The subgenus *Arctotipula* Alexander in the genus *Tipula* Linnaeus (Diptera: Tipulidae) on Wrangel Island, Russia (Chukotka Autonomous Okrug). The Canadian Entomologist. 154(e45):1-15

Brown TM, Edinger EN, Hooper RG, Belliveau K. 2011. Benthic Marine Fauna and Flora of Two Nearshore Coastal Locations in the Western and Central Canadian Arctic. Arctic 64(3): 281-301.

Buchanan RA, Sekerak AD. 1982. Vertical Distribution of Zooplankton in Eastern Lancaster Sound and Western Baffin Bay, July – October 1978. Arctic 35(1):41-55

CABI (Centre for Agriculture and Bioscience International). 2024. Invasive Species Compendium. Available at https://www.cabi.org/isc/. Accessed February 2024.

CAFF (Conservation of Arctic Flora and Fauna) and PAME (Protection of the Arctic Marine Environment). 2017. Arctic Invasive Alien Species: Strategy and Action Plan, Conservation of Arctic Flora and Fauna and Protection of the Arctic Marine Environment Akureyi, Iceland

Carlton JT. 1996. Biological invasions and cryptogenic species. Ecology 77: 1653-1655.

Carlton JT, Schwindt E. 2024. The Assessment of Marine Bioinvasion Diversity and History. Biological Invasions 26:237-298

Casas-Monroy O, Linley RD, Adams JK, Chan FT, Drake DAR, Bailey SA. 2014. National risk assessment for introduction of aquatic nonindigenous species to Canada by ballast water. Canadian Science Advisory Secretariat Research Document 2013/128. VI + 73 p.

Chain FJJ, Brown EA, MacIsaac HJ, Critescu ME. 2016. Metabarcoding reveals strong spatial structure and temporal turnover of zooplankton communities among marine and freshwater ports. Diversity and Distributions 22:493-504

Chamberlin, R.V. 1920. Canadian Arctic Expedition 1913-1918. Vol. IX: Annelids, parasitic worms, Protozoa, etc. Part B: Polychaeta. King's Printer, Ottawa. 41p

Charette J, Melling H, Duerksen S, Johnson M, Dawson K, Brandt C, Remnant R, Michel C. 2020. Biophysical and Ecological Overview of the Tuvaijuittuq. Canadian Technical Report of Fisheries and Aquatic Sciences 3408.

CRPI (Coastal Research and Planning Institute). 2024. AquaNIS: Information System on Aquatic Non-Indigenous and Cryptogenic Species. Available at: http://www.corpi.ku.lt/databases/index.php/aquanis. Accessed March 2024.

Coad BW, Reist JD, editors. 2018. Marine Fishes of Arctic Canada. Toronto: University of Toronto Press. 632 p.

Costello MJ, Ahyong S, Bieler R, Boudouresque C, Desiderato A, Downey R, Galil BS, Gollasch S, Hutchings P, Kamburska L, Katsanevakis S, Lejeusne C, Ma K, Marchini A, Occhipinti A, Pagad S, Panov V, Poore GCB, Rewicz T, Robinson TB, Rius M, Sobczyk R, Stern N, Turon X, Valls Domedel G, Verleye T, Viera LM, Willan RC, Yeo Chong Jinn D, Zhan A. 2023. World Register of Introduced Marine Species (WRIMS). [Accessed February 2024] http://www.marinespecies.org/introduced doi:10.14284/347

Cusson M. 2018. Biodiversity of benthic assemblages on the Arctic continental shelf: historical data from Canada (1955 to 1977). v1.2. Canadian node of the Ocean Biogeographic Information System (OBIS Canada). Published by OBIS [Accessed February 2024]. http://ipt.iobis.org/obiscanada/resource?r=cusson_arcticbenthos&v=1.2.

DFO (Fisheries and Oceans Canada). 2019. Central and Arctic Multi-Species Stock Assessment Surveys Version 4.2. In OBIS Canada Digital Collections. Bedford Institute of Oceanography, Dartmouth, NS, Canada. Published by OBIS, [Accessed February 2024] http://ipt.iobis.org/obiscanada/resource?r=obis_dfo_cna_multispeciessurveys.

EOL (Encyclopedia of Life). 2024. [Accessed February 2024]. https://eol.org/

ETI (ETI Bioinformatics). 2022. Marine Species Identification Portal. Key of Nature. [Accessed February 2024]. http://species-identification.org/index.php

Fofonoff PW, Ruiz GM, Steves B, Simkanin C, Carlton JT. 2018. National Exotic Marine and Estuarine Species Information System. [Accessed February 2024]. http://invasions.si.edu/nemesis/.

Fortin MC, Gajewski K. 2011. Modern Chironomid Assemblages from the Canadian Arctic. Geohydro

Gagnon JM, Torgersen J. 2021. Canadian Museum of Nature Annelid Collection. Data Set Download https://www.gbif.org/dataset/e0fa07ae-74d9-44b1-8e05-5785482ccad2. [Accessed February 2024]

GBIF (Global Biodiversity Information Facility). 2024. Global Biodiversity Information Facility (GBIF). [Accessed February 2024]. https://www.gbif.org/

Golder (Golder Associates Ltd.). 2018. Mary River Project 2017 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-048R-Rev1; 9 April 2018. 504 p. https://www.baffinland.com/_resources/document_portal/1663724-048-r-rev0-meemp-2017-report-20feb18-2018-16-05-01-2018-09-07-11.pdf

Golder. 2019. Mary River Project 2018 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-092-R-Rev1-14000; 31 May 2019. 825 p. https://www.baffinland.com/_resources/document_portal/2018-milne-inlet-marine-environmental-effects-monitoring-program-and-aquatic-invasive-species-monitoring-final-report_2019-23-10-55.pdf

Golder. 2020. Mary River Project 2019 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-197-R-Rev0-24000; 27 August 2020. 1219 p. https://www.baffinland.com/_resources/document_portal/2018-milne-inlet-marine-environmental-effects-monitoring-program-and-aquatic-invasive-species-monitoring-final-report_2019-23-10-55.pdf

Golder (Golder Associates Ltd.). 2021. Mary River Project 2020 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-281-R-Rev1; 18 August 2021. 1581 p.

Golder. 2022. 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-349-R-Rev0; 21 October 2022. 1213 p.

Goldsmit J, Howland KL, Archambault P. 2014. Establishing a Baseline for Early Detection of Non-Indigenous Species in Ports of the Canadian Arctic. Aquatic Invasions 9(3): 327-342

Goldsmit J. 2016. CAISN: Abundance and Biomass of Benthic Invertebrates Collected in Four Ports of the Canadian Arctic During Summers of 2011 and 2012. Version 2 in OBIS Canada Digital Collections. Bedford Institute of Oceanography, Dartmouth, NS, Canada. Published by OBIS. [Accessed February 2024] http://ipt.iobis.org/obiscanada/resource?r=caisin_benthicinverts_goldsmit.

Goldsmit J, McKindsey CW, Stewart DB, Howland KL. 2021. Screening for High-Risk Marine Invaders in the Hudson Bay Region, Canadian Arctic. Frontiers in Ecology and Evolution 9:627497. DOI: 10.3389/fevo.2021.627497 Available at: https://www.frontiersin.org/articles/10.3389/fevo.2021.627497/full

Government of Canada. 2004. An Invasive Alien Species strategy for Canada. 40 p. Government of Canada. [Accessed January 2023] https://publications.gc.ca/collections/collection_2014/ec/CW66-394-2004-eng.pdf

Government of Nunavut. 2016. Non-Native and Invasive Species in Nunavut. Government of Nunavut and Environment Canada. https://www.gov.nu.ca/sites/default/files/invasive_poster_english_jan31-4.pdf.

Grainger EH, Mohammed AA, Lovrity JE. 1985. The Sea Ice Fauna of Frobisher Bay, Arctic Canada. Arctic 38(1):23-30

Green S. 2015. The Diet and Influence of the Spionid Polychaete *Marenzelleria* on Benthic Communities in Coastal Newfoundland. [MSc Thesis]. St. John's, NL. Memorial University of Newfoundland. 146 p.

Hopcroft R. 2019. Abundance and Diversity of the Amphipoda (Crustacea) from the Greenlandic Shelf. https://obis.org/dataset/fd1d4384-f317-47ee-aa8c-c20347bae849 Metadata [Downloaded February 2021].

Hopky GE, Lawrence MJ, Chiperzak DB. 1994. NOGAP B2: Data on the meio- and macrobenthos, and related bottom sediment from Tuktoyaktuk Harbour and Mason Bay, N.W.T., March 1985 to 1988. Canadian Data Report of Fisheries and Aquatic Sciences 939: 297 p.

ISSG (Invasive Species Specialist Group). 2024. The Invasive Species Specialist Group ISSG -Global Invasive Species Database GISD. http://193.206.192.138/gisd/. [accessed January 2024]

ISU (Iowa State University). 2024. BugGuide. Available at: https://bugguide.net/node/view/15740. Accessed January 2024

Jirkov IA. 2020. Review of the European Arctic *Amphitrite* (Polychaeta: Terebellidae) with Description of Two New Species. Invertebrate Zoology 17(4):311-360.

Kipp RM, Larson j, Makled TH, Fusaro A, Sturtevant R. 2024. *Salmincola lotae* Olsson, 1877: U.S. Geological Survey, Nonindigenous Aquatic Species Database, Gainesville, FL, Available at: https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=2716. Accessed February 2024.

LaVesque N, Daffe G, Londoño-Mesa MH, Hutchins P. 2021. Revision of the French Terebellidae *sensu stricto* (Annelida, Terebelliformia) with descriptions of nine new species. Zootaxa 5038(1):001-063

Loia M, Nicoletti, La Porta. 2017. First Record of Genus Paramphitrite (Polychaeta: Terebellidae) in Mediterranean Sea. Marine Biodiversity Records 10:11

Macdonald T. 2021. President/CEO, Biologica Environmental Services Ltd. DNA & Verification Results. Email to Bylenga C, Marine Biologist, Golder Associates Ltd. 9 March 2021.

Macdonald T. 2022a. President/CEO, Biologica Environmental Services Ltd. Bryozoans and Seaweed Taxonomy. Email to Tomliens T, Marine Biologist, Golder Associates Ltd. 9 February 2022.

Macdonald T. 2022b. President/CEO, Biologica Environmental Services Ltd. Baffinland Results. Email to Tomliens T, Marine Biologist, Golder Associates Ltd. 13 June 2022

Macdonald T. 2022d. President/CEO, Biologica Environmental Services Ltd. Update on External Taxa Verifications. Email to Tomliens T, Marine Biologist, Golder Associates Ltd. 17 October 2022

Medeiros AS, Quinland R. 2011. The distribution of the Chironomidae (Insecta: Diptera) along multiple environmental gradients in lakes and ponds of the eastern Canadian Arctic. Canadian Journal of Fisheries and Aquatic Sciences 68(9):1511-1527

Miller R, Nozères C. 2024. DFO Quebec Region MLI Museum Collection. Version 3.11. OBIS Canada Digital Collections. Published by OBIS. [Accessed February 2024]. http://ipt.iobis.org/obiscanada/resource?r=dfo_que_mli_museum

Minnow (Minnow Environmental Inc.). 2020. Mary River Project Core Receiving Environment Monitoring Program Report. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. March 2020.

Molnar JL, Gamboa RL, Revenga C, Spalding MD. 2008. Assessing the global threat of invasive species to marine biodiversity. Frontiers in Ecology and the Environment. [Accessed February 2021] http://www.conservationgateway.org/ConservationPractices/Marine/Pages/marineinvasives.aspx

Morrison MK, Howland K, LeBlanc F, Bernier R, Chevrinais M, DiBacco C, Gagné N, Grey EK, Hamilton L, Jeffery N, Kinnison MT, Parent GJ, Simard N, Trudel M, Lacoursière-Roussel A. 2023. Taxa Detection Periods Based on Environmental DNA in DFO's Arctic, Gulf, Maritimes, Newfoundland, and Québec Regions. Canadian Data Report of Fisheries and Aquatic Sciences 1379.

Namayandeh A, Heard KS, Luiker EA, Culp JM. 2016. Chironomidae (Insecta: Diptera) from the eastern Canadian Arctic and subarctic with descriptions of new life stages, a possible new genus, and new geographical records. Journal of Entomological and Acarological Research. 48:5847

Namayandeh A, Quinlan R. 2011. Benthic macroinvertebrate communities in arctic lakes and ponds of central Nunavut, Canada. Arctic, Antarctic, and Alpine Research. 43:417-428

NCCOS (National Centers for Coastal Ocean Science) 2023. NOAA National Benthic Inventory [Accessed February 2024] https://products.coastalscience.noaa.gov/nbi/

Nishikawa C. Assessing the Influence of a Warming Climate on the Biota of Arctic Freshwater Systems. MSc Thesis. Dalhousie University, Halifax, Nova Scotia.

NSC (North/South Consultants Inc). 2012. Baffinland Iron Mines Corporation Mary River Project Freshwater Aquatic Biota and Habitat Baseline Synthesis Report 2005-2011. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. January 2012.

OBIS Canada. 2011. FRB Eastern Arctic Investigations: The Calanus Series. OBIS Canada Digital Collections. OBIS Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada, Version 2. [Accessed February 2024]. http://ipt.obis.org/nonode/resource?r=frb_calanusseries

Palomares MLD, Pauly D [editors] 2023. SeaLifeBase. Version 11/2023. [Accessed February 2024]. http://www.sealifebase.org

Parapar J. 2023. Departmento de Bioloxía, Facultade de Ciencias, Universidade da Coruña. Re: Identification. Email to Tara MacDonald, President/CEO, Biologica Environmental Services. 3 April 2023.

Roy V, Iken K, Archambault P. 2015. Regional Variability of Megabenthic Community Structure Across the Canadian Arctic. Arctic 68(2):180-192

Saunders GW, McDevit DC. 2013. DNA Barcoding Unmasks Overlooked Diversity Improving Knowledge on the Composition and Origins of the Churchill Algal Flora. BMC Ecology 13:9

SEM (Sikumiut Environmental Management Ltd.). 2015. Marine Biological and Environmental Baseline Surveys Milne Inlet 2014. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario.

SEM 2016. 2015 Aquatic Invasive Species Environmental Effects Monitoring Milne Inlet, Nunavut. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario

SEM 2017. 2016 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species Monitoring Milne Inlet Marine Ecosystem. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario

Sikorski A, Bick A. 2004. Revision of *Marenzelleria* Mesnil, 1896 (Spionidae, Polychaeta). Sarsia 89:1-24.

Sirenko BI, Clarke C, Hopcroft RR, Huettmann F, Bluhm AB, Gradinger R. [Editors] 2024. The Arctic Register of Marine Species (ARMS) compiled by the Arctic Ocean Diversity (ArcOD). [Accessed February 2024]. https://www.marinespecies.org/arms/

Sejr MK. 2009. Macrobenthic Species Composition and Diversity in the Godthaabsfjord System, SW Greenland. Polar Biology 33(4):421-431

Steinerstauch S. 2019. Manager, Laboratory Operations, Biologica Environmental Services Ltd. Baffinland Epifauna and Fish Data. Email to Ospan A, Marine Biologist, Golder Associates Ltd. 17 May 2019.

Stewart DB. 2013. Species inhabiting the Tarium Niryutait Marine Protected Area in the Canadian Beaufort Sea – Mackenzie Delta. DFO Canadian Science Advisory Secretariat Research Document 2012/091. iv +82 p.

Stewart DB, Bernier LMJ. 1999. Common Parasites, Diseases and Injuries of Freshwater Fishes in the Northwest Territories and Nunavut. Other Publications in Zoonotics and Wildlife Disease. 30.

Stewart PL, Pocklington P, Cunjak RA. 1985. Distribution, Abundance and Diversity of the Canadian Continental Shelf and Slope of Southern Davis Strait and Ungava Bay. Arctic 36(4):281-291.

Suárez-Morales E, Grygier MJ. 2021. Mediterranean and Black Sea Monstrilloid Copepods (Copepoda: Monstrilloida): Rediscovering the Diversity of Transient Zooplankters. Water 13(8):1036

Thomson DH. 1982. Marine Benthos in the Eastern Canadian Arctic: Multivariate Analyses of Standing Crop and Community Structure. Arctic. 35(1): 61-74

Thomson DH, Cross WE. 1980. Benthic and Intertidal Studies in Lancaster Sound, Northwest Baffin Bay and Adjacent Waters. Prepared for Petro-Canada, Calgary Alberta, August 1980.

UNESCO (United Nations Educational, Scientific, and Cultural Organization). 2023. Ocean Biodiversity Information System. [Accessed February 2024]. Available at: https://obis.org/

Wilson SE, Gajewski K. 2004. Modern Chironomid Assemblages and their Relationship to Physical and Chemical Variables in Southwest Yukon and Northern British Columbia Lakes. Arctic, Antarctic, and Alpine Research 36(4): 446-455

WoRMS (WoRMS Editorial Board). 2024. World Register of Marine Species. [Accessed February 2024] Available at: http://www.marinespecies.org/index.php.

WSP (WSP Canada Inc.). 2023. 2022 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. Golder Doc. No. 1663724-430-R-Rev0-64000; 28 April 2023. 1167 p.

ZSRO. 2024. Collection: Polychaeta ZSRO, Catalogue Number 894-P. Available at: http://zsro.sesam.senckenberg.de/page/index.asp?objekt_id=3482&sprache_kurz=en. Accessed February 2024.

APPENDIX 8A-1

Benthic Infauna Presence/Absence from Survey Years 2010-2023

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annelida	-	Clitellata	Hirudinea	-	-	-	Hirudinea indet.	-	-	-	-	-	-	Y	-	-	X	-
Annelida	-	Clitellata	Hirudinea	Rhynchobdellida	Piscicolidae	Platybdellinae	*Mysidobdella* sp.	-	-	-	-	X	-	-	X	-	-	-
Annelida	-	Clitellata	Oligochaeta	-	-	-	Oligochaete indet.	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Clitellata	Oligochaeta	Enchytraeida	Enchytraeidae	-	Enchytraeidae indet.	X	-	-	-	X	X	X	X	X	X	X
Annelida	-	Clitellata	Oligochaeta	Tubificida	Naididae	-	Naididae indet.	-	-	-	-	-	-	-	-	X	-	-
Annelida	-	Polychaeta	-	-	-	-	Polychaeta indet.	-	X	X	X	Y	-	-	-	-	-	-
Annelida	-	Polychaeta	-	Phyllodocida	Syllidae	Autolytinae	*Myrianida* sp.	-	-	-	-	-	-	-	-	-	X	-
Annelida	-	Polychaeta	Echiura	Echiuroidea	Echiuridae	-	*Echiurus echiurus*	-	X	X	-	X	X	-	X	-	-	X
Annelida	-	Polychaeta	Errantia	-	-	-	Errantia indet.	-	-	-	-	Y	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Eunicida	Dorvilleidae	-	Dorvilleidae indet.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Eunicida	Dorvilleidae	-	*Ophryotrocha* sp.	-	-	-	-	-	-	-	X	-	X	X
Annelida	-	Polychaeta	Errantia	Eunicida	Dorvilleidae	-	*Parougia caeca*	-	-	-	-	-	X	X	X	-	X	X
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	Lumbrineridae indet.	-	-	-	-	-	-	Y	X	Y	X	X
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	*Lumbrineris fauchaldi*	-	-	-	-	-	-	-	-	X	-	X
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	*Lumbrineris* sp.	X	X	X	X	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	*Scoletoma fragilis*	X	-	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	*Scoletoma laurentiana*	-	-	-	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	*Scoletoma* sp.	-	-	-	-	-	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Errantia	Eunicida	Lumbrineridae	-	*Scoletoma tenuis*	-	X	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Eunicida	Onuphidae	Hyalinoeciinae	*Nothria conchylega*	X	-	-	-	-	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Aphroditidae	-	Aphroditidae indet.	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Chrysopetalidae	Dysponetinae	***Dysponetus* sp.**	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Glyceridae	-	*Glycera capitata*	-	-	-	-	X	X	X	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Glyceridae	-	*Glycera* sp.	-	-	-	-	Y	X	Y	X	Y	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Hesionidae	-	Hesionidae indet.	-	-	-	-	Y	-	Y	-	Y	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Hesionidae	Ophiodrominae	*Gyptis* sp.	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Hesionidae	Psamathinae	*Nereimyra aphroditoides*	-	-	-	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Microphthalmidae	-	*Microphthalmus* sp.	-	-	-	-	-	X	-	X	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Aglaophamus malmgreni*	-	-	-	-	-	-	X	X	-	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Aglaophamus* sp.	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Micronephthys cornuta*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Nephtys bucera*	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Nephtys ciliata*	X	-	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Nephtys paradoxa*	-	-	-	-	-	-	X	X	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nephtyidae	-	*Nephtys* sp.	X	X	X	X	-	X	Y	Y	Y	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nereididae	-	Nereididae indet.	X	-	-	-	Y	X	Y	X	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nereididae	Nereidinae	*Nereis* sp.	-	-	-	X	Y	-	Y	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Nereididae	Nereidinae	*Nereis zonata*	-	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Pholoidae	-	*Pholoe longa*	X	X	-	-	-	-	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Pholoidae	-	*Pholoe minuta*	-	-	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Pholoidae	-	*Pholoe* sp.	X	X	X	X	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Pholoidae	-	*Pholoe tecta*	X	X	X	X	X	X	X	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	-	Phyllodocidae indet.	-	-	X	X	Y	-	-	-	Y	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eteone barbata*	X	-	-	-	X	X	X	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eteone flava*	-	-	-	-	X	X	X	X	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eteone longa* complex	-	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eteone* sp.	X	X	X	X	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eteone spilotus*	-	-	-	-	-	X		-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eulalia bilineata*	-	-	-	-	-	-	-	X	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eulalia* sp.	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Eumida* sp.	-	-	-	-	-	-	X	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	*Hypereteone* sp.	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Eteoninae	***Mystides borealis***	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Phyllodocinae	*Phyllodoce groenlandica*	X	-	X	X	X	X	X	X	X	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Phyllodocinae	*Phyllodoce mucosa*	-	-	X	X	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Phyllodocidae	Phyllodocinae	*Phyllodoce* sp.	-	-	-	-	Y	X	Y	-	Y	X	X

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	-	Polynoidae indet.	X	X	X	X	Y	X	-	X	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Bylgides groenlandicus*	X	-	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Bylgides promamme*	-	-	-	-	-	-	-	X	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Bylgides sarsi*	-	X	X	X	X	X	-	X	X	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Bylgides* sp.	-	-	-	-	-	Y	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Bylgides* sp. A	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Gattyana cirrhosa*	X	X	X	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Harmothoe extenuata*	-	X	X	X	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Harmothoe fragilis*	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Harmothoe imbricata*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Harmothoe propinqua*	-	-	-	-	-	-	-	X	-	X	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Harmothoe rarispina*	-	-	-	-	-	-	X	X	X	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Harmothoe* sp.	X	X	X	X	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Hartmania moorei*	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Hartmania* sp.	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Hesperonoe* sp.	-	-	-	-	-	-	-	X	-	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Melaenis loveni*	-	-	-	-	-	X	-	X	-	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	*Neobylgides* sp.	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Polynoidae	Polynoinae	Polynoinae indet.	-	-	-	-	Y	-	Y	Y	Y	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	*Ephesiella* sp.	-	-	-	-	-	-	-	X	-	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	Sphaerodoridae indet.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	***Sphaerodoridium minutum***	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	*Sphaerodoropsis biserialis*	-	-	-	-	-	-	X	X	X	X	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	*Sphaerodoropsis minuta*	X	-	-	-	X	X	-	X	X	X	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	*Sphaerodoropsis minutum*	-	-	-	-	-	-	X	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Sphaerodoridae	-	***Sphaerodorum gracilis***	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	-	Syllidae indet.	X	X	X	X	Y	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Anoplosyllinae	*Streptospinigera niuqtuut*	-	-	-	-	-	X	X	X	-	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Anoplosyllinae	*Syllides* sp.	-	-	-	-	X	X	-	X	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Eusyllinae	Eusyllinae indet.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Eusyllinae	*Eusyllis* sp.	-	-	-	-	-	X	-	-	-	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Eusyllinae	*Pionosyllis compacta*	-	-	-	-	-	-	X	X	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Eusyllinae	*Pionosyllis* sp.	-	-	-	-	-	X	-	Y	Y	-	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Exogoninae	*Exogone naidina*	-	-	-	-	-	-	X	X	X	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Exogoninae	*Exogone* sp.	-	X	-	-	X	X	-	-	-	X	X
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Exogoninae	*Exogone verugera*	X	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Errantia	Phyllodocida	Syllidae	Exogoninae	*Parexogone hebes*	-	X	-	-	-	X	X	-	-	-	-
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	*Galathowenia oculata*	-	-	X	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	*Myriochele danielsseni*	-	-	-	-	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	*Myriochele heeri*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	*Myriochele* sp.	-	-	-	-	Y	-	-	-	Y	X	X
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	*Owenia fusiformis*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	*Owenia* sp.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Oweniidae	-	Oweniidae indet.	-	-	X	X	-	X	Y	-	Y	X	-
Annelida	-	Polychaeta	Polychaeta incertae sedis	-	Protodrilidae	-	*Protodrilus* sp.	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Capitellidae	-	*Capitella capitata* complex	X	X	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Capitellidae	-	Capitellidae indet.	-	-	-	X	Y	-	Y	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Capitellidae	-	*Mediomastus ambiseta*	-	X	-	X	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Capitellidae	-	*Mediomastus* sp.	X	-	-	-	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	-	Capitellidae	-	*Notomastus latericeus*	-	-	-	-	X	X	X	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Capitellidae	-	*Notomastus* sp.	-	-	-	-	-	-	-	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	-	Cossuridae	-	*Cossura longocirrata*	-	X	-	-	-	-	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Cossuridae	-	*Cossura* sp.	X	-	X	X	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	-	Maldanidae indet.	X	X	X	X	Y	X	Y	Y	Y	X	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	-	Maldanidae sp. A	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	-	Maldanidae sp. B	-	-	-	X	-	-	-	-	-	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	-	Maldanidae sp. C	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Axiothella* sp.	-	-	-	-	-	-	-	X	-	X	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Clymenura polaris*	-	-	-	-	-	-	X	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Clymenura* sp.	-	-	-	-	X	X	Y	X	Y	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Euclymene* sp.	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	Euclymeninae indet.	-	-	-	-	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Heteroclymene robusta*	-	-	X	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Microclymene* sp.	-	-	-	-	X	X	X	X	X	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Praxillella gracilis*	-	-	-	-	-	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Praxillella praetermissa*	-	-	-	-	X	X	X	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Euclymeninae	*Praxillella* sp.	-	-	-	X	Y	-	-	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Lumbriclymeninae	***Praxillura* sp.**	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Maldaninae	*Maldane sarsi*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Nicomachinae	*Nicomache lumbricalis*	-	-	X	X	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Nicomachinae	*Nicomache* sp.	-	-	-	-	-	X	Y	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Nicomachinae	Nicomachinae indet.	-	-	-	-	-	-	Y	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Nicomachinae	*Petaloproctus* sp.	-	-	-	-	-	-	Y	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Nicomachinae	*Petaloproctus tenuis*	-	-	-	-	-	-	X	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Rhodininae	*Rhodine bitorquata*	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Rhodininae	*Rhodine gracilior*	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Rhodininae	*Rhodine loveni*	-	-	-	-	X	-	X	X	-	X	-
Annelida	-	Polychaeta	Sedentaria	-	Maldanidae	Rhodininae	*Rhodine sp.*	-	-	-	-	-	-	-	-	-	X	-
Annelida	-	Polychaeta	Sedentaria	-	Opheliidae	-	Opheliidae indet.	X	-	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Opheliidae	Opheliinae	*Ophelia limacina*	X	X	X	X	X	-	X	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Opheliidae	Opheliinae	*Ophelia* sp.	-	-	-	-	-	-	-	-	Y	X	-
Annelida	-	Polychaeta	Sedentaria	-	Opheliidae	Opheliininae	*Ophelina acuminata*	X	-	X	X	X	X	X	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Opheliidae	Opheliininae	*Ophelina cylindricaudata*	-	-	-	-	-	X	X	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	-	Opheliidae	Opheliininae	*Ophelina* sp.	-	-	-	-	Y	X	Y	Y	Y	-	-
Annelida	-	Polychaeta	Sedentaria	-	Orbiniidae	-	Orbiniidae indet.	-	-	-	-	Y	X	Y	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	-	Orbiniidae	Orbiniinae	*Leitoscoloplos acutus*	-	X	X	X	X	X	X	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Orbiniidae	Orbiniinae	*Leitoscoloplos* sp.	X	-	-	-	X	X	-	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	-	Orbiniidae	Orbiniinae	*Scoloplos armiger*	X	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Orbiniidae	Orbiniinae	*Scoloplos* sp.	-	X	X	-	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea (Acmira) catherinae*	-	-	-	-	-	-	X	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea (Aricidea) minuta*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea (Strelzovia) antennata*	-	-	-	-	-	-	X	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea catherinae*	-	X	-	-	X	-	-	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea hartmanae*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea nolani*	-	X	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea* sp.	X	X	-	X	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Aricidea* sp. A	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	Paraonidae indet.	-	X	X	X	Y	X	Y	Y	-	X	-
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Paraonides* sp.	-	-	-	-	-	-	-	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	-	Paraonidae	-	*Paraonis* sp.	X	-	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Scalibregmatidae	-	*Polyphysia baffinensis*	X	-	-	-	-	-	-	X	X	-	X
Annelida	-	Polychaeta	Sedentaria	-	Scalibregmatidae	-	*Polyphysia crassa*	-	-	-	-	X	X	-	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Scalibregmatidae	-	*Polyphysia* sp.	-	-	-	-	-	-	Y	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	-	Scalibregmatidae	-	*Scalibregma inflatum*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	-	Scalibregmatidae	-	Scalibregmatidae indet.	-	-	-	-	Y	-	-	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Fabriciidae	-	Fabriciidae indet.	-	-	-	-	X	-	Y	X	Y	X	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Fabriciidae	-	*Manayunkia aesturiana*	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Fabriciidae	-	*Pseudofabricia* sp.	-	-	-	-	-	-	-	-	-	X	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Fabriciidae	-	*Pseudofabricia* sp. nr. *aberrans*	-	-	-	-	-	-	X	X	X	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellid sp. A	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellid sp. B	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellid sp. F	-	-	-	X	-	-	-	-	-	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellid sp. G	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellidae indet.	-	X	X	X	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellidae sp. 3	-	-	-	-	-	-	Y	Y	X	X	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellidae sp. 4	-	-	-	-	-	-	Y	Y	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellidae sp. H	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellidae sp. I	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	-	Sabellidae sp. J	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Myxicolinae	*Chone duneri*	-	-	-	-	X	X	-	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Myxicolinae	*Chone* sp.	X	-	-	-	-	-	-	-	X	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Bispira* sp.	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Branchiomma* sp.	-	-	-	-	X	X	-	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Dialychone* sp.	-	-	-	-	X	X	X	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Dialychone* sp. 1	-	-	-	-	-	-	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Dialychone* sp. 3	-	-	-	-	-	-	-	Y	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Dialychone* sp. A	-	-	-	-	Y	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Dialychone* sp. B	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Euchone analis*	-	-	-	-	-	-	X	X	-	X	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Euchone incolor*	-	X	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Euchone papillosa*	X	-	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Euchone rubrocincta*	-	-	-	-	X	X	X	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Euchone* sp.	-	-	X	X	-	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Euchone* sp. 1	-	-	-	-	-	-	-	Y	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Hypsicomus* sp.	-	-	-	-	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Paradialychone harrisae*	-	-	-	-	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Potamilla neglecta*	-	-	X	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Sabellidae	Sabellinae	*Pseudopotamilla reniformis*	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Serpulidae	-	Serpulidae indet.	X	X	X	X	-	-	Y	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Serpulidae	Spirorbinae	*Bushiella (Jugaria) quadrangularis*	-	-	-	-	X	-	-	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Sabellida	Serpulidae	Spirorbinae	*Bushiella* sp.	-	-	-	-	-	-	-	-	Y	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Serpulidae	Spirorbinae	*Pileolaria* sp.	-	-	-	-	X	X	-	-	X	-	-
Annelida	-	Polychaeta	Sedentaria	Sabellida	Serpulidae	Spirorbinae	Spirorbinae indet.	-	-	-	-	X	X	-	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Apistobranchidae	-	*Apistobranchus* sp.	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Dipolydora caulleryi*	-	-	-	-	X	X	X	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Dipolydora concharum*	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Dipolydora quadrilobata*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Dipolydora socialis*	-	-	-	-	-	X	X	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Dipolydora* sp.	-	-	-	-	Y	X	-	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Laonice cirrata*	-	-	-	-	-	X	X	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Marenzelleria* sp.	-	-	-	X	X	X	X	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Polydora* sp. complex	X	X	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Prionospio (Prionospio)* sp.	-	-	-	-	-	-	-	Y	-	-	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Prionospio cirrifera*	-	-	-	-	X	X	-	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Prionospio* sp.	-	-	-	-	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Prionospio steenstrupi*	-	X	X	X	X	X	X	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Pygospio elegans*	-	-	-	-	-	-	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Pygospio* sp.	-	X	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Scolelepis* sp.	-	-	-	-	-	X	-	X	X	X	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Spio filicornis*	X	X	X	X	X	X	X	X	X	-	-
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	*Spio* sp.	-	-	-	-	-	-	-	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Spionidae	-	Spionidae indet.	X	X	X	X	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Spionida	Trochochaetidae	-	*Trochochaeta watsoni*	-	-	-	-	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	-	Ampharetidae indet.	X	X	X	X	Y	-	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Ampharete borealis*	-	-	-	-	-	-	X	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Ampharete finmarchica*	-	-	-	-	-	-	-	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Ampharete oculata*	-	-	X	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Ampharete petersenae*	-	-	-	-	-	-	-	X	X	-	X

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Ampharete* sp.	-	X	-	X	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Ampharete vega*	-	-	-	-	X	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	Ampharetid sp. B	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	Ampharetid sp. E	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Amphicteis gunneri*	-	X	X	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Amphicteis sundevalli*	X	-	-	-	X	X	X	X	X	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Anobothrus gracilis*	-	-	-	X	-	-	-	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Lysippe labiata*	-	-	X	X	X	X	X	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Samytha* sp.	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Ampharetidae	Ampharetinae	*Sosane wireni*	-	-	-	-	-	-	X	X	-	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Aphelochaeta marioni*	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Aphelochaeta* sp.	-	-	-	-	X	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Chaetozone bathyala*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Chaetozone careyi*	-	-	-	-	X	X	-	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Chaetozone pigmentata*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Chaetozone setosa* complex	-	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Chaetozone* sp.	-	-	-	-	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	Cirratulidae indet.	X	X	X	X	Y	X	Y	X	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	Cirratulidae sp. A	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Kirkegaardia* sp.	-	-	-	-	-	X	-	X	X	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Cirratulidae	-	*Tharyx* sp.	-	-	-	-	X	X	X	X	-	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Flabelligeridae	-	*Brada villosa*	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Flabelligeridae	-	*Diplocirrus hirsutus*	-	-	X	X	-	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Flabelligeridae	-	*Diplocirrus* sp.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Flabelligeridae	-	*Flabelligera affinis*	-	-	-	X	-	-	X	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Flabelligeridae	-	Flabelligeridae indet.	-	-	X	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Melinnidae	-	*Melinna elisabethae*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Melinnidae	-	*Melinna* sp.	X	-	-	-	-	X	-	-	-	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	-	*Cistenides granulata*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	-	*Cistenides hyperborea*	X	-	-	-	-	-	-	-	-	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	-	*Cistenides sp.**	-	-	-	-	-	-	-	-	-	X	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	-	*Pectinaria* sp.	X	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Pectinariidae	-	Pectinariidae indet.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	-	Terebellidae indet.	-	X	X	X	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Amaeana* sp.	-	-	-	-	-	X	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Lanassa* sp.	-	-	-	-	-	-	Y	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Lanassa venusta venusta*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Laphania boecki*	-	-	-	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Leaena ebranchiata*	-	-	-	-	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Neoamphitrite affinis*	-	-	-	-	X	X	X	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Nicolea venustula*	-	X	-	-	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Paramphitrite birulai*	-	-	-	-	-	-	-	X	X	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Pista cristata*	-	-	-	X	-	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Pista maculata*	X	X	X	X	X	X	X	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Polycirrus medusa*	-	-	-	-	-	-	X	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Polycirrus* sp. complex	X	X	-	X	X	X	Y	Y	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Proclea graffii*	-	-	-	-	-	X	-	-	-	-	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Terebellidae	Terebellinae	*Amphitrite cirrata*	-	-	-	-	-	-	-	X	X	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Trichobranchidae	-	*Terebellides reishi*	-	-	-	-	X	-	-	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Trichobranchidae	-	*Terebellides* sp.	-	-	-	-	Y	X	Y	Y	Y	X	X
Annelida	-	Polychaeta	Sedentaria	Terebellida	Trichobranchidae	-	*Terebellides stroemii*	X	X	X	X	X	-	X	-	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Trichobranchidae	-	Trichobranchidae indet.	X	-	-	-	-	-	-	Y	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Trichobranchidae	-	*Trichobranchus glacialis*	X	-	-	-	X	X	X	X	-	-	-
Annelida	-	Polychaeta	Sedentaria	Terebellida	Trichobranchidae	-	*Trichobranchus* sp.	-	-	-	-	-	-	-	-	-	-	X
Annelida	-	Polychaeta/Archiannelida	Polychaeta incertae sedis	Archiannelida	-	-	Archiannelid indet.	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Chelicerata	Arachnida	-	-	-	-	Arachnida indet.	-	-	-	-	-	-	-	-	-	-	X

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Arthropoda	Chelicerata	Arachnida	Acari	-	-	-	Acari indet.	X	X	-	-	-	-	X	X	-	-	-
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Halacaridae	-	Halacaridae indet.	-	-	-	-	X	X	X	X	-	-	X
Arthropoda	Chelicerata	Pycnogonida	-	-	-	-	Pycnogonida indet.	X	-	X	-	X	-	-	-	-	-	X
Arthropoda	Chelicerata	Pycnogonida	-	Pantopoda	Ammotheidae	-	*Achelia spinosa*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Chelicerata	Pycnogonida	-	Pantopoda	Ammotheidae	-	*Achelia* sp.	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Chelicerata	Pycnogonida	-	Pantopoda	Nymphonidae	-	*Nymphon hirtipes*	-	-	-	-	-	-	X	X	-	-	-
Arthropoda	Chelicerata	Pycnogonida	-	Pantopoda	Nymphonidae	-	*Nymphon* sp.	-	-	-	-	X	X	-	X	Y	X	X
Arthropoda	Crustacea	Copepoda	-	Siphonostomatoid	-	-	**Siphonostomatoida indet.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexanauplia	-	-	-	-	Cirripedia indet.	-	-	X	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Hexanauplia	Copepoda	-	-	-	Copepoda indet.	-	-	-	-	-	-	-	Y	-	-	X
Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	-	-	Calanoida indet.	-	-	-	-	-	-	-	-	Y	X	-
Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	-	-	Cyclopoida indet.	-	-	-	-	X	X	X	X	X	X	-
Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	-	-	Harpacticoida indet.	X	X	-	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Hexanauplia	Thecostraca	Sessilia	-	-	Balanomorpha indet.	-	-	-	-	X	X	X	X	X	X	X
Arthropoda	Crustacea	Hexanauplia	Thecostraca	Sessilia	Archaeobalanidae	Semibalabinae	*Semibalanus balanoides*	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Hexanauplia	Thecostraca	Sessilia	Balanidae	Balaninae	*Balanus* sp.	X	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Hexapoda	Insecta	-	-	-	Insecta indet.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Chironominae	***Cladopelma* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Chironominae	***Corynocera* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Chironominae	***Paratanytarsus* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Chironominae	***Rheotanytarsus* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Chironominae	***Stictochironomus* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Diamesinae	***Pseudokiefferiella* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	***Heterotrissocladius* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	***Hydrosmittia* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	***Parakiefferiella* sp. A**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Tanypodinae	**Pentaneurini indet.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Tanypodinae	***Thienemannimyia* group sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Tipulidae	Tipulinae	***Tipula* (*Arctotipula*) sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Plecoptera	Chloroperlidae	-	**Chloroperlidae indet.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	-	-	Amphipoda indet.	X	X	X	X	Y	X	X	X	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Acanthonotozomatidae	-	*Acanthonotozoma inflatum*	-	-	-	-	-	-	X	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	*Ampelisca eschrichtii*	-	-	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	*Ampelisca* sp.	-	-	X	X	-	-	Y	-	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	Ampeliscidae indet.	-	-	-	X	-	X	-	X	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	*Byblis gaimardii*	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	*Byblis* sp.	-	-	X	X	X	X	Y	X	Y	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	*Haploops* sp.	-	-	X	X	-	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ampeliscidae	-	*Haploops tubicola*	X	X	-	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Amphilochidae	-	Amphilochidae indet.	-	-	-	-	Y	-	-	X	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Amphilochidae	-	*Amphilochus hamatus*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Amphilochidae	-	*Amphilochus* sp.	-	-	-	-	-	X	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Aoridae	-	Aoridae indet.	-	-	-	-	-	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylinae	*Atylus carinatus*	X	X	X	X	X	X	X	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylinae	*Atylus* sp.	-	-	-	-	-	-	-	Y	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Nototropiinae	*Nototropis* sp.	-	-	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Calliopiidae	-	*Apherusa jurinei*	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Calliopiidae	-	*Apherusa megalops*	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Calliopiidae	-	Calliopiidae indet.	-	-	-	-	X	X	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	-	Corophiidae indet.	-	-	-	X	-	X	Y	X	Y	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Corophiinae	*Corophium* sp.	X	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Corophiinae	*Crassicorophium bonellii*	-	X	-	-	X	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Corophiinae	*Crassicorophium clarencense*	-	-	-	-	-	-	-	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Corophiinae	*Crassicorophium* sp.	-	-	-	-	-	-	-	-	Y	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Corophiinae	*Monocorophium insidiosum*	-	X	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Corophiinae	*Monocorophium* sp.	-	-	-	-	Y	X	Y	-	-	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Protomedeiinae	*Protomedeia fasciata*	-	X	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Protomedeiinae	*Protomedeia* sp.	-	-	-	-	X	-	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeiinae indet.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Dexaminidae	Dexamininae	*Dexamine* sp.	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Dexaminidae	Prophliantinae	*Guernea nordenskioldi*	X	X	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Dulichiidae	-	*Dulichia* sp.	-	-	-	-	-	-	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Dulichiidae	-	Dulichiidae indet.	-	-	-	-	-	-	-	-	Y	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Dulichiidae	-	*Dyopedos* sp.	-	-	-	-	X	X	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Eusiridae	-	*Rhachotropis aculeata*	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Eusiridae	-	*Rhachotropis helleri*	-	-	-	-	X	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Eusiridae	-	*Rhachotropis oculata*	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Eusiridae	-	*Rhachotropis* sp.	-	-	-	-	Y	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	-	*Gammarus oceanicus*	-	X	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	-	*Gammarus setosus*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	-	*Gammarus* sp.	-	X	X	X	-	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Themisto libellula*	-	-	-	-	-	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Themisto* sp.	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Isaeidae	-	**Isaeidae indet.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ischyroceridae	-	Ischyroceridae indet.	X	-	-	-	-	-	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ischyroceridae	Ischyrocerinae	*Ischyrocerus anguipes*	-	X	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ischyroceridae	Ischyrocerinae	*Ischyrocerus* sp.	-	-	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Lysianassidae	-	Lysianassidae indet.	X	-	X	-	Y	-	Y	-	Y	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Lysianassidae	-	Lysianassoidea indet.	-	-	-	-	Y	X	Y	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Melphidippidae	-	*Melphidippa* sp.	-	-	-	-	-	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Munnopsidae	Eurycopinae	*Eurycope* sp.	-	-	-	-	-	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Aceroides latipes*	-	-	-	-	-	-	X	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Aceroides* sp.	-	-	-	-	-	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Arrhis* sp.	-	-	-	-	-	X	X	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Aceroides* sp.	-	-	-	-	-	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Arrhis* sp.	-	-	-	-	-	X	X	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Bathymedon obtusifrons*	-	-	-	X	X	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Bathymedon* sp.	-	-	-	-	-	-	-	Y	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Deflexilodes* sp.	-	-	-	-	-	-	-	Y	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Deflexilodes tesselatus*	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Monoculodes latimanus*	-	X	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Monoculodes* sp.	X	X	X	X	Y	X	Y	X	Y	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Monoculopsis longicornis*	-	X	-	X	X	-	X	-	X	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Monoculopsis* sp.	-	-	-	-	-	-	Y	X	Y	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Oediceros borealis*	-	X	X	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	Oedicerotidae indet.	X	X	X	X	Y	X	Y	X	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Paroediceros lynceus*	X	X	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Paroediceros* sp.	-	X	-	-	-	-	-	Y	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Rostroculodes borealis*	-	-	X	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Rostroculodes kroyeri*	-	-	X	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Rostroculodes longirostris*	-	-	-	-	X	-	-	-	X	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Rostroculodes* sp.	-	-	-	-	Y	X	Y	Y	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Westwoodilla caecula*	-	-	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	-	*Westwoodilla* sp.	-	X	-	X	X	X	-	X	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Opisidae	-	*Opisa eschrichti*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Opisidae	-	*Opisa* sp.	-	-	-	-	-	-	-	-	Y	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Phoxocephalidae	-	Phoxocephalidae indet.	-	-	-	-	-	-	-	-	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Phoxocephalidae	Harpiniinae	*Harpinia serrata*	X	-	X	X	X	X	-	X	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Phoxocephalidae	Harpiniinae	*Harpinia* sp.	-	-	X	X	Y	X	X	-	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Phoxocephalidae	Phoxocephalinae	*Phoxocephalus holbolli*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Podoceridae	-	Podoceridae indet.	-	-	-	-	-	-	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pontoporeiidae	-	*Monoporeia affinis*	X	X	X	X	X	X	X	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pontoporeiidae	-	*Monoporeia sp.*	-	-	-	-	-	-	-	-	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pontoporeiidae	-	*Pontoporeia femorata*	X	X	X	X	X	X	X	X	X	X	X

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pontoporeiidae	-	Pontoporeiidae indet.	-	-	-	-	Y	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Scopelocheiridae	Scopelocheirinae	*Scopelocheirus hopei*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Stenothoidae	-	*Hardametopa nasuta*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Stenothoidae	-	*Metopa* sp.	-	X	-	-	-	-	X	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Stenothoidae	-	Stenothoidae indet.	X	-	-	X	Y	X	X	X	Y	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Synopiidae	-	*Tiron spiniferus*	-	-	-	-	-	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Gronella groenlandica*	-	X	-	X	X	X	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Hippomedon denticulatus*	-	-	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Hippomedon propinqvus*	-	-	-	-	-	-	-	-	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Hippomedon serratus*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Hippomedon* sp.	-	-	-	-	-	-	Y	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Orchomene macroserratus*	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Orchomene* sp.	-	-	-	-	X	X	Y	Y	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Orchomenella minuta*	-	X	-	X	-	X	X	X	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Orchomenella pinguis*	-	-	-	X	X	X	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	*Orchomenella* sp.	-	X	-	X	-	-	Y	Y	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Tryphosidae	-	Tryphosidae indet.	-	-	-	-	-	-	Y	Y	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx laticoxae*	-	-	-	-	-	-	X	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx lilljeborgi*	-	-	-	-	-	-	-	X	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx nugax*	X	X	X	X	X	-	X	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx ochoticus*	-	-	-	X	-	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx pacificus*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx sarsi*	-	-	X	X	X	X	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Anonyx* sp.	-	X	X	X	Y	X	Y	X	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Menigrates obtusifrons*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus barentsi* Group	-	-	-	-	X	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus brevicaudatus*	-	-	-	-	-	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus litoralis*	-	-	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus normani*	-	-	X	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus plautus*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus* sp.	X	-	-	-	Y	X	Y	Y	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	Uristidae indet.	-	-	-	-	Y	-	-	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	-	-	Cumacea indet.	-	X	X	X	Y	X	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Bodotriidae	Bodotriinae	*Cyclaspis longicaudata*	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Brachydiastylis resima*	X	X	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Brachydiastylis* sp.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	Diastylidae indet.	-	-	-	-	Y	X	Y	-	Y	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis alaskensis*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis bradyi*	-	-	-	-	X	X	-	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis echinata*	-	-	X	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis goodsiri*	X	-	X	-	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis lucifera*	-	-	X	-	X	X	-	X	X	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis rathkei*	X	X	X	-	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis scorpioIdes*	X	-	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis sculpta*	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis* sp.	-	X	-	X	Y	X	Y	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastylis spinulosa*	X	-	X	-	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Diastylidae	-	*Diastyloides biplicatus*	-	-	-	-	X	X	-	-	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Lampropidae	-	*Hemilamprops cristatus*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Lampropidae	-	Lampropidae indet.	-	-	X	-	Y	X	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Lampropidae	-	*Lamprops fuscatus*	X	X	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Lampropidae	-	*Lamprops* sp.	-	-	X	X	-	-	-	X	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Eudorella emarginata*	-	-	X	X	-	-	X	X	X	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Eudorella* sp.	X	-	X	X	Y	-	Y	X	Y	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Eudorella truncatula*	-	-	X	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Eudorellopsis* sp.	X	-	-	-	-	-	-	-	-	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Leucon nasica*	-	-	-	-	-	-	X	X	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Leucon nasicoides*	X	X	X	X	X	-	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	*Leucon* sp.	-	-	X	-	Y	X	Y	X	Y	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Leuconidae	-	Leuconidae indet.	-	-	-	-	Y	X	Y	-	Y	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Nannastacidae	-	*Campylaspis rubicunda*	-	-	-	-	X	X	X	X	X	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Nannastacidae	-	*Campylaspis* sp.	-	-	-	-	Y	-	-	-	-	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Cumacea	Nannastacidae	-	Nannastacidae indet.	-	-	-	-	-	-	-	Y	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	*Argis dentata*	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	Crangonidae indet.	-	-	-	-	-	-	-	Y	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	*Sabinea septemcarinata*	X	-	X	-	X	X	X	X	X	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	*Sabinea* sp.	-	-	-	-	-	-	-	-	Y	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	*Sclerocrangon boreas*	-	-	-	X	X	X	-	-	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	*Sclerocrangon* sp.	-	-	-	-	-	-	-	Y	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Thoridae	-	*Lebbeus polaris*	X	-	-	-	-	X	X	X	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Thoridae	-	*Lebbeus* sp.	-	-	-	-	-	-	Y	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	-	-	Asellota indet.	-	-	-	-	Y	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	-	-	Isopoda indet.	-	-	-	-	-	-	-	Y	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	-	-	Isopoda sp. A	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Desmosomatidae	-	Desmosomatidae indet.	-	-	-	-	X	-	-	X	Y	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Desmosomatidae	Desmosomatinae	*Desmosoma* sp.	-	X	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Desmosomatidae	Desmosomatinae	*Eugerda* sp.	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Gnathiidae	-	*Gnathia maxillaris*	-	-	-	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Gnathiidae	-	*Gnathia* sp.	X	X	-	-	X	-	Y	X	Y	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Gnathiidae	-	Gnathiidae indet.	-	-	-	-	Y	X	Y	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Paramunnidae	-	*Pleurogonium rubicundum*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Paramunnidae	-	*Pleurogonium* sp.	-	-	-	-	Y	-	-	-	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Paramunnidae	-	*Pleurogonium spinosissimum*	X	-	-	-	X	X	-	-	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	-	Mysida indet.	-	-	-	-	Y	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Paramunnidae	-	*Pleurogonium spinosissimum*	X	-	-	-	X	X	-	-	X	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	-	Mysida indet.	-	-	-	-	Y	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysinae	*Mysis mixta*	-	X	-	X	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysinae	*Mysis* sp.	-	X	-	-	-	X	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	-	-	Tanaidacea indet.	X	X	X	X	Y	X	Y	Y	-	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Akanthophoreidae	-	Akanthophoreidae indet.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Akanthophoreidae	-	*Akanthophoreus gracilis*	-	-	-	-	X	-	-	-	-	-	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Akanthophoreidae	-	*Akanthophoreus* sp.	-	-	-	-	Y	X	Y	X	Y	X	-
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Pseudotanaidae	Pseudotanainae	*Pseudotanais* sp.	-	-	-	-	X	X	Y	Y	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	*Pseudosphyrapus anomalus*	X	-	-	X	X	X	X	X	X	X	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	*Pseudosphyrapus* sp.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Typhlotanaidae	-	Typhlotanaidae indet.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Tanaidacea	Typhlotanaidae	-	*Typhlotanais* sp.	-	-	-	-	X	X	X	X	-	-	X
Arthropoda	Crustacea	Malacostraca	Phyllocarida	Nebaliacea	Nebaliidae	-	***Nebalia* sp.**	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Ostracoda	-	-	-	-	Ostracoda indet.	-	-	-	-	Y	-	-	Y	-	-	X
Arthropoda	Crustacea	Ostracoda	Myodocopa	-	-	-	Myodocopa indet.	X	X	X	X	-	-	-	-	-	-	-
Arthropoda	Crustacea	Ostracoda	Myodocopa	Myodocopida	Philomedidae	Philomedinae	*Philomedes* sp.	-	-	-	-	X	X	X	X	X	X	X
Arthropoda	Crustacea	Ostracoda	Podocopa	Podocopida	-	-	Podocopida indet.	-	-	-	-	-	-	-	-	-	-	X
Arthropoda	Crustacea	Ostracoda	Podocopa	Podocopida	Cytheridae	-	Cytheridae indet.	-	-	-	-	-	-	X	-	X	-	-
Arthropoda	Crustacea	Ostracoda	Podocopa	Podocopida	Trachyleneridae	-	*Robertsonites tuberculatus*	-	-	-	-	X	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Coleoptera	Curculionidae	-	Curculionidae indet.	-	-	-	-	-	X	-	-	-	-	-
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	-	-	Diptera indet.	-	-	-	-	Y	-	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	-	Chironomidae indet.	X	-	-	-	-	X	-	-	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Chironominae	Chironominae indet.	X	-	-	-	-	-	-	-	-	-	-
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Diamesinae	*Diamesa* sp.	-	-	-	-	-	-	-	X	-	-	-
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	*Cricotopus/Orthocladius* sp. Complex	-	-	-	-	-	-	-	X	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	*Eukiefferiella* sp.	-	-	-	-	-	-	-	X	-	-	-
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.	X	-	-	-	X	X	-	X	-	-	X
Arthropoda	Crustacea	Hexapoda	Insecta	Diptera	Empididae	Clinocerinae	*Clinocera* sp.	-	-	-	-	-	-	-	X	-	-	-
Brachiopoda	-	-	-	-	-	-	Brachiopoda indet.	-	-	-	-	-	-	-	-	X	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bryozoa	-	-	-	-	-	-	Bryozoa indet.	-	-	-	-	Y	X	-	X	Y	-	-
Bryozoa	-	Gymnolaemata	-	-	-	-	Gymnolaemata indet.	-	-	-	-	-	-	Y	-	-	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	-	-	Buguloidea indet.	-	-	-	-	-	-	-	-	-	X	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	-	-	Cheilostomatida indet.	-	-	-	-	-	-	Y	X	Y	X	X
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	-	-	Flustrina indet.	-	-	-	-	-	-	-	-	-	-	X
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	-	-	Schizoporelloidea indet.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Bitectiporidae	-	*Schizomavella* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Calloporidae	-	*Callopora* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Calloporidae	-	Calloporidae indet.	-	-	-	-	-	X	X	X	Y	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Calloporidae	-	*Cauloramphus* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Candidae	-	Candidae indet.	-	-	-	-	-	-	-	-	Y	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Candidae	-	*Scrupocellaria* sp.	-	-	-	-	-	X	-	-	-	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Candidae	-	*Tricellaria* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Cribrilinidae	-	*Cribrilina* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Epistomiidae	-	*Synnotum* sp.	-	-	-	-	X	-	-	-	-	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Escharellidae	-	*Escharella* sp.	-	-	-	-	-	-	X	X	X	X	X
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Eucrateidae	-	*Eucratea* sp.	-	-	-	-	-	-	-	X	-	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Exochellidae	-	*Escharoides* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Fatkullinidae	-	*Stomacrustula pachystega*	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Hippothoidae	-	*Celleporella hyalina*	-	-	-	-	X	-	-	-	-	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Myriaporidae	-	*Leieschara* sp.	-	-	-	-	-	X	-	X	-	-	X
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Smittinidae	-	*Pseudoflustra* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Cheilostomatida	Smittinidae	-	*Smittina* sp.	-	-	-	-	-	-	-	-	X	-	-
Bryozoa	-	Gymnolaemata	-	Ctenostomatida	-	-	Ctenostomatida indet.	-	-	-	-	X	X	-	-	-	-	X
Bryozoa	-	Gymnolaemata	-	Ctenostomatida	Alcyonidiidae	-	*Alcyonidium* sp.	-	-	-	-	-	X	X	X	X	-	X
Bryozoa	-	Gymnolaemata	-	Ctenostomatida	Triticellidae	-	*Triticella* sp.	-	-	-	-	-	X	-	-	-	-	-
Bryozoa	-	Gymnolaemata	-	Ctenostomatida	Vesiculariidae	-	*Amathia* sp.	-	-	-	-	X	-	X	-	-	-	-
Bryozoa	-	Stenolaemata	-	-	-	-	Stenolaemata indet.	-	-	-	-	-	-	Y	-	-	-	-
Bryozoa	-	Stenolaemata	-	-	-	-	Stenolaemata indet.	-	-	-	-	-	-	Y	-	-	-	-
Bryozoa	-	Stenolaemata	-	Cyclostomatida	Crisiidae	-	*Crisia* sp.	-	-	-	-	X	X	X	X	X	-	-
Bryozoa	-	Stenolaemata	-	Cyclostomatida	Crisiidae	-	Crisiidae indet.	-	-	-	-	-	-	-	-	-	X	-
Bryozoa	-	Stenolaemata	-	Cyclostomatida	Oncousoeciidae	-	*Oncousoecia* sp.	-	-	-	-	-	-	X	-	-	-	-
Bryozoa	-	Stenolaemata	-	Cyclostomatida	Tubuliporidae	-	*Tubulipora* sp.	-	-	-	-	-	-	X	X	X	-	-
Chordata	Tunicata	-	-	-	-	-	Tunicata indet.	-	-	-	X	-	-	-	-	-	-	-
Chordata	Tunicata	Ascidiacea	-	-	-	-	Ascidiacea indet.	-	-	-	-	Y	-	X	X	Y	X	-
Chordata	Tunicata	Ascidiacea	-	Aplousobranchia	-	-	Aplousobranchia indet.	-	-	-	-	-	X	X	X	-	-	-
Chordata	Tunicata	Ascidiacea	-	Phlebobranchia	Ascidiidae	-	*Ascidia callosa*	-	X	-	-	-	-	-	-	-	-	-
Chordata	Tunicata	Ascidiacea	-	Phlebobranchia	Ascidiidae	-	*Ascidia* sp.	-	X	X	-	X	X	Y	X	Y	-	X
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	-	-	Stolidobranchia indet.	-	-	-	-	-	-	-	Y	-	-	X
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	Molgulidae	-	*Molgula* sp.	-	X	-	-	-	X	X	-	-	-	-
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	Pyuridae	-	*Boltenia echinata*	-	-	X	-	X	X	X	X	-	X	X
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	Pyuridae	-	*Boltenia* sp.	-	-	-	-	-	-	-	Y	-	-	-
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	Styelidae	-	*Polycarpa fibrosa*	-	-	-	-	X	X	-	X	-	X	X
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	Styelidae	-	*Polycarpa* sp.	-	-	-	-	-	-	Y	Y	Y	X	-
Chordata	Tunicata	Ascidiacea	-	Stolidobranchia	Styelidae	-	Styelidae indet.	-	-	-	-	-	-	Y	-	-	-	-
Chordata	Vertebrata	-	-	-	-	-	Pisces indet.	-	-	-	-	X	-	-	-	-	-	-
Chordata	Vertebrata	Actinopterygii	-	Perciformes	Zoarcidae	-	Zoarcidae indet.	-	-	-	-	-	-	X	-	-	-	-
Chordata	Vertebrata	Actinopterygii	-	Scorpaeniformes	Cottidae	-	Cottidae indet.	-	-	-	-	-	-	X	X	-	-	X
Chordata	Vertebrata	Teleostei	-	Perciformes	Ammodytidae	-	*Ammodytes* sp.	-	-	-	-	-	-	-	-	-	-	X
Chordata	Vertebrata	Teleostei	-	Perciformes	Stichaeidae	Lumpeninae	***Anisarchus medius***	-	-	-	-	-	-	-	-	-	-	X
Chordata	Vertebrata	Teleostei	-	Perciformes	Zoarcidae	Gymnelinae	*Gymnelus* sp.	-	-	-	-	-	-	-	-	-	-	X
Cnidaria	-	Anthozoa	-	-	-	-	Anthozoa indet.	-	-	-	-	-	-	-	Y	-	-	X
Cnidaria	-	Anthozoa	Ceriantharia	Spirularia	Cerianthidae	-	*Cerianthus lloydii*	-	-	-	-	-	-	-	X	-	-	-
Cnidaria	-	Anthozoa	Hexacorallia	Actiniaria	-	-	Actiniaria indet.	-	-	-	-	-	-	-	Y	-	-	X
Cnidaria	-	Anthozoa	Hexacorallia	Actiniaria	Actiniidae	-	*Urticina* sp.	-	-	-	-	X	-	-	-	-	-	-
Cnidaria	-	Anthozoa	Hexacorallia	Actiniaria	Edwardsiidae	-	Edwardsiidae indet.	-	-	-	-	-	-	X	X	-	-	X
Cnidaria	-	Anthozoa	Hexacorallia	Actiniaria	Halcampidae	-	*Halcampa* sp.	-	-	-	-	-	-	-	X	-	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cnidaria	-	Anthozoa	Hexacorallia	Actiniaria	Hormathiidae	-	*Hormathia digitata*	-	-	-	-	X	-	-	-	-	-	-
Cnidaria	-	Anthozoa	Hexacorallia	Zoantharia	Parazoanthidae	-	*Parazoanthus* sp.	-	-	-	-	X	-	-	-	-	-	-
Cnidaria	-	Hydrozoa	-	-	-	-	Hydrozoa indet.	-	-	-	-	Y	-	Y	X	-	-	-
Cnidaria	-	Hydrozoa	-	Leptothecata	Campanulariidae	-	Campanulariidae indet.	-	-	-	-	-	-	-	-	Y	X	-
Cnidaria	-	Hydrozoa	-	Leptothecata	Campanulinidae	-	*Calycella* sp.	-	-	-	-	-	-	-	-	X	-	-
Cnidaria	-	Hydrozoa	Hydroidolina	Anthoathecata	-	-	Anthoathecata indet.	-	-	-	-	-	-	Y	X	-	X	X
Cnidaria	-	Hydrozoa	Hydroidolina	Anthoathecata	Bougainvilliidae	-	Bougainvilliidae indet.	-	-	-	-	X	X	-	X	-	X	X
Cnidaria	-	Hydrozoa	Hydroidolina	Anthoathecata	Corynidae	-	Corynidae indet.	-	-	-	-	-	-	X	-	-	-	-
Cnidaria	-	Hydrozoa	Hydroidolina	Leptothecata	-	-	Leptothecata indet.	-	-	-	-	-	-	-	Y	Y	X	-
Cnidaria	-	Hydrozoa	Hydroidolina	Leptothecata	Lafoeidae	-	*Lafoea* sp.	-	-	-	-	-	-	X	-	-	-	-
Cnidaria	-	Hydrozoa	Trachylinae	Limnomedusae	Monobrachiidae	-	*Monobrachium parasitum*	-	-	-	-	X	X	X	X	X	X	X
Ctenophora	-	-	-	-	-	-	Ctenophora indet.	-	-	-	-	-	-	-	-	-	-	X
Echinodermata	Asterozoa	Asteroidea	-	-	-	-	Asteroidea indet.	-	-	-	-	-	-	-	-	-	-	X
Echinodermata	Asterozoa	Asteroidea	-	Forcipulatida	Asteriidae	-	Asteriidae indet.	-	-	X	-	-	-	-	-	-	-	-
Echinodermata	Asterozoa	Asteroidea	Ambuloasteroidea	Paxillosida	Ctenodiscidae	-	***Ctenodiscus crispatus***	-	-	-	-	-	-	-	-	-	-	X
Echinodermata	Asterozoa	Asteroidea	Ambuloasteroidea	Valvatida	Solasteridae	-	**Solasteridae indet.**	-	-	-	-	-	-	-	-	-	-	X
Echinodermata	Asterozoa	Ophiuroidea	-	-	-	-	Ophiuroidea indet.	-	-	X	-	-	-	Y	Y	Y	X	X
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Amphilepidida	-	-	Amphilepidida indet.	-	-	-	-	-	-	-	X	-	-	-
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiopyrgidae	-	*Ophiopleura borealis*	-	-	-	-	-	-	X	X	-	-	X
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiuridae	-	Ophiuridae indet.	-	-	-	-	-	-	Y	Y	Y	X	-
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	*Ophiocten affinis*	-	-	-	-	-	X	X	X	X	X	-
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	*Ophiocten sericeum*	X	X	-	-	-	-	-	-	-	-	X
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	*Ophiura robusta*	X	-	X	X	X	X	X	X	X	X	X
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	*Ophiura sarsii*	X	X	X	X	X	X	X	X	X	X	X
Echinodermata	Asterozoa	Ophiuroidea	Myophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	*Ophiura* sp.	-	-	X	-	Y	-	Y	Y	Y	X	X
Echinodermata	Echinozoa	Echinoidea	Euechinoidea	Camarodonta	Strongylocentrotidae	-	*Strongylocentrotus droebachiensis*	X	-	X	X	X	X	X	X	X	X	X
Echinodermata	Echinozoa	Echinoidea	Euechinoidea	Camarodonta	Strongylocentrotidae	-	*Strongylocentrotus pallidus*	-	-	-	-	-	-	-	X	-	-	-
Echinodermata	Echinozoa	Echinoidea	Euechinoidea	Camarodonta	Strongylocentrotidae	-	*Strongylocentrotus* sp.	-	X	-	-	Y	X	Y	Y	Y	X	X
Echinodermata	Echinozoa	Holothuroidea	-	-	-	-	Holothuroidea indet.	-	-	-	-	-	-	-	-	-	X	-
Echinodermata	Echinozoa	Holothuroidea	-	-	-	-	Holothuroidea sp. A	-	-	-	-	X	X	-	-	-	-	-
Echinodermata	Echinozoa	Holothuroidea	Actinopoda	Dendrochirotida	Psolidae	-	*Psolus phantapus*	-	-	-	-	X	X	-	-	-	X	-
Echinodermata	Echinozoa	Holothuroidea	Actinopoda	Dendrochirotida	Psolidae	-	*Psolus* sp.	-	-	-	-	-	-	Y	-	-	-	-
Echinodermata	Echinozoa	Holothuroidea	Actinopoda	Molpadida	-	-	Molpadida indet.	-	-	-	-	X	X	-	-	-	-	-
Echinodermata	Echinozoa	Holothuroidea	Actinopoda	Molpadida	Eupyrgidae	-	*Eupyrgus scaber*	-	-	-	-	-	-	X	X	-	-	X
Echinodermata	Echinozoa	Holothuroidea	Paractinopoda	Apodida	-	-	Apodida indet.	-	-	-	-	-	-	Y	Y	-	-	-
Echinodermata	Echinozoa	Holothuroidea	Paractinopoda	Apodida	Myriotrochidae	-	*Myriotrochus rinkii*	-	-	-	X	-	-	X	X	X	X	X
Entoprocta	-	-	-	-	-	-	Entoprocta indet.	-	-	-	-	-	-	-	X	-	-	-
Entoprocta	-	-	-	Coloniales	Barentsiidae	-	*Barentsia* sp.	-	-	-	-	-	-	-	X	-	-	-
Hemichordata	-	Enteropneusta	-	-	-	-	Enteropneusta indet.	-	-	-	-	-	-	-	X	-	-	X
Mollusca	-	Bivalvia	-	-	-	-	Bivalvia indet.	-	X	X	X	Y	-	X	X	X	X	X
Mollusca	-	Bivalvia	-	-	-	-	Bivalvia sp. A	-	-	-	X	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	-	Galeommatida	Lasaeidae	-	Lasaeidae indet.	-	-	-	-	-	-	-	-	X	-	-
Mollusca	-	Bivalvia	Autobranchia	-	Cuspidariidae	-	*Cuspidaria arctica*	-	-	X	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	-	Cuspidariidae	-	*Cuspidaria* sp.	X	-	-	-	-	X	-	X	Y	-	X
Mollusca	-	Bivalvia	Autobranchia	-	Lyonsiidae	-	*Lyonsia arenosa*	-	-	-	-	X	X	X	-	X	-	-
Mollusca	-	Bivalvia	Autobranchia	-	Periplomatidae	-	*Periploma aleuticum*	X	-	-	-	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	-	Thraciidae	-	*Thracia myopsis*	-	-	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	-	Thraciidae	-	*Thracia* sp.	-	-	-	-	Y	X	Y	-	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	-	Thraciidae	-	Thraciidae indet.	-	-	-	-	-	-	-	-	-	-	X
Mollusca	-	Bivalvia	Autobranchia	Adapedonta	Hiatellidae	-	*Hiatella arctica*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Arcida	Arcidae	-	*Bathyarca glacialis*	-	-	-	-	-	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Cardiidae	Clinocardiinae	*Ciliatocardium ciliatum*	X	-	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Cardiidae	Clinocardiinae	Clinocardiinae indet.	-	-	-	-	-	-	Y	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Cardiidae	Clinocardiinae	*Serripes groenlandicus*	-	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Cardiidae	Clinocardiinae	*Serripes* sp.	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Cardiidae	-	Cardiidae indet.	-	-	-	-	Y	-	-	X	Y	-	X

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Tellinidae	Macominae	*Limecola balthica*	-	-	X	X	X	X	X	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Tellinidae	Macominae	*Macoma calcarea*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Tellinidae	Macominae	*Macoma moesta*	-	-	-	-	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Tellinidae	Macominae	*Macoma* sp.	-	-	-	-	Y	X	-	-	Y	-	X
Mollusca	-	Bivalvia	Autobranchia	Cardiida	Tellinidae	Macominae	Macominae indet.	-	-	-	-	-	-	Y	Y	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Carditida	Astartidae	-	*Astarte borealis*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Carditida	Astartidae	-	*Astarte montagui*	X	-	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Carditida	Astartidae	-	*Astarte* sp.	X	X	X	X	Y	X	Y	X	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Lucinida	Thyasiridae	-	*Axinopsida serricata*	-	-	-	-	X	-	X	-	-	X	-
Mollusca	-	Bivalvia	Autobranchia	Lucinida	Thyasiridae	-	*Axinopsida* sp.	-	-	-	-	-	-	Y	X	Y	-	X
Mollusca	-	Bivalvia	Autobranchia	Lucinida	Thyasiridae	-	*Thyasira flexuosa*	-	X	X	X	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Lucinida	Thyasiridae	-	*Thyasira gouldi*	X	-	-	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Lucinida	Thyasiridae	-	*Thyasira* sp.	-	-	-	-	X	X	Y	Y	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Lucinida	Thyasiridae	-	Thyasiridae indet.	-	-	-	-	Y	X	Y	Y	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Myida	Myidae	-	*Mya arenaria*	-	-	X	X	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Myida	Myidae	-	*Mya* sp.	-	-	-	-	Y	X	Y	Y	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Myida	Myidae	-	*Mya truncata*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	-	Mytilidae indet.	X	-	-	-	Y	X	Y	Y	Y	-	X
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Crenellinae	*Crenella faba*	X	X	X	X	X	X	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Crenellinae	*Crenella* sp.	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Dacrydiinae	*Dacrydium vitreum*	X	-	-	-	-	X	-	X	-	-	X
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Musculinae	*Musculus discors*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Musculinae	*Musculus niger*	-	X	-	-	X	-	X	X	-	X	-
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Musculinae	*Musculus* sp.	X	-	-	-	Y	-	Y	X	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Mytilinae	*Mytilus edulis*	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Mytilida	Mytilidae	Mytilinae	*Mytilus* sp.	-	-	-	-	X	-	-	-	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Pectinida	-	-	Pectinoidea indet.	-	-	-	-	Y	-	-	-	Y	X	X
Mollusca	-	Bivalvia	Autobranchia	Pectinida	Pectinidae	-	Pectinidae indet.	-	-	-	-	Y	X	-	X	-	-	-
Mollusca	-	Bivalvia	Autobranchia	Pectinida	Pectinidae	Pedinae	*Chlamys islandica*	-	-	X	X	X	X	X	X	X	-	-
Mollusca	-	Bivalvia	Autobranchia	Pectinida	Propeamussiidae	-	Propeamussiidae indet.	-	-	-	-	Y	X	Y	Y	Y	-	-
Mollusca	-	Bivalvia	Autobranchia	Pectinida	Propeamussiidae	-	*Similipecten greenlandicus*	X	-	X	X	X	X	X	X	X	X	-
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	-	-	Nuculanida indet.	-	-	-	-	-	-	Y	-	-	-	-
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	-	-	Nuculanoidea indet.	-	-	-	-	Y	X	-	X	Y	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Nuculanidae	-	Nuculanidae indet.	-	-	-	-	-	-	-	-	-	-	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Nuculanidae	Nuculaninae	*Nuculana minuta*	-	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Nuculanidae	Nuculaninae	*Nuculana pernula*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Nuculanidae	Nuculaninae	*Nuculana* sp.	-	-	X	-	Y	X	Y	Y	Y	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	*Portlandia arctica*	X	X	X	X	X	-	X	X	-	X	-
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	*Yoldiella frigida*	-	-	-	-	-	X	X	X	X	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	*Yoldiella intermedia*	-	-	-	-	-	X	X	-	X	X	-
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	*Yoldiella lenticula*	X	-	-	-	-	X	-	-	-	-	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	*Yoldiella nana*	X	-	-	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	*Yoldiella* sp.	-	-	-	-	-	-	-	Y	Y	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculanida	Yoldiidae	-	Yoldiidae indet.	-	-	-	-	Y	X	Y	Y	Y	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculida	Nuculidae	-	*Ennucula tenuis*	X	-	-	-	X	X	X	X	X	X	X
Mollusca	-	Bivalvia	Protobranchia	Nuculida	Nuculidae	-	*Nucula* sp.	-	-	X	-	-	-	-	-	-	-	-
Mollusca	-	Bivalvia	Protobranchia	Nuculida	Nuculidae	-	*Pronucula tenuis*	-	X	X	X	-	-	-	-	-	-	-
Mollusca	-	Caudofoveata	-	-	-	-	Caudofoveata indet.	-	-	-	-	-	-	-	Y	Y	-	-
Mollusca	-	Caudofoveata	-	Chaetodermatida	Chaetodermatidae	-	***Chaetoderma nitidulum***	-	-	-	-	-	-	-	-	-	-	X
Mollusca	-	Caudofoveata	-	Chaetodermatida	Chaetodermatidae	-	*Chaetoderma* sp.	-	-	X	X	X	X	X	X	X	X	X
Mollusca	-	Caudofoveata	-	Chaetodermatida	Chaetodermatidae	-	Chaetodermatidae indet.	-	-	-	-	-	-	-	-	-	-	X
Mollusca	-	Gastropoda	-	-	-	-	Gastropoda indet.	-	-	X	-	Y	X	Y	X	Y	X	X
Mollusca	-	Gastropoda	-	-	-	-	Gastropoda sp. A	-	-	-	X	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Capulidae	-	*Ariadnaria borealis*	-	-	X	X	X	X	X	X	X	X	X
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Naticidae	-	Naticidae indet.	-	-	X	-	-	-	Y	X	Y	-	X
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Naticidae	Naticinae	*Cryptonatica affinis*	-	-	X	X	X	X	-	-	X	-	X

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Naticidae	Naticinae	*Euspira pallida*	X	-	-	-	X	X	X	X	X	X	X
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Naticidae	Polinicinae	*Bulbus* sp.	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Rissoidae	-	*Boreocingula castanea*	-	X	-	X	-	X	X	X	X	X	X
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Rissoidae	-	Rissoidae indet.	-	-	-	-	X	X	Y	Y	Y	X	X
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Skeneopsidae	-	*Skeneopsis planorbis*	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Littorinimorpha	Velutinidae	-	Velutinidae indet.	-	-	-	-	X	X	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Buccinidae	-	Buccinidae indet.	-	-	-	-	Y	X	Y	-	Y	X	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Buccinidae	-	*Buccinum ciliatum*	-	-	-	-	-	-	X	-	-	X	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Buccinidae	-	*Buccinum hydrophanum*	-	-	-	-	-	X	X	X	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Buccinidae	-	Colus sp.	-	-	-	-	X	X	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Buccinidae	-	*Volutopsius norwegicus*	-	-	-	-	X	X	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Buccinidae	Bucininae	*Buccinum* sp.	-	-	-	-	-	-	-	-	-	-	X
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Cancellariidae	Admetinae	*Admete viridula*	-	-	-	X	-	X	X	X	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Columbellidae	-	Columbellidae indet.	-	-	-	-	-	X	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Mangeliidae	-	Mangeliidae indet.	-	-	-	-	-	-	Y	X	Y	X	X
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Mangeliidae	-	*Oenopota* sp.	-	-	-	X	-	X	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Mangeliidae	-	*Oenopota violacea*	-	X	X	X	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Mangeliidae	-	*Propebela* sp.	-	-	-	-	X	-	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Mangeliidae	-	*Propepela nobilis*	-	-	-	X	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Caenogastropoda	Neogastropoda	Turridae	-	Turridae indet.	X	-	-	-	X	-	-	-	-	-	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	-	-	Cephalaspidea indet.	-	-	-	-	Y	X	Y	X	Y	X	X
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Cylichnidae	-	*Cylichna alba*	X	-	X	X	-	X	X	X	X	-	X
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Cylichnidae	-	*Cylichna gouldi*	-	-	X	X	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Cylichnidae	-	*Cylichna* sp.	-	-	-	-	X	X	Y	X	Y	-	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Cylichnidae	-	Cylichnidae indet.	-	-	-	-	Y	X	Y	X	Y	X	X
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Cylichnidae	-	*Cylichnoides occultus*	X	-	-	-	X	X	X	X	-	-	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Philinidae	Philininae	Philininae indet.	-	-	-	-	-	-	X	X	-	X	X
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Retusidae	-	*Retusa obtusa*	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Retusidae	-	*Retusa* sp.	-	-	-	-	-	-	-	Y	-	-	X
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Retusidae	-	Retusidae indet.	-	X	-	-	-	-	-	-	-	-	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Tornatinidae	-	*Acteocina canaliculata*	X	-	-	-	-	-	-	-	-	X	-
Mollusca	-	Gastropoda	Heterobranchia	Cephalaspidea	Tornatinidae	-	*Acteocina* sp.	-	-	-	-	X	-	X	X	-	-	-
Mollusca	-	Gastropoda	Patellogastropoda	-	-	-	Patellogastropoda indet.	-	X	X	-	Y	-	-	X	Y	X	X
Mollusca	-	Gastropoda	Patellogastropoda	-	Lepetidae	-	*Lepeta caeca*	X	X	X	X	X	X	X	X	X	X	X
Mollusca	-	Gastropoda	Patellogastropoda	-	Lottiidae	-	*Erginus rubellus*	-	-	-	-	-	-	X	-	-	-	-
Mollusca	-	Gastropoda	Patellogastropoda	-	Lottiidae	-	Lottiidae indet.	-	-	-	-	X	X	-	-	-	-	-
Mollusca	-	Gastropoda	Patellogastropoda	-	Lottiidae	-	*Testudinalia testudinalis*	X	X	X	-	-	X	-	-	-	-	-
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	-	-	Trochoidea indet.	-	-	-	-	-	-	-	-	-	-	X
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	Colloniidae	Moelleriinae	*Moelleria costulata*	-	-	-	-	X	X	-	X	-	-	-
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	Margaritidae	-	*Margarites groenlandicus*	-	X	X	X	X	X	X	-	X	-	X
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	Margaritidae	-	*Margarites helicinus*	-	-	-	-	X	X	X	X	-	-	X
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	Margaritidae	-	*Margarites olivaceus*	X	-	-	-	-	X	-	X	-	-	-
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	Margaritidae	-	*Margarites* sp.	-	-	-	-	Y	X	Y	Y	-	-	-
Mollusca	-	Gastropoda	Vetigastropoda	Trochida	Trochidae	-	Trochidae indet.	X	-	-	-	X	X	-	-	-	-	X
Mollusca	-	Polyplacophora	-	-	-	-	Polyplacophora indet.	-	-	-	-	Y	-	-	-	-	-	-
Mollusca	-	Polyplacophora	Neoloricata	Chitonida	Tonicellidae	Tonicellinae	*Tonicella marmorea*	X	-	X	X	X	X	X	X	X	X	-
Mollusca	-	Scaphopoda	-	Gadilida	Gadilidae	-	Gadilidae indet.	-	-	-	-	-	-	Y	X	-	-	-
Mollusca	-	Scaphopoda	-	Gadilida	Gadilidae	-	*Siphonodentalium lobatum*	-	-	-	-	-	-	X	X	X	X	-
Mollusca	Aculifera	Aplacophora	-	-	-	-	Aplacophora indet.	-	-	-	-	X	X	-	-	-	-	-
Nematoda	-	-	-	-	-	-	Nematoda indet.	-	-	-	-	-	-	-	X	-	-	X
Nemertea	-	-	-	-	-	-	Nemertea indet.	-	X	X	X	Y	X	Y	X	Y	X	X
Nemertea	-	Hoplonemertea	-	-	-	-	Hoplonemertea indet.	-	-	-	-	-	-	Y	X	Y	-	X
Nemertea	-	Hoplonemertea	-	Monostilifera	Amphiporidae	-	Amphiporus sp.	-	-	-	-	-	-	-	X	-	-	-
Nemertea	-	Hoplonemertea	-	Monostilifera	Tetrastemmatidae	-	*Tetrastemma* sp.	-	-	-	-	X	-	X	-	-	-	-
Nemertea	-	Hoplonemertea	-	Monostilifera	Tetrastemmatidae	-	Tetrastemmatidae indet.	-	-	-	-	-	-	-	Y	-	-	X
Nemertea	-	Nemertea incertae sedis	-	-	-	-	Nermertea incertae sedis indet. (Anopla)	-	-	-	-	Y	X	-	-	-	-	-

Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	2010	2013	2015	2016	2017	2018	2019	2020	2021	2022	2023
Nemertea	-	Nemertea incertae sedis	-	-	-	-	Nermertea incertae sedis indet. (Enopla)	-	-	-	-	Y	X	-	-	-	-	-
Nemertea	-	Palaeonemertea	-	-	-	-	Palaeonemertea indet.	-	-	-	-	-	-	-	-	-	X	-
Nemertea	-	Palaeonemertea	-	Archinemertea	Cephalotrichidae	-	*Cephalothrix* sp.	-	-	-	-	X	X	X	X	X	X	X
Nemertea	-	Palaeonemertea	-	Carinomiformes	Carinomidae	-	*Carinoma* sp.	-	-	-	-	-	X	-	X	-	-	X
Nemertea	-	Palaeonemertea	-	Tubulaniformes	Tubulanidae	-	*Tubulanus* sp.	-	-	-	-	-	X	X	X	-	-	-
Nemertea	-	Pilidiophora	-	Heteronemertea	-	-	Heteronemertea indet.	-	-	-	-	-	-	Y	-	Y	X	-
Nemertea	-	Pilidiophora	-	Heteronemertea	Lineidae	-	*Cerebratulus* sp.	-	X	X	-	X	X	X	X	-	-	-
Nemertea	-	Pilidiophora	-	Heteronemertea	Lineidae	-	Lineidae indet.	-	-	-	-	-	-	Y	X	Y	X	X
Nemertea	-	Pilidiophora	-	Heteronemertea	Lineidae	-	*Lineus* sp.	-	-	-	-	-	-	X	X	-	-	-
Platyhelminthes	-	-	-	-	-	-	Platyhelminthes indet.	-	-	-	-	X	X	-	-	-	-	X
Porifera	-	Calcarea	-	-	-	-	Calcarea indet.	-	-	-	-	X	X	X	X	-	-	X
Porifera	-	Demospongiae	-	-	-	-	Demospongiae indet.	-	-	-	-	-	-	-	X	X	-	-
Priapulida	-	-	-	-	-	-	Priapulida indet.	-	X	-	-	-	-	Y	Y	Y	X	X
Priapulida	-	-	-	Prapulomorpha	Priapulidae	-	*Priapulus caudatus*	X	-	X	X	X	X	-	X	-	X	X
Priapulida	-	-	-	Prapulomorpha	Priapulidae	-	*Priapulus* sp.	-	-	-	-	Y	X	Y	Y	Y	X	-
Sipuncula	-	-	-	-	-	-	Sipuncula indet.	-	-	X	X	-	-	-	-	-	-	-
Sipuncula	-	Sipunculidea	-	Golfingiida	Golfingiidae	-	*Golfingia* sp.	-	-	-	-	X	X	X	X	X	-	X
Sipuncula	-	Sipunculidea	-	Golfingiida	Golfingiidae	-	Golfingiidae indet.	-	-	-	-	-	-	Y	X	Y	X	X
Sipuncula	-	Sipunculidea	-	Golfingiida	Golfingiidae	-	*Nephasoma* sp.	-	-	-	-	X	-	X	X	-	-	-
XXXX	-	-	-	-	-	-	Cyclostomatida indet.	-	-	-	-	-	-	Y	-	-	-	X
							# New Unique Taxa each year	**135**	**84**	**53**	**50**	**113**	**47**	**41**	**34**	**16**	**1**	**25**
							TOTAL # Taxa (COUNT)	**135**	**147**	**156**	**188**	**237**	**320**	**318**	**370**	**266**	**244**	**352**

APPENDIX 8A-2

Benthic Infauna Laboratory Data 2023

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID											mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID											SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled											19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
								Grand Total			Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Unique Taxa	Abundance		Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance
ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.	1	64			16				16																	
ANNE	EURA	Annelida	Polychaeta	Echiuroidea	Echiuridae		Echiurus echiurus	1	4										2													
ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Dorvilleidae indet.		32																							
ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Ophryotrocha sp.	1	16													16										
ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Parougia caeca	1	48																		32					
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.		160																	16						
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineris fauchaldi	1	1				1																			
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	1	3,365		32			3	16			16	16					64	192	32	128	320	320	256	272	112	400
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana	1	1,136			16	160	80	112	64	176	160	112	64	32											
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		512									16									48	80					32
ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega	1	1,249																3	48		66	48	16	3	68	144
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Chrysopetalidae	Dysponetinae	Dysponetus sp.	1	16												16											
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera capitata	1	34																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera sp.		16																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides	1	16,843		128	256	418	112	80	256	160	512	80	256	1008	1040	464									
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Microphthalmidae		Microphthalmus sp.	1	64																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni	1	97																			16		16	32		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta	1	3,136		64	32	144	16	32	80	48	48	48	16	16	16	112	32	32	48	96	48	96	64		144
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata	1	105					2		1	1												16		16		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	1	146					34	3	1	1	66	6	2			2									
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.		80				16	16				16														
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone barbata	1	1																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex	1	81		16										1											32
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		1,254			48				16	16					64			16				16	32		16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Mystides borealis	1	16																	16						
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica	1	88							1																
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce sp.		19		16																					
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae		Phyllodocidae indet.		16																			16				
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme	1	37								1									16						
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides sp.		34				1																16			16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa	1	436				16		51	48	2	130	32	34	48										
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata	1	103									32	16	18												
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe rarispina	1	7						2					1												
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.		132				1		32		2		16	16			1									
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Hesperonoe sp.	1	32																	16	16					
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Melaenis loveni	1	3																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Polynoinae indet.		16																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae		Polynoidae indet.		16																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	1	3,025			16	502	80	224	224	195	240	48	104	160	65	2									
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	1	10,804		96	32	1297	528	688	736	656	624	640	608	336	48	288	208	80	96	368	32	64		16	32
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		5,458				592	32	64	16	176	416	336	224	64		48	48	32	16	32	48	16	80	64	48
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Ephesiella sp.	1	32																	16						16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridae indet.		32																						16	
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridium minutum	1	16																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis	1	208																			32		16	64		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodorum gracilis	1	48																	16	16					
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Anoplosyllinae	Streptospinigera niuqtuut	1	16														16									
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Eusyllinae indet.		16										16													
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Eusyllis sp.	1	16																							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Pionosyllis sp.	1	16										16													
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.	1	2,656				80	64	64	160	496	464	224	624	304				16		16		16	48		16
ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans	1	320																16		32	96	16		80	32	32
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata	1	371		18	64													16	48	32	66	16	16		1	16
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri	1	311		16														33	32		32		80			80
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele sp.		1																							
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis	1	149		17												18		1			16	2	18		
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia sp.		16																							16
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp.		16																		16					
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1	1	256		48	16		48						32	64								16		
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3	1	286													18										
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor	1	1,280		64	176	48	64	48	32		64	32	112	128	16	16								
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.		161						16				16		16									16	16	
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1	1	64				1							3	6			1			2					
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Branchiomma sp.	1	2					1	1																	
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		609		16	16	16		16		16			64	48						32		16		32	
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae sp. 3	1	32																	16	16					
ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Bushiella (Jugaria) quadrangularis	1	36					16															16				
ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Spirorbinae indet.		16																				16				
ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae		Serpulidae indet.		32																			16					16
ANNE	POSE	Annelida	Polychaeta	Spionida	Apistobranchidae		Apistobranchus sp.	1	48					32																			
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora caulleryi	1	16																			16				
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata	1	337						16		16			17	256											
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora socialis	1	32											16												
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora sp.		32																							
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Laonice cirrata	1	16																							
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Marenzelleria sp.	1	21			16																				
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		1,681		369	192							32		16		96	192		16	48		64	32		80
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio steenstrupi	1	96												48			16		32						
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans	1	1,184		16	256	16	16	32	128	16	16		80	16	48								16		
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spio sp.	1	49											1												
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spionidae indet.		64				16												16						16	
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis	1	41						1			16	2	2	2											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae	1	293				65					16	16	16												
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.		161				17		16			16		32	32											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli	1	39												36											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata	1	192																				16		48	16	48
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Sosane wireni	1	16																					16			
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.		336			48											16					16	32	16			
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.	1	976			32				32	32	48	96	16	240	16	64	32				48		32	16		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala	1	3,989		192	432	48	176	320	320	177	208	80	33	32	288	192	16	32	16			32		32	128
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi	1	1,184			176				48						16										
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata	1	471					32	33			36	16		32		18			16	32		64			48
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex	1	288						128	32		48			64											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		7,024		272	224		128	112	336	304	352	64	96	96	160	112	112	32	160	80		96	16		176
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		3,985		112	192	272	16		192	304	224	240	224	96	80	80	96			48	64	48	48	32	96
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.	1	304					64		128					16					16						
ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus hirsutus	1	80		16										16											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus sp.		16																							
ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae	1	168																33	16	16					
ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna sp.		32		16														16							
ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	1	917			16	49	35	81	3	81	40		49	32	48	16									
ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides hyperborea	1	19										16	3												
ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Pectinariidae indet.		16																16							
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Amphitrite cirrata	1	5				1	2	2																	
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Lanassa sp.		1											1												
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Lanassa venusta venusta	1	16										16													

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
								Grand Total		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Unique Taxa	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki	1	146			16							17		32			32	16						
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	1	67					2			16		17												
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Paramphitrite birulai	1	93											32	16										
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata	1	271		4	3	14	10	26	7	24	18	46	24		4								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex	1	546	16				16	82		16		16	208						80	16				
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Proclea graffii	1	16																						
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.		192			16					48			16	16						16				
ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	1	2,466	33		176	16	161	144	64	256	120	193	546	16	84		16	48	48			1		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Trichobranchus sp.	1	16											16											
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex	1	816				16					16		304		32									
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitellidae indet.		16			16																			
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	1	2,928		64	64	48	64	144	176	112	112	64	48	64	32			48	32	16	16	48		32
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.	1	273			16													16	16	48	32	33	16	16
ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	1	4,528	160	16		192	112	16	448	288	272	160	144		96	240		32	32	96	32	16		
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris	1	128		32				16						32				16						
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.		288					16							32	16		64	16			48			
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella gracilis	1	96															16			16				
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella praetermissa	1	16												16										
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella sp.		17																16						
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Lumbriclymeninae	Praxillura sp.	1	1																						
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi	1	1,648			113	32	133	51	86	54	172	51	80		16	52		48	66	81	16	66	51	160
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Nicomachinae	Nicomachinae indet.		32																32						
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Nicomachinae	Petaloproctus tenuis	1	16																			16			
ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelia limacina	1	1																						
ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelina acuminata	1	70				16		32																
ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelina cylindricaudata	1	16					16																	
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus	1	241	16								16	16						32					16	16
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.		176		16									16		32									
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger	1	311			16		64	64	1	16				17							16			
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.		400			96	48			16	16				32	16	16								
ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.		320	112		16						16		16		96	16								
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	1	192							16	48	16	16								16	16			
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta	1	528	32	16		32	16	32	96	64		32		48	16									
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	1	528	16									80			16	48		16				64	16	16
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani	1	272	48	32		16	16						64			16					16			
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.		96		16						16							16							
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Paraonides sp.	1	16																			16			
ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Polyphysia baffinensis	1	37																1	16					
ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	1	1,685	16		128	16	48	80	96	144	48	113	208	32	16				32		16			
ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregmatidae indet.		80									32					16								16
ANNE	SIPN	Annelida		Sipuncula	Golfingiidae		Golfingia sp.	1	32															32							
ANNE	SIPN	Annelida		Sipuncula	Golfingiidae		Golfingiidae indet.		96																						
ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	1	64										16												
ARTH	CHPY	Arthropoda	Pycnogonida	Pantopoda	Nymphonidae		Nymphon sp.	1	3																	1					
ARTH	CHPY	Arthropoda	Pycnogonida				Pycnogonida indet.		32																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Ampelisca eschrichtii	1	1																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Byblis sp.	1	65														1						16		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola	1	65					16	16	1	16	16													
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Amphilochidae		Amphilochidae indet.		32																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Amphilochidae		Amphilochus sp.	1	48						48																
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus carinatus	1	29									16	5	8											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.		214									32		176						2	1				
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopidae		Calliopidae indet.	1	128				16					16		16											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium clarencense	1	144											16											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium sp.		16																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeia sp.	1	2																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeiinae indet.		16																						16
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminiidae	Prophliantinae	Guernea nordenskioldi	1	5,920			512	240	384	1152	528	640	400	416	352	128	64									
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichia sp.	1	160									16		32											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichiidae indet.		16																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Isaeidae		Isaeidae indet.	1	16																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae		Ischyroceridae indet.	1	16											16											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Arrhis sp.	1	32																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculodes sp.	1	96	16							16			48											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculopsis longicornis	1	16		16																				
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.		528			48	16	16						32						16					
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Paroediceros lynceus	1	16																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Paroediceros sp.		144															16		16					
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.	1	336			32		32	64	80		16	16	16											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.	1	112			16		16								16									
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Harpiniinae	Harpinia sp.	1	16																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata	1	784			32	48			16	16	128	16	496		16									
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Stenothoidae		Stenothoidae indet.	1	64										32												
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Orchomene sp.	1	192			16					16							16		16					
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Tryphosidae indet.		48											48											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sarsi	1	4							4															
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.		153						17	16			1		32					1					
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Onisimus sp.	1	16	16																					
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.		112			48		16								16				16					
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.		80							16									16						
ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	1	150						22	64					19										
ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.	1	2,320	16		80	32	32	16	128	1088	16		16				16	448						
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima	1	8,608	16		32				48		6128	976	1216									16	32	32
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis sp.		32																	32					
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis bradyi	1	16	16																					
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri	1	179										16				64			16	16				32
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis lucifera	1	32					16																	
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei	1	96			16						16	32												
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	1	530	64	16	64				80		2				64	16			16					
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.		256						32			32	16			48									
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis spinulosa	1	96	16																16					32
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.		528			16		16		16				16											
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lamprops fuscatus	1	224		144				64			16													
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella emarginata	1	96									96													
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.		208						16				32	16						32					16
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella truncatula	1	128							16						48									
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides	1	912			32	16	16	112			64	160	48	16	48				64		16			
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.		304	16			64	16	16	16		80					16						16		
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea			Cumacea indet.		80		16	16				32															
ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Argis dentata	1	1																						
ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Sabinea septemcarinata	1	1																						
ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Sclerocrangon boreas	1	1																						
ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.	1	256							16		16	16			16		48	32			32		16	
ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Paramunnidae		Pleurogonium sp.	1	16																						
ARTH	CRIS	Arthropoda	Malacostraca	Isopoda			Isopoda indet.		32											16									16		
ARTH	CRLE	Arthropoda	Malacostraca	Nebaliacea	Nebaliidae		Nebalia sp.	1	16																						

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
								Grand Total		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
taxcode	**grpcode**	**Phylum**	**Class**	**Order**	**Family**	**Subfamily**	**Taxon Name**	**Unique Taxa**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**
ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.	1	12,416	576	128	448	208	624	592	592	432	560	992	704	48	288	288	80	16	16					16
ARTH	CROS	Arthropoda	Ostracoda	Podocopida	Trachyleberididae		Robertsonites tuberculatus	1	48		16							32												
ARTH	CROS	Arthropoda	Ostracoda	Podocopida			Podocopida indet.		32																					16	
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.	1	288		16							96	48	48										16	
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.	1	496	16		16	16			32		256	32	48									16		
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus	1	1,280	320				16								304	32								
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus sp.		16																			16			
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanaidae indet.		192						64	80	16					32									
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.	1	208										32									32	16		
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea			Tanaidacea indet.		64				16																		
ARTH	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Cricotopus/Orthocladius sp. complex	1	16																						
ARTH	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.		112																						
ARTH	INDI	Arthropoda	Insecta	Diptera	Chironomidae		Chironomidae indet.		80																						
ARTH	INDI	Arthropoda	Insecta	Diptera			Diptera indet.		16																						
ECHI	ECAS	Echinodermata	Asteroidea	Paxillosida	Ctenodiscidae		Ctenodiscus crispatus	1	1																			1			
ECHI	ECAS	Echinodermata	Asteroidea	Valvatida	Solasteridae		Solasteridae indet.	1	16																						
ECHI	ECAS	Echinodermata	Asteroidea				Asteroidea indet.		16								16														
ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus droebachiensis	1	4					1																	
ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.		6	1	1			1	1																
ECHI	ECHO	Echinodermata	Holothuroidea	Apodida	Myriotrochidae		Myriotrochus rinkii	1	39																						
ECHI	ECHO	Echinodermata	Holothuroidea	Molpadida	Eupyrgidae		Eupyrgus scaber	1	32																						
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiopyrgidae		Ophiopleura borealis	1	4																			1		1	1
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum	1	463	2	1		1						1	2	1		4		97	83	5	32	39	7	
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura robusta	1	6								2			4										
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii	1	48	3	1					1					1			1	2	3	2	1	1	1	
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sp.		32															16							
ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.		608										16			16	16	16	128	64				1	48
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Escharellidae		Escharella sp.	1	1																					1	
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Myriaporidae		Leieschara sp.	1	32																		16			16	
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.		128								16								16			80		16	
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Flustrina indet.		4																2	1					
MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidiidae		Alcyonidium sp.	1	1																						
MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.		1															1							
MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida	Crisiidae		Crisia sp.	1	32																16						
MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.		32																		16				
MISC	CNAN	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae		Edwardsiidae indet.	1	16																	16					
MISC	CNAN	Cnidaria	Anthozoa	Actiniaria			Actiniaria indet.		16																						
MISC	CNAN	Cnidaria	Anthozoa				Anthozoa indet.		48																					48	
MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata	Bougainvilliidae		Bougainvilliidae indet.	1	20			16							2	2											
MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata			Anthoathecata indet.		48																						
MISC	CNHY	Cnidaria	Hydrozoa	Limnomedusae	Monobrachiidae		Monobrachium parasitum	1	301		2				18	21		34	43			2	18	1	8	6	3		3	3	1
MISC	HEMI	Hemichordata	Enteropneusta				Enteropneusta indet.	1	16													16									
MISC	NTEA	Nemertea	Hoplonemertea	Monostilifera	Tetrastemmatidae		Tetrastemmatidae indet.	1	32								16														
MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.		176					64			48			16				16							
MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalotrichidae		Cephalothrix sp.	1	512				16	16	16				16		64			16					16		
MISC	NTEA	Nemertea	Palaeonemertea	Carinomiformes	Carinomidae		Carinoma sp.	1	16								16														
MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	1	325	16					16	17			18				16		16	32	16	32			
MISC	NTEA	Nemertea					Nemertea indet.		112										16				16			16					16
MISC	PIXX	Chordata	Teleostei	Perciformes	Ammodytidae		Ammodytes sp.	1	2																						
MISC	PIXX	Chordata	Teleostei	Perciformes	Cottidae		Cottidae indet.	1	1	1																					
MISC	PIXX	Chordata	Teleostei	Perciformes	Stichaeidae	Lumpeninae	Anisarchus medius	1	1																						
MISC	PIXX	Chordata	Teleostei	Perciformes	Zoarcidae	Gymnelinae	Gymnelus sp.	1	16										16												
MISC	PLTY	Platyhelminthes					Platyhelminthes indet.	1	16											16											
MISC	PORI	Porifera	Calcarea				Calcarea indet.	1	2																	1					
MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus	1	98	16				16	16																
MISC	PRIA	Cephalorhyncha	Priapulida				Priapulida indet.		64																						
MISC	URAS	Chordata	Ascidiacea	Phlebobranchia	Ascidiidae		Ascidia sp.	1	2				1			1															
MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Pyuridae		Boltenia echinata	1	3							1	2														
MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Styelidae		Polycarpa fibrosa	1	17							1															
MISC	URAS	Chordata	Ascidiacea	Stolidobranchia			Stolidobranchia indet.		16																						
MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma nitidulum	1	20																			16			
MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.		208				16											16							16
MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetodermatidae indet.		16														16								
MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	1	1,023	2	18	43	33	45	45	70	32	42	66	48	37	44							1	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum	1	58		2	20	2		2	1	2		1		1										
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus	1	137		1	21	3	4	21	6	10			2										
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae		Cardiidae indet.		16													16									
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea	1	743	35	14	19	4	36	34	24	8	48	13	10	50	2	29	6	9	9	17	11	19	15	10
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta	1	81		1			1	2	7	2	6	11			2	1		2	2			1	1	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.		12								2						2								
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.		672	16	16	32	16	32	32		48	48	48			16	16								
MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis	1	956	11	40	70	58	64	32	35	16	52	40	18	51	6									
MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui	1	1,554	73	57	149	80	181	134	149	84	84	179	8	57	150	8	6	32	1	1		1	1	
MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		1,552	37	82	213	85	134	68	146	100	86	70	66	54	48			48						
MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Axinopsida sp.	1	16	16																					
MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.	1	432	16		64	16	48								48					16				
MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.		1,152	16		128		16	48	48	16			32		48		16		32		32	48	80
MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.		754		1	48		96		1			48	48										
MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	1	324		1	71	13	43	22	5	34	14	17	28	6	4								
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	1	26					1					1	18											
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus sp.		32							16															
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Dacrydium vitreum	1	16																	16					
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Mytilidae indet.		32																						
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta	1	281	16	16	1	32	2		32		16	3	2		48	16								
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana pernula	1	5															1							
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana sp.		16																						
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.		128								16						16								
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella frigida	1	80															16							
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella lenticula	1	96																				16		32
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.		176														32		80		16		16	16	
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiidae indet.		64	16			16																		
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.		544	16			32	16	48								16	16		32		16			32
MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis	1	2,325	128	80	32	17	1	48		48	2	24	20	16	128	224		96	64	128	16	32	48	32
MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus	1	187	22	6		3	5	17			2			13	2	1	3	1						
MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.		64																				16		
MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis	1	50	2													1		13	4	1		2	2	
MOLL	MOBI	Mollusca	Bivalvia		Cuspidariidae		Cuspidaria sp.	1	32																				16		
MOLL	MOBI	Mollusca	Bivalvia		Periplomatidae		Periploma aleuticum	1	5									4													
MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia myopsis	1	1														1								
MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia sp.		17																						
MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thraciidae indet.		64																						
MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.		1,233	32	48	128	16	80	80	32		64	112	16	16	48	32								
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichna alba	1	16																						
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichnidae indet.		64																	16					
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Philinidae		Philininae indet.	1	16																			16			
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.	1	304			32		32		32		16	16												

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Grand Total Unique Taxa	Grand Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.		576			16		16		64	64		48	32					16	16		32		32		16
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Capulidae		Ariadnaria borealis	1	2					1																	
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Naticinae	Cryptonatica affinis	1	16					16																	
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Polinicinae	Euspira pallida	1	20	1											1										16
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae		Naticidae indet.		16																						
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea	1	112			16				32	32			16											
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.		208					48	48			16		48											
MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Buccinidae	Buccininae	Buccinum sp.	1	1																						
MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.	1	96			32			16																
MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites groenlandicus	1	16													16									
MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites helicinus	1	18											16											
MOLL	MOGA	Mollusca	Gastropoda	Trochida	Trochidae		Trochidae indet.	1	64													32						16			
MOLL	MOGA	Mollusca	Gastropoda	Trochida			Trochoidea indet.		16								16														
MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca	1	127	8												2	17		1	1			1		16
MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.		48						16						16										
MOLL	MOGA	Mollusca	Gastropoda				Patellogastropoda indet.		16													16										
							Total Abundance		**160,026**	**3,563**	**3,208**	**7,044**	**3,095**	**5,144**	**6,584**	**6,405**	**7,878**	**11,622**	**7,281**	**8,932**	**2,870**	**3,734**	**2,447**	**930**	**2,250**	**2,682**	**1,281**	**1,663**	**1,435**	**872**	**2,316**
							Total Unique Taxa	**223**		**54**	**46**	**54**	**53**	**63**	**64**	**62**	**61**	**60**	**72**	**74**	**39**	**52**	**44**	**31**	**50**	**59**	**34**	**45**	**44**	**34**	**39**
							Grab Sampler		**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**
							# of Composite Grabs		**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
							Total Density (Organisms/m^2)		**533,420**	**11,877**	**10,693**	**23,480**	**10,317**	**17,147**	**21,947**	**21,350**	**26,260**	**38,740**	**24,270**	**29,773**	**9,567**	**12,447**	**8,157**	**3,100**	**7,500**	**8,940**	**4,270**	**5,543**	**4,783**	**2,907**	**7,720**
Incidental Taxa:																															
Freshwater																															
MEMO	CHAR	Arthropoda	Arachnida				Arachnida indet.		176																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Cladopelma sp.		16																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Corynocera sp.		16																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Paratanytarsus sp.		1																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Rheotanytarsus sp.		16																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Stictochironomus sp.		64																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae	Pseudokiefferiella sp.		288																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Heterotrissocladius sp.		16																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Hydrosmittia sp.		32																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.		80																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Parakiefferiella sp. A		16																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae	Pentaneurini indet.		32																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae	Thienemannimyia group sp.		19																						
MEMO	INDI	Arthropoda	Insecta	Diptera	Tipulidae	Tipulinae	Tipula (Arctotipula) sp.		3																						
MEMO	INPL	Arthropoda	Insecta	Plecoptera	Chloroperlidae		Chloroperlidae indet.		16																						
Other Incidental																															
MEMO	MEMO	Arthropoda	Hexanauplia	Siphonostomatoida			Siphonostomatoida indet. (parasitic)		32																					16		
MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (parasitic)		21							5			16												
MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)		1,232			80	192				544								32						
MEMO	MEMO	Arthropoda	Insecta				Insecta indet. (terrestrial)		128																						16
MEMO	MEMO	Arthropoda	Malacostraca	Amphipoda	Podoceridae		Podoceridae indet. (fragment)		16								16														
MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)		18,128	1,760	64	2,032	560	1,920	896	2,272	1,120	224	320	128	80	272		80	64	48	32		80		
MEMO	MEMO	Ctenophora					Ctenophora indet. (planktonic)		16																						
MEMO	MEMO	Nematoda					Nematoda indet.		35,296	112	480	4,000	1,408	1,824	816	5,408	2,176	128	912	1,728	112	80	192	304	688	896	256	224	1,536	64	32
MEMO	MEMO						Egg/egg mass		1,392		32	32			80				112			64		16	16		64				

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
								Grand Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Unique Taxa	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance
SNW and SW Stations																															
Biologica Sample ID										**mb23-059-135**	**mb23-059-136**	**mb23-059-137**	**mb23-059-138**	**mb23-059-139**	**mb23-059-140**	**mb23-059-141**	**mb23-059-142**	**mb23-059-143**	**mb23-059-144**	**mb23-059-145**	**mb23-059-146**	**mb23-059-147**	**mb23-059-148**	**mb23-059-149**	**mb23-059-150**	**mb23-059-151**	**mb23-059-152**	**mb23-059-153**	**mb23-059-154**	**mb23-059-155**	**mb23-059-156**
Client Sample ID										**SNW-1**	**SNW-2**	**SNW-3**	**SNW-4**	**SNW-5**	**SNW-7**	**SNW-9**	**SNW-11**	**SNW-13**	**SNW-15**	**SW-1**	**SW-2**	**SW-3**	**SW-4**	**SW-5**	**SW-6**	**SW-8**	**SW-10**	**SW-11**	**SW-12**	**SW-13**	**SW-15**
Date Sampled										**04-Aug-23**	**11-Aug-23**	**16-Aug-23**	**20-Aug-23**	**21-Aug-23**	**22-Aug-23**	**14-Aug-23**	**13-Aug-23**	**13-Aug-23**	**07-Aug-23**	**07-Aug-23**	**16-Aug-23**	**05-Aug-23**	**07-Aug-23**	**09-Aug-23**	**09-Aug-23**	**14-Aug-23**	**13-Aug-23**	**11-Aug-23**	**20-Aug-23**	**13-Aug-23**	**11-Aug-23**
										Total	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**
taxcode	**grpcode**	**Phylum**	**Class**	**Order**	**Family**	**Subfamily**	**Taxon Name**			**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**
ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.																	16				16			
ANNE	EURA	Annelida	Polychaeta	Echiuroidea	Echiuridae		Echiurus echiurus																					2			
ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Dorvilleidae indet.														16		16								
ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Ophryotrocha sp.																								
ANNE	POER	Annelida	Polychaeta	Eunicida	Dorvilleidae		Parougia caeca									16															
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineridae indet.		16	16	64		32	16																	
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Lumbrineris fauchaldi																								
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		32	112	96	16	176	176	160	16	32	304				16		33	1	16					
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma laurentiana														16	16	80	48							
ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.					48			192				96												
ANNE	POER	Annelida	Polychaeta	Eunicida	Onuphidae	Hyalinoeciinae	Nothria conchylega			5	6		130	320	96	23	22	234								1			16	
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Chrysopetalidae	Dysponetinae	Dysponetus sp.																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera capitata								16				17										1		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Glyceridae		Glycera sp.				16																				
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra aphroditoides		16			16					16			1056	2336	480	352	80	160	160	864	576	649	3536	1776
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Microphthalmidae		Microphthalmus sp.														48								16		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Aglaophamus malmgreni		1									16	16												
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Micronephthys cornuta		160	48	64	160	192	144	464	32	128	176						80	80	32	128			16	
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nephtyidae		Nephtys ciliata		1		16	16												2	1	16	16	1			
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata														1		1	4	21	2	2				
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.																		16						16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone barbata																				1				
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex					16																	16		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone sp.		32		32		16		32	48	16	80	32	320	16	32	16	16	16	80	32	117	81	16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Mystides borealis																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce groenlandica													1		48					1	2	2	17	16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocinae	Phyllodoce sp.																					2	1		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae		Phyllodocidae indet.																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides promamme		1				16								1		1	1							
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Bylgides sp.											1													
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana cirrhosa												1		16	16	20	2	16	2			2		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe imbricata																36				1				
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe rarispina																2	1		1					
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.													16	16		32								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Hesperonoe sp.																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Melaenis loveni																					2		1	
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Polynoinae indet.						16																		
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae		Polynoidae indet.												16												
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa				16								17	48	16	80	192	192	240	146	86	20	16	32	64
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta				128	16		48	16				16	16	128	112	368	432	560	464	707	32	16	192	80
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		208	96	64	112	112	192	128		16	304		16		256	368	528	128	96	18		96	368
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Ephesiella sp.																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridae indet.			16																					
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoridium minutum																								16
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodoropsis biserialis							16	16			64													
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sphaerodoridae		Sphaerodorum gracilis								16																
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Anoplosyllinae	Streptosynigera niuqtuut																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Eusyllinae indet.																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Eusyllis sp.																16								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Eusyllinae	Pionosyllis sp.																								
ANNE	POER	Annelida	Polychaeta	Phyllodocida	Syllidae	Exogoninae	Exogone sp.				16				32									16							
ANNE	POSE	Annelida	Polychaeta	Sabellida	Fabriciidae		Pseudofabricia sp. nr. aberrans						16																		
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Galathowenia oculata		6	16	18		2	36																	
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele heeri						6		32																
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Myriochele sp.		1																						
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia fusiformis			32			2					43													
ANNE	POSE	Annelida	Polychaeta	Sabellida	Oweniidae		Owenia sp.																								
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp.																								
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 1																16				16				
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp. 3														80					1		32	39	116	
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone incolor													48	96		176		48	32	64				16
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp.										1		32				16				16	16			
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Euchone sp. 1											1			1						1	2	20	24	2
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Branchiomma sp.																								
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae indet.		1		16	16	16		32			16	16					16		64		48		64	32
ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae		Sabellidae sp. 3																								
ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Bushiella (Jugaria) quadrangularis																			4					
ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Spirorbinae indet.																								
ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae		Serpulidae indet.																								
ANNE	POSE	Annelida	Polychaeta	Spionida	Apistobranchidae		Apistobranchus sp.														16										
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora caulleryi																								
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora quadrilobata																		16	16					
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora socialis														16										
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Dipolydora sp.																	16						16	
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Laonice cirrata							16																	
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Marenzelleria sp.																					4	1		
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio sp.		128		48		32	96	16						16				16	64	80			48	
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Prionospio steenstrupi																								
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Pygospio elegans		16					16							160	64	32	80	16	80				48	16
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spio sp.														48										
ANNE	POSE	Annelida	Polychaeta	Spionida	Spionidae		Spionidae indet.																	16							
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete borealis		1																				14	3	
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete petersenae		16										16	16	97	16		16			1		1	1	
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Ampharete sp.														16						16				16
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli																						1	2	
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Lysippe labiata												48				16								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Sosane wireni																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.		16						16		16			32	32			16	16	16	32				16
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Aphelochaeta sp.				64	16		32						48	96		16								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone bathyala		128		48	16	16					32	193	16	48	400	16	96	192	32	2				
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone careyi												128	528	144	48					80		16		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata							16				16	32		16	48		16							
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone setosa complex													16											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.		304		32	96	64	80					256	1776	240	384	176	64	176	432					16
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		48	32	96	96	48	32	64	48	48	48	144	48	16	256	64	96	1	272	32	16	16		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Tharyx sp.				16									48						16				
ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus hirsutus							32															16		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Flabelligeridae		Diplocirrus sp.								16																

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Grand Total Unique Taxa	Grand Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance
ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna elisabethae		1	16	32	4	16				2					32									
ANNE	POSE	Annelida	Polychaeta	Terebellida	Melinnidae		Melinna sp.																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata												32	16	16	16	17	1	247	2	19	21	80		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides hyperborea																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Pectinariidae indet.																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Amphitrite cirrata																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Lanassa sp.																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Lanassa venusta venusta																								
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Laphania boecki													32				1							
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata													16					16						
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Paramphitrite birulai											16			16						13				
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Pista maculata											16		2	10	18	10	25	7				3		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex			32		16							16		32										
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Proclea graffii													16											
ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.												16	32					16						
ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	49			16	2	48		16	16	17		16	1	34	113	101	17	49	16			33		
ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Trichobranchus sp.																								
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitella capitata complex							32		16		32	32		304			16			16				
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Capitellidae indet.																								
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	32		80		16		48		32		96	192	80	144	48	48	160	144	64	416	80	64		
ANNE	POSE	Annelida	Polychaeta		Capitellidae		Notomastus sp.			16		16	32	16																	
ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	48	80	64	48	16		64	16		48				272	112	256	1136	16						
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Clymenura polaris	16		16																					
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Euclymeninae indet.			32	32		16				16														
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella gracilis			16				32	16																
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella praetermissa																								
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Euclymeninae	Praxillella sp.																				1				
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Lumbriclymeninae	Praxillura sp.										1														
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldlarinae	Maldane sarsi		18	32	32	32	33	16	34	18	52	32		1	4	16								
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Nicomachinae	Nicomachinae indet.																								
ANNE	POSE	Annelida	Polychaeta		Maldanidae	Nicomachinae	Petaloproctus tenuis																								
ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelia limacina											1													
ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelina acuminata														16						6				
ANNE	POSE	Annelida	Polychaeta		Opheliidae	Ophelininae	Ophelina cylindricaudata																								
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos acutus	48	16				32				16					16			1						
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Leitoscoloplos sp.		16		16					32														16	
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos armiger											48		16	16	32	17	1	2			1			
ANNE	POSE	Annelida	Polychaeta		Orbiniidae	Orbiniinae	Scoloplos sp.			16									32	32	16	16	16			16		16			
ANNE	POSE	Annelida	Polychaeta		Orbiniidae		Orbiniidae indet.			16			16																	16	
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Acmira) catherinae	48										16													
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea (Aricidea) minuta														96	48									
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	32	48			16	32				32	16			48			16							
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea nolani			16									16			16	16								
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea sp.	16	16																					16	
ANNE	POSE	Annelida	Polychaeta		Paraonidae		Paraonides sp.																								
ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Polyphysia baffinensis			16		4																			
ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregma inflatum	16	16	16						16	32	48	64	1	48	48	96	96	18	18	15	80	64		
ANNE	POSE	Annelida	Polychaeta		Scalibregmatidae		Scalibregmatidae indet.			16																					
ANNE	SIPN	Annelida			Sipuncula		Golfingia sp.																								
ANNE	SIPN	Annelida			Sipuncula		Golfingiidae indet.						16		16		32														
ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.														16						16	16			
ARTH	CHPY	Arthropoda	Pycnogonida	Pantopoda	Nymphonidae		Nymphon sp.																	1	1						
ARTH	CHPY	Arthropoda	Pycnogonida				Pycnogonida indet.							16										16							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Ampelisca eschrichtii	1																							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Byblis sp.	16						16																	16
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ampeliscidae		Haploops tubicola																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Amphilochidae		Amphilochidae indet.														16			16							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Amphilochidae		Amphilochus sp.																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus carinatus																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.					2	1																		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Calliopiidae		Calliopiidae indet.														16		16	16					32		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium clarencense												32								48	32	16		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium sp.											16													
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeia sp.	1					1																		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Protomedeiinae	Protomedeiinae indet.																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dexaminidae	Prophliantinae	Guernea nordenskioldi	48	16				32				48		32		448	240	80	112					48		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichia sp.																		48				64		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Dulichiidae		Dulichiidae indet.											16													
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Isaeidae		Isaeidae indet.		16																						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Ischyroceridae		Ischyroceridae indet.																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Arthis sp.						32																		
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculodes sp.																	16							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Monoculopsis longicornis																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Oedicerotidae indet.												32	48	80	16	80	32	32		80				
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Paroediceros lynceus													16											
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Paroediceros sp.				16							16	32								48				
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Rostroculodes sp.												16	16				16	16						16
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Oedicerotidae		Westwoodilla sp.	32													16			16							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Phoxocephalidae	Harpiniinae	Harpinia sp.	16																							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata																		16						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Stenothoidae		Stenothoidae indet.																16		16						
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Orchomene sp.						32				16										48	32			
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Tryphosidae		Tryphosidae indet.																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sarsi																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Anonyx sp.				1					1	2		1		80	1									
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Uristidae		Onisimus sp.																								
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.	16																							
ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Lysianassoidea indet.					16		16															16		
ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.													1	20			24							
ARTH	CRCO	Arthropoda	Hexanauplia	Harpacticoida			Harpacticoida indet.										16	80	48		80		64		128			16			
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis resima						16								64	16	16								
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Brachydiastylis sp.																								
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis bradyi																								
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis goodsiri			17		2				16															
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis lucifera																								16
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis rathkei	16														16									
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis scorpioides	64		16					16	32									16	48					16
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis sp.									16		16					80								
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Diastylidae		Diastylis spinulosa				32																				
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lampropidae indet.											48	32			16	80	32	16		192	16	32		
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Lampropidae		Lamprops fuscatus																								
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella emarginata																								
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella sp.		16					32			48														
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Eudorella truncatula	48		16																					
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon nasicoides				48			32							176	48	16									
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea	Leuconidae		Leucon sp.	16				16				32															

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	Grand Total Unique Taxa	Grand Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance	Total Abundance
ARTH	CRCU	Arthropoda	Malacostraca	Cumacea			Cumacea indet.		16																						
ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Argis dentata			1																					
ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Sabinea septemcarinata									1															
ARTH	CRDE	Arthropoda	Malacostraca	Decapoda	Crangonidae		Sclerocrangon boreas													1											
ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Gnathiidae		Gnathiidae indet.		16		16					16	16														
ARTH	CRIS	Arthropoda	Malacostraca	Isopoda	Paramunnidae		Pleurogonium sp.		16																						
ARTH	CRIS	Arthropoda	Malacostraca	Isopoda			Isopoda indet.																								
ARTH	CRLE	Arthropoda	Malacostraca	Nebaliacea	Nebaliidae		Nebalia sp.						16																		
ARTH	CROS	Arthropoda	Ostracoda	Myodocopida	Philomedidae		Philomedes sp.		608	544	320	208	256	208	240			320		32		1408	1152	448	16		16			32	
ARTH	CROS	Arthropoda	Ostracoda	Podocopida	Trachyleberididae		Robertsonites tuberculatus																								
ARTH	CROS	Arthropoda	Ostracoda	Podocopida			Podocopida indet.		16																						
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Akanthophoreidae		Akanthophoreidae indet.		16										32						16						
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Pseudotanaidae		Pseudotanais sp.			16			16		16		16														
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus anomalus		272	336																					
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Sphyrapodidae	Pseudosphyrapodinae	Pseudosphyrapus sp.																								
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanaidae indet.																								
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea	Typhlotanaidae		Typhlotanais sp.			16			16				32						16		16			16	16		
ARTH	CRTA	Arthropoda	Malacostraca	Tanaidacea			Tanaidacea indet.			16							16												16		
ARTH	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Cricotopus/Orthocladius sp. complex																		16						
ARTH	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.				16														32			64			
ARTH	INDI	Arthropoda	Insecta	Diptera	Chironomidae		Chironomidae indet.																			16	64				
ARTH	INDI	Arthropoda	Insecta	Diptera			Diptera indet.																						16		
ECHI	ECAS	Echinodermata	Asteroidea	Paxillosida	Ctenodiscidae		Ctenodiscus crispatus																								
ECHI	ECAS	Echinodermata	Asteroidea	Valvatida	Solasteridae		Solasteridae indet.						16																		
ECHI	ECAS	Echinodermata	Asteroidea				Asteroidea indet.																								
ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus droebachiensis		1				2																		
ECHI	ECEC	Echinodermata	Echinoidea	Camarodonta	Strongylocentrotidae		Strongylocentrotus sp.																		1	1					
ECHI	ECHO	Echinodermata	Holothuroidea	Apodida	Myriotrochidae		Myriotrochus rinkii						6													16					17
ECHI	ECHO	Echinodermata	Holothuroidea	Molpadida	Eupyrgidae		Eupyrgus scaber		16					16																	
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiopyrgidae		Ophiopleura borealis									1															
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiocten sericeum		20	19	22	1	4	34	16	25	5	19					3		1	2			16	1
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura robusta																								
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sarsii		3	4	2		4	1	4			2	1	2	2	2	2				2			
ECHI	ECOP	Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	Ophiurinae	Ophiura sp.							16																	
ECHI	ECOP	Echinodermata	Ophiuroidea				Ophiuroidea indet.		48		80	32	16	32		16		48							16	16					
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Escharellidae		Escharella sp.																								
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Myriaporidae		Leieschara sp.																								
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.																								
MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Flustrina indet.			1																					
MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidiidae		Alcyonidium sp.			1																					
MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.																								
MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida	Crisiidae		Crisia sp.																16								
MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.								16																
MISC	CNAN	Cnidaria	Anthozoa	Actiniaria	Edwardsiidae		Edwardsiidae indet.																								
MISC	CNAN	Cnidaria	Anthozoa	Actiniaria			Actiniaria indet.											16													
MISC	CNAN	Cnidaria	Anthozoa				Anthozoa indet.																								
MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata	Bougainvilliidae		Bougainvilliidae indet.																								
MISC	CNHY	Cnidaria	Hydrozoa	Anthoathecata			Anthoathecata indet.																	16		32					
MISC	HEMI	Hemichordata	Enteropneusta				Enteropneusta indet.																								
MISC	NTEA	Nemertea	Hoplonemertea	Monostilifera	Tetrastemmatidae		Tetrastemmatidae indet.		16																						
MISC	NTEA	Nemertea	Hoplonemertea				Hoplonemertea indet.													32											
MISC	NTEA	Nemertea	Palaeonemertea	Archinemertea	Cephalotrichidae		Cephalothrix sp.					32							144	144	32										
MISC	NTEA	Nemertea	Palaeonemertea	Carinomiformes	Carinomidae		Carinoma sp.																								
MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.						16		16					48	16	18	16	16							
MISC	NTEA	Nemertea					Nemertea indet.																	32					16		
MISC	PIXX	Chordata	Teleostei	Perciformes	Ammodytidae		Ammodytes sp.																				2				
MISC	PIXX	Chordata	Teleostei	Perciformes	Cottidae		Cottidae indet.																								
MISC	PIXX	Chordata	Teleostei	Perciformes	Stichaeidae	Lumpeninae	Anisarchus medius			1																					
MISC	PIXX	Chordata	Teleostei	Perciformes	Zoarcidae	Gymnelinae	Gymnelus sp.																								
MISC	PLTY	Platyhelminthes					Platyhelminthes indet.																								
MISC	PORI	Porifera	Calcarea				Calcarea indet.																		1						
MISC	PRIA	Cephalorhyncha	Priapulida	Priapulomorpha	Priapulidae		Priapulus caudatus															16			16	16	2				
MISC	PRIA	Cephalorhyncha	Priapulida				Priapulida indet.					16					16									32					
MISC	URAS	Chordata	Ascidiacea	Phlebobranchia	Ascidiidae		Ascidia sp.																								
MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Pyuridae		Boltenia echinata																								
MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Styelidae		Polycarpa fibrosa						16																		
MISC	URAS	Chordata	Ascidiacea	Stolidobranchia			Stolidobranchia indet.								16																
MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma nitidulum						2		2																
MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetoderma sp.				16		32	16	16																
MOLL	MOAP	Mollusca	Caudofoveata	Chaetodermatida	Chaetodermatidae		Chaetodermatidae indet.																								
MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		1										117	92	60	52	34	69	32	3	4			33	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Ciliatocardium ciliatum		16												1		6	2		1				1	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae	Serripes groenlandicus													16		2	2	10	7	25	2			5	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Cardiidae		Cardiidae indet.																								
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma calcarea		2	13	15	5	68	14	10	6	1	11		16	5	6	7	27	20	32	16		19	28
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma moesta				16				2								17	1	1					5	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macoma sp.									1		1					1	2	1					2	
MOLL	MOBI	Mollusca	Bivalvia	Cardiida	Tellinidae	Macominae	Macominae indet.						16								16	64	128	48		32				48	
MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		15					32					36	1	10	162	182	25							
MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		7	6	5	4	6	11	2				4		5	24	40	5							
MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		64	16		16		48					2			118	49	2							
MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Axinopsida sp.																								
MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasira sp.		16				48						64			32	64								
MOLL	MOBI	Mollusca	Bivalvia	Lucinida	Thyasiridae		Thyasiridae indet.				32		16	32	48			32	16		32		96	32		256					
MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.												48	16	16	64	48	48	32	176					64
MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata		1										1	1	1	2	5	12		21				17	5
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors																2	1	2	1					
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus sp.			16																					
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Dacrydium vitreum																								
MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Mytilidae indet.																	16	16						
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana minuta							16								16	49			16					
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana pernula		1		1												1	1							
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae	Nuculaninae	Nuculana sp.																			16					
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Nuculanidae		Nuculanidae indet.			64	16											16									
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella frigida			32	16				16																
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella lenticula			16	32																				
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiella sp.						16																		
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida	Yoldiidae		Yoldiidae indet.			32																					
MOLL	MOBI	Mollusca	Bivalvia	Nuculanida			Nuculanoidea indet.		32		32	96	16	32	16			32						16		48					
MOLL	MOBI	Mollusca	Bivalvia	Nuculida	Nuculidae		Ennucula tenuis		64	192	144	128	128	32	160	64		48				16	96	19	50					
MOLL	MOBI	Mollusca	Bivalvia	Pectinida	Propeamussiidae		Similipecten greenlandicus		66	2	1								1	4	1	8	2		27					
MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.							32				16													
MOLL	MOBI	Mollusca	Bivalvia	Venerida	Arcidae		Bathyarca glacialis			5	2		16	1				1													
MOLL	MOBI	Mollusca	Bivalvia		Cuspidariidae		Cuspidaria sp.					16																			
MOLL	MOBI	Mollusca	Bivalvia		Periplomatidae		Periploma aleuticum				1																				

biologica

Total abundance data in matrix format, including total taxa (species richness) for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										mb23-059-113	mb23-059-114	mb23-059-115	mb23-059-116	mb23-059-117	mb23-059-118	mb23-059-119	mb23-059-120	mb23-059-121	mb23-059-122	mb23-059-123	mb23-059-124	mb23-059-125	mb23-059-126	mb23-059-127	mb23-059-128	mb23-059-129	mb23-059-130	mb23-059-131	mb23-059-132	mb23-059-133	mb23-059-134
Client Sample ID										SCV-1	SCV-2	SE-1	SE-2	SE-3	SE-4	SE-5	SE-7	SE-11	SE-13	SE-15	SE18-1	SNE-1	SNE-2	SNE-3	SNE-4	SNE-5	SNE-7	SNE-9	SNE-10	SNE-13	SNE-15
Date Sampled										19-Aug-23	19-Aug-23	10-Aug-23	18-Aug-23	05-Aug-23	05-Aug-23	06-Aug-23	22-Aug-23	19-Aug-23	17-Aug-23	15-Aug-23	18-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23	20-Aug-23	21-Aug-23	18-Aug-23	22-Aug-23	06-Aug-23	10-Aug-23	17-Aug-23
									Grand Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
taxcode	**grpcode**	**Phylum**	**Class**	**Order**	**Family**	**Subfamily**	**Taxon Name**	**Unique Taxa**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**	**Abundance**
MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia myopsis																								
MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thracia sp.	16					1																		
MOLL	MOBI	Mollusca	Bivalvia		Thraciidae		Thraciidae indet.	48	16																						
MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.	32	16		49	16	16	32				16	32	16	64	80	48		48				64		
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichna alba																						16		
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Cylichnidae		Cylichnidae indet.				32	16																			
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Philinidae		Philininae indet.																								
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea	Retusidae		Retusa sp.																						176		
MOLL	MOGA	Mollusca	Gastropoda	Cephalaspidea			Cephalaspidea indet.	64				16		32								48	32		32						
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Capulidae		Ariadnaria borealis																	1							
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Naticinae	Cryptonatica affinis																								
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae	Polinicinae	Euspira pallida														2										
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Naticidae		Naticidae indet.	16																							
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Boreocingula castanea												16												
MOLL	MOGA	Mollusca	Gastropoda	Littorinimorpha	Rissoidae		Rissoidae indet.															48									
MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Buccinidae	Buccininae	Buccinum sp.																		1						
MOLL	MOGA	Mollusca	Gastropoda	Neogastropoda	Mangeliidae		Mangeliidae indet.		16					16															16		
MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites groenlandicus																								
MOLL	MOGA	Mollusca	Gastropoda	Trochida	Margaritidae		Margarites helicinus															1		1							
MOLL	MOGA	Mollusca	Gastropoda	Trochida	Trochidae		Trochidae indet.																16								
MOLL	MOGA	Mollusca	Gastropoda	Trochida			Trochoidea indet.																								
MOLL	MOGA	Mollusca	Gastropoda		Lepetidae		Lepeta caeca		3	3	4	18	21				32													
MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.							16																	
MOLL	MOGA	Mollusca	Gastropoda				Patellogastropoda indet.																								
							Total Abundance	**3,220**	**2,049**	**2,071**	**1,585**	**1,840**	**2,270**	**2,408**	**395**	**579**	**2,645**	**3,078**	**7,128**	**1,869**	**7,088**	**4,838**	**3,948**	**3,776**	**4,628**	**1,030**	**2,005**	**4,896**	**3,444**		
							Total Unique Taxa	**57**	**40**	**48**	**33**	**44**	**44**	**46**	**16**	**26**	**47**	**38**	**51**	**39**	**60**	**59**	**52**	**57**	**51**	**26**	**27**	**36**	**39**		
							Grab Sampler	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**	**Van Veen**		
							# of Composite Grabs	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**		
							Total Density (Organisms/m^2)	**10,733**	**6,830**	**6,903**	**5,283**	**6,133**	**7,567**	**8,027**	**1,317**	**1,930**	**8,817**	**10,260**	**23,760**	**6,230**	**23,627**	**16,127**	**13,160**	**12,587**	**15,427**	**3,433**	**6,683**	**16,320**	**11,480**		
Incidental Taxa:																															
Freshwater																															
MEMO	CHAR	Arthropoda	Arachnida				Arachnida indet.																			144	16	16			
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Cladopelma sp.																			16					
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Corynocera sp.																				16				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Paratanytarsus sp.																				1				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Rheotanytarsus sp.																			16					
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Chironominae	Stictochironomus sp.										16									16	16	16			
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Diamesinae	Pseudokiefferiella sp.										16								16	208	48				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Heterotrissocladius sp.																				16				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Hydrosmittia sp.																		16			16			
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Orthocladiinae indet.																			64	16				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Parakiefferiella sp. A																				16				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae	Pentaneurini indet.																			16	16				
MEMO	INDI	Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae	Thienemannimyia group sp.																				19				
MEMO	INDI	Arthropoda	Insecta	Diptera	Tipulidae	Tipulinae	Tipula (Arctotipula) sp.																				3				
MEMO	INPL	Arthropoda	Insecta	Plecoptera	Chloroperlidae		Chloroperlidae indet.														16										
Other Incidental																															
MEMO	MEMO	Arthropoda	Hexanauplia	Siphonostomatoida			Siphonostomatoida indet. (parasitic)																								16
MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (parasitic)																								
MEMO	MEMO	Arthropoda	Hexanauplia				Copepoda indet. (planktonic)	32			288							16					16		32						
MEMO	MEMO	Arthropoda	Insecta				Insecta indet. (terrestrial)								16						48								48		
MEMO	MEMO	Arthropoda	Malacostraca	Amphipoda	Podoceridae		Podoceridae indet. (fragment)																								
MEMO	MEMO	Arthropoda	Ostracoda				Ostracoda indet. (meiofaunal)	80		96	176	256	64	288		32	336	64	96	80	1,008	1,136	448	288	592	32				1,104	
MEMO	MEMO	Ctenophora					Ctenophora indet. (planktonic)															16									
MEMO	MEMO	Nematoda					Nematoda indet.		32	144	432	1,248	240	336	16	96	1,968	192	608	240	576	1,680	208	336	320	16	112	16	3,104		
MEMO	MEMO						Egg/egg mass	16		48		16		208		96		16	64		16	160		208	96	16		16			

APPENDIX 8A-3

Benthic Infauna Laboratory Methods

Marine Benthic Enumeration and Identification Methods
Client: WSP
Project: Baffinland MEEMP
Protocol: EEM

Sample Inventory

Sample arrival: 7-Sep-23
Number of samples: 44
Number of jars: 67
Screen size: 500 µm and 1.0 cm
Biologica project number: mb23-059

The chain of custody documents were checked and approved with the client. Samples were transferred from formalin into 70% ethanol and stained with Rose Bengal to aid in sorting. Each sample was provided a unique identification number and placed in the queue for analysis.

Table 1. Summary of benthic samples processed for WSP Baffinland MEEMP, 2023.

Client Sample ID	Date Sampled	Biologica Sample ID	# of Jars	Field Screen	Field Split	Final Split	Organisms Counted
SCV-1	19-Aug-23	mb23-059-113	1	1/4	1/4	1/16	217
			1	Whole	Whole	Whole	91
SCV-2	19-Aug-23	mb23-059-114	3	1/4	1/4	1/16	194
			1	Whole	Whole	Whole	104
SE-1	10-Aug-23	mb23-059-115	1	1/4	1/4	1/16	429
			2	Whole	Whole	Whole	180
SE-2	18-Aug-23	mb23-059-116	2	1/4	1/4	1/16	184
			1	Whole	Whole	Whole	151
SE-3	05-Aug-23	mb23-059-117	1	1/4	1/4	1/16	312
			2	Whole	Whole	Whole	152
SE-4	05-Aug-23	mb23-059-118	2	1/4	1/4	1/16	399
			3	Whole	Whole	Whole	200
SE-5	06-Aug-23	mb23-059-119	1	1/4	1/4	1/16	386
			2	Whole	Whole	Whole	229
SE-7	22-Aug-23	mb23-059-120	2	1/2	Whole	1/2	83
			1	1/4	1/4	1/16	482
SE-11	19-Aug-23	mb23-059-121	1	1/2	Whole	1/2	99
			1	1/4	1/4	1/16	714
SE-13	17-Aug-23	mb23-059-122	2	1/4	1/4	1/16	437
			2	Whole	Whole	Whole	289
SE-15	15-Aug-23	mb23-059-123	1	1/2	Whole	1/2	50
			2	1/4	1/4	1/16	552
SE18-1	18-Aug-23	mb23-059-124	1	1/4	1/4	1/16	170
			1	Whole	Whole	Whole	150

Client Sample ID	Date Sampled	Biologica Sample ID	# of Jars	Field Screen	Field Split	Final Split	Organisms Counted
SNE-1	06-Aug-23	mb23-059-125	2	1/2	Whole	1/2	51
			3	1/4	1/4	1/16	227
SNE-2	10-Aug-23	mb23-059-126	3	1/4	1/4	1/16	148
			1	Whole	Whole	Whole	79
SNE-3	17-Aug-23	mb23-059-127	1	1/4	1/4	1/16	57
			1	Whole	Whole	Whole	18
SNE-4	20-Aug-23	mb23-059-128	1	1/4	1/4	1/16	137
			1	Whole	Whole	Whole	58
SNE-5	21-Aug-23	mb23-059-129	2	1/4	1/4	1/16	165
			1	Whole	Whole	Whole	42
SNE-7	18-Aug-23	mb23-059-130	1	1/4	1/4	1/16	78
			1	Whole	Whole	Whole	33
SNE-9	22-Aug-23	mb23-059-131	1	1/4	1/4	1/16	103
			1	Whole	Whole	Whole	15
SNE-10	06-Aug-23	mb23-059-132	1	1/4	1/4	1/16	87
			1	Whole	Whole	Whole	43
SNE-13	10-Aug-23	mb23-059-133	1	1/4	1/4	1/16	50
			1	Whole	Whole	Whole	72
SNE-15	17-Aug-23	mb23-059-134	1	1/4	1/4	1/16	144
			1	Whole	Whole	Whole	12
SNW-1	04-Aug-23	mb23-059-135	2	1/4	1/4	1/16	197
			1	Whole	Whole	Whole	68
SNW-2	11-Aug-23	mb23-059-136	1	1/4	1/4	1/16	125
			1	Whole	Whole	Whole	49
SNW-3	16-Aug-23	mb23-059-137	3	1/4	1/4	1/16	126
			1	Whole	Whole	Whole	55
SNW-4	20-Aug-23	mb23-059-138	2	1/4	1/4	1/16	98
			1	Whole	Whole	Whole	17
SNW-5	21-Aug-23	mb23-059-139	1	1/2	Whole	1/2	64
			2	1/4	1/4	1/16	107
SNW-7	22-Aug-23	mb23-059-140	1	1/4	1/4	1/16	137
			2	Whole	Whole	Whole	78
SNW-9	14-Aug-23	mb23-059-141	1	1/2	Whole	1/2	28
			2	1/4	1/4	1/16	147
SNW-11	13-Aug-23	mb23-059-142	2	1/4	1/4	1/16	23
			1	Whole	Whole	Whole	27
SNW-13	13-Aug-23	mb23-059-143	1	1/4	1/4	1/16	35
			1	Whole	Whole	Whole	19
SNW-15	07-Aug-23	mb23-059-144	2	1/4	1/4	1/16	155
			2	Whole	Whole	Whole	165
SW-1	07-Aug-23	mb23-059-145	2	1/4	1/4	1/16	188
			2	Whole	Whole	Whole	70
SW-2	16-Aug-23	mb23-059-146	3	1/4	1/4	1/16	443
			1	Whole	Whole	Whole	40

Client Sample ID	Date Sampled	Biologica Sample ID	# of Jars	Field Screen	Field Split	Final Split	Organisms Counted
SW-3	05-Aug-23	mb23-059-147	1	1/4	1/4	1/16	112
			1	Whole	Whole	Whole	77
SW-4	07-Aug-23	mb23-059-148	1	1/2	Whole	1/2	64
			1	1/4	1/4	1/16	435
SW-5	09-Aug-23	mb23-059-149	1	1/4	1/4	1/16	296
			1	Whole	Whole	Whole	102
SW-6	09-Aug-23	mb23-059-150	1	1/4	1/4	1/16	239
			1	Whole	Whole	Whole	124
SW-8	14-Aug-23	mb23-059-151	1	1/4	1/4	1/16	227
			2	Whole	Whole	Whole	144
SW-10	13-Aug-23	mb23-059-152	1	1/4	1/4	1/16	283
			2	Whole	Whole	Whole	100
SW-11	11-Aug-23	mb23-059-153	2	1/2	Whole	1/2	19
			2	1/4	1/4	1/16	62
SW-12	20-Aug-23	mb23-059-154	1	1/4	1/4	1/16	118
			1	Whole	Whole	Whole	117
SW-13	13-Aug-23	mb23-059-155	1	1/4	1/4	1/16	302
			1	Whole	Whole	Whole	64
SW-15	11-Aug-23	mb23-059-156	1	1/4	1/4	1/16	211
			1	Whole	Whole	Whole	68

Sample Processing

Sorting and Subsampling:

All samples were sorted using dissecting microscopes at 10–40x magnification by trained personnel. Microscopic sorting is the only way to ensure >90% of organisms are removed from the debris, which is required by EEM (Environment Canada; Environmental Effects Monitoring) guidelines for marine benthic analyses. To minimize potential sorter bias, samples were distributed among technicians such that no one person sorted all the replicates of a given sample.

Due to historically the large volumes and high abundances in the samples, samples were fractioned in the field into a 1.0 cm macro fraction and 500 µm fine fraction. This strategy was developed to maximize the detection of large and rare individuals in the macro fraction while accurately enumerating smaller organisms in the fine fraction. The macro 1.0 cm fraction was analyzed whole, with all large organisms (>1.0 cm) removed from the sample, as was done in previous years for this project. In addition, all large debris in this fraction were checked microscopically, including rocks and other large debris to ensure encrusting organisms were accurately enumerated.

Biologica subsampled the fine 500 µm fraction. The 500 µm fraction was split in the field to 1/4. Biologica subsequently split this fraction by a second 1/4 split, for a final 1/16 split. Subsampling was done with a Caton tray (Caton, 1991). The sample was spread evenly over a Caton grid, and

sequential random quadrats were selected and sorted until the minimum 1/4 lab split was reached.

Sub-sampling accuracy was assessed by sorting the remaining sample for 10% (n= 4) of all sub-sampled samples and comparing the fractions to one another. Refer to Table 2 for sub-sampling accuracy results.

Sorting QA/QC:
To ensure sorting efficiency was >95%, whole and/or partial sub-samples were re-sorted. Sorting efficiency was calculated using the following equation (where total count = final total number of organisms in sample):

Sorting efficiency = [1−(# of organisms in spot check or re-sort / total organisms)] x 100
*Total organisms includes the original count and the number found from the re-sort

All samples checked must meet or exceed 95% sorting efficiency. Any samples falling below 95% sorting efficiency are re-sorted in their entirety, and additional checks are undertaken as necessary. For quality assurance, QA re-sorts were performed on 10% of samples. Four samples were randomly selected and re-sorted in their entirety. Refer to Table 2 for sorting efficiency results.

Table 2. Summary of sorting QA/QC results for WSP Baffinland MEEMP, 2023.

Client Sample ID	Biologica Sample ID	Sorting Efficiency QA Whole Re-sorts	Sub-sampling accuracy
SCV-2	mb23-059-114	99.05%	
SE-4	mb23-059-118		74.21%
SNE-1	mb23-059-125	95.37%	
SNW-1	mb23-059-135		66.88%
SW-3	mb23-059-147	96.43%	
SW-4	mb23-059-148		76.36%
SW-12	mb23-059-154	97.99%	
SW-15	mb23-059-156		77.98%
	Average:	**97.12%**	**73.86%**

Identification and Invasive Species Detection:

All organisms were identified using a combination of dissecting (10–40x) and compound microscopes (100–1000x) and standard taxonomic keys (see methodological and taxonomic references) to the lowest practicable level (species whenever possible). All specimens were archived in air-tight glass vials with glycerin and 70% ethanol for long-term storage. Taxonomic data were recorded in Biologica's custom database.

During the identification process, taxonomists recorded if any identified taxa were beyond their recorded range and/or potentially introduced (originating from another location) or invasive (both introduced and appearing to proliferate with possible detrimental effects to the ecosystem and/or industry). One genus of interest over the past several years of sampling has been *Marenzelleria.* Multiple specimens were externally verified by DNA analysis by Dr. Vasily

Radashevsky from the National Scientific Center of Marine Biology and were confirmed to be *Marenzelleria wireni*. Historical identifications can all be taken to this species identification. **No taxa observed were identified as putative invasive taxa**.

Twelve new taxa to the project were identified, of which will be sent for verification. There were also a few levels of identification that were new to the project, however all these identifications have been present at a lower level (genus/species) in the past.

Reference Collection:

Biologica houses a reference collection of all taxa that have been observed in the Baffinland MEEMP project thus far. Taxa are added to this reference collection yearly. These may be new taxa and/or new stages. Taxa new to the project are sent for external verification. This collection consists of a minimum of one specimen representing each taxon and stage, with five specimens per taxon/stage wherever possible. These specimens were labelled, given a location code, and placed in evaporation-resistant shell dram vials. Approximately 1 mL of glycerin was added to each vial to prevent desiccation.

Data Management and Analysis

All data were recorded in Biologica's custom database. Total abundances were extrapolated for samples split in the field and the lab to represent the abundance from the whole sample. Organism densities were calculated by dividing the total organism abundance (extrapolated if the sample was split) using the area of a Van Veen grab (0.1 m^2), with three composite Van Veen grabs (3 x 0.1m^2) for each sample.

Results were provided to the WSP project manager in Excel spreadsheets via email.

Arctic & General Taxonomic and Methodological References

Abbott, T. (1974). *American Seashells* (2nd ed.). Litton Educational Publishing Inc.

Barnich, R. (2011). *Identification of scale worms in British and Irish waters*. NMBAQC 2010 taxonomic workshop, Dove Marine Laboratory. 52pp.

Berge, J., Vader, W., & Johnsen, J. R. (2007). Studies on the genus Onisimus Boeck, 1871 (Crustacea, Amphipoda, Uristidae) II. The barentsi and edwardsii groups. *Zootaxa*, *1410*, 55–68.

Bernard, F. R. (1979). Bivalve mollusks of the western Beaufort Sea. *Contributions in Science: Natural History Museum of Los Angeles County*, *313*, 1–80.

Blake, J. (1971). Article: Two new species of polychaetous annelid worms from Baffin Bay and the Davis Strait. *New York Botanical Garden*, 127–132.

Blake, J., & Scott, P. (1998). *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel* (Vol. 1–14). Santa Barbara Museum of Natural History.

Bousfield, E., & Hoover, P. (1997). The Amphipod Superfamily Corophioidea on the Pacific Coast of North America. *Amphipacifica*, *II* (3), 64–107.

Bousfield, E., & Kendall, J. (1994). The amphipod superfamily Dexaminoidea on the North American Pacific Coast; Families Atylidae and Decaminidae; Systematic and Distributional Ecology. *Amphipacifica*, *1*(3), 3–66.

Bousfield, E. L. (1973). *Shallow-water Gammaridean Amphipoda of New England; Handbooks of American Natural History*. Comstock Pub. Associates; 28-Oct-20.

Brix, S., Leese, F., Riehl, T., & Kihara, T. (2014). A new genus and new species of Desmosomatidae Sars, 1897 (Isopoda) from the eastern South Atlantic abyss described by means of integrative taxonomy. *Marine Biodiversity*, *45*(1), 7–61. https://doi.org/10.1007/s12526-014-0218-3

Calder, D. R. (1972). Some athecate hydroids from the shelf waters of northern Canada. *Journal of the Fisheries Research Board of Canada*, *29*(3), 217–228. https://doi.org/10.1139/f72-040

Carlton, J. T. (2007). *Light's Manual, Intertidal Invertebrates of the Central California Coast. 4th ed.* University of California Press. 964pp.

Clarke, A. (1974). *Molluscs from Baffin Bay and the Northern North Atlantic Ocean* (Publications in Biological Oceanography No. 7; p. 23). National Museums of Canada.

Coad, B., & Reist, J. (2017). *Marine Fishes of Arctic Canada*. University of Toronto Press. https://utorontopress.com/ca/marine-fishes-of-arctic-canada-1

Coan, E., Valentich Scott, P., & Bernard, F. (2000). *Bivalve Seashells of Western North America: Marine Bivalve Mollusks from Arctic Alaska to Baja California*. Santa Barbara Museum of Natural History.

Dnestrovskaya, N. Yu., & Jirkov, I. A. (2012). Identification key for Nephtyidae (Polychaeta) of the Eastern Atlantic and the North Polar Basin. *Invertebrate Zoology*, *9*(1), 143–150. https://doi.org/10.15298/invertzool.09.2.06

Bousfield, E. L., & Chevrier, A. (1996). The amphipod family Oedicerotidae on the Pacific coast of North America. 1. The Monoculodes & Synchelidium generic complexes: Systematics and distributional ecology. *Amphipacifica*, *II* (2), 1–75.

Environment Canada. (2010). *Pulp and paper environmental effects monitoring (EEM) technical guidance document.*

Environment Canada. (2012). *Metal mining environmental effects monitoring (EEM) technical guidance document.*

Environment Canada. (2002). *Revised guidance for sample sorting and subsampling protocols for*

EEM benthic invertebrate community surveys. https://www.ec.gc.ca/esee-eem/default.asp?lang=En&n=F919D331-1. Accessed December 2012.

Environmental Protection Agency. (1987). *Recommended protocols for sampling and analyzing macroinvertebrate assemblages in Puget Sound.* http://www.psparchives.com/our_work/science/protocols.htm. Accessed January 2014.

Garwood, P. R. (2006). *Family Maldanidae; a guide to species in waters around the British Isles*. NMBAQC 2006 taxonomic workshop, Dove Marine Laboratory.

Gerken, S. (2018). The Lampropidae (Crustacea: Cumacea) of the world. *Zootaxa*, *4428*(1), 1–192. https://doi.org/10.11646/zootaxa.4428.1.1

Giangrande, A., & Cantone, G. (1990). Redescription and systematic position of Pseudofabricia aberrans Cantone, 1972 (Polychaeta, Sabellidae, Fabriciinae). *Bolletino Di Zoologia*, *57*(4), 361–364. https://doi.org/10.1080/11250009009355720

Given, R. R. (1965). *Five Collections of Cumacea from the Alaskan Arctic* (p. 213). Allan Hancock Foundation, University of Southern California. https://journalhosting.ucalgary.ca/index.php/arctic/article/view/66522

Glasby, C. J., & Hutchings, P. (2014). Revision of the taxonomy of Polycirrus Grube, 1850 (Annelida: Terebellida: Polycirridae). *Zootaxa*, *3877*(1), 1–117. https://doi.org/10.11646/zootaxa.3877.1.1

Jansen, T. (2002). A taxonomic revision of Westwoodilla Bate, 1862 (Amphipoda: Crustacea) including descriptions of 2 new species. *Steenstrupia*, *27*, 83–136.

Jarvis, S. (2011). Hesionidae (Grube, 1850)—A Provisional guide to the identification of the British Species. *Marine Invertebrate Ecological Services*, 1–10.

Sikorski A.V. (2001). Spionidae of the Arctic ocean. In: I.A. Jirkov (Ed.), *Polychaeta of the Arctic Janus-K.* Moscow: 273–332 (in Russian).

Keast, M., & Lawrence, M. (1990). *A Guide to Identification of Decapoda, Euphausiacea, and Mysidacea from the Southern Beaufort Sea* (No. 2047; Canadian Manuscript Report of Fisheries and Aquatic Sciences, p. 69). Department of Fisheries and Oceans.

Kozloff, E. N. (1987). *Marine Invertebrates of the Pacific Northwest.* University of Washington Press. 511pp.

Laubitz, D. R. (1977). A revision of the genera Dulichia Krøyer and Paradulichia Boeck (Amphipoda, Podoceridae). *Canadian Journal of Zoology*, *55*(6), 942–982. https://doi.org/10.1139/z77-123

Lawrence, M., & Keast, M. (1990). *A guide to the identification of benthic isopoda from the southern Beaufort Sea* (Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2048). Department of Fisheries and Oceans.

Loia, M., Nicoletti, L., & La Porta, B. (2017). First record of genus Paramphitrite (Polychaeta: Terebellidae) in Mediterranean Sea. *Marine Biodiversity Records*, *10*(11), 1–7. https://doi.org/10.1186/s41200-017-0113-2

Macpherson, E. (1971). *The Marine Molluscs of Arctic Canada* (Publications in Biological Oceanography No. 3; p. 149). National Museums of Canada.

Marine Species Identification Portal: Identification keys. [Identification Key]. Marine Species Identification Portal. Retrieved October 26, 2020, from http://species-identification.org/identify_species.php

Oliver, G., Killeen, I., & Ockelmann, K. (2002). *The Thyasiridae (Mollusca; Bivalvia) of the British Continental Shelf and North Sea Oilfields: An Identification Manual* (BIOMOR No. 3; p. 41). National Museums & Galleries of Wales.

Olivier, F., San Martín, G., & Archambault, P. (2013). A new species of Streptospinigera Kudenov, 1983 (Polychaeta, Syllidae, Anoplosyllinae) from the Arctic and north-western Atlantic with a key to all species of the genus. *Polar Biology*, *36*(10), 1499–1507. https://doi.org/10.1007/s00300-013-1369-6

Oug, E. (2012). Guide to identification of Lumbrineridae (Polychaeta) in north east Atlantic waters. *Norwegian Institute for Water Research*, 31.

Pettibone, M. H. (1993). Revision of some species referred to Antinoe, Antinoella, Antinoana, Bylgides, and Harmothoe (Polychaeta: Polynoidae: Harmothoinae). *Smithsonian Contributions to Zoology*, *545*, 1–41. https://doi.org/10.5479/si.00810282.545

Ryland, J. S., & Hayward, P. J. (1991). *Marine Flora and Fauna of the Northeastern United States Erect Bryozoa* (NOAA Technical Report No. 99; pp. 1–48). National Marine Fisheries Service.

Salazar-Vallejo, S., & Buzhinskaja, G. (2011). Revision of Diplocirrus Haase, 1915, including Bradiella Rullier, 1965, and Diversibranchius Buzhinskaja, 1993 (Polychaeta, Flabelligeridae). *ZooKeys*, *106*, 1–45. https://doi.org/10.3897/zookeys.106.795

Sars, G. (1901). *An account of the Crustacea of Norway with short descriptions and figures of all the species: Vol. IV*. Bergen Museum.

Schuchert, P. (2001). Hydroids of Greenland and Iceland (Cnidaria, Hydrozoa). *Bioscience*, *53*, 184.

Schultz, G. A. (1969). *How to Know the Marine Isopod Crustaceans*. V.C. Brown Company Publishers. Dubuque, Iowa.

Smith, D. L., & Johnson, K. B. (1996). *A Guide to Marine Coastal Plankton and Marine Invertebrate Larvae*. Kendall/Hunt Publishing Company.

Squires, H. (1990). *Decapod Crustacea of the Atlantic Coast of Canada*. Department of Fisheries and Oceans. Canadian Bulletin of Fisheries and Aquatic Sciences, 221.

Steele, D., & Brunel, P. (1968). Amphipoda of the Atlantic and Arctic Coasts of North America: Anonyx (Lysianassidae). *Fisheries and Marine Service Canada*, *25*(5), 943–1060.

Steele, D. H. (1982). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific and Arctic oceans: Anonyx nugax group. *Canadian Journal of Zoology*, *60*(7), 1754–1775. https://doi.org/10.1139/z82-228

Steele, D. H. (1983). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific Ocean: Anonyx validus group. *Canadian Journal of Zoology*, *61*(12), 2921–2931. https://doi.org/10.1139/z83-380

Steele, D. H. (1986). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific and Arctic oceans: Anonyx laticoxae group. *Canadian Journal of Zoology*, *64*(11), 2603–2623. https://doi.org/10.1139/z86-380

Steele, D. H. (1991). The genus Anonyx (Crustacea, Amphipoda) in the North Pacific and Arctic oceans: The Anonyx bispinosus group. *Canadian Journal of Zoology*, *69*(6), 1600–1611. https://doi.org/10.1139/z91-224

Vader, W., Johnsen, J. R., & Berge, J. (2005). Studies on the genus Onisimus Voeck, 1871 (Crustacea, Amphipoda, Lysianassoidea, Uristidae) I. The brevicaudatus and sextonae species groups. *Organisms Diversity & Evolution*, *5*(7), 1–48.

Valdés, Á. (2019). Northeast Pacific benthic shelled sea slugs. *Zoosymposia*, *13*(1), 242–304. https://doi.org/10.11646/zoosymposia.13.1.21

Vassilenko, S. V., & Petryashov, V. V. (2009). *Illustrated Keys to Free-Living Invertebrates of Eurasian Arctic Seas and Adjacent Deep Waters, Vol. 1 Rotifera, Pycnogonida, Cirripedia, Leptostraca, Mysidacea, Hyperiidea, Caprellidea, Euphausiacea, Dendrobranchiata, Pleocyemata, Anomura, and Brachyura* (Vol. 1). Alaska Sea Grant. https://doi.org/10.4027/ikflieasadw.2009

Watling, L. (1991). Revision of the Cumacean Family Leuconidae. *Journal of Crustacean Biology*, *11*(4), 569–582. https://doi.org/10.2307/1548527

Worsfold, T. (2006). *Identification guides for the NMBAQC Scheme: 1. Scalibregmatidae (Polychaeta) from shallow seas around the British Isles*. Porcupine Marine Natural History Society Newsletter, 20: 15–18.

Wrobel, D., & Mills, C. (1998). *Pacific Coast Pelagic Invertebrates: A guide to the common gelatinous animals*. Monterey Bay Aquarium.

APPENDIX 8B-1

Incidental Taxa Identifications 2023

Phylum Class/Order	Family	Taxa	Method
Annelida			
Polychaeta/Terebellida	Pectinariidae	*Cistenides granulata*	Quadrats
Polychaeta/Sabellida	Sabellidae	Sabellidae indet. sp. 1	Quadrats
Polychaeta/Sabellida	Sabellidae	Sabellidae indet. sp. 2	Quadrats
Polychaeta/Terebellida	Pectinariidae	Pectinariidae indet.	Fish Stomach Contents
Arthropoda			
-/-	-	Crustacea indet.	Fish Stomach Contents
Copepoda/-	-	Copepoda indet.	Fish Stomach Contents
Copepoda/Calanoida	Calanidae	*Calanus hyperboreus*	Fish Stomach Contents
Copepoda/Calanoida	Calanidae	*Calanus glacialis*	Fish Stomach Contents
Copepoda/Calanoida	Calanidae	*Calanus* sp.	Fish Stomach Contents
Insecta/Diptera	-	Diptera indet.	Fish Stomach Contents
Malacostraca/Amphipoda	-	Amphipoda indet.	Fish Stomach Contents, Quadrats
Malacostraca/Amphipoda	-	Hyperiidea indet.	Fish Stomach Contents
Malacostraca/Amphipoda	-	Lysianassoidea indet.	Fish Stomach Contents
Malacostraca/Amphipoda	Atylidae	*Atylus carinatus*	Fish Stomach Contents
Malacostraca/Amphipoda	Gammaridae	*Gammarus* sp.	Fish Stomach Contents
Malacostraca/Amphipoda	Hyperiidae	*Themisto* sp.	Fish Stomach Contents
Malacostraca/Amphipoda	Ischyroceridae	Ischyroceridae indet.	Fish Stomach Contents
Malacostraca/Amphipoda	Oedicerotidae	Oedicerotidae indet.	Fish Stomach Contents
Malacostraca/Amphipoda	Oedicerotidae	*Paroediceros lynceus*	Fish Stomach Contents
Malacostraca/Amphipoda	Pleustidae	**Pleustidae indet.**	Fish Stomach Contents
Malacostraca/Amphipoda	Uristidae	*Onisimus* sp.	Fish Stomach Contents
Malacostraca/Decapoda	-	Pandaloidea indet.	Quadrats
Malacostraca/Decapoda	Crangonidae	Crangonidae indet.	Quadrats
Malacostraca/Mysida	-	Mysida indet.	Fish Stomach Contents, Quadrats
Malacostraca/Mysida	Mysidae	*Mysis* sp.	Fish Stomach Contents
Thecostraca/Balanomorpha	-	Balanomorpha indet.	Quadrats
Chlorophyta			
-/-	-	Chlorophyta indet.	Quadrats
Ulvophyceae/Cladophorales	Cladophoraceae	*Chaetomorpha melagonium*	Quadrats
Chordata			
-/-	-	Tunicata ident.	Quadrats
Ascidiacea/Stolidobranchia	Styelidae	*Polycarpa* sp.	Quadrats
Teleostei/-	-	Teleostei indet.	Fish Stomach Contents
Teleostei/Gadiformes	Gadidae	*Boreogadus saida*	Fishing Efforts
Teleostei/Gadiformes	Gadidae	*Gadus ogac*	Fishing Efforts
Teleostei/Gadiformes	Gadidae	*Gadus* sp.	Fishing Efforts
Teleostei/Perciformes	Agonidae	*Aspidophoroides olrikii*	Fishing Efforts
Teleostei/Perciformes	Ammodytidae	*Ammodytes* sp.	Fish Stomach Contents
Teleostei/Perciformes	Cottidae	Cottidae indet.	Quadrats
Teleostei/Perciformes	Cottidae	*Gymnocanthus tricuspis*	Fishing Efforts
Teleostei/Perciformes	Cottidae	*Icelus spatula*	Fishing Efforts
Teleostei/Perciformes	Cottidae	*Myoxocephalus quadricornis*	Fishing Efforts
Teleostei/Perciformes	Cottidae	*Myoxocephalus scorpioides*	Quadrats, Fishing Efforts
Teleostei/Perciformes	Cottidae	*Myoxocephalus scorpius*	Quadrats, Fishing Efforts
Teleostei/Perciformes	Cottidae	*Triglops pingelii*	Fishing Efforts
Teleostei/Perciformes	Cyclopteridae	*Cyclopterus lumpus*	Quadrats
Teleostei/Perciformes	Cyclopteridae	*Eumicrotremus spinosus*	Fishing Efforts
Teleostei/Perciformes	Zoarcidae	*Gymnelus hemifasciatus*	Fishing Efforts
Teleostei/Perciformes	Zoarcidae	*Lycodes mucosus*	Quadrats, Fishing Efforts
Teleostei/Salmoniformes	Salmonidae	*Salvelinus alpinus*	Fishing Efforts
Cnidaria			
Anthozoa/-	-	Ceriantharia indet.	Quadrats
Echinodermata			
Asteroidea/Forcipulatida	Asteriidae	***Leptasterias* (*Hexasterias*) *polaris***	Incidentals (Trawl)
Asteroidea/Forcipulatida	Asteriidae	*Leptasterias* sp.	Quadrats
Asteroidea/Paxillosida	Benthopectinidae	***Pontaster tenuispinus***	Incidentals (Trawl)
Asteroidea/Valvatida	Solasteridae	***Crossaster papposus***	Quadrats
Echinoidea/Camarodonta	Strongylocentrotidae	*Strongylocentrotus droebachiensis*	Quadrats
Ophiuroidea/Ophiuroidea	-	Ophuiroidea indet.	Quadrats
Mollusca			
Bivalvia/Adapedonta	Hiatellidae	*Hiatella arctica*	Quadrats
Bivalvia/Carditida	Astartidae	*Astarte* sp.	Quadrats
Bivalvia/Myida	Myidae	*Mya* sp.	Quadrats
Bivalvia/Myida	Myidae	*Mya truncata*	Quadrats
Bivalvia/Mytilida	-	Mytilida indet.	Quadrats
Bivalvia/Mytilida	Mytilidae	*Musculus discors*	Quadrats
Bivalvia/Pectinida	Pectinidae	*Chlamys islandica*	Quadrats
Gastropoda/-	-	Gastropoda indet.	Quadrats
Gastropoda/-	-	Patellogastropoda indet.	Quadrats
Gastropoda/Cephalaspidea	-	Cephalaspidea indet.	Fish Stomach Contents
Gastropoda/Neogastropoda	Buccinidae	Buccinidae indet.	Quadrats
Gastropoda/Nudibranchia	Dendronotidae	*Dendronotus* sp.	Quadrats
Gastropoda/Nudibranchia	-	Nudibranchia Indet.	Quadrats
Gastropoda/Pteropoda	Clionidae	*Clione limacina*	Quadrats
Gastropoda/Pteropoda	Limacinidae	*Limacina* sp.	Fish Stomach Contents
Gastropoda/Trochida	Margaritidae	*Margarites* sp.	Quadrats
Ochrophyta			
Phaeophyceae/Desmarestiales	Desmarestiaceae	*Desmarestia* sp.	Quadrats
Phaeophyceae/Ectocarpales	Acinetosporaceae	*Pylaiella* sp.	Quadrats
Phaeophyceae/Fucales	Fucaceae	*Fucus distichus*	Quadrats
Phaeophyceae/Laminariales	Agaraceae	*Agarum clathratum*	Quadrats
Phaeophyceae/Laminariales	Laminariaceae	*Saccharina latissima*	Quadrats
Platyhelminthes			
Cestoda/-	-	Cestoda indet.	Fish Stomach Contents
Rhodophyta			
-/-	-	Rhodophyta indet. sp. 1	Quadrats
-/-	-	Rhodophyta indet. sp. 2	Quadrats
Florideophyceae/Ceramiales	Rhodomelaceae	*Savoiea arctica*	Quadrats
Florideophyceae/Corallinales	-	Corallinales indet.	Quadrats
Florideophyceae/Gigartinales	Phyllophoraceae	*Coccotylus truncatus*	Quadrats

Notes: taxa identified to the lowest practical taxonomic level; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species; cf.=compare with (taxa is an inexact match to the designated taxa).
Taxa in bold indicate new observations in MEEMP and NIS/AIS programs
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2022, ISSG 2022, Rius et al. 2022, Molnar et al. 2008, Casas-Monroy et al. 2014

APPENDIX 8B-2

Quadrat and Trawl Laboratory Data 2023

biologica

Raw abundance data in long format for WSP Baffinland MEEMP Quadrat Trawl, 2023.

Client	Project	Year	Sample Type	Split	Biologica Sample ID	Client Sample ID	Date Sampled	taxcode	grpcode	Phylum	Subphylum	Class	Subclass	Order	Family	Subfamily	Taxon Name	A	Int	J	Total Abundance	Unique Taxa Count
WSP	Baffinland MEEMP	2023	Quadrat Trawl	Whole	mb23-059-085	Unknown Cod - TR04	03-Aug-23	MISC	PIXX	Chordata		Teleostei		Gadiformes	Gadidae		Gadus sp.			1	1	1
WSP	Baffinland MEEMP	2023	Quadrat Trawl	Whole	mb23-059-086	TR03 - Unknown Seastar	03-Aug-23	ECHI	ECAS	Echinodermata		Asteroidea		Forcipulatida	Asteriidae		Leptasterias (Hexasterias) polaris		1		1	1
WSP	Baffinland MEEMP	2023	Quadrat Trawl	Whole	mb23-059-087	TR02 - Unknown Seastar	03-Aug-23	ECHI	ECAS	Echinodermata		Asteroidea		Paxillosida	Benthopectinidae		Pontaster tenuispinus		1		1	1
WSP	Baffinland MEEMP	2023	Quadrat Trawl	Whole	mb23-059-157	FT13-UNCD	14-Aug-23	MISC	PIXX	Chordata		Teleostei		Gadiformes	Gadidae		Boreogadus saida			1	1	1

APPENDIX 8B-3

Fish Stomach Laboratory Data 2023

biologica

Abundance and biomass data in long format for WSP, Baffinland MEEMP, 2023.

Client	Project	Year	Fish	Biologica Sample ID	Client Sample ID	Date Sampled	% Fullness	% Material Digested	Full Stomach Weight (g)	Source	Group Code	Phylum	Subphylum	Class	Subclass	Order	Family	Taxon	Stage	Total Abundance	Total WW (g)	WW/Individual (g)	Total Unique Taxa	Comments	Processing Note
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-188	BAFF23UDPFARCH3001	29-Jul-23	0	100	13.12562	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Empty Stomach	n/a	n/a	n/a	n/a	n/a	Empty Stomach	Empty Stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	A	2	0.00283	0.00142	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	A	26	0.05631	0.00217			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Undetermined	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda			Copepoda indet.	A	2	0.00210	0.00105		Parasitic, likely not a fish parasite	Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	A	24	1.92489	0.08020	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	A	15	1.09430	0.07295			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	8	0.01830	0.00229			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	127	0.29951	0.00236			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	Parts		1.21030	1.21030			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-189	BAFF23UIPFARCH3002	30-Jul-23	75	50	9.51983	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	Parts		0.72644	0.72644			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	A	7	0.07017	0.01002	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Hyperiidea indet.	A	1	0.04793	0.04793			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	A	14	0.90520	0.06466	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	A	15	0.96961	0.06464			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	1	0.00193	0.00193			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		5.99876	5.99876			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Planktonic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		1.82294	1.82294			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	3	n/a	n/a	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-190	BAFF23UIPFARCH3003	30-Jul-23	100	100	25.70933	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	3	n/a	n/a			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-191	BAFF23UIPFARCH3004	05-Aug-23	50	75	15.88192	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	A	6	0.05770	0.00962	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-191	BAFF23UIPFARCH3004	05-Aug-23	50	75	15.88192	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	9	0.03790	0.00421	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-191	BAFF23UIPFARCH3004	05-Aug-23	50	75	15.88192	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	A	310	0.96545	0.00311	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-191	BAFF23UIPFARCH3004	05-Aug-23	50	75	15.88192	Planktonic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		1.74880	1.74880			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-191	BAFF23UIPFARCH3004	05-Aug-23	50	75	15.88192	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	J	2	0.04139	0.02070	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Int	16	0.14616	0.00914	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Int	4	0.03838	0.00960			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	2	0.00766	0.00383	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	2	0.00869	0.00435	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	3	0.01433	0.00478			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.05799	0.05799			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A/parts	7	0.13311	0.01902	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-192	BAFF23UIPFARCH3005	05-Aug-23	50	50	5.63351	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	Parts	8	0.11715	0.01464			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	J	7	0.01727	0.00247	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	J	26	0.04270	0.00164			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Int/parts	4	0.02704	0.00676	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	1	0.01022	3.25141			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	A	5	0.00967	0.00193	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	174	0.63320	0.00364			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.03342	0.03342			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.20727	0.20727			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Terrestrial	INDI	Arthropoda	Hexapoda	Insecta	Pterygota	Diptera		Diptera indet.	A	1	0.00176	0.00176	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A	7	0.11609	0.01658	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A	10	0.13977	0.01398			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	J	1	0.01074	0.01074	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-193	BAFF23UDPFARCH3006	07-Aug-23	25	50	5.31679	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	J	2	0.03296	0.01648			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-194	BAFF23UDPFARCH3007	07-Aug-23	25	50	18.62361	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	1	0.02137	0.02137	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-194	BAFF23UDPFARCH3007	07-Aug-23	25	50	18.62361	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	J	1	0.00111	0.00111		Possibly Gammarus	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-194	BAFF23UDPFARCH3007	07-Aug-23	25	50	18.62361	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	123	0.38735	0.00315	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-194	BAFF23UDPFARCH3007	07-Aug-23	25	50	18.62361	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.63863	0.63863			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-194	BAFF23UDPFARCH3007	07-Aug-23	25	50	18.62361	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A/parts	4	0.07598	0.01900	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-194	BAFF23UDPFARCH3007	07-Aug-23	25	50	18.62361	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	J/parts	1	0.05763	0.05763	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-195	BAFF23UDPFARCH3008	07-Aug-23	25	75	15.83258	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J/parts	4	0.04352	0.01088	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-195	BAFF23UDPFARCH3008	07-Aug-23	25	75	15.83258	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	A	1	0.09696	0.09696	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-195	BAFF23UDPFARCH3008	07-Aug-23	25	75	15.83258	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J/parts	4	0.01716	0.00429			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-195	BAFF23UDPFARCH3008	07-Aug-23	25	75	15.83258	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	Parts	3	0.06840	0.02280			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-196	BAFF23UDPFARCH3009	10-Aug-23	100	75	53.63540	Benthic	PIXX	Chordata	Vertebrata	Teleostei		Perciformes	Ammodytidae	Ammodytes sp.	Int	5	17.90627	3.58125	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-196	BAFF23UDPFARCH3009	10-Aug-23	100	75	53.63540	Benthic	PIXX	Chordata	Vertebrata	Teleostei		Perciformes	Ammodytidae	Ammodytes sp.	Int	1	14.88263	14.88263			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-197	BAFF23UDPFARCH3010	10-Aug-23	100	100	8.41567	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Int	8	0.48264	0.06033	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-197	BAFF23UDPFARCH3010	10-Aug-23	100	100	8.41567	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Int/parts		2.77801	2.77801			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-197	BAFF23UDPFARCH3010	10-Aug-23	100	100	8.41567	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	1	0.01094	0.01094			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-197	BAFF23UDPFARCH3010	10-Aug-23	100	100	8.41567	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J/parts		0.04924	0.04924			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-198	BAFF23UDPFARCH3012	10-Aug-23	100	75	36.23071	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Int	26	1.87107	0.07196	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-198	BAFF23UDPFARCH3012	10-Aug-23	100	75	36.23071	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Hyperiidea indet.	Parts		9.72171	9.72171			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-198	BAFF23UDPFARCH3012	10-Aug-23	100	75	36.23071	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Lysianassoidea indet.	Int	1	0.02621	0.02621	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-198	BAFF23UDPFARCH3012	10-Aug-23	100	75	36.23071	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		0.60388	0.60388	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-199	BAFF23UDPFARCH3013	10-Aug-23	50	75	25.74126	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	5	0.14791	0.02958	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-199	BAFF23UDPFARCH3013	10-Aug-23	50	75	25.74126	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Hyperiidea indet.	Parts		3.32831	3.32831			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-200	BAFF23UKLKARCH4001	08-Aug-23	50	50	11.94785	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	J	3	0.02739	0.00913	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-200	BAFF23UKLKARCH4001	08-Aug-23	50	50	11.94785	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Ischyroceridae	Ischyrocerus sp.	A	1	0.00730	0.00730	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-200	BAFF23UKLKARCH4001	08-Aug-23	50	50	11.94785	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	A	196	0.92661	0.00473	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-200	BAFF23UKLKARCH4001	08-Aug-23	50	50	11.94785	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.58759	0.58759		Primarily copepod tissue	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Hyperiidea indet.	J	1	0.02545	0.02545	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	A	2	0.02208	0.01104	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	55	0.18186	0.00331			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	28	0.17561	0.00627			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.58081	0.58081			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.07614	0.07614			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A	10	0.12422	0.01242	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-201	BAFF23UKLKARCH4002	08-Aug-23	25	50	8.81717	Planktonic	MOGA	Mollusca			Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A/parts	16	0.20334	0.01271			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	24	0.77623	0.03234	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	3	0.05097	0.01699			Found outside of the stomach

biologica

Abundance and biomass data in long format for WSP, Baffinland MEEMP, 2023.

Client	Project	Year	Fish	Biologica Sample ID	Client Sample ID	Date Sampled	% Fullness	% Material Digested	Full Stomach Weight (g)	Source	Group Code	Phylum	Subphylum	Class	Subclass	Order	Family	Taxon	Stage	Total Abundance	Total WW (g)	WW/Individual (g)	Total Unique Taxa	Comments	Processing Note
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	2	0.01654	0.00827	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	2	0.00536	0.00268			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		1.37140	1.37140			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.34717	0.34717			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		0.03027	0.03027	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-202	BAFF23UKLKARCH4003	08-Aug-23	50	50	9.99346	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		0.01411	0.01411			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	J	27	0.43832	0.01623	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	Parts		0.41676	0.41676			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	Onisimus sp.	J/parts	7	0.16818	0.02403	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	A	1	0.01030	0.01030			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	456	1.72745	0.00379	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	Parts		2.96843	2.96843			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-203	BAFF23UKLKARCH4004	08-Aug-23	100	75	23.76046	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		0.11843	0.11843	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-204	BAFF23UKLKARCH4005	08-Aug-23	75	75	15.55821	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.	A	44	1.30121	0.02957	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-204	BAFF23UKLKARCH4005	08-Aug-23	75	75	15.55821	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	4	0.01815	0.00454	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-204	BAFF23UKLKARCH4005	08-Aug-23	75	75	15.55821	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		1.99245	1.99245			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-204	BAFF23UKLKARCH4005	08-Aug-23	75	75	15.55821	Planktonic	MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A	1	0.00817	0.00817	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-204	BAFF23UKLKARCH4005	08-Aug-23	75	75	15.55821	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		0.12889	0.12889	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-205	BAFF23UKLKARCH4006	12-Aug-23	50	50	27.88751	Benthic	PIXX	Chordata	Vertebrata	Teleostei		Perciformes	Ammodytidae	Ammodytes sp.	Int	1	3.25141	3.25141	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-205	BAFF23UKLKARCH4006	12-Aug-23	50	50	27.88751	Benthic	PIXX	Chordata	Vertebrata	Teleostei		Perciformes	Ammodytidae	Ammodytes sp.	Int	1	5.23946	5.23946			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-206	BAFF23UKLKARCH4007	12-Aug-23	25	50	17.87116	Planktonic	MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A	26	0.28583	0.01099	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-207	BAFF23UKLKARCH4008	12-Aug-23	25	100	10.60221	Planktonic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Hyperiidea indet.	J/parts		1.39767	1.39767	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Int	3	0.07051	0.02350	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	J	2	0.00187	0.00094			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	Int	1	0.00161	0.00161			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Lysianassoidea indet.	J	4	0.00447	0.00112	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	3	0.00492	0.00164	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	1	0.00162	0.00162			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	47	0.09855	0.00210	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	6	0.01246	0.00208			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	Parts		0.06124	0.06124			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Arctic Char	ms23-059-208	BAFF23UKLKARCH4009	12-Aug-23	50	50	4.29742	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	Parts		0.01321	0.01321			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-209	BAFF23UDPFFHSC1001	28-Jul-23	100	100	23.29618	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	Parts		0.00935	0.00935	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-209	BAFF23UDPFFHSC1001	28-Jul-23	100	100	23.29618	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-209	BAFF23UDPFFHSC1001	28-Jul-23	100	100	23.29618	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		12.93062	12.93062	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-209	BAFF23UDPFFHSC1001	28-Jul-23	100	100	23.29618	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		1.86868	1.86868			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-209	BAFF23UDPFFHSC1001	28-Jul-23	100	100	23.29618	Undetermined	XXXX							Unidentified tissue	Parts		0.39434	0.39434			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-210	BAFF23UDPFFHSC1004	28-Jul-23	0	100	2.28312	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Empty Stomach	n/a	n/a	n/a	n/a	n/a	Empty Stomach	Empty Stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-211	BAFF23UDPFFHSC1005	28-Jul-23	100	100	25.97391	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-211	BAFF23UDPFFHSC1005	28-Jul-23	100	100	25.97391	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		12.19814	12.19814	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-211	BAFF23UDPFFHSC1005	28-Jul-23	100	100	25.97391	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		5.03112	5.03112			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-211	BAFF23UDPFFHSC1005	28-Jul-23	100	100	25.97391	Undetermined	XXXX							Unidentified tissue	Parts		0.91878	0.91878			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-211	BAFF23UDPFFHSC1005	28-Jul-23	100	100	25.97391	Undetermined	XXXX							Unidentified tissue	Parts		2.03826	2.03826			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-212	BAFF23UDPFFHSC1009	28-Jul-23	50	75	3.99715	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida		Mysida indet.	Parts		0.25345	0.25345	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-212	BAFF23UDPFFHSC1009	28-Jul-23	50	75	3.99715	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-212	BAFF23UDPFFHSC1009	28-Jul-23	50	75	3.99715	Undetermined	XXXX							Unidentified tissue	Parts		0.32028	0.32028			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-213	BAFF23UDPFFHSC1010	28-Jul-23	100	75	7.89504	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	6	0.22169	0.03695	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-213	BAFF23UDPFFHSC1010	28-Jul-23	100	75	7.89504	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	Parts	2	0.03966	0.01983			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-213	BAFF23UDPFFHSC1010	28-Jul-23	100	75	7.89504	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	Parts		0.12034	0.12034	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-213	BAFF23UDPFFHSC1010	28-Jul-23	100	75	7.89504	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-213	BAFF23UDPFFHSC1010	28-Jul-23	100	75	7.89504	Undetermined	XXXX							Unidentified tissue	Parts		1.37811	1.37811			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-214	BAFF23UDPFFHSC1018	29-Jul-23	100	100	11.79694	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	1	0.05353	0.05353	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-214	BAFF23UDPFFHSC1018	29-Jul-23	100	100	11.79694	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A/parts		0.04444	0.04444	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-214	BAFF23UDPFFHSC1018	29-Jul-23	100	100	11.79694	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.01871	0.01871			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-214	BAFF23UDPFFHSC1018	29-Jul-23	100	100	11.79694	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.07201	0.07201			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-214	BAFF23UDPFFHSC1018	29-Jul-23	100	100	11.79694	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		4.05614	4.05614	1	One fish was sticking out of esophagus	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-214	BAFF23UDPFFHSC1018	29-Jul-23	100	100	11.79694	Undetermined	XXXX							Unidentified tissue	Parts		1.17494	1.17494			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-215	BAFF23UDPFFHSC1022	29-Jul-23	100	100	25.45312	Non-Food	Non-Food	Annelida		Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet. (tubes only)	Parts		n/a	n/a		Empty tubes, no tissue.	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-215	BAFF23UDPFFHSC1022	29-Jul-23	100	100	25.45312	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		14.16850	14.16850	1		Some found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-215	BAFF23UDPFFHSC1022	29-Jul-23	100	100	25.45312	Undetermined	XXXX							Unidentified tissue	Parts		0.80262	0.80262			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-216	BAFF23UDPFFHSC1024	29-Jul-23	25	75	2.30379	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	Int	1	0.00974	0.00974	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-216	BAFF23UDPFFHSC1024	29-Jul-23	25	75	2.30379	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	6	0.01851	0.00309	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-216	BAFF23UDPFFHSC1024	29-Jul-23	25	75	2.30379	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	9	0.02786	0.00310			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-216	BAFF23UDPFFHSC1024	29-Jul-23	25	75	2.30379	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida		Mysida indet.	J	1	0.00205	0.00205	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-216	BAFF23UDPFFHSC1024	29-Jul-23	25	75	2.30379	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.08111	0.08111			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-216	BAFF23UDPFFHSC1024	29-Jul-23	25	75	2.30379	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.06624	0.06624			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	1	0.05908	0.05908	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Int	2	0.02442	0.01221			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	1	0.00446	0.00446	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	1	0.00299	0.00299			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	12	0.04913	0.00409	1		Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida		Mysida indet.	J	47	0.22561	0.00480			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Planktonic	PIXX	Chordata	Vertebrata	Teleostei				Teleostei indet.	Parts		2.97827	2.97827	1	Possibly sand lance	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Undetermined	XXXX							Unidentified tissue	Parts		0.74296	0.74296			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-217	BAFF23UDPFFHSC1025	29-Jul-23	100	75	7.34477	Undetermined	XXXX							Unidentified tissue	Parts		0.74296	0.74296			Found outside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-218	BAFF23UDPFFHSC1028	29-Jul-23	10	100	1.65532	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.00331	0.00331	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-219	BAFF23UIPFFHSC1031	30-Jul-23	100	50	5.67154	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	A	1	0.15002	0.15002	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-219	BAFF23UIPFFHSC1031	30-Jul-23	100	50	5.67154	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	17	0.56994	0.03353	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-219	BAFF23UIPFFHSC1031	30-Jul-23	100	50	5.67154	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.14516	0.14516			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-219	BAFF23UIPFFHSC1031	30-Jul-23	100	50	5.67154	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-220	BAFF23UIPFFHSC1032	30-Jul-23	50	75	6.0771	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	A	5	0.75971	0.15194	1		Found inside of the stomach

biologica

Abundance and biomass data in long format for WSP, Baffinland MEEMP, 2023.

Client	Project	Year	Fish	Biologica Sample ID	Client Sample ID	Date Sampled	% Fullness	% Material Digested	Full Stomach Weight (g)	Source	Group Code	Phylum	Subphylum	Class	Subclass	Order	Family	Taxon	Stage	Total Abundance	Total WW (g)	WW/Individual (g)	Total Unique Taxa	Comments	Processing Note
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-220	BAFF23UIPFFHSC1032	30-Jul-23	50	75	6.0771	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	J	3	0.03776	0.01259			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-220	BAFF23UIPFFHSC1032	30-Jul-23	50	75	6.0771	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	Int/parts	2	0.03759	0.01880		Possibly Gammarus	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-220	BAFF23UIPFFHSC1032	30-Jul-23	50	75	6.0771	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.46316	0.46316		Primarily amphipod tissue	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-220	BAFF23UIPFFHSC1032	30-Jul-23	50	75	6.0771	Non-Food	Non-food							Plant material	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-221	BAFF23UIPFFHSC1034	30-Jul-23	75	50	7.35953	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	A	2	0.22687	0.11344	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-221	BAFF23UIPFFHSC1034	30-Jul-23	75	50	7.35953	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	2	0.03444	0.01722	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-221	BAFF23UIPFFHSC1034	30-Jul-23	75	50	7.35953	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	Parts		0.07225	0.07225			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-221	BAFF23UIPFFHSC1034	30-Jul-23	75	50	7.35953	Non-Food	Non-Food	Annelida		Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet. (tubes only)	Parts		n/a	n/a		Empty tubes, no tissue.	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-221	BAFF23UIPFFHSC1034	30-Jul-23	75	50	7.35953	Benthic	POSE	Annelida		Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet.	A	3	0.62706	0.20902	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-221	BAFF23UIPFFHSC1034	30-Jul-23	75	50	7.35953	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	Int	2	0.11695	0.05848	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	Parts		0.34541	0.34541			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	4	0.12064	0.03016	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Parts		0.02432	0.02432			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	A	1	0.00453	0.00453	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.49926	0.49926			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-222	BAFF23UIPFFHSC1035	30-Jul-23	50	75	7.76954	Non-Food	Non-Food	Annelida		Polychaeta	Sedentaria	Terebellida	Pectinariidae	Pectinariidae indet. (tubes only)	Parts		n/a	n/a		Empty tubes, no tissue.	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	Int	2	0.09253	0.04627	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	7	0.28048	0.04007	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	Paroediceros lynceus	A	7	0.40944	0.05849	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	Paroediceros lynceus	J	1	0.00375	0.00375			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	Onisimus sp.	Int	1	0.03242	0.03242	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Planktonic	CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.	J	8	0.01409	0.00176	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.07451	0.07451			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Non-Food	Non-food							Plant material	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-223	BAFF23UIPFFHSC1044	31-Jul-23	25	25	7.86783	Non-Food	Non-food							Rocks	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-224	BAFF23UIPFFHSC1045	31-Jul-23	50	75	16.12472	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Atylidae	Atylus carinatus	Int	1	0.03661	0.03661	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-224	BAFF23UIPFFHSC1045	31-Jul-23	50	75	16.12472	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.69540	0.69540			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-224	BAFF23UIPFFHSC1045	31-Jul-23	50	75	16.12472	Benthic	MOGA	Mollusca		Gastropoda	Heterobranchia	Cephalaspidea		Cephalaspidea indet.	A	1	0.01582	0.01582	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-224	BAFF23UIPFFHSC1045	31-Jul-23	50	75	16.12472	Non-Food	Non-food							Plant material	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-226	BAFF23UKLKFHSC2018	01-Aug-23	0	100	3.67901	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Empty Stomach	n/a	n/a	n/a	n/a	n/a	Empty Stomach	Empty Stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-227	BAFF23UKLKFHSC2020	01-Aug-23	0	100	4.56548	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Empty Stomach	n/a	n/a	n/a	n/a	n/a	Empty Stomach	Empty Stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-228	BAFF23UKLKFHSC2022	01-Aug-23	50	75	3.47611	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	5	0.12694	0.02539	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-228	BAFF23UKLKFHSC2022	01-Aug-23	50	75	3.47611	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	A	1	0.08364	0.08364			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-228	BAFF23UKLKFHSC2022	01-Aug-23	50	75	3.47611	Non-Food	Non-food							Plant material	n/a	n/a	n/a	n/a			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-229	BAFF23UKLKFHSC2025	01-Aug-23	75	75	4.74524	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	Oedicerotidae indet.	A	1	0.20234	0.20234	1	Possibly Paroediceros lynceus	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-229	BAFF23UKLKFHSC2025	01-Aug-23	75	75	4.74524	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pleustidae	Pleustidae indet.	A	3	0.09459	0.03153	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-229	BAFF23UKLKFHSC2025	01-Aug-23	75	75	4.74524	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet.	Parts		0.12688	0.12688			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-229	BAFF23UKLKFHSC2025	01-Aug-23	75	75	4.74524	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.41094	0.41094			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-229	BAFF23UKLKFHSC2025	01-Aug-23	75	75	4.74524	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	4	n/a	n/a	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-230	BAFF23UKLKFHSC2026	01-Aug-23	10	75	1.80295	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	3	0.07619	0.02540	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-230	BAFF23UKLKFHSC2026	01-Aug-23	10	75	1.80295	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	1	n/a	n/a	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-231	BAFF23UKLKFHSC2027	01-Aug-23	10	75	4.1355	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	3	0.12092	0.04031	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-231	BAFF23UKLKFHSC2027	01-Aug-23	10	75	4.1355	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.05968	0.05968			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-231	BAFF23UKLKFHSC2027	01-Aug-23	10	75	4.1355	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	1	n/a	n/a	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-232	BAFF23UKLKFHSC2031	01-Aug-23	10	75	6.48961	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	1	0.00520	0.00520	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-232	BAFF23UKLKFHSC2031	01-Aug-23	10	75	6.48961	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	Oedicerotidae indet.	A	3	0.00847	0.00282	1	Anterior portion only	Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-232	BAFF23UKLKFHSC2031	01-Aug-23	10	75	6.48961	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Oedicerotidae	Oedicerotidae indet.	Int	1	0.00049	0.00049			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-232	BAFF23UKLKFHSC2031	01-Aug-23	10	75	6.48961	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	A	1	0.00288	0.00288	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-232	BAFF23UKLKFHSC2031	01-Aug-23	10	75	6.48961	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.00847	0.00847			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-233	BAFF23UKLKFHSC2032	01-Aug-23	75	50	7.36307	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	2	0.15297	0.07649	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-233	BAFF23UKLKFHSC2032	01-Aug-23	75	50	7.36307	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Parts	1	0.02407	0.02407			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-233	BAFF23UKLKFHSC2032	01-Aug-23	75	50	7.36307	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Lysianassoidea indet.	Int	3	0.09483	0.03161	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-233	BAFF23UKLKFHSC2032	01-Aug-23	75	50	7.36307	Planktonic	CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	A	8	0.04252	0.00532	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-233	BAFF23UKLKFHSC2032	01-Aug-23	75	50	7.36307	Undetermined	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.58995	0.58995			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-233	BAFF23UKLKFHSC2032	01-Aug-23	75	50	7.36307	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	1	n/a	n/a	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-234	BAFF23UKLKFHSC2035	01-Aug-23	25	75	5.26206	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Int	2	0.07354	0.03677	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-234	BAFF23UKLKFHSC2035	01-Aug-23	25	75	5.26206	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pleustidae	Pleustidae indet.	Int	2	0.05900	0.02950	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-234	BAFF23UKLKFHSC2035	01-Aug-23	25	75	5.26206	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Pleustidae	Pleustidae indet.	Parts		0.06573	0.06573			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-235	BAFF23UKLKFHSC2036	01-Aug-23	10	75	5.77888	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Int	2	0.01487	0.00744	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-235	BAFF23UKLKFHSC2036	01-Aug-23	10	75	5.77888	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.20718	0.20718			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-235	BAFF23UKLKFHSC2036	01-Aug-23	10	75	5.77888	Parasite	PLTY	Platyhelminthes						Cestoda indet.	Plerocercoid	1	n/a	n/a	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-236	BAFF23UKLKFHSC2039	01-Aug-23	25	75	3.74105	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	6	0.11353	0.01892	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-236	BAFF23UKLKFHSC2039	01-Aug-23	25	75	3.74105	Benthic	CRXX	Arthropoda	Crustacea					Crustacea indet.	Parts		0.16026	0.16026			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-237	BAFF23UKLKFHSC2041	08-Aug-23	75	50	4.59301	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	Int	1	0.58013	0.58013	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-237	BAFF23UKLKFHSC2041	08-Aug-23	75	50	4.59301	Planktonic	MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A	51	0.02010	0.00039	1		Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-237	BAFF23UKLKFHSC2041	08-Aug-23	75	50	4.59301	Planktonic	MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.	A/parts		0.82742	0.82742			Found inside of the stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-238	BAFF23UKLKFHSC2042	08-Aug-23	0	100	6.0395	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Empty Stomach	n/a	n/a	n/a	n/a	n/a	Empty Stomach	Empty Stomach
WSP	Baffinland MEEMP	2023	Fourhorn Sculpin	ms23-059-239	BAFF23UKLKFHSC2051	12-Aug-23	10	0	2.86583	Benthic	CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus sp.	A	2	0.02809	0.01405	1		Found inside of the stomach

APPENDIX 8C-1

Taxa Presence/Absence on Settlement Substrates 2021-2023

Taxa Presence/Absence on Settlement Substrates 2021-2023

Phylum Class/Order	Family	Taxa	2021	2022	2023
Annelida					
Clitellata/-	-	Hirudinea indet.	X		X
Clitellata/Enchytraeida	Enchytraeidae	Enchytraeidae indet.		X	X
Polychaeta/Eunicida	Lumbrineridae	*Scoletoma fragilis*		X	X
Polychaeta/Eunicida	Lumbrineridae	*Scoletoma impatiens*		X	
Polychaeta/Eunicida	Lumbrineridae	*Scoletoma* sp.		Y	Y
Polychaeta/Phyllodocida	Hesionidae	Hesionidae indet.	Y	Y	X
Polychaeta/Phyllodocida	Hesionidae	*Nereimyra aphroditoides*	X	X	
Polychaeta/Phyllodocida	Hesionidae	*Nereimyra punctata*		X	X
Polychaeta/Phyllodocida	Nephtyidae	*Micronephthys cornuta*	X	X	
Polychaeta/Phyllodocida	Nereididae	*Nereis zonata*	X	X	X
Polychaeta/Phyllodocida	Nereididae	Nereididae indet.	Y		Y
Polychaeta/Phyllodocida	Pholoidae	*Pholoe longa*	X	X	X
Polychaeta/Phyllodocida	Pholoidae	*Pholoe minuta*	X	X	X
Polychaeta/Phyllodocida	Pholoidae	*Pholoe* sp.	Y	Y	X
Polychaeta/Phyllodocida	Phyllodocidae	*Eteone longa* complex		X	X
Polychaeta/Phyllodocida	Phyllodocidae	*Eteone* sp.	X	Y	
Polychaeta/Phyllodocida	Phyllodocidae	*Phyllodoce* sp.	X		
Polychaeta/Phyllodocida	Phyllodocidae	Phyllodocidae indet.	Y		
Polychaeta/Phyllodocida	Polynoidae	*Bylgides* sp.		X	
Polychaeta/Phyllodocida	Polynoidae	*Gattyana* sp.			X
Polychaeta/Phyllodocida	Polynoidae	*Gattyana cirrhosa*	X	X	
Polychaeta/Phyllodocida	Polynoidae	*Harmothoe imbricata*	X		
Polychaeta/Phyllodocida	Polynoidae	*Harmothoe rarispina*	X		
Polychaeta/Phyllodocida	Polynoidae	*Harmothoe sp.*	Y	X	X
Polychaeta/Phyllodocida	Polynoidae	Polynoinae indet.	Y	Y	
Polychaeta/Phyllodocida	Syllidae	*Pionosyllis* sp.	X		
Polychaeta/Phyllodocida	Syllidae	Syllidae indet.	Y		
Polychaeta/Sabellida	Sabellidae	*Dialychone* sp.	X	X	X
Polychaeta/Sabellida	Sabellidae	*Euchone incolor*	X		
Polychaeta/Sabellida	Sabellidae	*Euchone* sp.	Y	X	
Polychaeta/Sabellida	Sabellidae	Sabellidae indet.	Y	Y	
Polychaeta/Sabellida	Serpulidae	*Bushiella (Jugaria)* sp.		X	
Polychaeta/Sabellida	Serpulidae	*Bushiella (Jugaria) quadrangularis*			X
Polychaeta/Sabellida	Serpulidae	*Circeis* sp.	X		
Polychaeta/Sabellida	Serpulidae	Serpulidae indet.	Y	Y	Y
Polychaeta/Sabellida	Serpulidae	Spirorbinae indet.			Y
Polychaeta/Spionida	Spionidae	*Dipolydora quadrilobata*		X	
Polychaeta/Spionida	Spionidae	*Marenzelleria* sp.	X		
Polychaeta/Spionida	Spionidae	*Scolelepis* sp.	X		
Polychaeta/Spionida	Spionidae	Spionidae indet.	Y	Y	
Polychaeta/Terebellida	Ampharetidae	*Amphicteis sundevalli*	X		
Polychaeta/Terebellida	Ampharetidae	*Ampharete* sp.			X
Polychaeta/Terebellida	Ampharetidae	Ampharetidae indet.	Y	X	Y
Polychaeta/Terebellida	Cirratulidae	*Chaetozone bathyala*	X	X	
Polychaeta/Terebellida	Cirratulidae	*Chaetozone pigmentata*			X
Polychaeta/Terebellida	Cirratulidae	*Chaetozone* sp.	Y	Y	Y
Polychaeta/Terebellida	Cirratulidae	*Aphelochaeta* sp.		X	
Polychaeta/Terebellida	Cirratulidae	Cirratulidae indet.		Y	Y
Polychaeta/Terebellida	Pectinariidae	*Cistenides granulata*	X	X	X
Polychaeta/Terebellida	Terebellidae	*Pista maculata*		X	
Polychaeta/Terebellida	Terebellidae	*Leaena ebranchiata*			X
Polychaeta/Terebellida	Terebellidae	*Polycirrus* sp. complex		X	X
Polychaeta/Terebellida	Terebellidae	Terebellidae indet.	X	Y	Y
Polychaeta/Terebellida	Trichobranchidae	*Terebellides* sp.	X	X	X
Polychaeta/Terebellida	Trichobranchidae	*Trichobranchus glacialis*		X	
Polychaeta/Terebellida	Trichobranchidae	*Trichobranchus* sp.			X
Polychaeta/-	Capitellidae	*Capitella capitata* complex		X	
Polychaeta/-	Capitellidae	*Mediomastus* sp.	X	X	X
Polychaeta/-	Cossuridae	*Cossura longocirrata*	X	X	X
Polychaeta/-	Maldanidae	*Maldane sarsi*		X	X
Polychaeta/-	Opheliidae	Opheliidae indet.			X
Polychaeta/-	Orbiniidae	*Scoloplos* sp.		X	
Polychaeta/-	Paraonidae	*Aricidea hartmanae*			X
Polychaeta/-	Paraonidae	*Aricidea* sp.		X	
Polychaeta/-	Paraonidae	Paraonidae indet.		Y	
Polychaeta/-	Scalibregmatidae	*Scalibregma inflatum*	X	X	
Polychaeta/-	Scalibregmatidae	Scalibregmatidae indet.	Y		
Polychaeta/-	-	Polychaeta indet.		Y	
Polychaeta/-	-	Sedentaria indet.		X	
-/-	-	Annelida indet.		Y	Y

Taxa Presence/Absence on Settlement Substrates 2021-2023

Phylum Class/Order	Family	Taxa	2021	2022	2023
Arthropoda					
Arachnida/-	-	Acari indet.	X		
Arachnida/Trombidiformes	Halacaridae	Halacaridae indet.			X
Copepoda/Calanoida	-	Calanoida indet.		X	
Copepoda/Harpacticoida	-	Harpacticoida indet.			X
Copepoda/-	-	Copepoda indet.			Y
Insecta/Diptera	-	Diptera indet.			X
Insecta/Ephemeroptera	-	Ephemeroptera indet.			X
Malacostraca/Amphipoda	Atylidae	*Atylus carinatus*	X		
Malacostraca/Amphipoda	Atylidae	*Atylus* sp.			X
Malacostraca/Amphipoda	Ampeliscidae	*Ampelisca* sp.		X	
Malacostraca/Amphipoda	Ampeliscidae	*Haploops tubicola*		X	
Malacostraca/Amphipoda	Calliopiidae	Calliopiidae indet.	Y		
Malacostraca/Amphipoda	Calliopiidae	*Apherusa* sp.	X		
Malacostraca/Amphipoda	Corophiidae	*Crassicorophium* sp.	X		X
Malacostraca/Amphipoda	Corophiidae	Corophiidae indet.	Y		
Malacostraca/Amphipoda	Dexaminidae	*Guernea nordenskioldi*	X	X	
Malacostraca/Amphipoda	Gammaridae	*Gammarus oceanicus*	X	X	
Malacostraca/Amphipoda	Gammaridae	*Gammarus setosus*		X	
Malacostraca/Amphipoda	Gammaridae	*Gammarus* sp.	Y	Y	
Malacostraca/Amphipoda	Ischyroceridae	*Ischyrocerus anguipes*	X		
Malacostraca/Amphipoda	Oedicerotidae	*Monoculodes* sp.	X	X	
Malacostraca/Amphipoda	Oedicerotidae	Oedicerotidae indet.	Y	Y	
Malacostraca/Amphipoda	Pontogeneiidae	*Pontoporeia femorata*		X	X
Malacostraca/Amphipoda	Stenothoidae	Stenothoidae indet.		X	
Malacostraca/Amphipoda	Tryphosidae	*Orchomene* sp.		X	
Malacostraca/Amphipoda	-	Lysianassoidea indet.	X		
Malacostraca/Amphipoda	-	Amphipoda indet.		Y	Y
Malacostraca/Cumacea	Diastylidae	*Brachydiastylis resima*		X	
Malacostraca/Cumacea	Lampropidae	*Lamprops* sp.		X	
Malacostraca/Cumacea	Leuconidae	*Eudorella truncatula*		X	
Malacostraca/Cumacea	Leuconidae	*Leucon nasicoides*		X	
Malacostraca/Cumacea	Leuconidae	*Leucon* sp.		Y	
Malacostraca/Decapoda	Thoridae	*Lebbeus polaris*	X		
Ostracoda/Myodocopida	Philomedidae	*Philomedes* sp.	X	X	
Ostracoda/Podocopida	-	Podocopida indet.			X
Ostracoda/-	-	Ostracoda indet.		Y	
Thecostraca/Balanomorpha	-	Balanomorpha indet.	X	X	X
Branchiopoda					
Phyllopoda/Anomopoda	-	Cladocera indet.			X
Bryozoa					
Gymnolaemata/Cheilostomatida	Calloporidae	Calloporidae indet.		X	
Gymnolaemata/Cheilostomatida	Eucrateidae	***Eucratea loricata***			X
Gymnolaemata/Cheilostomatida	-	Cheilostomatida indet.		Y	X
Gymnolaemata/Ctenostomatida		Ctenostomatida indet.			X
Gymnolaemata/Ctenostomatida	Alcyonidiidae	*Alcyonidium* sp.		X	
Stenolaemata/Cyclostomatida	Lichenoporidae	*Lichenopora* sp.	X	X	
Stenolaemata/Cyclostomatida	Lichenoporidae	Lichenoporidae indet.	Y	Y	
Stenolaemata/Cyclostomatida	Tubuliporidae	Tubuliporidae indet.	X		
Stenolaemata/Cyclostomatida	-	Cyclostomatida indet.		Y	
-/-	-	Bryozoa indet.	Y	Y	
Cephaloryhncha					
Priapulida/-	-	Priapulida indet.		X	
Chlorophyta					
Chlorophyceae/Chlamydomonada	Chlorochytriaceae	*Chlorochytrium* sp.		X	
Ulvophyceae/Acrosiphoniales	Acrosiphoniaceae	*Acrosiphonia* sp.		X	
Ulvophyceae/Acrosiphoniales	Acrosiphoniaceae	Acrosiphoniaceae indet.		X	
Ulvophyceae/Acrosiphoniales	Acrosiphoniaceae	cf. *Spongomorpha aeruginosa*		Y	
Ulvophyceae/Acrosiphoniales	Acrosiphoniaceae	*Spongomorpha aeruginosa*	X	X	
Ulvophyceae/Cladophorales	Cladophoraceae	cf. *Rhizoclonium* sp.		Y	
Ulvophyceae/Cladophorales	Cladophoraceae	*Rhizoclonium* sp.	X		
Ulvophyceae/Cladophorales	Cladophoraceae	*Chaetomorpha melagonium*		X	
Ulvophyceae/Ulotrichales	Monostromataceae	*Monostroma* sp.		X	
Ulvophyceae/Ulotrichales	Ulotrichaceae	cf. *Ulothrix* sp.		Y	
Ulvophyceae/Ulotrichales	Ulotrichaceae	*Ulothrix* sp.	X	X	
Ulvophyceae/Ulotrichales	Ulotrichaceae	cf. *Urospora* sp.		X	
Ulvophyceae/Ulotrichales	Ulotrichaceae	Ulotrichaceae indet.	Y		
Ulvophyceae/Ulvales	Kornmanniaceae	cf. *Blidingia marginata / Blidingia* cf. *marginata*		X	
Ulvophyceae/Ulvales	Kornmanniaceae	cf. *Blidingia ramifera*		X	
Ulvophyceae/Ulvales	Kornmanniaceae	*Blidingia* sp.		Y	
Ulvophyceae/Ulvales	Ulvaceae	*Ulva* cf. *prolifera*	X		
Ulvophyceae/Ulvales	Ulvellaceae	cf. *Ulvella* sp.		X	
Ulvophyceae/-	-	Ulvophyceae indet.		Y	
Chordata					
Ascidiacea/Phelobranchia	Ascidiidae	*Ascidia* sp.			X
Ascidiacea/Stolidobranchia	Molgulidae	*Molgula* sp.	X		
Ascidiacea/Stolidobranchia	Molgulidae	Molgulidae indet.		X	
Ascidiacea/Stolidobranchia	Pyuridae	*Boltenia echinata*		X	X
Ascidiacea/Stolidobranchia	Styelidae	Styelidae indet.			X
Ascidiacea/Stolidobranchia	-	Stolidobranchia indet.			X
Ascidiacea/-	-	Ascidiacea indet.		Y	X

Taxa Presence/Absence on Settlement Substrates 2021-2023

Phylum Class/Order	Family	Taxa	2021	2022	2023
Ciliophora					
-/-	-	Ciliophora indet.	X		
Cnidaria					
Anthozoa/Actiniaria	-	Actiniaria indet.	X		
Hydrozoa/Anthoathecata	Corynidae	*Sarsia* sp.	X		
Hydrozoa/Anthoathecata	-	Anthoathecata indet.	Y		
Hydrozoa/Leptothecata	Campanulariidae	Campanulariidae indet.	X	X	X
Hydrozoa/Leptothecata	-	Leptothecata indet.		Y	Y
Hydrozoa/-	-	Hydrozoa indet.		Y	Y
Echinodermata					
Asteroidea/Forcipulatida	Asteriidae	*Leptasterias (Leptasterias) muelleri*	X		
Asteroidea/Forcipulatida	Asteriidae	Asteriidae indet.		X	
Echinoidea/Camarodonta	Strongylocentrotidae	*Strongylocentrotus droebachiensis*	X	X	
Ophiuroidea/Ophiurida	Ophiuridae	*Ophiura robusta*		X	
Ophiuroidea/Ophiurida	Ophiuridae	*Ophiura sarsii*	X		
Ophiuroidea/-	-	Ophiuroidea indet.		Y	
Foraminifera					
-/-	-	Foraminifera indet.	X	X	X
Mollusca					
Bivalvia/Adapedonta	Hiatellidae	*Hiatella arctica*	X	X	X
Bivalvia/Cardiida	Tellinidae	*Macoma calcarea*		X	
Bivalvia/Carditida	Astartidae	*Astarte* sp.	Y	Y	Y
Bivalvia/Carditida	Astartidae	*Astarte borealis*	X	X	X
Bivalvia/Carditida	Astartidae	*Astarte montagui*	X	X	X
Bivalvia/Lucinida	Thyasiridae	*Thyasira* sp.		X	
Bivalvia/Myida	Myidae	*Mya* sp.	X	X	Y
Bivalvia/Myida	Myidae	*Mya truncata*			X
Bivalvia/Mytilida	Mytilidae	*Arvella faba*	X	X	X
Bivalvia/Mytilida	Mytilidae	*Musculus discors*	X	X	X
Bivalvia/Mytilida	Mytilidae	*Musculus* sp.	Y	Y	X
Bivalvia/Mytilida	Mytilidae	*Musculus glacialis*		X	
Bivalvia/Mytilida	Mytilidae	Mytilidae indet.	Y	Y	Y
Bivalvia/Nuculanida	Nuculanidae	*Nuculana minuta*	X	X	
Bivalvia/Nuculida	Nuculidae	*Ennucula tenuis*	X	X	
Bivalvia/Pectinida	-	Pectinoidea indet.			X
Bivalvia/-	-	Bivalvia indet.	Y	Y	Y
Gastropoda/Nudibranchia	Dendronotidae	*Dendronotus* sp.	X	X	X
Gastropoda/Nudibranchia	Onchidorididae	Onchidorididae indet.			X
Gastropoda/Trochida	Margaritidae	*Margarites groenlandicus*	X		
Gastropoda/Trochida	Margaritidae	*Margarites helicinus*	X		
Gastropoda/Trochida	Margaritidae	*Margarites* sp.		X	
Gastropoda/-	Lottiidae	Lottiidae indet.	X	Y	Y
Gastropoda/-	Lottiidae	*Testudinalia testudinalis*		X	X
Gastropoda/-	-	Lottioidea indet.			Y
Gastropoda/-	-	Patellogastropoda indet.	X		
Gastropoda/-	-	Gastropoda indet.	Y		X
Polyplacophora/Chitonida	Tonicellidae	*Tonicella marmorea*			X
Nematoda					
-/-	-	Nematoda indet.		X	X
Nemertea					
Pilidiophora/Heteronemertea	Lineidae	Lineidae indet.		X	X
Pilidiophora/Heteronemertea	-	Heteronemertea indet.			Y
-/-	-	Nemertea indet.		Y	
Ochrophyta					
Phaeophyceae/Chordales	Chordaceae	cf. *Chorda filum*		X	
Phaeophyceae/Desmarestiales	Desmarestiaceae	cf. *Desmarestia* viridis		X	
Phaeophyceae/Ectocarpales	Acinetosporaceae	Acinetosporaceae		Y	
Phaeophyceae/Ectocarpales	Acinetosporaceae	cf. *Hincksia* sp.		X	
Phaeophyceae/Ectocarpales	Acinetosporaceae	cf. *Pogotrichum filiforme*		X	
Phaeophyceae/Ectocarpales	Acinetosporaceae	*Pylaiella* sp. / cf. *Pylaiella* sp		Y	
Phaeophyceae/Ectocarpales	Acinetosporaceae	cf. *Pylaiella varia / Pylaiella* cf. *varia*	X	X	
Phaeophyceae/Ectocarpales	Acinetosporaceae	*Pylaiella littoralis*		X	
Phaeophyceae/Ectocarpales	Chordariaceae	cf. *Asperococcus fistulosus* / cf. *Scytosiphon lomentaria*		**X**	
Phaeophyceae/Ectocarpales	Chordariaceae	cf. *Delamarea attenuata*		X	
Phaeophyceae/Ectocarpales	Chordariaceae	cf. *Punctaria latifolia*		X	
Phaeophyceae/Ectocarpales	Chordariaceae	cf. *Punctaria* sp.		Y	
Phaeophyceae/Ectocarpales	Chordariaceae	*Stictyosiphon tortilis* / cf. *Stictyosiphon tortilis* / cf. *Stictyosiphon* cf. *tortilis*		X	
Phaeophyceae/Ectocarpales	Chordariaceae	cf. *Stictyosiphon soriferus*		X	
Phaeophyceae/Ectocarpales	Chordariaceae	*Stictyosiphon* sp. / cf. *Stictyosiphon* sp.		Y	
Phaeophyceae/Ectocarpales	Chordariaceae	cf. *Trachynema groenlandicum*	X		
Phaeophyceae/Ectocarpales	Chordariaceae	*Dictyosiphon* sp. / cf. *Dictyosiphon sp.*		X	
Phaeophyceae/Ectocarpales	Chordariaceae	Chordariaceae indet.	Y	Y	
Phaeophyceae/Ectocarpales	-	Ectocarpales indet.		Y	
Phaeophyceae/Fucales	Fucaceae	*Fucus distichus* / cf. *Fucus distichus*	X	X	
Phaeophyceae/Sphacelariales	Sphacelariaceae	*Battersia arctica* / cf. *Battersia arctica*		X	
Phaeophyceae/Sphacelariales	-	Sphacelariales indet.	X	Y	
Phaeophyceae/Stschapoviales	Platysiphonaceae	*Arcticophycus glacialis* / cf. *Arcticophycus glacialis*		X	
Phaeophyceae/Tilopteridales	Tilopteridaceae	cf. *Haplospora globosa*		X	

Taxa Presence/Absence on Settlement Substrates 2021-2023

Phylum Class/Order	Family	Taxa	2021	2022	2023
Rhodophyta					
Compsopogonophyceae/Erythrop	Erythrotrichiaceae	cf. *Erythrotrichia* sp.		X	
Florideophyceae/Acrochaetiales	Audouinellaceae	Audouinellaceae indet.		X	
Florideophyceae/Ceramiales	Ceramiaceae	Ceramioideae indet.		X	
Florideophyceae/Ceramiales	Rhodomelaceae	cf. *Polysiphonia* sp.		X	
Florideophyceae/Ceramiales	Rhodomelaceae	*Rhodomela* sp. / cf. *Rhodomela* sp.		X	
Florideophyceae/Ceramiales	Rhodomelaceae	Rhodomelaceae indet.		Y	
Florideophyceae/Ceramiales	Rhodomelaceae	*Savoiea arctica*		X	
Florideophyceae/Ceramiales	-	Ceramiales indet.		Y	
Florideophyceae/Gigartinales	Phyllophoraceae	cf. *Coccotylus truncatus*		X	
-/-	-	Rhodophyta indet.		Y	
Tracheophyta					
-/-	-	Tracheophyta indet.		X	
		# Unique Taxa each year	**69**	**110**	**61**
		TOTAL # Taxa (COUNT)	**97**	**158**	**81**

Notes: taxa identified to the lowest practical taxonomic level; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species; cf.=compare with (taxa is an inexact match to the designated taxa). X indicated unique taxa in sample year, Y indicates taxon was observed, but lower taxonomic levels were observed the same year.
Taxa in bold indicate new observations in MEEMP and NIS/AIS programs
All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2023, ISSG 2023, Rius et al. 2023, AquaNIS 2023, Molnar et al. 2008, Casas-Monroy et al. 2014

APPENDIX 8C-2

Settlement Substrate Laboratory Data 2023

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MEMO	MEMO	Arthropoda	Insecta	Diptera			Diptera indet.				P					Dasyhelea
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile, several damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged, possibly Hiatella
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Damaged, not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly Hiatella
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.				P			1	In historical benthic and settlement substrate data	Possibly Hadzioidea indet.
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.				P			1	In historical benthic and settlement substrate data	Many damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	MEMO	MEMO						Polychaeta indet. (fragment)						P			Degraded
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Hesionidae indet.	P						1	In historical benthic and settlement substrate data	Damaged, possibly Nereimyra punctata
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	P	P	P				1	In historical benthic and settlement substrate data	Balanidae, possibly some Balanus sp. and Balanus crenatus
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia			Stolidobranchia indet.				P				In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	P	P	P				1	In historical benthic and settlement substrate data	Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	P						1	Lower level identification in historic benthic data	Possibly Alcyonidium sp.
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P		In historical benthic and settlement substrate data	

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	n/a	MEMO	MEMO						Plastic						P			Thin pieces of blue plastic about 2mm and 4mm long
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-019	Q13-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-019	Q13-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-019	Q13-P-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-021	Q14-P-Y2-23	25-Jul-23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Sample not processed	n/a	n/a	n/a	n/a	n/a	n/a			n/a
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	n/a	MEMO	MEMO						Plastic						P			3 clear pieces, 12 mm long by 1 mm wide
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Mobile	MEMO	MEMO	Arthropoda	Insecta	Diptera			Diptera indet.				P					Eukiefferiella
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica				P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	ARTH	CROS	Arthropoda	Ostracoda	Podocopida		Podocopida indet.	Podocopida indet.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P				1	In historical benthic and settlement substrate data	Damaged, possibly some Musculus sp. and Hiatella sp.
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea			Heteronemertea indet.	P						1	In historical benthic data	Possibly Micrura varicolor
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	P		P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea			Heteronemertea indet.	P						1	In historical benthic data	Megafuana Adult >2g
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P						In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ARTH	CROS	Arthropoda	Ostracoda	Podocopida			Podocopida indet.	P						1	Lower level identification in historic benthic data	Possibly Cytheroidea
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	n/a	MEMO	MEMO						Plastic						P			Thin green piece, 10 mm by 0.5 mm
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.		P	P					In historical benthic and settlement substrate data	Damaged. Intermediate is shell-less
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged, fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Trichobranchus sp.			P				1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Some on rocks
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		P					1	In historical benthic and settlement substrate data	Degraded
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			P					In historical benthic and settlement substrate data	Damaged, possibly Astarte montagui
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Arvella faba		P					1	In historical settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus discors		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.		P						In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra punctata			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P							In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			P					In historical benthic and settlement substrate data	Damaged, immature
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.		P	P					In historical benthic and settlement substrate data	Damaged, immature
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	P						1	In historical benthic and settlement substrate data	Posisbly Micrura varicolor
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		P					1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae		Serpulidae indet.	P	P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.						P	1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	Possibly Pholoe minuta
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged, fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			One mass and a couple individuals
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Crenellinae	Arvella faba	P						1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Mytilidae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-040	Q9-B-Y3-23	29-Jul-23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Sample not processed	n/a	n/a	n/a	n/a	n/a	n/a			n/a
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged, fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q12-B-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	On rocks
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Onchidorididae		Onchidoridinae indet.	P						1	New taxa, sent for external verification	Possibly Onchidoris muricata, though looks similar to Atalodoris jannae as well
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MEMO	MEMO	Arthropoda	Insecta	Ephemeroptera			Ephemeroptera indet.				P					Baetidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			One mass and a couple individuals
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	Degraded
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.		P	P					In historical benthic and settlement substrate data	Damaged, immature
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Juveniles on a rock, recently settled
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			P				1	In historical benthic and settlement substrate data	Possibly Astarte montagui
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-052	Q8-Nudibranch-23	29-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P					1	In historical settlement substrate data	Possibly Dendronotus arcticus, though similar to D. robustus or D. frondosus
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-053	Q9-Nudibranch-23	29-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P					1	In historical settlement substrate data	Possibly Dendronotus arcticus, though similar to D. robustus or D. frondosus
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID, algae from top, bottom and mobile portions combined in one vial from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID, algae from top, bottom and mobile portions combined in one vial from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID, algae from top, bottom and mobile portions combined in one vial from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium sp.		P					1	In historical benthic and settlement substrate data	Possibly cf. Crassicorophium crassicorne
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-062	Center M-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Many shell-less
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-062	Center M-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra punctata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp.	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Opheliidae		Opheliidae indet.			P				1	In historical benthic and settlement substrate data	Lower level identification in historic benthic data
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.		P					1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P					In historical benthic and settlement substrate data	Damaged, possibly Atylus sp.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MEMO	MEMO						Copepoda indet. (parasitic)						P			Parasitic
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Possibly Musculus discors
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P	P				1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.					P		1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.					P		1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly Musculus
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-066	East M-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-066	East M-P-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-066	East M-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.					P		1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress					P				Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.		P					1	In historical benthic and settlement substrate data	Damaged, possibly some Amphitrite cirrata and Asabellides sp.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.		P					1	In historical benthic and settlement substrate data	Damaged, possibly some Amphitrite
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Styelidae		Styelidae indet.			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	P	P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-068	East D-P-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-068	East D-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-070	West S-B-Y1A-23	31-Jul-23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Nothing found	n/a	n/a	n/a	n/a	n/a	n/a			Nothing found in sample
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-071	West S-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-071	West S-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-071	West S-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.					P		1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.					P		1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.					P		1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Eucrateidae		Eucratea loricata	P						1	In historical benthic and settlement substrate data	New taxa, sent for external verification
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.					P		1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P					In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda		Lottiidae		Lottiidae indet.		P	P				1	In historical benthic and settlement substrate data	

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda		Lottiidae		Testudinalia testudinalis	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Eucrateidae		Eucratea loricata	P						1	New taxa, sent for external verification	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda		Lottiidae		Lottiidae indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-076	Center S-B-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	P						1	In historical benthic data	Some damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly some Hiatella arctica
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana sp.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Bushiella (Jugaria) quadrangularis	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Spirorbinae indet.	P							In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.		P					1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P					In historical benthic and settlement substrate data	Possibly Pleustidae
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	Individuals and small colonies
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Phlebobranchia	Ascidiidae		Ascidia sp.			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Pyuridae		Boltenia echinata			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea				Ascidiacea indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea			Heteronemertea indet.	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.			P				1	In historical benthic data	Possibly Pectinidae indet.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.		P						In historical benthic and settlement substrate data	Shell-less
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOPO	Mollusca	Polyplacophora	Chitonida	Tonicellidae	Tonicellinae	Tonicella marmorea	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda				Lottioidea indet.			P				1	In historical benthic and settlement substrate data	Lower level identification in historic benthic data
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	Possibly Pholoe longa
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly Musculus sp.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Mobile	MEMO	MEMO						Cladocera indet.						P			Specimens slightly dessicated
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	MEMO	MEMO						Cladocera indet.						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors			P				1	In historical benthic and settlement substrate data	

APPENDIX 8B-3

Settlement Substrate Laboratory Methods

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile, several damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MEMO	MEMO	Arthropoda	Insecta	Diptera			Diptera indet.				P					Dasyhelea
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-001	Q1-P-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile, several damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-002	Q1-P-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged, possibly Hiatella
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Damaged, not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-003	Q3-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-004	Q3-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly Hiatella
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-005	Q4-P-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-006	Q4-P-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-007	Q5-P-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.				P			1	In historical benthic and settlement substrate data	Possibly Hadzioidea indet.
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.				P			1	In historical benthic and settlement substrate data	Many damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	MEMO	MEMO						Polychaeta indet. (fragment)						P			Degraded
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-008	Q5-P-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-009	Q7-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Hesionidae indet.	P						1	In historical benthic and settlement substrate data	Damaged, possibly Nereimyra punctata
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	P	P	P				1	In historical benthic and settlement substrate data	Balanidae, possibly some Balanus sp. and Balanus crenatus
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.					P		1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia			Stolidobranchia indet.				P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.					P		1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.					P		1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-010	Q7-P-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-011	Q8-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.	P	P	P				1	In historical benthic and settlement substrate data	Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-012	Q8-P-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-013	Q9-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.		P					1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	P						1	Lower level identification in historic benthic data	Possibly Alcyonidium sp.
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-014	Q9-P-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	n/a	MEMO	MEMO						Plastic						P			Thin pieces of blue plastic about 2mm and 4mm long
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-015	Q10-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-016	Q10-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-017	Q11-P-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-018	Q12-P-Y1A-23	02-Aug-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-019	Q13-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-019	Q13-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-019	Q13-P-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-020	Q14-P-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-021	Q14-P-Y2-23	25-Jul-23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Sample not processed	n/a	n/a	n/a	n/a	n/a	n/a			n/a
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-022	Q15-P-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	n/a	MEMO	MEMO						Plastic						P			3 clear pieces, 12 mm long by 1 mm wide
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-023	Q17-P-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Mobile	MEMO	MEMO	Arthropoda	Insecta	Diptera			Diptera indet.				P					Eukiefferiella
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae		Campanulariidae indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-024	Q18-P-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-025	Q19-P-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P		In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-026	Q20-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	ARTH	CROS	Arthropoda	Ostracoda	Podocopida		Podocopida indet.	Podocopida indet.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-027	Q1-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P				1	In historical benthic and settlement substrate data	Damaged, possibly some Musculus sp. and Hiatella sp.
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea			Heteronemertea indet.	P						1	In historical benthic data	Possibly Micrura varicolor
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica	P		P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-028	Q1-B-Y3-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-029	Q3-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Ctenostomatida			Ctenostomatida indet.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Some on rocks
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-030	Q3-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea			Heteronemertea indet.	P						1	In historical benthic data	Megafuana Adult >2g
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya truncata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-031	Q4-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	ARTH	CROS	Arthropoda	Ostracoda	Podocopida			Podocopida indet.	P						1	Lower level identification in historic benthic data	Possibly Cytheroidea
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	n/a	MEMO	MEMO						Plastic						P			Thin green piece, 10 mm by 0.5 mm
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-032	Q4-B-Y3-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.		P	P					In historical benthic and settlement substrate data	Damaged. Intermediate is shell-less
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged, fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-033	Q5-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone pigmentata			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Chaetozone sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Trichobranchus sp.			P				1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Some on rocks
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		P					1	In historical benthic and settlement substrate data	Degraded
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			P					In historical benthic and settlement substrate data	Damaged, possibly Astarte montagui
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-034	Q5-B-Y3-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Crenellinae	Arvella faba		P					1	In historical settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.		P						In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-035	Q7-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra punctata			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eteoninae	Eteone longa complex	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe longa	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P							In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Cirratulidae		Cirratulidae indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Cossuridae		Cossura longocirrata	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Maldanidae	Maldaninae	Maldane sarsi		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Paraonidae		Aricidea hartmanae	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Pontogeneiidae		Pontoporeia femorata			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			P					In historical benthic and settlement substrate data	Damaged, immature
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.		P	P					In historical benthic and settlement substrate data	Damaged, immature
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-036	Q7-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Trichobranchidae		Terebellides sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea	Lineidae		Lineidae indet.	P						1	In historical benthic and settlement substrate data	Posisbly Micrura varicolor
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte borealis		P					1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte montagui		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-037	Q8-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae		Serpulidae indet.	P	P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.						P	1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-038	Q8-B-Y3-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	Possibly Pholoe minuta
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged, fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			One mass and a couple individuals
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Crenellinae	Arvella faba	P						1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Mytilidae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-039	Q9-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-040	Q9-B-Y3-23	29-Jul-23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Sample not processed	n/a	n/a	n/a	n/a	n/a	n/a			n/a
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-041	Q10-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-042	Q10-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Damaged, fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-043	Q11-B-Y1A-23	27-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MISC	CNHY	Cnidaria	Hydrozoa				Hydrozoa indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	On rocks
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-044	Q12-B-Y1A-23	02-Aug-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Onchidorididae		Onchidorididae indet.	P						1	New taxa, sent for external verification	Possibly Onchiodoris muricata, though looks similar to Atalodoris jannae as well
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Pectinariidae		Cistenides granulata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-045	Q13-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MEMO	MEMO	Arthropoda	Insecta	Ephemeroptera			Ephemeroptera indet.				P					Baetidae
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-046	Q14-B-Y1A-23	25-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	Fragile
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			One mass and a couple individuals
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	Degraded
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-047	Q15-B-Y1A-23	26-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.		P	P					In historical benthic and settlement substrate data	Damaged, immature
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-048	Q17-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereidinae	Nereis zonata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-049	Q18-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma sp.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Juveniles on a rock, recently settled
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-050	Q19-B-Y1A-23	29-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Carditida	Astartidae		Astarte sp.			P				1	In historical benthic and settlement substrate data	Possibly Astarte montagui
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Not much present, pulled what was present for possible ID from loose/mobile portion

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-051	Q20-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-052	Q8-Nudibranch-23	29-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P					1	In historical settlement substrate data	Possibly Dendronotus arcticus, though similar to D. robustus or D. frondosus
WSP	Baffinland MEEMP	2023	Quadrat Settlement Substrate	mb23-059-053	Q9-Nudibranch-23	29-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P					1	In historical settlement substrate data	Possibly Dendronotus arcticus, though similar to D. robustus or D. frondosus
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-054	West S-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID, algae from top, bottom and mobile portions combined in one vial from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID, algae from top, bottom and mobile portions combined in one vial from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID, algae from top, bottom and mobile portions combined in one vial from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-055	West S-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-056	West M-P-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiinae	Crassicorophium sp.		P					1	In historical benthic and settlement substrate data	Possibly cf. Crassicorophium crassicorne
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	Some Balanidae
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-057	West M-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae						P			Not enough present to pull for ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-058	West D-P-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-059	West D-P-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-060	Center S-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-061	Center S-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-062	Center M-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	Many shell-less
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-062	Center M-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Eunicida	Lumbrineridae		Scoletoma fragilis		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Hesionidae		Nereimyra punctata		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.				P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Sabellidae	Myxicolinae	Dialychone sp.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae	Ampharetinae	Amphicteis sundevalli		P					1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Polycirrus sp. complex		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Capitellidae		Mediomastus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta		Opheliidae		Opheliidae indet.				P			1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.				P				In historical benthic and settlement substrate data	Damaged, possibly Atylus sp.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MEMO	MEMO						Copepoda indet. (parasitic)						P			Parasitic
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P	P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Myida	Myidae		Mya sp.				P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.				P			1	In historical benthic and settlement substrate data	Possibly Musculus discors
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-063	Center D-P-Y3-23	30-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.			P	P			1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Mobile	ANNE	ANHI	Annelida	Clitellata				Hirudinea indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-064	East S-P-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-065	East S-P-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly Musculus
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-066	East M-P-Y1A-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-066	East M-P-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-066	East M-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Nereididae		Nereididae indet.				P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Ampharetidae		Ampharetidae indet.			P				1	In historical benthic and settlement substrate data	Damaged, possibly some Amphitrite cirrata and Asabellides sp.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			P				1	In historical benthic and settlement substrate data	Damaged, possibly some Amphitrite
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Styelidae		Styelidae indet.			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-067	East M-P-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P	P			1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-068	East D-P-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-068	East D-P-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from bottom portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-069	East D-P-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-070	West S-B-Y1A-23	31-Jul-23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Nothing found	n/a	n/a	n/a	n/a	n/a	n/a			Nothing found in sample
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-071	West S-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-071	West S-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion

biologica

Abundance data in long format for WSP Baffinland MEEMP, 2023 Freight Dock Settlement Subtrates including both plates and baskets.

Client	Project	Year	Sample Type	Biologica Sample ID	Client Sample ID	Date Sampled	Organism type	taxcode	grpcode	Phylum	Class	Order	Family	Subfamily	Taxon Name	A	Int	J	L	N	Unstaged	Unique Taxa Count	New/historical taxa	Comments
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-071	West S-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-072	West M-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Eucrateidae		Eucratea loricata	P						1	New taxa, sent for external verification	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P					In historical benthic and settlement substrate data	Some damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-073	West M-B-Y3-23	31-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda		Lottiidae		Lottiidae indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-074	West D-B-Y1A-23	31-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda		Lottiidae		Testudinalia testudinalis	P						1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MEMO	MEMO						Nematoda indet.						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida	Eucrateidae		Eucratea loricata	P						1	New taxa, sent for external verification	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-075	West D-B-Y3-23	31-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda		Lottiidae		Lottiidae indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-076	Center S-B-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from top portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe minuta	P	P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	ARTH	CHAR	Arthropoda	Arachnida	Trombidiformes	Halacaridae		Halacaridae indet.	P						1	In historical benthic data	Some damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-077	Center S-B-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-078	Center M-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly some Hiatella arctica
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Gattyana sp.	P						1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Bushiella (Jugaria) quadrangularis	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	ANNE	POSE	Annelida	Polychaeta	Sabellida	Serpulidae	Spirorbinae	Spirorbinae indet.	P							In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae	Terebellinae	Leaena ebranchiata	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ANNE	POSE	Annelida	Polychaeta	Terebellida	Terebellidae		Terebellidae indet.			P					In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda	Atylidae	Atylinae	Atylus sp.		P					1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	ARTH	CRAM	Arthropoda	Malacostraca	Amphipoda			Amphipoda indet.			P					In historical benthic and settlement substrate data	Possibly Pleustidae
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Gymnolaemata	Cheilostomatida			Cheilostomatida indet.					P		1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.					P		1	In historical benthic and settlement substrate data	Individuals and small colonies
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Phlebobranchia	Ascidiidae		Ascidia sp.			P				1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea	Stolidobranchia	Pyuridae		Boltenia echinata			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	URAS	Chordata	Ascidiacea				Ascidiacea indet.			P				1	In historical benthic and settlement substrate data	Damaged
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Attached	MISC	CNHY	Cnidaria	Hydrozoa	Leptothecata			Leptothecata indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MISC	NTEA	Nemertea	Pilidiophora	Heteronemertea			Heteronemertea indet.	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Pectinida			Pectinoidea indet.			P				1	In historical benthic data	Possibly Pectinidae indet.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda	Nudibranchia	Dendronotidae		Dendronotus sp.		P					1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda				Gastropoda indet.		P						In historical benthic and settlement substrate data	Shell-less
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-079	Center D-B-Y3-23	30-Jul-23	Mobile	MOLL	MOPO	Mollusca	Polyplacophora	Chitonida	Tonicellidae	Tonicellinae	Tonicella marmorea	P						1	In historical benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	ARTH	CRCO	Arthropoda	Hexanauplii	Harpacticoida			Harpacticoida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-080	East S-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOGA	Mollusca	Gastropoda				Lottioidea indet.			P				1	Lower level identification in historic benthic data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Attached	ALGAE	ALGAE						Algae ID in progress						P			Pulled for further ID from loose/mobile portion
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	Possibly Pholoe longa
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MISC	FORA						Foraminifera indet.						P	1	In historical settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-081	East S-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia				Bivalvia indet.			P					In historical benthic and settlement substrate data	Possibly Musculus sp.
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	ANNE	ANOL	Annelida	Clitellata	Enchytraeida	Enchytraeidae		Enchytraeidae indet.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae	Harmothoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Attached	MEMO	MEMO						Egg/egg mass						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-082	East M-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Mobile	MEMO	MEMO						Cladocera indet.						P			Specimens slightly dessicated
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-083	East D-B-Y1A-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae		Musculus sp.			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Eunicida	Lumbrineridae			Scoletoma sp.		P					1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	ANNE	POER	Annelida	Polychaeta	Phyllodocida	Sigalionidae	Pholoinae	Pholoe sp.	P						1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Encrusting	ARTH	CRCI	Arthropoda	Thecostraca	Balanomorpha			Balanomorpha indet.		P	P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	MEMO	MEMO						Cladocera indet.						P			
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Encrusting	MISC	BRYO	Bryozoa	Stenolaemata	Cyclostomatida			Cyclostomatida indet.						P	1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Adapedonta	Hiatellidae		Hiatella arctica			P				1	In historical benthic and settlement substrate data	
WSP	Baffinland MEEMP	2023	Freight Dock Settlement Substrate	mb23-059-084	East D-B-Y3-23	28-Jul-23	Mobile	MOLL	MOBI	Mollusca	Bivalvia	Mytilida	Mytilidae	Musculinae	Musculus discors		P					1	In historical benthic and settlement substrate data	

APPENDIX 8D-1

Zooplankton Taxa Presence/Absence from Survey Years 2010-2023

Zooplankton Taxa Presence/Absence from Baseline Survey Years to 2023

Phylum Subphylum	Class	Subclass	Order	Family	Subfamily	Taxa	Baseline	2016	2017	2018	2019	2020	2022	2023
Annelida														
-	Polychaeta	-	-	-	-	Polychaeta indet.*	x	x	x	x	x	x	x	x
-	Polychaeta	Sedentaria	-	Sabellariidae	-	Sabellariidae indet.			x					
-	Polychaeta	Sedentaria	Sabellida	Oweniidae	-	Oweniidae indet.*								x
Arthropoda														
-	-	-	-	-	-	Arthropoda indet.*						x		
Chelicerata	Arachnida	Acari	-	-	-	Acari indet.*								x
Chelicerata	Arachnida	Acari	Trombidiformes	-	-	Hydrachnidia indet	x							
Crustacea	-	-	-	-	-	Crustacea indet.*			x	x	x		x	x
Crustacea	Branchiopoda	Phyllopoda	Diplostraca	-	-	Cladocera indet.					x			
Crustacea	Branchiopoda	Phyllopoda	Diplostraca/Anomopoda	Bosminidae	-	*Bosmina longicornis*	x	x						
Crustacea	Branchiopoda	Phyllopoda	Diplostraca/Anomopoda	Bosminidae	-	*Bosmina* sp.	x							
Crustacea	Branchiopoda	Phyllopoda	Diplostraca/Anomopoda	Bosminidae	-	Bosminidae indet.**			x			x	x	x
Crustacea	Branchiopoda	Phyllopoda	Diplostraca/Anomopoda	Chydoridae	-	*Chydorus sphaericus*		x						
Crustacea	Branchiopoda	Phyllopoda	Diplostraca/Anomopoda	Daphniidae	-	*Daphnia* sp.***	x					x	x	x
Crustacea	Copepoda	-	-	-	-	Cirripedia indet.	x	x						
Crustacea	Copepoda	Copepoda	-	-	-	Copepoda indet.*	x	x		x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	-	-	Calanoida indet.*	x		x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Acartiidae	-	*Acarti* sp.***						x		
Crustacea	Copepoda	Copepoda	Calanoida	Acartiidae	-	*Acartia hudsonica*		x					x	
Crustacea	Copepoda	Copepoda	Calanoida	Acartiidae	-	*Acartia longiremis*	x	x	x		x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Acartiidae	-	*Acartia* sp.*	x	x	x	x	x	x		x
Crustacea	Copepoda	Copepoda	Calanoida	Calanidae	-	*Calanus finmarchicus*	x	x	x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Calanidae	-	*Calanus glacialis*	x	x	x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Calanidae	-	*Calanus hyperboreus*	x	x	x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Calanidae	-	*Calanus* sp.*			x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Centropagidae	-	*Centropages* sp.	x			x				x
Crustacea	Copepoda	Copepoda	Calanoida	Centropagidae	-	*Limnocalanus macrurus*						x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Clausocalanidae	-	Clausocalinidae indet.*								x
Crustacea	Copepoda	Copepoda	Calanoida	Clausocalanidae	-	*Ctenocalanus* sp.				x				
Crustacea	Copepoda	Copepoda	Calanoida	Clausocalanidae	-	*Ctenocalanus vanus*			x	x				
Crustacea	Copepoda	Copepoda	Calanoida	Clausocalanidae	-	*Microcalanus* sp.			x	x	x	x	x	
Crustacea	Copepoda	Copepoda	Calanoida	Clausocalanidae	-	*Pseudocalanus* sp. *	x	x	x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Calanoida	Diaptomidae	-	**Diaptomidae indet.**								x
Crustacea	Copepoda	Copepoda	Calanoida	Lucicutilidae	-	*Lucicutia longicornis*		x						
Crustacea	Copepoda	Copepoda	Calanoida	Lucicutilidae	-	*Lucicutia* sp	x							
Crustacea	Copepoda	Copepoda	Calanoida	Metridinidae	-	*Metridia* sp.	x		x	x				x
Crustacea	Copepoda	Copepoda	Calanoida	Pontellidae	-	Pontellidae indet.	x							
Crustacea	Copepoda	Copepoda	Calanoida	Rathkeidae	-	*Rathkea* sp.			x					
Crustacea	Copepoda	Copepoda	Calanoida	Scolecitrichidae	-	*Scolecithricella* sp.			x	x				
Crustacea	Copepoda	Copepoda	Calanoida	Temoridae	-	*Eurytemora herdmani*	x							
Crustacea	Copepoda	Copepoda	Cyclopoida	-	-	Cyclopoida indet.*			x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Cyclopoida	Corycaeidae	-	*Corycaeus* sp.	x							
Crustacea	Copepoda	Copepoda	Cyclopoida	Cyclopoidae	-	Cyclopidae indet.*								x
Crustacea	Copepoda	Copepoda	Cyclopoida	Cyclopoidae	-	*Cyclops* sp.*								x
Crustacea	Copepoda	Copepoda	Cyclopoida	Cyclopoidae	-	*Cyclops scutifer***						x	x	
Crustacea	Copepoda	Copepoda	Cyclopoida	Oithonidae	-	*Oithona atlantica*	x	x	x	x				
Crustacea	Copepoda	Copepoda	Cyclopoida	Oithonidae	-	*Oithona similis*	x	x	x	x	x	x		x
Crustacea	Copepoda	Copepoda	Cyclopoida	Oithonidae	-	*Oithona* sp.*	x	x	x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Cyclopoida	Oncaeidae	-	*Oncaea minuta*	x							
Crustacea	Copepoda	Copepoda	Cyclopoida	Oncaeidae	-	*Oncaea* sp.*	x		x	x	x	x		x
Crustacea	Copepoda	Copepoda	Cyclopoida	Oncaeidae	-	Oncaeidae indet.*		x	x					x
Crustacea	Copepoda	Copepoda	Cyclopoida	Oncaeidae	-	*Triconia borealis*		x	x					x
Crustacea	Copepoda	Copepoda	Cyclopoida	Sapphirinidae	-	*Sapphirina* sp.	x	x	x					
Crustacea	Copepoda	Copepoda	Harpacticoida	-	-	Harpacticoida indet.*		x		x	x	x	x	x
Crustacea	Copepoda	Copepoda	Harpacticoida	Ectinosomatidae	-	*Microsetella norvegica*	x	x	x	x	x	x	x	x
Crustacea	Copepoda	Copepoda	Harpacticoida	Ectinosomatidae	-	*Microsetella* sp.			x	x	x			x
Crustacea	Copepoda	Copepoda	Harpacticoida	Peltidiidae	Clytemnestrinae	Clytemnestra scutellata	x	x						
Crustacea	Copepoda	Copepoda	Harpacticoida	Peltidiidae	Clytemnestrinae	Clytemnestra sp.			x					
Crustacea	Copepoda	Copepoda	Harpacticoida	Tachidiidae	-	*Euterpina acutifrons*	x	x	x					
Crustacea	Copepoda	Copepoda	Monstrilloida	Monstrillidae	-	***Monstrilla* sp.**								x
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	-	-	Amphipoda indet.*	x	x	x					x
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	-	-	Lysianassoidea indet.				x			x	
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Calliopiidae	-	*Apherusa* sp.				x				
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Hyperia* sp.*								x
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Hyperia medusarum*			x					x
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	Hyperiidae indet.*				x	x		x	x
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	Hyperiidea indet.*							x	
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Hyperoche medusarum*			x			x		
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Themisto abyssorum*			x					
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Themisto libellula*			x	x	x	x	x	
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	-	*Themisto* sp.	x		x	x			x	x
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus glacialis*					x			
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus litoralis*				x				
Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Uristidae	-	*Onisimus* sp.				x			x	
Crustacea	Malacostraca	Eumalacostraca	Decapoda	-	-	Caridea indet.				x				
Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	Cragonidae indet.				x				
Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	-	*Sabinea septemcarinata*			x	x			x	x
Crustacea	Malacostraca	Eumalacostraca	Decapoda	Hippolytidae	-	Hippolytidae indet.				x				
Crustacea	Malacostraca	Eumalacostraca	Decapoda	Sapphirinidae	-	*Sapphirina opalina*	x							
Crustacea	Malacostraca	Eumalacostraca	Euphausiacea	-	-	Euphausiacea indet.				x				
Crustacea	Malacostraca	Eumalacostraca	Isopoda	-	-	Isopoda indet.*			x	x	x	x	x	x
Crustacea	Malacostraca	Eumalacostraca	Mysida	-	-	Mysida indet.	x							
Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysinae	*Mysis litoralis*			x					
Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysinae	*Mysis* sp.*				x		x	x	x
Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Erythropinae	*Erythrops* sp.				x				
Crustacea	Ostracoda	-	-	-	-	Ostracoda indet.				x				x
Crustacea	Thecostraca	Cirripedia	Balanomorpha	-	-	Balanomorpha indet.*			x	x	x	x	x	x
Hexapoda	Insecta	-	-	-	-	Insecta indet.***						x		
Hexapoda	Insecta	Pterygota	Diptera	-	-	Diptera indet.***						x		
Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	-	Chironomidae indet.***						x		x

Zooplankton Taxa Presence/Absence from Baseline Survey Years to 2023

Bryozoa														
-	-	-	-	-	-	Bryozoa indet.*				x				x
Chaetognatha														
-	-	-	-	-	-	Chaetognatha indet.		x						x
-	Sagittoidea	-	Aphragmophora	Sagittidae	-	*Parasagitta elegans*	x		x	x	x	x	x	x
-	Sagittoidea	-	Aphragmophora	Sagittidae	-	*Parasagitta* sp.			x	x				
-	Sagittoidea	-	Aphragmophora	Sagittidae	-	Sagittidae indet.	x	x						
-	Sagittoidea	-	Phragmophora	Eukrohniidae	-	*Eukrohnia hamata*	x							
Chordata														
Tunicata	Appendicularia	-	Copelata	Fritillariidae	Fritillariinae	*Fritillaria* sp.*	x	x		x	x	x		x
Tunicata	Appendicularia	-	Copelata	Oikopleuridae	Oikopleurinae	*Oikopleura* sp.*	x		x	x	x	x	x	
Tunicata	Ascidiacea	-	-	-	-	Ascidiacea indet.*							x	x
Vertebrata	Actinopterygii	-	Gadiformes	Gadidae	-	Gadidae indet.			x	x	x		x	
Vertebrata	Actinopterygii	-	Perciformes	Ammodytidae	-	*Ammodytes* sp.*				x		x	x	x
Vertebrata	Actinopterygii	-	Perciformes	Pholidae	-	*Pholis fasciata*			x					
Vertebrata	Actinopterygii	-	Scorpaeniformes	Cottidae	-	Cottidae indet.			x					x
Vertebrata	Actinopterygii	-	Scorpaeniformes	Liparidae	-	*Liparis* sp.						x		
Cnidaria														
-	-	-	-	-	-	Cnidaria indet.*		x	x	x	x	x		
-	Hydrozoa	-	-	-	-	Hydrozoa indet.*								x
-	Hydrozoa	Hydroidolina	Anthoathecata	-	-	Anthoathecata indet.*	x							
-	Hydrozoa	Hydroidolina	Anthoathecata	Bougainvilliidae	-	*Bougainvillia* sp.						x		
-	Hydrozoa	Hydroidolina	Anthoathecata	Corymorphidae	-	Corymorphidae indet.*								x
-	Hydrozoa	Hydroidolina	Anthoathecata	Corymorphidae	-	*Euphysa* sp.	x			x	x		x	x
-	Hydrozoa	Hydroidolina	Anthoathecata	Pandeidae	-	*Catablema vesicarium*			x	x				
-	Hydrozoa	Hydroidolina	Anthoathecata	Pandeidae	-	Pandeidae indet.*						x	x	x
-	Hydrozoa	Hydroidolina	Anthoathecata	Tubulariidae	-	*Hybocodon prolifer*					x			
-	Hydrozoa	Hydroidolina	Leptothecata	Campanulariidae	-	*Obelia* sp.					x			
-	Hydrozoa	Hydroidolina	Siphonophorae	-	-	Siphonophore indet.				x				
-	Hydrozoa	Trachylinae	Narcomedusae	Solmundaeginidae	-	*Aeginopsis laurentii*			x	x	x		x	x
-	Hydrozoa	Trachylinae	Trachymedusae	Rhopalonematidae	-	*Aglantha digitale*	x		x	x	x	x	x	x
-	Hydrozoa	Trachylinae	Trachymedusae	Rhopalonematidae	-	*Aglantha* sp.*			x	x				
-	Scyphozoa	-	-	-	-	Scyphozoa indet.*							x	x
Ctenophora														
-	-	-	-	-	-	Ctenophora indet.	x				x		x	x
-	Nuda	-	Beroida	Beroidae	-	*Beroe cucumis*		x						
-	Nuda	-	Beroida	Beroidae	-	*Beroe gracilis*	x							
-	Nuda	-	Beroida	Beroidae	-	*Beroe* sp.*				x			x	x
-	Tentaculata	-	Cydippida	Mertensiidae	-	*Mertensia ovum**							x	
Echinodermata														
-	-	-	-	-	-	Echinodermata indet.	x	x						
Echinozoa	Echinoidea	-	-	-	-	Echinoidea indet.*			x	x	x	x		x
Asterozoa	Asteroidea	-	-	-	-	Asteroidea indet.*								x
Asterozoa	Ophiuroidea	-	-	-	-	Ophiuroidea indet.*							x	x
Mollusca														
-	Bivalvia	-	-	-	-	Bivalvia indet.*	x	x	x	x	x	x	x	x
-	Gastropoda	-	-	-	-	Gastropoda indet.*			x	x	x	x	x	x
-	Gastropoda	Heterobranchia	Pteropoda	-	-	Gymnosomata indet.	x							x
-	Gastropoda	Heterobranchia	Pteropoda	Clionidae	-	*Clione* sp.*								x
-	Gastropoda	Heterobranchia	Pteropoda	Clionidae	-	*Clione limacina*	x		x	x	x	x	x	x
-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	-	*Limacina helicina*	x		x	x	x	x	x	x
-	Gastropoda	Heterobranchia	Pteropoda	Limacinidae	-	*Limacina* sp.*	x	x	x			x	x	x
Nemertea														
-	-	-	-	-	-	Nemertea indet.			x					x
Rotifera														
-	-	-	-	-	-	Rotifera indet.			x					
-	Eurotatoria	Monogononta	Ploima	Synchaetidae	-	*Synchaeta hyperborea*		x						
-	Eurotatoria	Monogononta	Ploima	Synchaetidae	-	*Synchaeta* sp.			x					
						Total Taxa Observed	**49**	**33**	**59**	**61**	**41**	**46**	**49**	**70**

Notes: Taxa in bold indicate the first observation of the taxa during MEEMP and NIS/AIS surveys. Taxa identified to the lowest practical taxonomic level; presence/absence for previous years taken from SEM 2015, 2016, 2017a, Golder 2018, Golder 2019a, Golder 2020a, Golder 2021a, WSP 2023. *=Species or taxa from lower taxonomic levels identified in other survey years and/or in other survey methods; **=Freshwater taxon; ***= Incidental (benthic or terrestrial taxa or life stages); indet.= indeterminate (taxa could not be identified beyond the taxonomic level listed); sp.=species.
(a) Baseline includes zooplankton observations in 2008, 2010, 2014, and 2015.

APPENDIX 8D-2

Zooplankton Laboratory Data 2023

biologica

Zooplankton total abundance data matrix for WSP Baffinland MEEMP, 2023.

Biologica Sample ID									Grand Total		mz23-059-164 ZH-01	mz23-059-165 ZH-01	mz23-059-166 ZH-02	mz23-059-167 ZH-02	mz23-059-168 ZH-03	mz23-059-169 ZH-03	mz23-059-170 ZH-04	mz23-059-171 ZH-04B	mz23-059-172 ZH-05	mz23-059-173 ZH-05	mz23-059-174 ZH-06	mz23-059-175 ZH-06	mz23-059-176 ZV-01	mz23-059-177 ZV-01	mz23-059-178 ZV-02	mz23-059-179 ZV-02	mz23-059-180 ZV-03	mz23-059-181 ZV-03	mz23-059-182 ZV-04
Client Sample ID																													
Date Sampled											31-Jul-23	11-Aug-23	31-Jul-23	11-Aug-23	31-Jul-23	11-Aug-23	31-Jul-23	13-Aug-23	31-Jul-23	13-Aug-23	31-Jul-23	13-Aug-23	01-Aug-23	11-Aug-23	01-Aug-23	11-Aug-23	01-Aug-23	11-Aug-23	31-Jul-23
Groupcode	**Phylum**	**Subphylum**	**Class**	**Subclass**	**Order**	**Family**	**Taxon**	**Stage**	**Total Unique Taxa**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**
BRYO	Bryozoa						Bryozoa indet.	Cyphonautes	1	21																			
CHAE	Chaetognatha		Sagittoidea		Aphragmophora	Sagittidae	Parasagitta elegans		1	23,399	48		125	1	35	2,272	524	2,712	720	5,032	1,208	5,144	605	419	455	536	378	330	201
CHAE	Chaetognatha						Chaetognatha indet.			4,150	48	1,296		1,176	352	208	640	96		128	112	51							
CNHY	Cnidaria		Hydrozoa	Hydroidolina	Anthoathecata	Corymorphidae	Corymorphidae indet.	Medusa		4																			
CNHY	Cnidaria		Hydrozoa	Hydroidolina	Anthoathecata	Corymorphidae	Euphysa sp.	Medusa	1	1																			
CNHY	Cnidaria		Hydrozoa	Hydroidolina	Anthoathecata	Pandeidae	Pandeidae indet.	Medusa	1	4																			
CNHY	Cnidaria		Hydrozoa	Trachylinae	Narcomedusae	Solmundaeginidae	Aeginopsis laurentii	Medusa	1	98								97											
CNHY	Cnidaria		Hydrozoa	Trachylinae	Trachymedusae	Rhopalonematidae	Aglantha digitale	Medusa	1	815	17	92	32	46	8	11	48	5	32	4	16	57	2	5		4		3	
CNHY	Cnidaria		Hydrozoa				Hydrozoa indet.	Medusa		6,627		40	16	8	24	32	32	64	48	128	48	51	43			16			43
CNSC	Cnidaria		Scyphozoa				Scyphozoa indet.	Medusa	1	3								2											
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Hyperia medusarum		1	1							1												
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Hyperia sp.			5								1									1		
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Hyperiidae indet.			1									1										
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.		1	307	60	3	44	1	60	2	28	3	54	3	40	1					1		2
CRCI	Arthropoda	Crustacea	Thecostraca	Cirripedia	Balanomorpha		Balanomorpha indet.	Cypris	1	35						16									1				
CRCO	Arthropoda	Crustacea	Copepoda		Monstrilloida	Monstrillidae	Monstrilla sp.	I-IV	1	8		8																	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia longiremis	V		2,391	8																		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia longiremis	Vlf	1	1,052	8			8			16												
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia longiremis	Vlm		1,097							16									32			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia sp.	V		728		8	32	56	80		128	64	16	192	16								
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia sp.	Vlf		24		8			16														
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia sp.	Vlm		40		8																	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus finmarchicus	V		5				1		4													
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus finmarchicus	Vlf	1	1												1							
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	I-IV		6																			4
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	V		237	4	8	16	3	1	7	20	96	24		24	1			6	6	2	6	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	Vlf	1	117	20	8	4	1	2	1	10	12	16		8	5		1	10	1	6	1	4
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	Vlm		4								4											
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	I-IV		66				16										1		1	1	32	3
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	V		55	4		7		5			8	11		8		5			2	2	1	2
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	Vlf	1	13			1		1			1					5			1		1	1
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	I-IV		2,132	56	144	64	136	32	80	64	224	96	96	32	563	16	48	8		3		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	V		1																			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Centropages sp.	V	1	16							16												
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	I-IV		65																			21
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	V		5,235	364	40	1,984	40	2,464	16	208		16				16				26		21
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	Vlf	1	835	40		416		352		16												
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	Vlm		412	28		176		208														
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Clausocalanidae indet.	V		16				16															
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Clausocalanidae indet.	Vlf		16											16								
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Pseudocalanus sp. complex	V		2,691	36	112	48	56	96	48	176	608	96	608	112	358	43	16		16		16	21
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Pseudocalanus sp. complex	Vlf	1	651	40	24	32	24	96	32	80	32	32	32	128								43
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Pseudocalanus sp. complex	Vlm		60																			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Metridinidae	Metridia sp.	V		26																			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Metridinidae	Metridia sp.	Vlf	1	5						4													
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida		Calanoida indet.	I-IV		26,700	368	448	1,312	424	1,504	624	464	2,368	480	2,688	752	1,587	491	336	688	416	640	384	565
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona similis	V		9,908	220	280	240	112	208	128	1,264	640	1,168	544	784	1,024	469		176	224	154	80	181
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona similis	Vlf	1	8,211	108	72	48	32	144	80	368	256	928	384	480	461	213	304	208	384	192	272	256
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona similis	Vlm		1,173	12	24	16		48	16	64	64	96	192	160		64		16		51	16	11
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona sp.	I-IV		46,052									96	128	128			2,288	1,344	2,208	1,434	1,184	309
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	I-IV		528														528					
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	V		752													704	48					
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	Vlf	1	75													43						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	Vlm		21													21						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaeidae indet.	I-IV		3,270															784	320	320	48	171
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Triconia borealis	Vlf	1	21													21						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida		Cyclopoida indet.	I-IV		8,127							32						1,536	32			230	928	1,013
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	Ectinosomatidae	Microsetella norvegica	V		14,184													427	544	448	768	397	656	171
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	Ectinosomatidae	Microsetella norvegica	Vlf	1	2,869													107	112		112	64	80	11
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	Ectinosomatidae	Microsetella sp.	V		51												51							
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida		Harpacticoida indet.	I-IV		21																			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda			Copepoda indet.	Nauplius		108,972	12	1,248	16	416	16	848	80	960	144	864	48	1,024	832	6,528	3,200	6,656	2,688	9,856	1,792
CRDE	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	Sabinea septemcarinata	Megalopa	1	4		1		1				1						1					
CRIS	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda		Isopoda indet.	Cryptoniscid larva	1	71							32									2			
CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.		1	1																			
CROS	Arthropoda	Crustacea	Ostracoda				Ostracoda indet.		1	8				8															
CRXX	Arthropoda	Crustacea					Crustacea indet.	Nauplius		195									16			51							
CTEN	Ctenophora		Nuda		Beroida	Beroidae	Beroe sp.		1	7	1						1												
CTEN	Ctenophora						Ctenophora indet.	Cydippid	1	8		8																	
CTEN	Ctenophora						Ctenophora indet.			23								7	2	7	1	3							
ECAS	Echinodermata	Asterozoa	Asteroidea				Asteroidea indet.	Brachiolaria	1	236																			
ECEC	Echinodermata	Echinozoa	Echinoidea				Echinoidea indet.	Echinopluteus	1	173									32	64									
ECOP	Echinodermata	Asterozoa	Ophiuroidea				Ophiuroidea indet.	Ophiopluteus	1	25,342									80	32	144			16	16			32	43
MOBI	Mollusca		Bivalvia				Bivalvia indet.	Veliger	1	16,929	12	8											1,024	576	496	416	230	16	160
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Clionidae	Clione limacina		1	294	1	18		23	1	6		2	3	15	11	5		1		3		2	
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Clionidae	Clione sp.			233	8	48	17	24	4	19	4	24				3						
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina helicina		1	182		6		14		15		1		10		11						
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.			29		8											21						
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda		Gymnosomata indet.	Polytrochus	1	2																		1	
MOGA	Mollusca		Gastropoda				Gastropoda indet.	Veliger		4,118		24		24	16		16	32	16	32	16	256	64	16	64	16		32	53
NTEA	Nemertea						Nemertea indet.	Pilidium	1	51												51							
PIXX	Chordata	Vertebrata	Actinopteri	Teleostei	Perciformes	Ammodytidae	Ammodytes sp.	L	1	3				1		2													
PIXX	Chordata	Vertebrata	Actinopteri	Teleostei	Perciformes	Cottidae	Cottidae indet.	L	1	2						2													
POSE	Annelida		Polychaeta	Sedentaria	Sabellida	Oweniidae	Oweniidae indet.	Mitraria	1	4,577														32		16		16	
POXX	Annelida		Polychaeta				Polychaeta indet.	Metatrochophore		363																			
POXX	Annelida		Polychaeta				Polychaeta indet.	Nectochaete		95														32					
POXX	Annelida		Polychaeta				Polychaeta indet.	Trochophore		948		8								32						16		16	
URAP	Chordata	Tunicata	Appendicularia		Copelata	Fritillariidae	Fritillaria sp.		1	60,704		136		128		1,584	544	16,480	1,936	14,528	784	2,918	320	4,352	112	1,792	90	2,464	107
URAS	Chordata	Tunicata	Ascidiacea				Ascidiacea indet.	Tadpole larva	1	16									16										
							Total Abundance:			**399,025**	**1,523**	**4,136**	**4,646**	**2,796**	**5,773**	**6,058**	**4,891**	**24,864**	**6,175**	**25,711**	**5,076**	**13,679**	**7,092**	**16,268**	**8,032**	**13,964**	**6,910**	**16,473**	**5,209**
							Total Unique Taxa (species richness):		**42**		**12**	**16**	**10**	**16**	**10**	**16**	**13**	**16**	**15**	**13**	**12**	**13**	**12**	**14**	**10**	**14**	**11**	**13**	**14**
MEMO/incidental taxa:																													
MEMO	Arthropoda	Chelicerata	Arachnida	Acari			Acari indet. (freshwater)	L		43																			
MEMO	Arthropoda	Crustacea	Branchiopoda			Bosminidae	Bosminidae indet. (freshwater)			233	28			8	80										32				
MEMO	Arthropoda	Crustacea	Branchiopoda			Daphnidae	Daphnia sp. (freshwater)			37							16												
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Diaptomidae	Diaptomidae indet. (freshwater)	Vlm		21																			
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	I-IV		882	184	24	64	24	112	32							21						
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	V		64																			
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	Vlf		13																	13		
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	Vlm		16																16			
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclops sp. (freshwater)	Vlf		268	100		96	8	48		16												
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclops sp. (freshwater)	Vlm		204	124		16		64														
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida		Harpacticoida indet. (benthic)	V		38																	38		
MEMO	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet. (benthic)			1																			
MEMO	Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae indet. (freshwater)	L		31			12		4								12		1		1		
MEMO							Egg/egg mass	Egg		1,777	16	16	16			16	16	64		32			43						53

Biologica Sample ID									mz23-059-183 ZV-04	mz23-059-184 ZV-05	mz23-059-185 ZV-05	mz23-059-186 ZV-06	mz23-059-187 ZV-06	mz23-059-240 ZH-01	mz23-059-241 ZH-02	mz23-059-242 ZH-03	mz23-059-243 ZH-04	mz23-059-244 ZH-05	mz23-059-245 ZH-06	mz23-059-246 ZV-01	mz23-059-247 ZV-02	mz23-059-248 ZV-03	mz23-059-249 ZV-04	mz23-059-250 ZV-05	mz23-059-251 ZV-06	mz23-059-168_QA ZH-03_QA	mz23-059-187_QA ZV-06_QA	mz23-059-241_QA ZH-02_QA
Client Sample ID																												
Date Sampled									11-Aug-23	31-Jul-23	11-Aug-23	01-Aug-23	11-Aug-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	01-Sep-23	31-Jul-23	11-Aug-23	01-Sep-23
Groupcode	**Phylum**	**Subphylum**	**Class**	**Subclass**	**Order**	**Family**	**Taxon**	**Stage**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**	**Total Abundance (#/sample)**
BRYO	Bryozoa						Bryozoa indet.	Cyphonautes	309	100	378	477	392	107	47		65	192	43	69	97	131	129	103	14	35	360	89
CHAE	Chaetognatha		Sagittoidea		Aphragmophora	Sagittidae	Parasagitta elegans									43										400		
CHAE	Chaetognatha						Chaetognatha indet.							4														
CNHY	Cnidaria		Hydrozoa	Hydroidolina	Anthoathecata	Corymorphidae	Corymorphidae indet.	Medusa								1												

biologica

Zooplankton total abundance data matrix for WSP Baffinland MEEMP, 2023.

Biologica Sample ID										Grand Total		mz23-059-164	mz23-059-165	mz23-059-166	mz23-059-167	mz23-059-168	mz23-059-169	mz23-059-170	mz23-059-171	mz23-059-172	mz23-059-173	mz23-059-174	mz23-059-175	mz23-059-176	mz23-059-177	mz23-059-178	mz23-059-179	mz23-059-180	mz23-059-181	mz23-059-182
Client Sample ID												ZH-01	ZH-01	ZH-02	ZH-02	ZH-03	ZH-03	ZH-04	ZH-04B	ZH-05	ZH-05	ZH-06	ZH-06	ZV-01	ZV-01	ZV-02	ZV-02	ZV-03	ZV-03	ZV-04
Date Sampled												31-Jul-23	11-Aug-23	31-Jul-23	11-Aug-23	31-Jul-23	11-Aug-23	31-Jul-23	13-Aug-23	31-Jul-23	13-Aug-23	31-Jul-23	13-Aug-23	01-Aug-23	11-Aug-23	01-Aug-23	11-Aug-23	01-Aug-23	11-Aug-23	31-Jul-23
Groupcode	Phylum	Subphylum	Class	Subclass	Order	Family	Taxon	Stage	Total Unique Taxa	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)	Total Abundance (#/sample)
CNHY	Cnidaria		Hydrozoa	Hydroidolina	Anthoathecata	Corymorphidae	Euphysa sp.	Medusa				1				2						1							2	
CNHY	Cnidaria		Hydrozoa	Hydroidolina	Anthoathecata	Pandeidae	Pandeidae indet.	Medusa				1																		
CNHY	Cnidaria		Hydrozoa	Trachylinae	Narcomedusae	Solmundaeginidae	Aeginopsis laurentii	Medusa	3			3		2	1	150		40	38	11	96	2		32	40	14		2	86	
CNHY	Cnidaria		Hydrozoa	Trachylinae	Trachymedusae	Rhopalonematidae	Aglantha digitale	Medusa		9					300	1,580	960	1,382	755	277	128	160	128	128	128	100	16		1,473	
CNHY	Cnidaria		Hydrozoa				Hydrozoa indet.	Medusa							1															
CNSC	Cnidaria		Scyphozoa				Scyphozoa indet.	Medusa																						
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Hyperia medusarum						3																	
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Hyperia sp.																							
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Hyperiidae indet.								2	1			1		1						52		1	
CRAM	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyperiidae	Themisto sp.										4		13				1							
CRCI	Arthropoda	Crustacea	Thecostraca	Cirripedia	Balanomorpha		Balanomorpha indet.	Cypris																						
CRCO	Arthropoda	Crustacea	Copepoda		Monstrilloida	Monstrillidae	Monstrilla sp.	I-IV							277	384	661	422	435	203									341	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia longiremis	V							21	149	256	269	192	43			32		32	26			192	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia longiremis	VIf							85	235	320	90	166	107				32			14		107	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia longiremis	VIm																	96	26	14	64			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia sp.	V																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia sp.	VIf															32							
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Acartiidae	Acartia sp.	VIm																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus finmarchicus	V																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus finmarchicus	VIf		2																				
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	I-IV		4	1	2	3										1	1	1		1	3		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	V		3			1		1			1	1								2	1	1	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	VIf																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus glacialis	VIm							12															
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	I-IV																				5		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	V			1		1															1	1	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus hyperboreus	VIf		2					128	85	21	102	64	64			3					32		64
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	I-IV																		1				
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Calanidae	Calanus sp.	V																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Centropages sp.	V		27			16																	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	I-IV		18		21															2,144			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	V				11															352			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	VIf																			192			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Centropagidae	Limnocalanus macrurus	VIm																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Clausocalanidae indet.	V																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Clausocalanidae indet.	VIf				21	16	21	21		64	13	26	11		32					64	16	64	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Pseudocalanus sp. complex	V		9						21			26								80			
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Pseudocalanus sp. complex	VIf									21	13	26										21	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Clausocalanidae	Pseudocalanus sp. complex	VIm											26											
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Metridinidae	Metridia sp.	V		1																				
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Metridinidae	Metridia sp.	VIf	304	494	384	501	256	597	811	683	422	922	715	768	896	832	928	435	213	1,584	320	1,024	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida		Calanoida indet.	I-IV	96	137	48	96	208	85	149	128	90	154	32	64	32	352	224	102	14	176	96	171	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona similis	V	144	393	224	405	272	171	85	21	26	77	11	160	416	288	160	154	14	128	352	85	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona similis	VIf	32	27		139	16	21	43	21	13		11							32	32	64	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona similis	VIm	1,376	475	1,520	704	1,840	21			13	38	11	5,408	6,336	6,624	7,168	3,891	1,508		2,000		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oithonidae	Oithona sp.	I-IV																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	I-IV																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	V																32						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	VIf																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaea sp.	VIm	32	27	16	661	176							256	64	160	64	128	43		304		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Oncaeidae indet.	I-IV																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Oncaeidae	Triconia borealis	VIf	416	1,042	496	789	144							384	448	32	160	230	213		128		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida		Cyclopoida indet.	I-IV	336	91	336	800	448							1,984	1,984	1,792	1,472	947	583		496		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	Ectinosomatidae	Microsetella norvegica	V	32		64	64	80							128	736	384	480	230	185		48		
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	Ectinosomatidae	Microsetella norvegica	VIf																						
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida	Ectinosomatidae	Microsetella sp.	V								21														
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida		Harpacticoida indet.	I-IV	6,528	3,072	9,088	3,840	7,424	1,664	2,304	1,408	512	1,344	768	6,144	7,808	4,864	5,888	4,992	4,096	48	9,216	1,792	
CRCO	Arthropoda	Crustacea	Hexanauplia	Copepoda			Copepoda indet.	Nauplius																						
CRDE	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Decapoda	Crangonidae	Sabinea septemcarinata	Megalopa	16	9										11				1					21	
CRIS	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda		Isopoda indet.	Cryptoniscid larva													1									
CRMY	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Mysida	Mysidae	Mysis sp.																							
CROS	Arthropoda	Crustacea	Ostracoda				Ostracoda indet.							128																
CRXX	Arthropoda	Crustacea					Crustacea indet.	Nauplius	1							4														
CTEN	Ctenophora		Nuda		Beroida	Beroidae	Beroe sp.																							
CTEN	Ctenophora						Ctenophora indet.	Cydippid			1								1	1									4	
CTEN	Ctenophora						Ctenophora indet.															128			51	57				
ECAS	Echinodermata	Asterozoa	Asteroidea				Asteroidea indet.	Brachiolaria										51	26											
ECEC	Echinodermata	Echinozoa	Echinoidea				Echinoidea indet.	Echinopluteus		27	32	96	64	9,088	5,248	3,968	1,280	1,216	1,600	256	1,056	192	256	358	242		64	4,096	
ECOP	Echinodermata	Asterozoa	Ophiuroidea				Ophiuroidea indet.	Ophiopluteus	736	55	752	288	1,280	85	43	21	13	51	32	2,304	3,008	2,368	1,088	998	868		1,104	21	
MOBI	Mollusca		Bivalvia				Bivalvia indet.	Veliger	2			6		49	29	17	20	20	49	2		3	4	2		1	6	29	
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Clionidae	Clione limacina				2			12	20	12	16	16		1	2		1			4		16	
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Clionidae	Clione sp.				2			23	25	14	16	12	24	2	1	3	2	1				25	
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina helicina																							
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda	Limacinidae	Limacina sp.		1																					
MOGA	Mollusca		Gastropoda	Heterobranchia	Pteropoda		Gymnosomata indet.	Polytrochus		27	32	11	16	21	85	21	13	13	11	352	1,088	576	352	410	412	16	32	21	
MOGA	Mollusca		Gastropoda				Gastropoda indet.	Veliger																						
NTEA	Nemertea						Nemertea indet.	Pilidium																						
PIXX	Chordata	Vertebrata	Actinopteri	Teleostei	Perciformes	Ammodytidae	Ammodytes sp.	L																						
PIXX	Chordata	Vertebrata	Actinopteri	Teleostei	Perciformes	Cottidae	Cottidae indet.	L					64	832	363	320	269	243	405	160	1,120	224	192	179	142		64	341	
POSE	Annelida		Polychaeta	Sedentaria	Sabellida	Oweniidae	Oweniidae indet.	Mitraria			16											128	128	77	14					
POXX	Annelida		Polychaeta				Polychaeta indet.	Metatrochophore			16				21									26						
POXX	Annelida		Polychaeta				Polychaeta indet.	Nectochaete	16		16		32							224	256	128	96	51	57		32			
POXX	Annelida		Polychaeta				Polychaeta indet.	Trochophore	1,920	311	2,896	224	2,464	1,109	747	640	371	371	213	224	288	256	224	128	43	16	2,608	640	
URAP	Chordata	Tunicata	Appendicularia		Copelata	Fritillariidae	Fritillaria sp.																							
URAS	Chordata	Tunicata	Ascidiacea				Ascidiacea indet.	Tadpole larva																						
									12,300	**6,366**	**16,326**	**9,154**	**15,349**	**14,740**	**12,696**	**9,627**	**5,521**	**6,464**	**4,651**	**19,116**	**26,023**	**19,534**	**19,306**	**13,716**	**8,860**	**5,445**	**17,285**	**10,793**	
							Total Abundance:		**12**	**14**	**16**	**12**	**14**	**15**	**17**	**13**	**13**	**17**	**14**	**14**	**15**	**14**	**14**	**14**	**12**	**10**	**13**	**16**	
							Total Unique Taxa (species richness):																								
MEMO/incidental taxa:															21	21													21	
MEMO	Arthropoda	Chelicerata	Arachnida	Acari			Acari indet. (freshwater)	L				21		43		21										48		21	
MEMO	Arthropoda	Crustacea	Branchiopoda			Bosminidae	Bosminidae indet. (freshwater)								21															
MEMO	Arthropoda	Crustacea	Branchiopoda			Daphnidae	Daphnia sp. (freshwater)									21										16				
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Calanoida	Diaptomidae	Diaptomidae indet. (freshwater)	VIm						149	85	149	13	13	11							48		171	
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	I-IV														32	32							
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	V																						
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	VIf																						
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclopidae indet. (freshwater)	VIm																				32		21
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclops sp. (freshwater)	VIf																				16		21
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Cyclopoida	Cyclopidae	Cyclops sp. (freshwater)	VIm																						
MEMO	Arthropoda	Crustacea	Hexanauplia	Copepoda	Harpacticoida		Harpacticoida indet. (benthic)	V																		1				
MEMO	Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda indet. (benthic)					1															4			
MEMO	Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae indet. (freshwater)	L	64	27		53	16	64			512	128	640								32		
MEMO							Egg/egg mass	Egg																						

APPENDIX 8D-3

Zooplankton Laboratory Methods

Marine Zooplankton Enumeration and Identification Methods
Client: WSP
Project: Baffinland MEEMP

Sample Inventory

Sample arrival: 7-Sep-23, 19-Sep-23
Number of samples: 24, 12
Number of jars: 24, 12
Field screen size: Horizontal Tows = 250 µm
Vertical Tows = 64 µm
Biologica project number: mz23-059

Upon arrival, the samples were examined and double-checked against the chain of custody to ensure that (1) all samples were accounted for, and (2) each sample had the appropriate number of jars as indicated on the COC. Any discrepancies were reported to the client and were resolved before further sample handling. Samples were assigned a unique internal identification number and stored in ascending order in the sample storage area. For processing, samples were analyzed in water and then transferred into 10% Formalin for storage.

Sample Processing

Marine zooplankton samples were analyzed in 2-4 fractions as described below. All subsamples are obtained using a Folsom Splitter. Among the subsamples, a total count of a minimum of 300 organisms were identified.

(1) A "URL" fraction (Unique, Large, and Rare) comprised of unique, large and rare organisms. These tend to have low abundance. The whole sample is scanned and these organisms are removed for identification. Ichthyoplankton are included in this fraction unless they have very high abundances.
(2) One to four fraction(s) comprised of all remaining organisms in the sample. The number of fractions is determined by the size distribution and abundances of organisms in the sample. Counts are included in the fraction which most accurately captures the per-taxon abundances. All taxa (and stages/size class) are identified in only one fraction per sample. Fractions are assigned with the smallest split listed as "Fraction 1" and largest split is listed as the last fraction.

The fractions were analyzed through a stereo microscope at 10–40x magnification. All organisms were identified by taxonomic experts to the lowest taxonomic level using a compound microscope (100–400x magnification), appropriate dissection tools, and standard taxonomic references. For copepods, the stage of development was also recorded (copepodite stages I–V) as is the sex for mature individuals (copepod stage VI).

In addition, all taxa, including copepods, were assigned a size class consistent with sizing of the Zooplankton Taxonomy Laboratory at the Institute of Ocean Sciences (Sidney, BC). These size stages are explained in Table 1.

Table 1. Definition of size class stages

Size Class Code	Size (mm)
S0	< 1.0
S1	1.0 - < 5.0
S2	5.0 - < 10.0
S3	10.0 - < 15.0
S4	15.0 - < 20.0
S5	20.0 - < 25.0
S6	25.0 - < 30.0
S7	30.0 - < 35.0
S8	35.0 - < 40.0
S9	40.0 - < 45.0
S10	45.0 - < 50.0

Zooplankton were identified to species wherever possible, although immature copepods lack differentiating features required for identification beyond order (e.g., Calanoida, Cyclopoida, or Harpacticoida). All identifications were performed using taxonomic references and collaborations with external experts, where necessary.

Table 2. Summary of zooplankton samples processed for WSP Baffinland MEEMP, 2023.

Client Sample ID	Date Sampled	Tow	Biologica Sample ID	Fraction	Split	Specimens Counted*
ZH-01	31-Jul-23	Horizontal	mz23-059-164	Fraction 1	1/4	380
				URL	Whole	3
ZH-01	11-Aug-23	Horizontal	mz23-059-165	Fraction 1	1/16	78
				Fraction 2	1/8	352
				Fraction 3	1/4	11
				URL	Whole	28
ZH-02	31-Jul-23	Horizontal	mz23-059-166	Fraction 1	1/16	286
				Fraction 2	1/4	15
				URL	Whole	10
ZH-02	11-Aug-23	Horizontal	mz23-059-167	Fraction 1	1/16	26
				Fraction 2	1/8	284
				Fraction 3	1/4	13
				URL	Whole	56
ZH-03	31-Jul-23	Horizontal	mz23-059-168	Fraction 1	1/16	352
				Fraction 2	1/4	30
				URL	Whole	21
ZH-03	11-Aug-23	Horizontal	mz23-059-169	Fraction 1	1/16	374
				Fraction 2	1/4	2
				URL	Whole	66
ZH-04	31-Jul-23	Horizontal	mz23-059-170	Fraction 1	1/16	294

Client Sample ID	Date Sampled	Tow	Biologica Sample ID	Fraction	Split	Specimens Counted*
				Fraction 2	1/4	44
				URL	Whole	11
ZH-04B	13-Aug-23	Horizontal	mz23-059-171	Fraction 1	1/128	127
				Fraction 2	1/32	265
				Fraction 3	1/4	26
				URL	Whole	24
ZH-05	31-Jul-23	Horizontal	mz23-059-172	Fraction 1	1/16	366
				Fraction 2	1/8	37
				URL	Whole	23
ZH-05	13-Aug-23	Horizontal	mz23-059-173	Fraction 1	1/512	28
				Fraction 2	1/32	353
				Fraction 3	1/8	5
				URL	Whole	39
ZH-06	31-Jul-23	Horizontal	mz23-059-174	Fraction 1	1/16	301
				Fraction 2	1/8	31
				URL	Whole	12
ZH-06	13-Aug-23	Horizontal	mz23-059-175	Fraction 1	5/256	266
				URL	Whole	60
ZV-01	01-Aug-23	Vertical	mz23-059-176	Fraction 1	3/64	329
				Fraction 2	1/4	13
				URL	Whole	21
ZV-01	11-Aug-23	Vertical	mz23-059-177	Fraction 1	1/128	85
				Fraction 2	1/16	328
				Fraction 3	1/4	31
				URL	Whole	16
ZV-02	01-Aug-23	Vertical	mz23-059-178	Fraction 1	1/128	25
				Fraction 2	1/16	300
				URL	Whole	32
ZV-02	11-Aug-23	Vertical	mz23-059-179	Fraction 1	1/128	52
				Fraction 2	1/16	455
				URL	Whole	28
ZV-03	01-Aug-23	Vertical	mz23-059-180	Fraction 1	1/128	21
				Fraction 2	5/64	327
				URL	Whole	36
ZV-03	11-Aug-23	Vertical	mz23-059-181	Fraction 1	1/128	77
				Fraction 2	1/16	412
				URL	Whole	25
ZV-04	31-Jul-23	Vertical	mz23-059-182	Fraction 1	1/128	14
				Fraction 2	3/32	318
				URL	Whole	25
ZV-04	11-Aug-23	Vertical	mz23-059-183	Fraction 1	1/128	51
				Fraction 2	1/16	360
				URL	Whole	12
ZV-05	31-Jul-23	Vertical	mz23-059-184	Fraction 1	1/128	24

Client Sample ID	Date Sampled	Tow	Biologica Sample ID	Fraction	Split	Specimens Counted*
				Fraction 2	7/64	358
				URL	Whole	21
ZV-05	11-Aug-23	Vertical	mz23-059-185	Fraction 1	1/128	71
				Fraction 2	1/16	451
				URL	Whole	22
ZV-06	01-Aug-23	Vertical	mz23-059-186	Fraction 1	1/128	30
				Fraction 2	3/32	497
				URL	Whole	13
ZV-06	11-Aug-23	Vertical	mz23-059-187	Fraction 1	1/128	59
				Fraction 2	1/16	486
				URL	Whole	21
ZH-01	01-Sep-23	Horizontal	mz23-059-240	Fraction 1	1/128	71
				Fraction 2	1/64	26
				Fraction 3	3/64	182
				Fraction 4	1/4	16
				URL	Whole	41
ZH-02	01-Sep-23	Horizontal	mz23-059-241	Fraction 1	1/64	118
				Fraction 2	3/64	237
				Fraction 3	1/4	7
				URL	Whole	60
ZH-03	01-Sep-23	Horizontal	mz23-059-242	Fraction 1	1/64	84
				Fraction 2	3/64	197
				Fraction 3	1/4	4
				URL	Whole	32
ZH-04	01-Sep-23	Horizontal	mz23-059-243	Fraction 1	1/64	28
				Fraction 2	5/64	287
				Fraction 3	1/4	4
				URL	Whole	39
ZH-05	01-Sep-23	Horizontal	mz23-059-244	Fraction 1	1/64	40
				Fraction 2	5/64	301
				Fraction 3	1/4	4
				URL	Whole	35
ZH-06	01-Sep-23	Horizontal	mz23-059-245	Fraction 1	1/64	37
				Fraction 2	6/64	207
				URL	Whole	75
ZV-01	01-Sep-23	Vertical	mz23-059-246	Fraction 1	1/128	48
				Fraction 2	1/32	405
				URL	Whole	12
ZV-02	01-Sep-23	Vertical	mz23-059-247	Fraction 1	1/128	61
				Fraction 2	1/32	569
				URL	Whole	7
ZV-03	01-Sep-23	Vertical	mz23-059-248	Fraction 1	1/128	38
				Fraction 2	1/32	458
				URL	Whole	14

Client Sample ID	Date Sampled	Tow	Biologica Sample ID	Fraction	Split	Specimens Counted*
ZV-04	01-Sep-23	Vertical	mz23-059-249	Fraction 1	1/128	46
				Fraction 2	1/32	419
				URL	Whole	10
ZV-05	01-Sep-23	Vertical	mz23-059-250	Fraction 1	1/128	39
				Fraction 2	5/128	339
				Fraction 3	1/4	10
				URL	Whole	6
ZV-06	01-Sep-23	Vertical	mz23-059-251	Fraction 1	1/128	32
				Fraction 2	9/128	335

*Freshwater taxa, eggs and MEMO organisms not included in raw specimen count.

QA/QC

Ten percent (n=3) of samples were reanalyzed to assess subsampling accuracy and consistency of enumeration. The sample was chosen at random and processed at different times to reduce counting and identification bias. The results of this assessment are reported in Table 3.

Table 3. Summary of taxonomic QA/QC results for WSP Baffinland MEEMP, 2023.

Biologica Sample ID	Client Sample ID	Total Abundance (Original Replicate)	Total Abundance (QA Replicate)	Percent Agreement
mz23-059-168	ZH-03	5,773	5,445	94.32
mz23-059-187	ZV-06	15,349	17,285	87.39
mz23-059-241	ZH-02	12,696	10,793	85.01
			Average	**88.91**

Percent Agreement:
{100 – [(difference in abundance between samples/total abundance of original sample) x 100]} %

Data

Taxonomic data were recorded in Biologica's custom database. Results were provided to the WSP project manager in Excel spreadsheets via email.

Methodological and Taxonomic References

Arnkværn, G., Daase, M., & Eiane, K. (2005). Dynamics of coexisting *Calanus finmarchicus*, Calanus glacialis and Calanus hyperboreus populations in a high-Arctic fjord. *Polar Biology*, *28*(7), 528–538. https://doi.org/10.1007/s00300-005-0715-8

Boxshall, G. (1977). The planktonic copepods of the Northeastern Atlantic Ocean some taxonomic observations on the Oncaeidae (Cyclopoida). *British Museum Department of Zoology*.

Boxshall, G. A., & Halsey, S. H. (2004). *An Introduction to Copepod Diversity*. Ray Society.

Bradford, J. M. (1976). Partial revision of the Acartiasubgenus Acartiura (Copepoda: Calanoida:

Acartiidae). *New Zealand Journal of Marine and Freshwater Research*, *10*(1), 159–202. https://doi.org/10.1080/00288330.1976.9515606

Brodskii, K. (1967). *Calanoida of the Far Eastern Seas and Polar Basin of the USSR* (Vol. 15). Zoological Institute of the Academy of Sciences of the USSR.

Brusca, G. J. (1981). *Annotated Keys to the Hyperiidea (Crustacea, Amphipoda) of the North American Coastal Waters* (Vol. 5). Allan Hancock Foundation and the Institute.

Coad, B., & Reist, J. (2017). *Marine Fishes of Arctic Canada*. University of Toronto Press. https://utorontopress.com/ca/marine-fishes-of-arctic-canada-1

Conway, D. (2012). *Marine zooplankton of southern Britain. Part 1: Radiolaria, Heliozoa, Foraminifera, Ciliophora, Cnidaria, Ctenophora, Platyhelminthes, Nemertea, Rotifera and Mollusca.* (Vol. 27). Occasional Publications, Marine Biological Association of the United Kingdom; 28-Oct-20. https://doi.org/10.13140/2.1.3274.3369

Conway, D. (2015). *Marine zooplankton of southern Britain. Part 3: Ostracoda, Stomatopoda, Nebaliacea, Mysida, Amphipoda, Isopoda, Cumacea, Euphausiacea, Decapoda, Annelida, Tardigrada, Nematoda, Phoronida, Bryozoa, Entoprocta, Brachiopoda, Echinodermata, Chaetognatha, Hemichordata and Chordata.* (Vol. 27). Occasional Publications, Marine Biological Assiciation of the United Kingdom; 28-Oct-20. https://doi.org/10.13140/RG.2.1.1216.2087

Conway, D. V. P. (n.d.). Marine Zooplankton of Southern Britain Part 2: Arachnida, Pycnogonida, Cladocera, Facetotecta, Cirripedia, and Copepoda. *Marine Biologica Association Occasional Publications*, *26*, 1–164.

Conway, D. V. P. (212 C.E.). Identification of the copepodite developmental stages of twenty-six North Atlantic copepods. *Marine Biologica Association Occasional Publications*, *21*, 1–35.

Damkaer, D. (1975). *Calanoid copepods of the genera Spinocalanus and Mimocalanus from the central Arctic Ocean, with a review of the Spinocalanidae* (Technical Report NMFS CIRC-391; p. 104). National Oceanic and Atmospheric Administration.

Frost, B. (1987). A taxonomy of the marine calanoid copepod genus Pseudocalanus. *Canadian Journal of Zoology*, *67*, 525–551.

Heron, G. A., English, S., & Damkaer, D. (1984). Arctic Ocean copepoda of the genera Lubbockia, Oncaea, and Epicalymma (poecilostomatoida: Oncaeidae), with remarks on distributions. *Journal of Crustacean Biology*, *4*(3), 448–490.

Hopcroft, R. R., Clarke, C., Nelson, R. J., & Raskoff, K. A. (2005). Zooplankton communities of the Arctic?s Canada Basin: The contribution by smaller taxa. *Polar Biology*, *28*(3), 198–206. https://doi.org/10.1007/s00300-004-0680-7

Marine Species Identification Portal: Identification keys. (n.d.). [Identification Key]. Marine Species Identification Portal. Retrieved October 26, 2020, from http://species-identification.org/identify_species.php

Nonomura, T., Nishida, S., Tsuda, A., & Yasuda, I. (2011). Morphological characters for practical identification of the copepodite stages of three sympatric Calanus species in the western North Pacific, with concurrent application of species-specific PCR. *Journal of Plankton Research*, *33*(10), 1496–1509. https://doi.org/10.1093/plankt/fbr055

Razouls, C., Desreumaux, N., Kouwenberg, J., & Bovee, F. (2005, 2020). *Biodiversity of Marine Planktonic Copepods (morphology, geographical distribution and Biologica data)* [Thesaurus]. Marine Planktonic Copepods. https://copepodes.obs-banyuls.fr/en/index.php

Shanks, A. L. (Ed.). (2001). *An identification guide to the larval marine invertebrates of the Pacific Northwest* (1st ed). Oregon State University Press.

Smith, D. L., & Johnson, K. B. (1996). *A Guide to Marine Coastal Plankton and Marine Invertebrate Larvae*. Kendall/Hunt Publishing Company.

Squires, H. (1993). Decapod Crustacean Larvae from Ungava Bay. *Journal of Northwest Atlantic Fishery Science*, *15*, 14–157.

Suzuki, K. (2013). *Identification guide to Arctic ichthyoplankton* (pp. 1–20) [Guide].

Swanberg, N., & Båmstedt, U. (1991). Ctenophora in the Arctic: The abundance, distribution and predatory impact of the cydippid ctenophore Mertensia ovum (Fabricius) in the Barents Sea. *Polar Research*, *10*(2), 507–524.

Walczyńska, K. S., Mańko, M. K., & Weydmann, A. (2018). Arctic Ocean Biodiversity and DNA Barcoding – A Climate Change Perspective. In S. Jungblut, V. Liebich, & M. Bode (Eds.), *YOUMARES 8 – Oceans Across Boundaries: Learning from each other* (pp. 145–153). Springer, Cham.

APPENDIX 8E-1

Record of Risk Status

Phylum Class/Order	Family	Subfamily	Taxa	Project Component	Flagged for Verification	Results of Independent Verification	Risk Category	Watchlist or Trigger List?	Distribution References
Annelida									
Polychaeta/Phyllodocida	Polynoidae	Polynoinae	*Hesperonoe* sp.	Benthic Infauna	Flagged (on Watchlist)	TBD	Low Risk	Watchlist	1, 2
Polychaeta/Phyllodocida	Syllidae	Autolytinae	*Myrianida* sp.	Benthic Infauna	No	N/A	No Risk	N/A	1, 2, 4, 6, 8
Polychaeta/Spionida	Spionidae	-	*Marenzelleria* sp.	Benthic Infauna	No*	N/A	Low Risk	Watchlist	1, 2, 7
Arthropoda									
Thecostraca/Balanomorpha	Balanidae	-	*Balanus crenatus*	Incidentals	No	N/A	No Risk	N/A	1, 2, 3, 5, 8, 12, 13
Bryophyta									
-/-	-	-	Bryophyta indet.	Quadrat Surveys	Yes	TBD	TBD	TBD	2
Bryozoa									
Gymnolaemata/Cheilostomatida	-	-	Buguloidea indet.	Benthic Infauna	Yes	TBD	TBD	TBD	1, 2, 6, 8
Chlorophyta									
Chlorophyceae/Chlamydomonadales	Chlorochytriaceae	-	*Chlorochytrium* sp.	Settlement Substrates	No	N/A	No Risk	N/A	2, 12, 15, 16, 17, 22
Ulvophyceae/Acrosiphoniales	Acrosiphoniaceae	-	*Acrosiphonia* sp.	Settlement Substrates	No	N/A	No Risk	N/A	2, 16, 17, 22, 23
Ulvophyceae/Ulotrichales	Monostromataceae	-	*Monostroma* sp.	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 16, 22
Ulvophyceae/Ulvales	Kornmanniaceae	-	cf. *Blidingia marginata / Blidingia* cf. *marginata*	Settlement Substrates	No	N/A	No Risk	N/A	2, 16, 18, 22
Ulvophyceae/Ulvales	Kornmanniaceae	-	cf. *Blidingia ramifera*	Settlement Substrates	No	N/A	No Risk	N/A	15, 16, 22
Ulvophyceae/Ulvales	Kornmanniaceae	-	*Blidingia* sp.	Settlement Substrates	No	N/A	No Risk	N/A	2, 12, 15, 16, 17, 22, 23
Ulvophyceae/Ulvales	Ulvellaceae	-	cf. *Ulvella* sp.	Settlement Substrates	No	N/A	No Risk	N/A	2, 15, 19
Chordata									
Actinopterygii/Perciformes	Cottidae	-	*Icelus spatula*	Fish Captures	No	N/A	No Risk	N/A	1, 2, 6, 9, 14
Actinopterygii/Perciformes	Zoarcidae	Gymnelidae	*Gymnelus hemifasciatus*	Fish Captures	No	N/A	No Risk	N/A	1, 2, 14
Ascidiacea/Stolidobranchia	Pyuridae	-	*Halocynthia pyriformis*	Incidentals	No	N/A	No Risk	N/A	1, 2, 3, 6
Cnidaria									
Anthozoa/Actiniaria	Actinostolidae	-	*Stomphia* sp.	Incidentals	No	N/A	No Risk	N/A	1, 2, 9
Mollusca									
Bivalvia/Mytilida	Mytilidae	-	*Musculus glacialis*	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 6
Gastropoda/Trochida	Margaritidae	-	*Margarites groenlandicus umbalicalis*	Incidentals	No	N/A	No Risk	N/A	1, 2, 6, 8
Ochrophyta									
Phaeophyceae/Chordales	Chordaceae	-	cf. *Chorda filum*	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 16, 17, 18, 20, 22, 23
Phaeophyceae/Ectocarpales	Acinetosporaceae	-	cf. *Hincksia* sp.	Settlement Substrates	No	N/A	No Risk	N/A	15, 16, 17, 18, 20
Phaeophyceae/Ectocarpales	Acinetosporaceae	-	cf. *Pogotrichum filiforme*	Settlement Substrates	No	N/A	No Risk	N/A	16, 19, 22
Phaeophyceae/Ectocarpales	Acinetosporaceae	-	*Pylaiella littoralis*	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 12, 16, 17, 18, 19, 20, 23
Phaeophyceae/Ectocarpales	Chordariaceae	-	cf. *Asperococcus fistulosus* / cf. *Scytosiphon lomentaria*	Settlement Substrates	No	N/A	No Risk	N/A	1, 16, 17, 19, 20, 21, 22, 23
Phaeophyceae/Ectocarpales	Chordariaceae	-	cf. *Delamarea attenuata*	Settlement Substrates	No	N/A	No Risk	N/A	2, 17
Phaeophyceae/Ectocarpales	Chordariaceae	-	cf. *Punctaria latifolia*	Settlement Substrates	Yes	TBD	Low Risk	Watchlist	1, 2
Phaeophyceae/Ectocarpales	Chordariaceae	-	cf. *Punctaria* sp.	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 16, 17, 19, 22, 23
Phaeophyceae/Ectocarpales	Chordariaceae	-	*Stictyosiphon tortilis* / cf. *Stictyosiphon tortilis* / cf. *Stictyosiphon* cf. *tortilis*	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 12, 15, 16, 17, 19, 21, 22, 23
Phaeophyceae/Ectocarpales	Chordariaceae	-	cf. *Stictyosiphon soriferus*	Settlement Substrates	Yes	TBD	Low Risk	Watchlist	1, 2, 23
Phaeophyceae/Ectocarpales	Chordariaceae	-	*Stictyosiphon* sp. / cf. *Stictyosiphon* sp.	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 12, 15, 16, 17, 19, 21, 22, 23
Phaeophyceae/Sphacelariales	Sphacelariaceae	-	*Battersia arctica* / cf. *Battersia arctica*	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 15, 17, 19
Phaeophyceae/Stschapoviales	Platysiphonaceae	-	*Arcticophycus glacialis* / cf. *Arcticophycus glacialis*	Settlement Substrates	No	N/A	No Risk	N/A	24
Phaeophyceae/Tilopteridales	Tilopteridaceae	-	cf. *Haplospora globosa*	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 16, 22, 23
Platyhelminthes									
Cestoda/-	-	-	Cestoda indet.	Incidentals	No	N/A	No Risk	N/A	1, 2, 5, 10, 11
Rhodophyta									
Compsopogonophyceae/Erythropeltales	Erythrotrichiaceae	-	cf. *Erythrotrichia* sp.	Settlement Substrates	No	N/A	No Risk	N/A	16, 18, 20, 22
Florideophyceae/Acrochaetiales	Audouinellaceae	-	Audouinellaceae indet.	Settlement Substrates	No	N/A	No Risk	N/A	22, 25
Florideophyceae/Ceramiales	Ceramiaceae	Ceramioideae	Ceramioideae indet.	Settlement Substrates	No	N/A	No Risk	N/A	16, 17, 19, 23, 24
Florideophyceae/Ceramiales	Rhodomelaceae	-	cf. *Polysiphonia* sp.	Settlement Substrates	No	N/A	No Risk	N/A	1, 2, 12, 16, 17, 22, 23
Tracheophyta									
-/-	-	-	Tracheophyta indet.	Settlement Substrates	No	N/A	No Risk	N/A	1, 2

Notes: Taxa identified to the lowest practical taxonomic level; indet.= indeterminate (taxa which could not be identified beyond the taxonomic level listed); sp.=species.

Taxa distribution references: 1: WoRMS 2022, 2: GBIF 2022, 3: Cusson 2018, 4: Gagnon and Torgersen 2021, 5: Chain et al. 2016, 6: Miller et al. 2014, 7: Radashevsky 2022, Pers. Comm., 8. Goldsmit 2016, 9: DFO 2019, 10: Stewart 2013, 11: Stewart and Bernier 1999, 12: Ellis and Wilce 1961, 13: OBIS 2011, 14: Coad and Reist 2018, 15. Charette et al. 2020, 16. Mathieson et al. 2010, 17. Küpper et al. 2016, 18. Ruis et al. 2023, 19. Wilce and Dunton 2014, 20. AquaNIS 2023, 21. Algaebase 2023, 22. Lee 1980, 23, Saunders and McDevit 2013, 24. Wilce and Bradley 2019, 25. Brown et al. 2011, 26. Hewitt et al. 2004

All taxa cross-referenced with NIS/AIS resources: Fofonoff et al. 2022, ISSG 2022, Rius et al. 2022, Molnar et al. 2008, Casas-Monroy et al. 2014.

**Marenzelleria* sp. are on the Watchlist, however specimens were damaged, lacking features required to resolve identification with confidence and were therefore not sent for verification. The specimens closely matched *M. wireni*, but the identification could not be confirmed.

APPENDIX 8E-2

Record of Independent Verifications

APPENDIX 8E-1
Record of Independent Verifications 2018-2022

Original ID	2018 Samples	2018 ID Verification (Lab/Inst. Name)*	2019 Samples	2019 Sample Locations	Sent for Verification (in 2020)	2019 ID Verification (Lab/Inst. Name)	2020 Samples	2020 Sample Locations	Sent for Verification (in 2021)?	2020 ID Verification (Lab/Inst. Name)	2021 Samples	2021 Sample Locations	Sent for Verification (in 2022)	2021 ID Verification (Lab/Inst. Name)	2022 Samples	2022 Sample Locations	Sent for Verification (in 2023)	2022 ID Verification (Lab/Inst. Name)	2023 Samples	2023 Sample Locations	Sent for Verification (in 2024)	2023 ID Verification (Lab/Inst. Name)
Polydora cornuta	Yes	*Polydora* sp. (Laval)	none				None				None				None				None			
Pseudofabricia aberrans	Yes	*Pseudofabricia* sp. nr. *aberrans* (Biologica) *Manayunkia aestruania* (Laval)	yes	SNW-4, SNE-3 through SNE-5, SNE-8	Yes	*Pseudofabricia* sp. nr. *aberrans* (Biologica) *Fabricia stellaris* (Laval)	Yes	SNW-4, SNE-2, SNE-5, SNE-8 through SNE-11, SNE-13 through SNE-15	Yes	*Pseudofabricia* sp. nr. *aberrans* (Biologica) *Fabricia stellaris* (Laval)	Yes	SNW-3	Yes	Family Fabriciidae (CCDB, Columbia Science) *Pseudofabricia* sp. nr. *aberrans* (EcoAnalysts Inc.)**	*Yes* (*Pseudofabricia* sp.)	SNW-2, SNW-3, SNW-4	No	N/A	*Yes* (*Pseudofabricia* sp. nr. *aberrans*)	SNE-2, SNE-4, SNE-5, SNE-7, SNE-10, SNE-13, SNE-15, SNW-5,	No	N/A
Rhodine bitorquata	Yes	*Rhodine loveni* (Biologica) *Rhodine gracilior* (Laval)	yes				None				None				None				None			
Rhodine sp.	Yes		yes	BNE-8	Yes	*Rhodine* sp.	None				None				Yes	SW-4	No	N/A	None			
Styelidae indet.	Yes	*Polycarpa fibrosa* (Biologica)	none				Yes		No		Yes		No		None				Yes (Styelidae indet., *Polycarpa fibrosa*	East M Plate, SE-5, SNW-7	No	N/A
Ammodytes sp.	Yes	*Ammodytes* sp.	none				Yes	Incidental	Yes	*Ammodytes hexapterus* (CCDB)	None				Yes	Incidental	No	N/A	Yes	ZH-02, ZH-03, Fish Stomachs, SW-11	No	N/A
Eteone spilotus	Yes	*Eteone* sp. (Biologica and Laval) *Eteone longa* (Potential ID from Laval)	multiple *Eteone* species		No		None				None				None				None			
Monocorophium insidosium	Yes	*Monocorophium insidosium* (Biologica) *Crassicorophium bonelli* (Laval)	none				None				None				None				None			
Monocorophium sp.	Yes	*Monocorophium sp.* (Biologica) *Crassicorophium bonelli* (Laval)	yes	SE-2, SE-4, SW-2, SW-6, SNE-7	Yes	*Crassicorophium* sp. (Laval)	None				None				None				None			
Mya arenaria *Mya truncata* *Mya* sp.	Yes	*Mya truncata* (Biologica) *Mya* sp. (Biologica) Imparientia (superorder) (Biologica)	none				None				None				Yes	Multiple Stations	No	N/A	Yes	Multiple Stations	No	N/A
Polycarpa pomaria	Yes	*Polycarpa fibrosa* (Biologica)	none				None				None				None				None			
Marenzelleria viridis *Marenzelleria* sp.	No		yes	SE-2, SW-2,	Yes	*Marenzelleria viridis* (Laval)	Yes	SW-11 through SW-14	Yes	*Marenzelleria viridis* (Laval) *Marenzelleria wireni, Marenzelleria arctia, Marenzelleria neglecta* (Radashevsky)***	Yes (*Marenzelleria* sp.)	SW-2, SW-3, Centre M Basket	Yes	*Marenzelleria wireni* (Radashevsky)	Yes (*Marenzelleria* sp.)	SW-2, SW-3	No	N/A	Yes (*Marenzelleria* sp.)	SCV-2, SW-11, SW-12	No	N/A
Sosane sp. nr. *Wireni*	No		yes	SNE-6,	Yes	*Sosane wireni* (Laval)	Yes	SNW-9, SNE-10, SNE-12	Yes	*Sosane wireni* (Laval)	None				None				Yes (*Sosane wireni*)	SNE-9	No	N/A
Oncousoecia sp.	No		yes	SNE-5	Yes	Tubuliporina (Laval)	None				None				None				None			
Euphilomedes sp.	No		yes	Fish Stomachs	No	*Philomedes* sp. (Biologica)	None				None				None				None			
Nereimyra aphroditoides	Former name		yes	Archive	Yes	*Nereimyra* sp. (Biologica)	Yes		No		Yes		No		None				Yes	Multiple Stations	No	N/A
Streptospinigera niuqtuut	Former name		yes	Archive	Yes	*Streptospinigera niuqtuut* (Biologica)	Yes		No		None				Yes	SNE-1	No	N/A	Yes	SE18-1	No	N/A
Harmothoe propinqua	No		none				Yes	SW-6	Yes	*Harmothoe extenuata* (Laval)	None				Yes	SE-3	No	N/A	None			
Harmothoe viridis	No		none				Yes	SE-11	Yes	*Harmothoe imbricata* (Biologica and Laval)	None				None				None			
Hesperonoe sp.	No		none				Yes	SNE-7	Yes	*Hesperonoe* sp. (Biologica) *Bylgides* sp. (Laval)	None				Yes	SE-2, SW-2, SW-3, SW-4, SNW-1	Yes	Pending	Yes	SNE-3, SNE-4	Yes	Pending
Ampharete petersenae	No		none				Yes	SW-3, SW-7, SW-10, SW-11, SW-13 through SW-15, SE-5 through SE-13, SE-15, SNW-7	Yes	*Ampharete petersenae* (Laval)	Yes	SE-1, SE-3, SW-4	Yes	*Ampharete petersenae* (Parapar)****	None				Yes	SE-1, SE-11, SE-13, SNW-1, SNW-15, SW-1SW-2, SW-3, SW-5, SW-10, SW-12, SW-13	No	N/A
Paramphitrite birulai	No		none				Yes	SW-8, SW-10	Yes	*Amphitrite birulai* (Laval)	Yes	SE-1	Yes	*Paramphitrite birulai* (Parapar)****	None				Yes	SE-15, SE18-1, SW-1, SW-4, SW-12	No	N/A
Crassicorophium sp.	No		none				None				Yes	SE-3, Centre S Basket 1, Centre M Basket 1	Yes	Inconclusive/ Corophiidae indet. (CCDB) *Crassicorophium clarencense* (Friday Harbor)	Yes (*C. clarenscense*)	SW-1, SW-2	No	N/A	Yes (*Crassicorophium* sp. and *Crassicorophium clarencense*)	West M Plate, SE-15, SW-2, SW-12, SW-13, SW-15	No	N/A
Diastyloides biplicatus	No		none				None				Yes	SW-4	Yes	*Diastylis* sp. (Laval)	None				None			
Tricellaria sp.	No		none				None				Yes	SNE-2	Yes	Candidae indet. (Laval)	None				None			
Buguloidea indet	No		none				None				None				Yes	SW-4	Yes	Pending	None			
Bryophyta indet	No		none				None				None				Yes	Q21	Yes	Pending	None			
cf. *Punctaria latifolia*	No		none				None				None				Yes	Q5 Mutlii-year plate, Q6 Multi-year plate, Q14 Multi-year plate, Centre-S Multi-year plate, West D Annual plate, West-D annual basket	Yes	Pending	None			
cf. *Stictyosiphon soriferus*	No		none				None				None				Yes	West-M Multi-Year Basket	Yes	Pending	None			

Note: Grey cells indicate no action (i.e., no specimen in samples, therefore none sent for verification)
* Biologica: Biologica Environmental Services; Laval: The Benthic Ecology Lab at Université Laval; CCDB: Canadian Centre for DNA Barcoding at the University of Guelph, Radashevsky: Dr. Vasily Radashevsky of the Russian National Scientific Center of Marine Biology; Parapar: Dr. Julio Parapar, Departamento de Bioloxia, Universidade da Coruna; Friday Harbor: Dr. Craig Staude at Friday Harbour Laboratories at the University of Washington
**EcoAnalysts and Columbia Science examined specimens from 2018 and 2019 collections
*** Radashevsky examined specimens from 2017-2020, no specimens matched *M. viridis*, at least one specimen was conclusively identified as *M. wireni*, a high probability of *M. arctia* was given for specimens from Phillips Creek, other specimens were a high probability of *M. wireni* and/or *M. neglecta*
**** Dr. Parapar concluded that specimens matched the most up to date descriptions for *Ampharete petersenae* and *Paramphitrite birulai*, however the identification was not positive based on missing features and limited taxonomic data for both genera

APPENDIX 8E-3

Program Watch List

Program Watch List

Phylum Class/Order	Family	Subfamily	Taxa	Risk Category	Year Added	Year Removed
Annelida						
Polychaeta/Phyllodocida	Polynoidae	Polynoinae	*Hesperonoe* sp.	Low Risk	2020	N/A
Polychaeta/Sabellida	Fabriciidae	-	*Pseudofabricia* sp. nr. *aberrans*	No Risk	2018	2021
Polychaeta/Spionida	Spionidae	-	*Marenzelleria viridis* (*Marenzelleria* sp.)*	High Risk	2019	N/A
Polychaeta/Terebellida	Ampharetidae	Ampharetinae	*Ampharete petersenae*	No Risk	2020	2021
Polychaeta/Terebellida	Ampharetidae	Ampharetinae	*Sosane wireni*	No Risk	2019	2023
Polychaeta/Terebellida	Terebellidae	-	*Amphitrite birulai/Paramphitrite birulai****	Low Risk	2020	N/A
Arthropoda						
Malacostraca/Amphipoda	Corophiidae	Corophiinae	*Crassicorophium* sp.	Low Risk	2018**	N/A
Malacostraca/Amphipoda	Corophiidae	Corophiinae	*Monocorophium* sp.	High Risk	2018**	N/A
Chordata						
Actinopterygii/Perciformes	Ammodytidae	-	*Ammodytes hexapterus*	Low Risk	2020	N/A
Ochrophyta						
Phaeophyceae/Ectocarpales	Chordariaceae	-	*Punctaria latifolia*	Low Risk	2022	N/A
Phaeophyceae/Ectocarpales	Chordariaceae	-	*Stictyosiphon soriferus*	Low Risk	2022	N/A

**Marenzelleria viridis* and *Marenzelleria* species, other than *M. wireni* and *M. arctia*

** *Monocorophium* and *Crassicorophium* sp. were previously identified during baseline surveys, but flagged for review in 2018

*** Specimens examined by Dr. Julio Parapar were determined to match the description of *Paramphitrite birulai*, however there is uncertainty in the taxonomic description that indicate that these specimens may be from a related, undescribed genus



wsp.com