



Mary River Project 2025 Core Receiving Environmental Monitoring Program Report

PREPARED FOR

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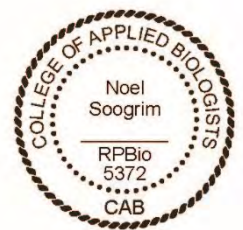
**March 31,
2026**

Mary River Project 2025

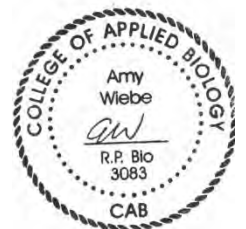
Core Receiving Environment Monitoring

Program Report

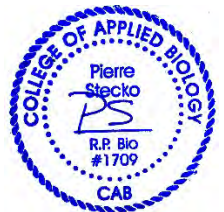
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PLAIN LANGUAGE SUMMARY

The Mary River Project (the Project) is an iron ore mine located on northern Baffin Island. The mine is operated by Baffinland Iron Mines Corporation (Baffinland). Ore from the Mine Site is transported by truck north along the Tote Road to Milne Port, about 100 kilometres away, where it is loaded onto ships and transported to international markets. The iron ore at Mary River is very high grade, meaning it is naturally very pure and does not need to be processed at the Mine Site. Since before mining began, Baffinland has monitored lakes and rivers near the Project to understand how it may affect water and aquatic life (e.g., arctic charr). Monitoring started in 2005, during the baseline period, continued through mine construction in 2014, and has been ongoing during mine operations since 2015. This program is called the Aquatic Effects Monitoring Plan (AEMP) and was developed to meet requirements from territorial and federal regulators.

One part of the AEMP is the Core Receiving Environment Monitoring Program (CREMP). The CREMP monitors conditions in lakes, rivers, and creeks near the mine by studying different parts of the aquatic ecosystem, including the water, sediment, phytoplankton (small plants in the water column), bottom-dwelling (benthic) invertebrates (e.g., clams, fly larvae), and fish (e.g., arctic charr). Each year, scientists collect samples and measurements to check for possible changes in water quality, sediment quality, and aquatic life, and compare these results to conditions at lakes and rivers far away from the mine (reference areas), and to conditions that were measured before mining began. These measurements help scientists, Baffinland, and Inuit stakeholders understand whether the mine is affecting nearby lakes and rivers and help identify any potential issues early so that management actions can be taken if needed. Monitoring takes place in several areas near the mine, including the Camp Lake system, the Sheardown Lakes system, and the Mary River and Mary Lake system.

Since mine operations began in 2015, monitoring results have shown that water, sediment, phytoplankton, bottom-dwelling (benthic) invertebrates, and fish in most lakes and rivers near the mine remain similar to natural reference areas located farther away from the Project. Some small changes have been observed in a few creeks that flow into the Sheardown Lakes. These changes appear to be local and limited to those areas, and the health of the creeks continues to be consistent with baseline. Monitoring continued in 2025, and water and phytoplankton samples were collected during winter, spring, summer, and fall. Scientists also collected sediment samples, bottom-dwelling (benthic) invertebrates, and fish during the summer (August) field program. Overall, the results of the 2025 monitoring were similar to previous years. Potential influences from the mine that are observed in the creeks that flow into the Sheardown Lakes are not observed farther downstream in the Mary River and Mary Lake.



Overall, the monitoring program helps track environmental conditions near the Project and provides important information that is used to understand and manage potential effects of the mine on nearby lakes and rivers.



EXECUTIVE SUMMARY

The Mary River Project (the Project) is an operating high-grade iron ore mine located in the Qikiqtani Region of northern Baffin Island, Nunavut. Owned and operated by Baffinland Iron Mines Corporation (Baffinland), the mine began commercial operations in 2015. Mining activities in 2025 included open pit ore extraction, ore haulage, stockpiling, crushing, and screening, followed by transport of ore by truck to Milne Port for seasonal loading onto bulk carrier ships for shipment to international markets. No milling or additional processing of ore occurs on-site; therefore, no tailings are produced. Mine waste management infrastructure includes waste rock stockpiles and surface runoff collection and containment ponds. Potential mine-related inputs to adjacent aquatic systems include treated effluent discharge to the Mary River system, runoff and dust from ore (crusher) stockpiles within the Sheardown Lakes system, runoff and explosives residue from quarry operations within the Camp Lake system, treated sewage discharge, fugitive dust deposition, and general mine site runoff.

Under the requirements of the Project's Type 'A' Water Licence issued by the Nunavut Water Board (NWB), Baffinland implements an Aquatic Effects Monitoring Plan (AEMP), which includes the Core Receiving Environment Monitoring Program (CREMP). The CREMP is designed to assess potential mine-related effects on water quality, sediment quality, and aquatic biota, including phytoplankton, benthic invertebrate communities (BIC), and fish (i.e., arctic charr [*Salvelinus alpinus*]). Monitoring results are evaluated against AEMP benchmarks and interpreted within the AEMP Assessment and Management Response Framework (i.e., Trigger Action Response Plan [TARP]) to support adaptive management.

Results of the 2025 CREMP indicate that environmental conditions across the Camp Lake, Sheardown Lakes, and Mary River and Mary Lake systems remain generally consistent with previous monitoring years and comparable to baseline and reference conditions. Mine-related or potential mine-related influences continue to be primarily localized to tributary environments and near-field areas of the Project footprint, with most mine-related influences observed in select tributaries within Camp Lake Tributary 1 (CLT1) and the Sheardown Lakes system. Where AEMP benchmarks were exceeded in 2025, responses were predominantly classified as Low Risk, with Moderate Risk Responses being associated with specific water quality and biological endpoints related to BIC and fish health. However, many of the observed differences for BIC and fish health relative to reference and/or baseline could be explained by factors unrelated to mining (e.g., habitat, interannual variability in regional weather conditions).

Within the Camp Lake system, potential mine-related influences on water quality were identified in CLT1, particularly within the CLT1 Upper Main Stem. Exceedances of AEMP benchmarks for



aqueous concentrations of total uranium and iron (Upper Main Stem) and dissolved copper (North Branch), as well as nickel and manganese concentrations in Camp Lake sediments, triggered Low and Moderate Risk Responses under the TARP. Additional parameters across CLT1, Camp Lake, and the Camp Lake Outlet, including specific conductance (SPC), dissolved oxygen (DO), hardness, total dissolved solids (TDS), alkalinity, dissolved organic carbon (DOC), total organic carbon (TOC), chloride, sulphate, and major ions and metals, were elevated relative to baseline and reference conditions in at least one season, which triggered Low Risk Responses, despite concentrations being below benchmarks. In the CLT1 Upper Main Stem, temporal analyses indicated a step-change increase in concentrations of water quality parameters from baseline to early operations. During mine operations (2015 to 2025), parameter concentrations were generally stable, suggesting ongoing but non-increasing mine-related influence. However, aqueous concentrations of uranium did show some continued increase in concentrations over time during mine operations, likely as a result of mine-related ground disturbance and regional permafrost thaw. In contrast, water quality conditions in downstream environments, including Camp Lake, were largely comparable to reference and baseline in 2025. Sediment quality in Camp Lake was generally comparable to baseline and reference conditions, and exceedances of the AEMP benchmark for nickel and manganese were consistent with regional geological conditions rather than mine-related metal enrichment. No effects on phytoplankton productivity were identified, and chlorophyll-a concentrations were consistent with oligotrophic conditions. Low Risk Responses were triggered for invertebrate density, Simpson's Evenness, and richness in tributaries to Camp Lake, and this was largely attributed to natural habitat variability. Low and Moderate Risk Responses were triggered for higher taxonomic richness in 2025 relative to reference reduced invertebrate density in Camp Lake (2023 to 2025) relative to baseline, respectively. Similarly, although arctic charr condition and length-frequency distributions (LFD) for Camp Lake triggered Low and Moderate Risk Responses, respectively, long-term patterns indicate that these differences reflect natural variability in size structure, rather than mine-related effects on fish health. Overall, fish population endpoints for Camp Lake in 2025 were consistent with historical conditions.

Recommended actions for the Camp Lake system focus on addressing localized water quality conditions and associated biological responses in tributary environments (particularly CLT1), while confirming that observed differences remain stable and not indicative of increasing mine influence. Continued BIC monitoring in CLT1 is recommended to support a weight-of-evidence assessment of biological responses to aqueous concentrations of major ions and metals. Additional work should include temporal trend analyses, particularly for parameters such as aqueous concentrations of uranium, that have shown increasing trends, and further investigation of potential sources and drivers (e.g., water management, dust, and



quarry-related inputs) to better distinguish mine-related influences from natural variability. Adoption of the variable Federal Environmental Quality Guideline (FEQG) for aqueous total aluminum as the AEMP benchmark for Camp Lake is recommended to improve interpretation of potential risks to biota from aluminum in water. Completion of Before-After-Control-Impact (BACI)-style analyses for BIC and fish health, alongside continued integration of indicator taxa and habitat data, will support improved understanding of long-term patterns and help confirm that observed responses remain within the range of natural variability and consistent with predictions for mine operations.

Within the Sheardown Lake system, mine-related influences on water quality were most pronounced in tributaries, particularly Sheardown Lake Tributary 1 (SDLT1) and Tributary 9 (SDLT9).¹ At SDLT1, concentrations of multiple parameters, including SPC, hardness, TDS, TOC, sulphate, Total Kjeldahl Nitrogen (TKN), and major ions and metals, were above baseline and reference conditions; aqueous concentrations of nitrate and total uranium exceeded AEMP benchmarks and triggered Moderate Risk Responses, whereas dissolved copper concentrations triggered a Low Risk Response. Temporal trend analyses indicate that concentrations of many water quality parameters (e.g., SPC, nitrate, sulphate, TDS, and multiple major ions and metals) have increased over time relative to baseline, with few similar temporal trends observed in reference areas, supporting the conclusion of a mine-related influence on water quality in SDLT1. These patterns are consistent with runoff, dust deposition, and water management inputs, including contributions from the KM 105 Pond, which has experienced seepage and water quality challenges since commissioning. At SDLT9, aqueous concentrations of ammonia, nitrate, and nitrite that were above AEMP benchmarks triggered Low Risk Responses and were attributed to inputs associated with the Dyno (emulsion) facility, where recent infrastructure upgrades and operational controls were implemented in late 2025 to reduce the potential releases. In Sheardown Lake Tributary 12 (SDLT12), available water quality data indicate step-change increases in concentrations of some water quality parameters over time relative to baseline, but stable conditions during the operational period, suggesting no ongoing increasing trends requiring management action.

In the Sheardown Lakes tributaries, no mine-related effects on phytoplankton productivity were identified, and chlorophyll-a concentrations were consistent with oligotrophic conditions and comparable to reference. In SDLT1, BIC composition differed from reference, but these differences were attributed to habitat-related factors (e.g., presence of bryophytes and algal mats) rather than changes in water quality. Long-term changes in BIC composition (e.g., increased

¹ However, only *in situ* water quality data were collected from SDLT12 in 2025, as water levels were too low during the spring, summer, and fall 2025 sampling events to support collection of water chemistry samples.



relative proportions of *Chironomidae* and lower relative proportions of *Hydracarina*) were observed but were localized, with no action level responses triggered. At SDLT12, a Low Risk Response for reduced taxonomic richness within the BIC relative to baseline was attributed to natural hydrological variability (e.g., drying, freeze–thaw conditions) and associated dominance of tolerant taxa (e.g., *Enchytraeidae*), rather than mine-related effects.

In lake environments (Sheardown Lakes Northwest [NW] and Southeast [SE]), exceedances of AEMP benchmarks for aqueous concentrations of dissolved copper (NW) and total aluminum (SE) triggered Moderate and Low Risk Responses, respectively, although additional parameters (e.g., hardness, TDS, turbidity, and metals) were above baseline and reference conditions. Sediment quality was generally comparable to baseline, with higher concentrations of iron in Sheardown Lake NW being consistent with natural background geological conditions. No adverse effects on phytoplankton or BIC in Sheardown Lake NW were identified, and differences in BIC density and richness in Sheardown Lake SE and arctic charr condition (both lakes) were not indicative of widespread or progressive effects. Overall, observed mine-related influences within the Sheardown Lakes system are localized, most evident in tributaries, and not indicative of system-wide ecological change.

Recommended actions for the Sheardown Lakes system focus on addressing water quality changes and confirmed mine-related influences in tributary environments (particularly SDLT1), while continuing to verify that biological responses remain limited and stable over time. Continued BIC monitoring at SDLT1 and SDLT12 is recommended to support weight-of-evidence evaluation of biological responses to elevated aqueous concentrations of nutrients, major ions, and metals, particularly for parameters with concentrations that exceeded AEMP benchmarks (nitrate, uranium, and copper). Completion of temporal trend analyses for key parameters (e.g., SPC, nitrate, sulphate, TDS, and major ions and metals) is recommended to further evaluate potential increasing trends and confirm the extent of mine-related influence. Additional investigation of potential sources and pathways (e.g., seepage from the KM 105 Pond, runoff, dust deposition, and inputs from the Dyno facility) is recommended to support ongoing mitigation and management actions. Adoption of the variable FEQG for total aluminum will improve interpretation of potential aluminum-related risks to aquatic biota in Sheardown Lake SE. Completion of BACI-style analyses for BIC and fish health, alongside continued integration of indicator taxa and habitat data, will support improved understanding of long-term patterns and help distinguish between mine-related influences and natural environmental variability, particularly in systems influenced by hydrological variability and permafrost-driven processes.

Within the Mary River and Mary Lake system, water and sediment quality were generally comparable to baseline and reference conditions, with only localized and limited mine-related



influences identified. The only AEMP benchmark exceedance was for aqueous concentrations of total aluminum in the south basin of Mary Lake, which triggered a Moderate Risk Response. Low Risk Responses were also triggered for aqueous concentrations of multiple parameters at Mary River Tributary-F (MRTF) and within Mary Lake, as well as for DOC in the Mary River, based on concentrations that were elevated relative to both reference and baseline. These patterns are consistent with potential inputs from treated effluent discharge (e.g., MS-08 final discharge point) and site runoff to the Mary River system, although concentrations remained within ranges not associated with toxicity and did not indicate broad-scale effects. Temporal patterns in water quality were generally stable, and no increasing trends indicative of progressive change were identified. Sediment quality in Mary Lake remained comparable to baseline and reference conditions, with no exceedances of AEMP benchmarks in 2025.

No mine-related effects on phytoplankton productivity in the Mary River and Mary Lake system were observed; chlorophyll-a concentrations remained consistent with oligotrophic conditions and were comparable to baseline and reference. Differences in BIC endpoints, including density, Simpson's Evenness, and taxonomic richness, were observed at select Mary River stations and in Mary Lake; however, these differences were not associated with consistent shifts in community composition or productivity, and were interpreted in the context of natural variability in habitat conditions and flow regimes rather than mine-related effects. Similarly, although arctic charr LFDs and condition in Mary Lake triggered Moderate Risk Responses, long-term patterns in size structure and condition are consistent with natural variability in growth and energy allocation, and do not indicate reduced fish health or population-level effects.

Recommended actions for the Mary River and Mary Lake system focus on confirming the stability of localized water quality changes and further evaluating potential linkages to known mine-related inputs, particularly in areas influenced by MRTF. Continued monitoring is recommended to support temporal trend analyses for key water quality parameters (e.g., DOC, turbidity, aluminum, and other metals) to confirm that conditions remain stable over time and within expected ranges. Additional investigation of potential sources and pathways of potential influence, including treated effluent contributions (e.g., MS-08) and site runoff, is recommended to refine understanding of observed patterns in MRTF and Mary River and Mary Lake. Completion of BACI-style analyses for BIC and fish health, alongside continued integration of biological and habitat data, will support improved differentiation between natural environmental variability and potential mine-related influences, and confirm that observed biological responses remain within the range of expected conditions.

Results of the 2025 CREMP were compared to predictions for magnitude of effects made in the Final Environmental Impact Statement (FEIS) for the Project. Comparisons of water quality and



sediment quality data within the Camp Lake, Sheardown Lake, and Mary Lake systems in 2025 to FEIS predictions indicated all parameter concentrations were within applicable significance ratings for magnitude. Project-related sedimentation accumulation thickness of less than 1 millimetre (mm)/year was predicted in the FEIS to result in negligible effects on direct mortality of arctic charr. Because the sediment accumulation rate over the 2024 to 2025 arctic charr egg incubation period was well below 1 mm/y at Sheardown Lake NW, FEIS predictions regarding (absence of) direct mortality of arctic charr were met. Therefore, the absence of direct fish mortality effects at Sheardown Lake NW were in conformance with predictions made in the FEIS.

Overall, results from the 2025 CREMP demonstrate that mine-related influences on water quality and select biological endpoints remain localized, stable, and generally consistent with previous monitoring years, with no evidence of increasing trends or propagation of influences to downstream receiving environments. The CREMP continues to provide an effective framework for identifying, evaluating, and managing potential mine-related influences through a weight-of-evidence approach, supporting adaptive management and the ongoing protection of aquatic ecosystems within the Project area. Continued implementation of the CREMP will support ongoing evaluation of these patterns through targeted monitoring, temporal trend analyses, and integration of biological and habitat data. Management actions will continue to be applied as required under the AEMP Data Assessment and Response Framework to ensure that potential mine-related effects are identified early and addressed appropriately.



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ACRONYMS AND ABBREVIATIONS

AEMP – Aquatic Effects Monitoring Plan

ALS – ALS Canada Ltd.

ANCOVA – Analysis-of-Covariance

ANOVA – Analysis-of-Variance

ASTM – American Society for Testing and Materials

BACI – Before-After-Control-Impact

Baffinland – Baffinland Iron Mines Corporation

BC MOE – British Columbia Ministry of Environment and Climate Change Strategy

BCP – Background Concentration Procedure

BC WSQG – British Columbia Working Sediment Quality Guidelines

BC WQG – British Columbia Water Quality Guidelines

BIC – Benthic Invertebrate Community

BL0 – Mary Lake

C0 – Mary River Downstream

CALA – Canadian Association for Laboratory Accreditation

CCME – Canadian Council of Minister of the Environment

CES – Critical Effect Size

CES_{BIC} – Critical Effect Size for the Benthic Invertebrate Community study

CIRNAC – Crown-Indigenous Relations and Northern Affairs Canada

CLT1 – Camp Lake Tributary 1

CLT2 – Camp Lake Tributary 2

CPUE – Catch-Per-Unit-Effort

CREMP – Core Receiving Environment Monitoring Program

CRFD – Cumulative Relative Frequency Distribution

CRM – Certified Reference Material

dbRDA – Distance-Based Redundancy Analysis

DELT – Deformities, Erosions, Lesions, and Tumours

DL0-01 – Sheardown Lake Northwest

DL0-02 – Sheardown Lake Southeast

DO – Dissolved Oxygen

DOC – Dissolved Organic Carbon

DQR – Data Quality Review

DSS – Digital Sampling System

Dyno Facility – Dyno Nobel Emulsion Plant



E0 – Mary River Adjacent
EC₁₀ – Effect Concentration causing 10% effect
Ecofish – Ecofish Research Ltd.
EEM – Environmental Effects Monitoring
FEQG – Federal Environmental Quality Guidelines
FDP – Final Discharge Point
FEIS – Final Environmental Impact Statement
FFG – Functional Feeding Group
G0 – Mary River Upstream
GPS – Global Positioning System
HPG – Habit Preference Group
HSD – Honestly Significant Difference
I0 – Tom River
IQR – Interquartile Range
ISQG – Interim Sediment Quality Guidelines
ISO – International Organization for Standardization
JL0 – Camp Lake
J0 – Camp Lake Outlet
K-M – Kaplan-Meier
K-S – Kolmogorov-Smirnov
K-W – Kruskal Wallis
LEL – Lower Effect Level
LFD – Length-Frequency Distributions
LPL – Lowest Practical Level
LRL – Laboratory Reporting Limit
LSMP – Lake Sedimentation Monitoring Program
MCT – Measure of Central Tendency
MDMER – Metal and Diamond Mining Effluent Regulations
Minnow – Minnow Environmental Inc.
MOD – Magnitude of Difference
MRTF – Mary River Tributary-F
NAD 83 – 1983 North American Datum
NIRB – Nunavut Impact Review Board
No – Number
NTU – Nephelometric Turbidity Units
NW – Northwest



NWB – Nunavut Water Board
ON PSWQG – Ontario Provincial Sediment Quality Guidelines
PEL – Probable Effect Level
PERMDISP2 – Permutational Analysis of Multivariate Dispersions
QA/QC – Quality Assurance/Quality Control
QC – Quality Control
QIA – Qikiqtani Inuit Association
REF-03 – Reference Lake 3
REF-CRK – Reference Creek
RPD – Relative Percent Difference
SD – Standard Deviation
SD_{REF} – Reference Mean Standard Deviation
SD_{BASELINE} – Baseline Year Standard Deviation
SDLT1 – Sheardown Lake Tributary 1
SDLT9 – Sheardown Lake Tributary 9
SDLT12 – Sheardown Lake Tributary 12
SE – Southeast
SEL – Severe Effect Levels
SPC – Specific Conductance
SQG – Sediment Quality Guidelines
SWSQ – Surface Water and Sediment Quality
TARP – Trigger Action Response Plan
TCC – Trinity Consultants Canada
TDS – Total Dissolved Solids
TEL – Threshold Effect Level
TKN – Total Kjeldahl Nitrogen
TMF – Toxicity Modifying Factors
TOC – Total Organic Carbon
TSS – Total Suspended Solids
UTM – Universal Transverse Mercator
WQG – Water Quality Guidelines
YOY – Young-Of-The-Year



1 INTRODUCTION

1.1 Project Background

The Mary River Project (the Project), owned and operated by Baffinland Iron Mines Corporation (Baffinland), is located in the Qikiqtani Region of northern Baffin Island, Nunavut, and includes a high-grade iron ore mine, as well as infrastructure to support transport and shipment of iron ore (Figure 1.1). Commercial operations, including pit bench development, ore haulage, stockpiling, and the crushing and screening of high-grade iron ore, began in 2015. Over the entire operational period, off-highway haul trucks have been used to transport ore from the Mary River Mine Site (see Figure 1.1) along the Tote Road to Milne Port, which is located approximately 100 kilometres (km) north of the Mine Site. Upon arrival at Milne Port, the ore is stockpiled before being loaded onto bulk carrier ships for transport to international markets. No milling or additional processing takes place at the Project and, as a result, no tailings are generated. The Mary River Mine Site's waste management facilities include a waste rock stockpile and surface runoff collection/containment ponds that are located near the waste rock and ore stockpile areas. In addition to the periodic discharge of treated effluent from these facilities into the Mary River catchment, other potential mine-related inputs to adjacent aquatic systems include runoff and dust from ore (crusher) stockpiles in the Sheardown Lake catchment, discharge of treated sewage to the Mary River, runoff and explosives residue from quarry operations into the Camp Lake catchment, fugitive dust from mine activities, and general mine site runoff.

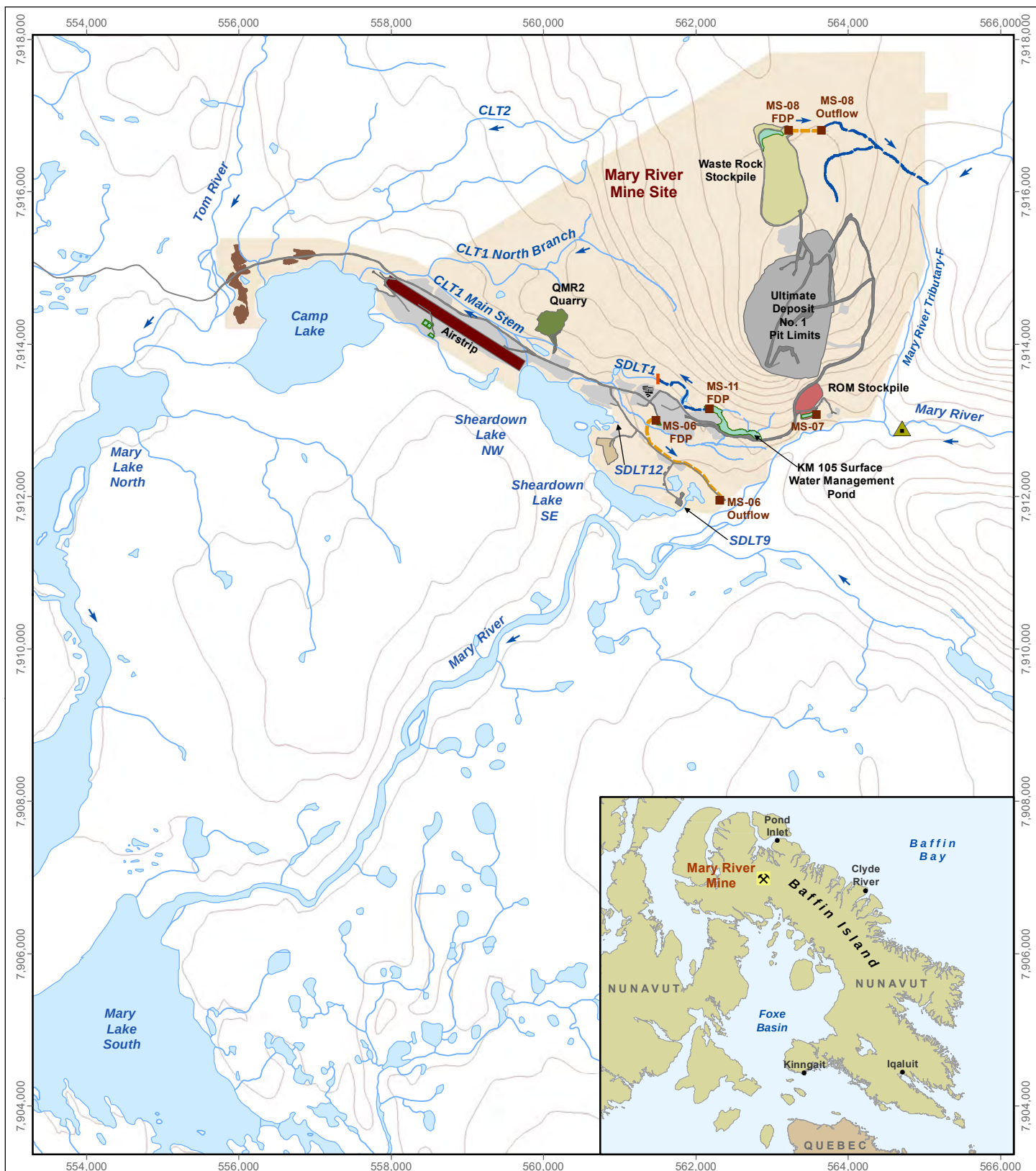
1.2 Monitoring Program Background

In 2015, Baffinland produced an Aquatic Effects Monitoring Plan (AEMP; Baffinland 2015) to meet the requirements of the following Project authorizations:

- Type 'A' Water License Number (No.) 2AM-MRY1325 (Amendment No. 1) issued by the Nunavut Water Board (NWB);
- Project Certificate No. 005 issued by the Nunavut Impact Review Board (NIRB); and
- Commercial Lease Q13C301 issued by the Qikiqtani Inuit Association (QIA).

A key objective of the AEMP was to gather data and information to assess both short- and long-term effects of the Project on aquatic ecosystems. To achieve this, Baffinland established a Core Receiving Environment Monitoring Program (CREMP), which focuses on evaluating potential mine-related impacts on water quality, sediment quality, and aquatic biota, including phytoplankton, benthic invertebrate communities (BIC), and fish, in aquatic environments near the Mary River Mine Site (Baffinland 2015; KP 2014; NSC 2014). The primary receiving





LEGEND

 Airstrip	 Quarry
 Mine Site Complex	 Landfill
 Pond	 Mine Site Area
 ROM Stockpile	 Final Discharge Point (FDP)
 Road	 Mary River Cascade Barrier
 Open Pit	 Fish Barrier
 Waste Rock Facility	 Overland Surface Water Flow
 Infrastructure	 HDPE Pipe
 Borrow Pit	 Contour (20m)

Baffinland Iron Mines Corporation, Mary River Mine Site

0 1 2 4 km

Map Projection: UTM Zone 17 NAD 1983
Data Source: Reproduced under licence from His Majesty the King in Right of Canada, Department of Natural Resources Canada. All rights reserved.

Date: March 2026
Project 257202.5067



Figure 1.1

environments monitored under the CREMP include the Camp Lake system, the Sheardown Lakes system, and the Mary River and Mary Lake system (north and south basins; Figure 1.1).

Over the first 10 years of Project operations (2015 to 2024), the CREMP was effective at identifying potential mine-related effects to water quality, sediment quality, and biota in receiving waterbodies and informing adaptive management. Overall, potential mine-related effects have largely been confined to tributaries flowing into Camp Lake and the Sheardown Lakes, as well as Sheardown Lake Northwest (NW) and Sheardown Lake Southeast (SE). Based on comparisons to reference waterbodies and pre-mine baseline data, mine-related effects to phytoplankton, BIC, and fish are limited to BIC in the Sheardown Lakes tributaries (Minnow 2016, 2017, 2018, 2019, 2020, 2021b, 2022, 2023, 2024a, 2025b). Although some mine-related influences on water and sediment were noted in Camp Lake and Mary River/Lake, these effects appear to be more localized and, in the Camp Lake system, may be influenced by natural variation.

On April 28, 2025, Type 'A' Water License No. 2AM-MRY2540 was issued to Baffinland by the NWB. As a condition of the new license, Baffinland is required to implement Revision 2 of the AEMP (dated March 31, 2024), as approved under Part B, Item 14 (Baffinland 2024). Winter data collection (April/May 2025) was completed under Revision 1 of the AEMP (Baffinland 2015) and subsequent field programs for the CREMP were implemented following Revision 2 of the AEMP (Baffinland 2024). Data analyses and interpretation for the 2025 CREMP were completed according to the Revision 2 AEMP study design; the methods used to complete the 2025 CREMP, as well as any deviations or additions to the Revision 2 AEMP study design, are described in Section 2 of this report. Monitoring program results for each of the Camp Lake, Sheardown Lakes, and Mary River and Mary Lake systems are described in Sections 3 through 5. Conclusions and recommendations related to management responses are provided in Section 6, and all references cited throughout this report are listed in Section 7.



2 METHODS

2.1 Overview

The CREMP includes water quality, sediment quality, phytoplankton abundance/productivity (as chlorophyll-a), BIC, and fish (arctic charr; *Salvelinus alpinus*) population monitoring (Baffinland 2024). Water quality and phytoplankton sampling in creeks, rivers, and lakes in 2025 was completed by Baffinland environment department personnel during four separate events: an ice-cover event in April to May 2025 (lakes only²), an open-water season event corresponding to Arctic spring (freshet) in early-July (creeks only), summer sampling in late-July to early-August, and fall sampling in late-August to September. As noted in Section 1.2, the ice-cover sampling event was completed following the Revision 1 AEMP study design (Baffinland 2024), whereas all subsequent sampling was completed following the Revision 2 AEMP study design (Baffinland 2024). Sediment quality, BIC, and fish population monitoring were carried out by Trinity Consultants Canada (TCC)³ staff, with assistance from Baffinland environment department personnel, between July 31 and August 19, 2025. This timing aligned with previous monitoring conducted during baseline (2005 to 2013), mine construction (2014), and mine operational (2015 to 2024) periods. The 2025 study included field sampling and standard field and laboratory quality assurance/quality control (QA/QC) measures for the water quality, sediment quality, phytoplankton (chlorophyll-a), BIC, and fish components, to support the assessment of overall data quality for each respective dataset. Results of the Data Quality Review (DQR) are provided in Appendix A.

The 2025 CREMP study areas were consistent with those identified in the Revision 2 AEMP, apart from the additions/deviations noted in Tables 2.1 and 2.2 (Baffinland 2024). To simplify the discussion of results, the mine-exposed study areas were grouped by lake catchment as follows:

- the Camp Lake system (Camp Lake Tributaries 1 [CLT1] and 2 [CLT2], Camp Lake [JL0], and Camp Lake Outlet [J0]);
- the Sheardown Lakes system (Sheardown Lake Tributaries 1 [SDLT1], 9 [SDLT9], and 12 [SDLT12], Sheardown Lake NW [DL0-01], and Sheardown Lake SE [DL0-02]); and
- the Mary River (G0, E0, and C0) and Mary Lake (BL0) system, which also includes Tom River (I0) and Mary River Tributary-F (MRTF; F0; Figure 2.1).

² Due to safety concerns related to accessibility, no winter sampling events are required at Reference Lake 3 (Baffinland 2024).

³ Previously Minnow Environmental Inc. (Minnow) and Ecofish Research Ltd. (Ecofish).



Table 2.1: Summary of Deviations from the Revision 2 Aquatic Effects Monitoring Program (AEMP) Design, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Component	Affected Study Systems/ Waterbodies	Description
Water Quality	Sheardown Lake Tributary 12	No water chemistry samples were collected at D12-1 (previously LDFG-OUT) in 2025 because the station was dry during the spring (early July), summer (early August), and fall (late August) site visits.
	Tom River	Table 3.8 of the Revision 2 AEMP lists the Tom River stations (I0-01 and I0-02) as being on Camp Lake tributaries, and Figure 3.8 indicates Station I0-02 is within the channel between the north and south basins of Mary Lake. However, Stations I0-01 and I0-02 are both on Tom River, which flows directly into the north basin of Mary Lake, not the Camp Lake system. Therefore, Tom River was treated as a tributary to Mary Lake in the 2025 CREMP report.
	Mary River (mine-exposed)	Station C0-01 on the Mary River was included in the 2025 study, based on the assumption it was excluded from the Revision 2 AEMP design by mistake.
	Mary Lake	In August 2025, the water quality profile for Mary Lake North Basin was collected from BL0-01 in error, rather than at the designated BL0-01-A station.
	All stations	The Revision 2 AEMP cites a variable FEQG for the dissolved manganese benchmark. Because there is no FEQG for dissolved manganese, the CCME WQG was used as the AEMP benchmark instead.
		In response to reviewer comments on the 2024 CREMP report, and following approval of the Revision 2 AEMP design, the long-term CCME WQG for total selenium and uranium were adopted as AEMP benchmarks.
		The AEMP benchmark for total ammonia was calculated using the pH and temperature of individual samples, whereas the values presented in the Revision 2 AEMP design assumed a temperature of 10°C and a pH of 8. Similarly, AEMP benchmarks for sulphate; total cadmium, cobalt, and nickel; and dissolved copper, lead, manganese, and zinc were calculated based on the concentrations of modifying parameters (e.g., hardness, DOC, pH) in individual samples.
Phytoplankton	Sheardown Lake Tributary 12	No chlorophyll-a samples were collected at D12-1 in 2025 because the station was dry during the spring (early July), summer (early August), and fall (late August) site visits.
	Mary River (mine-exposed)	Station C0-01 on the Mary River was included in the 2025 study, based on the assumption it was excluded from the Revision 2 AEMP design by mistake.
Benthic Invertebrates	All stations	The Revision 2 AEMP (Baffinland 2024) indicates CES apply in only one direction (i.e., statistically significant differences in BIC endpoints are only considered ecologically relevant if the mine-exposed area is lower relative to reference or baseline). Based on recommendations from Minnow and recognition that, as an example, lower proportions of metal-sensitive taxa in the BIC can signal potential mine-related effects, bi-directional CES (i.e., ±2 SD) were applied in the 2025 CREMP.
Fish	All lakes	The Revision 2 AEMP (Baffinland 2024) indicates CES apply in only one direction (i.e., statistically significant differences in condition [CES = 10%] and other health endpoints [CES = 25%] are only considered ecologically relevant if the mine-exposed area is lower relative to reference or baseline). Based on recommendations from Minnow and recognition that, as an example, higher condition in mine-exposed fish can signal potential mine-related effects (e.g., due to changes in productivity), bi-directional CES (i.e., ±) were applied in the 2025 CREMP.

Notes: AEMP = Aquatic Effects Monitoring Plan. CREMP = Core Receiving Environment Monitoring Program. WQG = Water Quality Guideline. FEQG = Federal Environmental Quality Guideline. CCME = Canadian Council of Ministers of the Environment. °C = degrees Celsius. DOC = dissolved organic carbon. CES = Critical Effect Size. BIC = benthic invertebrate community. SD = standard deviation. % = percent.

Table 2.2: Water Quality and Phytoplankton (chlorophyll-a) Monitoring Station Coordinates and Intra-annual Sampling Schedule, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Study System	Waterbody ^a	Station ID ^b	UTM Zone 17N, NAD83		Sampling Season			
			Easting	Northing	Winter (April to May)	Spring (June)	Summer (July)	Fall (August to September)
Reference Areas	Creek Reference	CLT-REF3	567004	7909174	-	✓	✓	✓
		CLT-REF4	568533	7907874	-	✓	✓	✓
		MRY-REF3	585407	7900061	-	✓	✓	✓
		MRY-REF2	570650	7905045	-	✓	✓	✓
	Reference Lake 3	REF-03-W1	575642	7852666	-	-	✓	✓
		REF-03-W2	574836	7852744	-	-	✓	✓
		REF-03-W3	574158	7853237	-	-	✓	✓
	Mary River Reference	G0-09-A	571264	7917344	-	✓	✓	✓
		G0-09	571546	7916317	-	✓	✓	✓
		G0-09-B	571248	7914682	-	✓	✓	✓
Camp Lake System	Camp Lake Tributary 1 North Branch	L1-08	561076	7915068	-	✓	✓	✓
		L1-02	558765	7915121	-	✓	✓	✓
	Camp Lake Tributary 1 Main Stem	L2-03	559081	7914425	-	✓	✓	✓
		L1-09	558407	7914885	-	✓	✓	✓
		L1-05	558040	7914935	-	✓	✓	✓
		L0-01	557681	7914959	-	✓	✓	✓
	Camp Lake Tributary 2	K0-01	557390	7915030	-	✓	✓	✓
	Camp Lake	JL0-02	557615	7914750	✓	-	✓	✓
		JL0-10 ^c	557346	7914562	✓	-	-	-
		JL0-01 ^c	557108	7914369	✓	-	-	-
		JL0-07	556800	7914094	✓	-	✓	✓
		JL0-09	MS	7913955	✓	-	✓	✓
	Camp Lake Outlet	J0-01	555701	7913773	-	✓	✓	✓
Sheardown Lake System	Sheardown Tributary 1	D1-05	561397	7913558	-	✓	✓	✓
		D1-00	560329	7913512	-	✓	✓	✓
	Sheardown Tributary 12	D12-1 ^d	561018	7912968	-	✓	✓	✓
	Sheardown Lake NW	DD-Hab9-Stn1	560259	7913455	✓	-	✓	✓
		DL0-05 ^c	559798	7913356	✓	-	-	-
		DL0-01-1 ^c	560080	7913128	✓	-	-	-
		DL0-01-4 ^c	560695	7913043	✓	-	-	-
		DL0-01-2	560353	7912924	✓	-	✓	✓
		DL0-01-7	560525	7912609	✓	-	✓	✓
	Sheardown Tributary 9	D9-1 ^d	561848	7911860	-	✓	✓	✓
	Sheardown Lake SE	DL0-02-6	560756	7912167	✓	-	✓	✓
		DL0-02-7 ^c	560952	7912054	✓	-	-	-
		DL0-02-4	561511	7911832	✓	-	✓	✓
		DL0-02-8 ^c	561301	7911846	✓	-	-	-
		DL0-02-3	561046	7911915	✓	-	✓	✓
Mary River and Mary Lake System	Tom River	I0-01	555470	7914139	-	✓	✓	✓
		I0-02	554640	7913850	-	✓	✓	✓
	Mary Lake North Basin	BL0-01-A	554300	7913378	✓	-	✓	✓
		BL0-01	554691	7913194	✓	-	✓	✓
		BL0-01-B	554369	7913058	✓	-	✓	✓
	Mary River Tributary-F	F0-01	564483	7913015	-	✓	✓	✓
	Mary River	G0-03	567204	7912587	-	✓	✓	✓
		G0-01	564459	7912984	-	✓	✓	✓
		E0-10	564405	7913004	-	✓	✓	✓
		E0-03	562974	7912472	-	✓	✓	✓
		E0-21	562444	7911724	-	✓	✓	✓
		E0-20	561688	7911272	-	✓	✓	✓
		C0-10	560669	7911633	-	✓	✓	✓
		C0-05	558352	7909170	-	✓	✓	✓
		C0-01	556305	7906894	-	✓	✓	✓
	Mary Lake South Basin	BL0-05A ^c	554530	7906478	✓	-	-	-
		BL0-05	554632	7906031	✓	-	✓	✓
		BL0-05B ^c	555034	7905692	✓	-	-	-
		BL0-03 ^c	552680	7906651	✓	-	-	-
		BL0-04 ^c	553817	7904886	✓	-	-	-
		BL0-09	554715	7904479	✓	-	✓	✓
		BL0-06	555924	7903760	✓	-	✓	✓

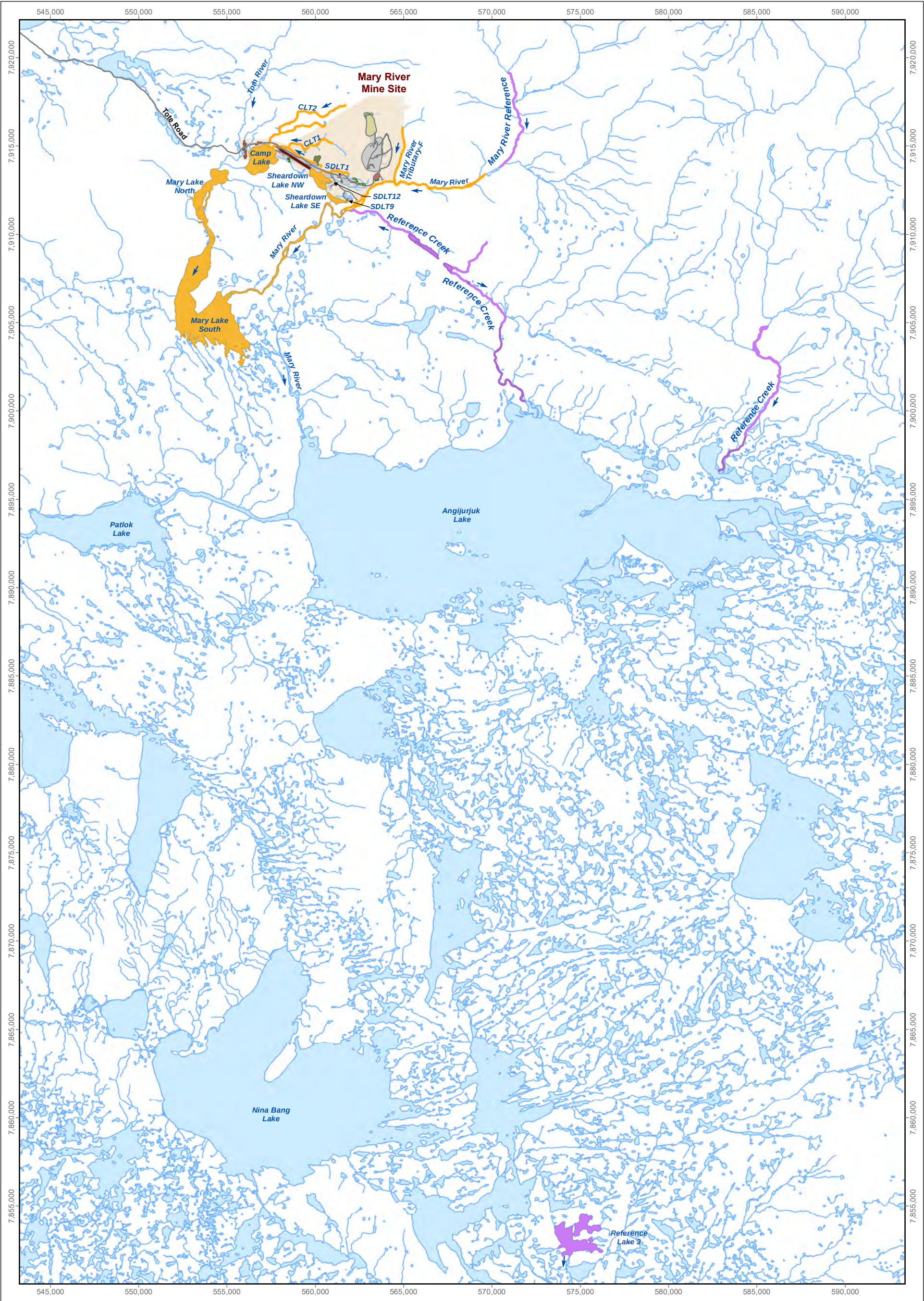
Notes: UTM = Universal Transverse Mercator. NAD = North American Datum. - = stations not samples. ✓ = stations sampled.

^a To the extent possible, waterbodies and station IDs are listed in upstream-to-downstream order within each study system.

^b The list of stations included in the table was taken from Tables 3.8 to 3.10 of the Revision 2 Mary River Aquatic Effects Monitoring Plan (Baffinland 2024), with the addition of C0-01. It was assumed C0-01 on the Mary River was excluded from the Revision 2 AEMP design in error.

^c Stations were sampled in winter only, under the Revision 1 AEMP design (2015), and were removed from the CREMP as part of the Revision 2 AEMP design (Baffinland 2024) that was implemented in spring, summer, and fall 2025.

^d Historical Station LDFG-OUT on Sheardown Tributary 12 was replaced with Station D12-1 and historical Station MS-C-G on Sheardown Tributary 9 was replaced with D9-1 as part of the Revision 2 AEMP design (Baffinland 2024).



LEGEND

Mine-exposed Stream/River System

Reference Stream/River System

Mine-exposed Lake

Reference Lake

Airstrip

Mine Site Complex

Pond

ROM Stockpile

Road

Open Pit

Waste Rock Facility

Borrow Pit

Quarry

Infrastructure

Mine Site Area

Core Receiving Environment Monitoring Program (CREMP) Waterbodies, Mary River Mine, 2025

02.5510

km

Map Projection: UTM Zone 17 NAD 1983
Data Source: Reproduced under licence from His Majesty the King in Right of Canada, Department of Natural Resources Canada. All rights reserved.

Date: March 2026
Project 257202.5067

Figure 2.1

Document Path: C:\Users\MLaPalme\Trinity Consultants, Inc\Baffinland Iron Mines - 257202.5067 - 2025 AEMP\GIS\BIM CREMP\25-5067 Figure 2.1 CREMP Waterbodies .mxd

March 2026

7

Reference Lake 3 (REF-03), which has served as a reference waterbody for lake environments since the 2015 CREMP, was again used as the reference lake for the 2025 CREMP. REF-03 is located well outside the area of potential mine influence, approximately 62 km south of the Mary River Mine Site (Figure 2.1). Creeks used as reference areas in the current and previous CREMP studies included an unnamed tributary to Mary River and two unnamed tributaries to Angijurjuk Lake⁴, all located southeast of the Mary River Mine Site. Consistent with earlier studies, an area of the Mary River located far upstream from current mine activities (i.e., stations in the G0-09 series) served as a reference for the mine-exposed portion of the Mary River in 2025 (Figure 2.1).

2.2 Water Quality

2.2.1 General Design

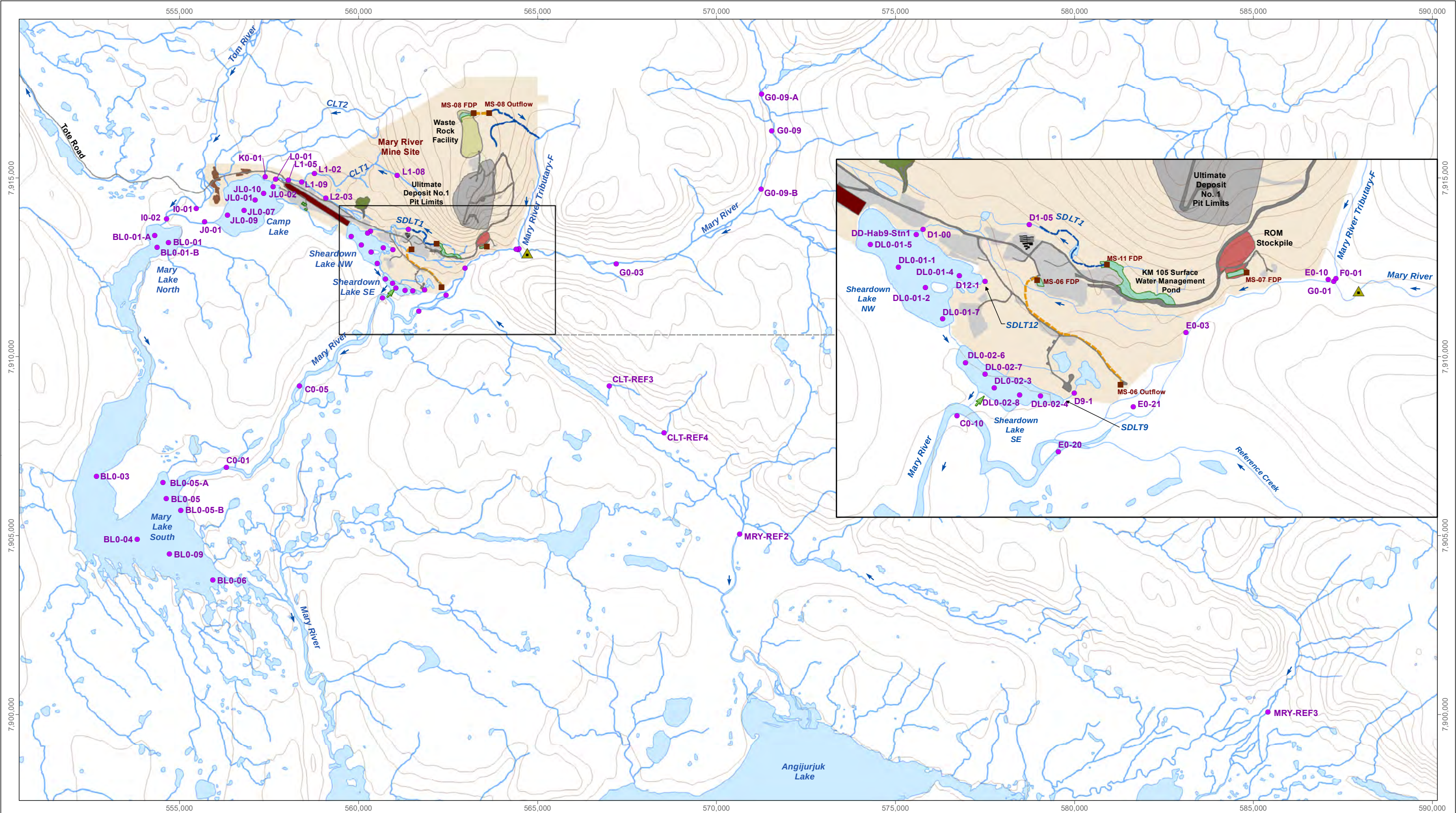
Surface water quality monitoring was conducted by Baffinland environment department personnel. Sampling completed in lakes during winter (April to May 2025) followed the Revision 1 AEMP study design (Baffinland 2015), whereas subsequent sampling in creeks, rivers, and lakes followed the Revision 2 AEMP study design (Baffinland 2024; Tables 2.1 and 2.2).⁵ Overall, *in situ* water quality measurements and water chemistry data were collected from as many as 50 stations during each sampling event (Table 2.2; Figures 2.2 and 2.3).

The evaluation of potential mine-related effects on surface water quality near the Mary River Mine Site (Figure 1.1) was based on comparisons to applicable reference area data, baseline data, and guidelines/site-specific AEMP benchmarks. Site-specific AEMP benchmarks were developed in recognition that the Project is located within an area of metal enrichment (hence the area's attractiveness for mining) and that metal concentrations in water may naturally exceed generic water quality guidelines developed for other regions of Canada. Comparisons of the 2025 water quality data to AEMP benchmarks, as well as reference and baseline data, were used to not only identify potential mine-related effects, but also to determine whether a Trigger Action Response Plan (TARP) threshold was exceeded and to guide management response decisions (Baffinland 2024).

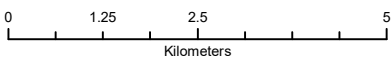
⁴ Referred to as Angajurjualuk Lake in earlier CREMP reporting (e.g., KP 2015; Minnow 2016, 2017, 2018, 2019, 2020, 2021b, 2022). The name was changed beginning in the 2023 CREMP report (Minnow 2024a) based on an updated English translation of the Inuit place name.

⁵ During field planning for 2025, it was noted that C0-01 on the Mary River was likely excluded from Revision 2 of the AEMP by mistake. Therefore, Baffinland continued to monitor this location in 2025 (Baffinland 2024).

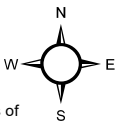




- LEGEND**
- | | | | |
|--|------------------|---------------------|-----------------------|
| ● Water Quality and Phytoplankton Monitoring Station | — HDPE Pipe | ■ Airstrip | ■ Road |
| ■ Final Discharge Point (FDP) | — Contour (20m) | ■ Mine Site Complex | ■ Open Pit |
| ▲ Mary River Cascade Barrier | ■ Mine Site Area | ■ Pond | ■ Waste Rock Facility |
| → Flow Direction During High Flow Periods | ■ Infrastructure | ■ ROM Stockpile | ■ Borrow Pit |
| — Overland Surface Water Flow | | ■ Quarry | |



Map Projection: UTM Zone 17N NAD 1983
Data Source: Reproduced under licence from His Majesty the King in Rights of Canada, Department of Natural Resources Canada. All rights reserved.

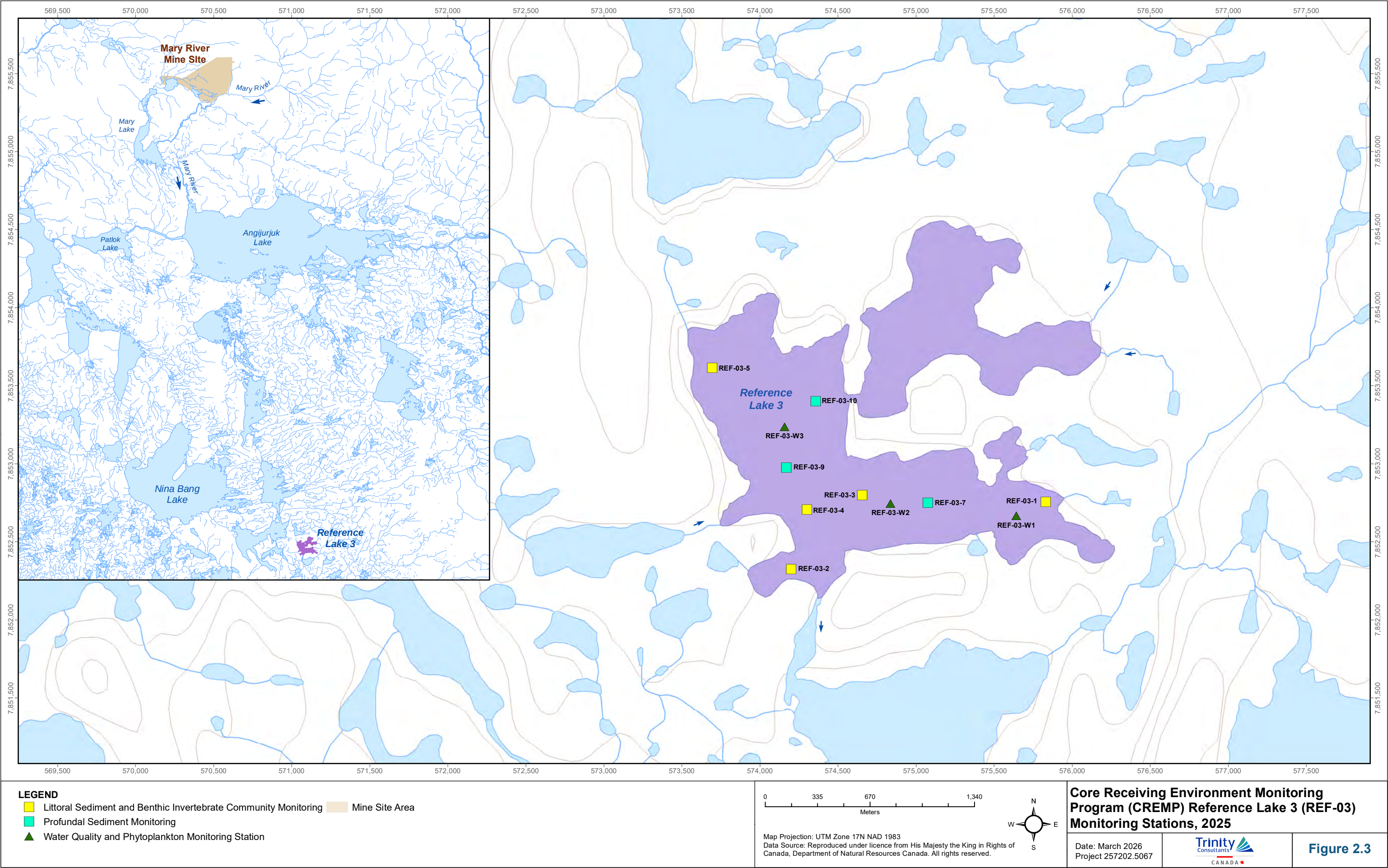


Core Receiving Environment Monitoring Program (CREMP) Water and Phytoplankton Monitoring Stations, 2025

Date: March 2026
Project 257202.5067



Figure 2.2



2.2.2 *In Situ* Water Quality

2.2.2.1 Data Collection

In situ measurements of water temperature, dissolved oxygen (DO), pH, specific conductance (SPC; i.e., temperature standardized conductivity), and turbidity were taken mid-column at all lotic (creek/river) stations during routine monitoring conducted by Baffinland environment department personnel. Collection of *in situ* measurements from the middle of the water column at lotic habitats represents a deviation from the Revision 2 AEMP, which states that measurements should be collected from the bottom of the water column (Table 2.1; Baffinland 2024). This change relative to the study design was made to improve data-matching between *in situ* measurements and water chemistry sample data, given the Revision 2 AEMP stipulates that water chemistry samples be collected mid-column in creeks and rivers. This confidence in the data-matching is particularly important when *in situ* measurements (e.g., temperature, pH) are being used to calculate AEMP benchmarks or interpret water chemistry data.

In situ measures of water quality were collected from lentic (lake) environments in winter (April to May 2025) by Baffinland environment department personnel and following the methods described in the Revision 1 AEMP (Baffinland 2015). First, a 15 centimetre (cm; 6 inch) diameter electric powered ice auger was used to access the water column at lake water quality monitoring stations. Ice shavings were removed from the auger hole, and then one of Baffinland's YSI Pro Digital Sampling System (DSS; YSI Inc., Yellow Springs, Ohio) meters was used to collect *in situ* measurements of water temperature, DO, pH, SPC, and turbidity as a vertical profile at one metre (m) intervals at each of the lentic (lake) water quality monitoring stations identified in Table 2.2.

In summer and fall, *in situ* measurements of water temperature, DO, pH, SPC, and turbidity were taken as a vertical profile at 1 m intervals at each of the following lake water quality monitoring stations:

- Station JL0-07 in Camp Lake;
- Station DL0-01-2 in Sheardown Lake NW;
- Station DL0-02-3 in Sheardown Lake SE;
- Station BL0-1A in the north basin of Mary Lake;
- Station BL0-09 in the south basin of Mary Lake; and
- Station REF03-W3 in the northwest basin of Reference Lake 3 (Baffinland 2024).



For each field sampling event in 2025, YSI readings of DO, pH, SPC, and turbidity were checked against standard solutions/using standard protocols and calibrated as necessary within 24 hours prior to the start of field sampling. If erroneous readings were identified in the field, they were investigated, and meters were re-calibrated as needed.

Additional supporting observations recorded in the field included visual assessments for oil sheen on the water surface⁶ at creek, river, and lake water quality monitoring stations. Secchi depth was measured at all lake profile stations during the summer and fall sampling periods, following methods outlined in Wetzel and Likens (2000).

During biological monitoring completed in August 2025, *in situ* measurements of water temperature, DO, pH, SPC, and turbidity were collected from each creek and river BIC monitoring station and at the surface and bottom (i.e., approximately 30 cm above the water-sediment interface) of each lake BIC monitoring station. Measurements were collected using one of Baffinland's YSI Pro DSS meters. Meter readings were checked against standard solutions/using standard protocols and calibrated as necessary within 24 hours prior to the start of field sampling. If erroneous readings were identified in the field, they were investigated, and meters were re-calibrated as needed. Additional supporting observations of water colour and clarity were also recorded at BIC monitoring stations in lakes.

2.2.2.2 Data Analysis

In situ water quality data collected at mine-exposed creek, river, and lake stations were plotted to visually assess the data range and identify potential outliers. Values that appeared to be substantially outside the range of all other observations were flagged as potential outliers, cross-referenced with the original datasheets, and either confirmed or corrected.

The *in situ* water quality data from 2025 were compared to data from respective reference areas, available baseline data, and applicable water quality guidelines (WQG) for the protection of freshwater aquatic life⁷ (for DO and pH only; Table 2.2).⁸ Additionally, to address feedback received on the 2024 CREMP report (Minnow 2025), under-ice DO concentrations that were below the WQG were given greater scrutiny to identify, if possible, whether the observed

⁶ The Revision 2 AEMP states that a "visual observation of surface water (oil) sheen...will be collected near the bottom of the water column at each creek and river water quality station" (Baffinland 2024). It was assumed this was a typo, and that visual observations of an oily sheen would be relevant to the water surface, rather than at depth.

⁷ Canadian Environmental Water Quality Guidelines (CCME 2026) for the protection of freshwater aquatic life were used to evaluate DO concentrations (early life stages of cold water biota) and pH (Table 2.3).

⁸ The Revision 2 AEMP does not include benchmarks for *in situ* parameters (Baffinland 2024).



concentrations may be attributed to mine influence and if there may be associated biological effects.

Reference area and baseline normal ranges were calculated for each parameter, as data availability allowed, to support identification of results that deviated from reference and/or baseline (2005 to 2013) conditions. Ranges for each parameter were calculated separately according to waterbody type (i.e., creeks, Mary River, and lakes) and season (i.e., winter, spring, summer, and fall) to account for seasonal variations in flow and water quality. The lower and upper limits of the normal ranges were defined as the 5th and 95th percentiles, respectively, of the reference area or baseline concentrations. The percentiles were estimated based on a survival curve for censored data, which was generated using the *survfit* function in R (*survival* package; Therneau 2017), to accommodate values below Laboratory Reporting Limits (LRLs). Outliers in the reference or baseline datasets were defined as values that exceeded $Q3 + 1.5(IQR^9)$ on the untransformed and $\log_{10}$ -transformed scales and were removed from estimation of the normal ranges. The use of normal ranges was deemed appropriate for identifying areas where water quality is being affected by mine activities, because concentrations at mine-exposed areas that are above the normal range for all corresponding reference areas and baseline data provides strong evidence of mine-related influence.

The vertical profile data collected at the mine-exposed study lakes were plotted and compared to those of the reference lake for each seasonal monitoring event. Plots and tabulated data were also visually assessed to evaluate thermal and chemical changes with depth and if they are associated with distinct layering (e.g., thermal stratification). The occurrence of a thermocline was conservatively assessed as a greater than or equal to ($\geq$) 0.5 degrees Celsius ($^{\circ}\text{C}$) change in temperature per one m change in depth¹⁰. At each study lake, spatial and seasonal differences in the vertical profile plots were evaluated to provide a better understanding of natural conditions and/or potential mine-related influences on within-lake water quality.

2.2.3 Water Chemistry

2.2.3.1 Sample Collection and Laboratory Analysis

Surface water chemistry samples were collected from creek, river, and lake environments in 2025 (Table 2.2). At creek and river stations, water chemistry samples were taken from approximately the mid-water column using the grab sample method (by hand). At lentic (lake) stations, the

⁹ IQR = Interquartile Range.

¹⁰ Wetzel (2001) defines the thermocline as a $\geq 1^{\circ}\text{C}$ change in temperature per 1 m change in depth. Following discussions in 2017, regulatory agencies requested that a $\geq 0.5^{\circ}\text{C}$ change in temperature per 1 m change in depth be used to conservatively define a thermally stratified condition.



approach to water chemistry sampling differed slightly between winter 2025 (Revision 1 AEMP) and subsequent sampling events (Revision 2 AEMP; Baffinland 2015, 2024). In winter, the water column was accessed using the same methods as for *in situ* measurements (Section 2.2.2.1). Two water chemistry samples were collected at each lentic station: one from just below the ice layer, and another from approximately 1 m above the bottom using a non-metallic, vertically oriented 2.2 litre (L) TT Silicon Kemmerer bottle (Wildco Supply Co., Yulee, Florida). In summer and fall 2025, the approach to water chemistry sampling was dependent on *in situ* measures of temperature and DO (Section 2.2.2.1). If no thermocline or oxycline was present, then a single water chemistry sample was collected from near the surface of the water column (i.e., at a depth of approximately 2 m during the open-water season). If a thermocline and/or oxycline was identified, then one water chemistry sample each was retrieved from near the surface and approximately 1 to 2 m from the lake bottom. Bottom samples were collected using a Kemmerer bottle, as above.

If, based on visual observations, it appeared the lake bottom was disturbed during sample collection, the affected sample was rejected, and a new one was collected. Water samples for analysis of oil and grease were also collected whenever an oil sheen was identified on the water surface, to support analysis of hydrocarbon concentrations and potential identification of the source of the sheen.

Water chemistry sampling was primarily conducted by Baffinland environment department personnel following Water Sampling Procedure BIM-5200-SOP-0017. Sample aliquots were placed directly into pre-labeled sample bottles, which had been triple-rinsed with ambient water, as appropriate¹¹. For samples requiring filtration (e.g., for dissolved metals), filtration was performed in the field, prior to sample preservation. Chemical preservatives were added, as required, before capping the bottles, or for bottles pre-dosed with preservatives, the sample was filled from a separate bottle. Samples were placed into coolers in the field and maintained cold, but not frozen. Samples were stored in refrigerators on site until shipment to the analytical laboratory.

Quality control (QC) samples for water chemistry included trip blanks, field blanks, equipment blanks, and field duplicates, which were collected at an approximate rate of 10 percent (%) of the total number of samples collected for each sampling event (Appendix A).

Water chemistry samples were shipped on ice to ALS Canada Ltd. (ALS; Waterloo, Ontario) for analysis of pH, SPC, hardness, alkalinity, total suspended solids (TSS), total dissolved solids

¹¹ Water sample bottles pre-dosed with preservatives could not be triple rinsed as it would result in loss of the preservative.



(TDS), anions (bromide, chloride, and sulphate), nutrients (total ammonia, nitrate, nitrite, total Kjeldahl nitrogen [TKN], and total phosphorus), dissolved and total organic carbon (DOC and TOC, respectively), total and dissolved mercury, total and dissolved metals¹², and phenols using standard laboratory methods¹³. Samples collected in response to observations of an oily sheen on the water surface were submitted for analysis of total hydrocarbon concentrations. The laboratories operated by ALS are accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA).

2.2.3.2 Data Analysis

2.2.3.2.1 Standard Assessment

Water chemistry data for mine-exposed creek, river, and lake stations were compared to data from respective reference areas, baseline data, and WQG for the protection of freshwater aquatic life or site-specific benchmarks developed for the AEMP (Table 2.3; Baffinland 2024). Consistent with the approach used for *in situ* measures of water quality, reference area and baseline normal ranges were calculated for each parameter, as data availability allowed, to support identification of results that deviated from reference and/or baseline (2005 to 2013) conditions (see Section 2.2.2.2). Again, these ranges were calculated separately for each waterbody type (i.e., creeks, Mary River, and lakes), season (i.e., spring, summer, fall, winter), and parameter. The upper limit of the normal range was defined as the 95th percentile of the reference area or baseline concentrations for each season and waterbody type. Water chemistry data from within each mine-exposed waterbody were also evaluated qualitatively to identify potential spatial or seasonal patterns.

Because the Project is located within an area of metal enrichment (hence its attractiveness for mining), concentrations of metals or other parameters in water and/or sediment may naturally be above generic guidelines developed for other regions of Canada. The AEMP benchmarks, which are intended to inform management decisions under the AEMP Data Assessment and Response Framework (Baffinland 2024)¹⁴, were developed based on an evaluation of baseline water chemistry, existing Canadian WQG, and site-specific Toxicity Modifying Factors (TMFs; e.g., pH, hardness). The Revision 2 AEMP (Baffinland 2024) includes updated

¹² Throughout this report, metals, metalloids, and non-metals typically included in a multi-element scan are collectively referred to as “metals” unless specifically stated otherwise.

¹³ The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by the United States Environmental Protection Agency, American Public Health Association Standard Methods, American Society for Testing and Materials (ASTM) International, International Organization for Standardization, and Environment and Climate Change Canada.

¹⁴ Previously, the “Assessment Approach and Management Response Framework” (Baffinland 2015).



Table 2.3: Water Quality Guidelines and Benchmarks for the Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Water Quality					Supporting Information and/or Calculations Used to Derive WQG/AEMP Benchmark
		Units	Long-term WQG ^a		AEMP Benchmark ^b		
			Value	Type	Stream/River	Lake	
Field Parameters	Dissolved Oxygen	mg/L	>9.5	CCME	-	-	CCME (2026) WQG for the protection of early life stages of cold water biota.
	pH	pH	6.5 to 9	CCME	-	-	-
Nutrients and Organics	Total Ammonia	mg/L (as N)	-	-	Variable	Variable	Benchmarks are pH and temperature dependent, and are calculated using the CCME (2026) WQG table. Field pH and water temperatures from individual samples were used to calculate the benchmarks.
	Nitrate	mg/L (as N)	-	-	3	3	Benchmark is adopted from CCME (2026).
	Nitrite	mg/L (as N)	-	-	0.06	0.06	Benchmark is adopted from CCME (2026).
	Phenols	mg/L	0.004	CCME	-	-	-
Anions	Chloride (Cl)	mg/L	-	-	120	120	Benchmark is adopted from CCME (2026).
	Fluoride (F)	mg/L	0.120	CCME	-	-	-
	Sulphate (SO ₄)	mg/L	-	-	Variable	Variable	Approved BC WQG (BCMOE 2025a) was adopted as the benchmark and is hardness (mg/L CaCO ₃) dependent as follows: 128 mg/L at 0 to 30 hardness, 218 mg/L at 31 to 75 hardness, 309 mg/L at 76 to 180 hardness, and 429 mg/L at 181 to 250 hardness. ^c
Total Metals	Aluminum (Al)	mg/L	-	-	0.179 ^d , 0.966 ^e , 0.35 ^f	0.1 ^g , 0.13 ^h , 0.173 ⁱ , 0.179 ^j	Benchmarks for stream/river stations, as well as Mary Lake and Sheardown Lakes, are equal to the 97.5th percentiles of baseline data for each system. The CCME (2026) WQG for waters with pH ≥ 6.5 was adopted as the benchmark for Camp Lake.
	Antimony (Sb)	mg/L	0.074	BC WQG	-	-	Approved BC WQG (BCMOE 2025a).
	Arsenic (As)	mg/L	-	-	0.005	0.005	Benchmark is adopted from CCME (2026).
	Barium (Ba)	mg/L	1	BC WQG	-	-	Working BC WQG (BCMOE 2025b).
	Beryllium (Be)	mg/L	0.00013	BC WQG	-	-	Working BC WQG (BCMOE 2025b)
	Boron (B)	mg/L	1.5	CCME	-	-	-
	Cadmium (Cd)	mg/L	-	-	Variable	Variable	CCME (2026) WQG was adopted as the benchmark and is hardness (mg/L CaCO ₃) dependent. For hardness <17 mg/L, the benchmark = 40 mg/L. At hardnesses between 17 and 280 mg/L, the benchmark is calculated using the equation Cd (mg/L) = (10 ^{(0.83[log(hardness)] - 2.46)})/1,000. ^c
	Chromium (Cr)	mg/L	-	-	0.0089	0.0089	CCME (2026) WQG for trivalent chromium was adopted as the benchmark. Total chromium concentrations are compared to the benchmark.
	Cobalt (Co)	mg/L	-	-	Variable	Variable	FEQG (ECCC 2024) was adopted as the benchmark and is hardness (mg/L CaCO ₃) dependent. For hardnesses between 52 and 392 mg/L, the benchmark is calculated using the equation Co (mg/L) = e ^{((0.414*ln(hardness)) - 1.887)} /1,000. ^c
	Copper (Cu)	mg/L	Variable	CCME	-	-	CCME (2026) WQG is hardness (mg/L CaCO ₃) dependent. At hardnesses <82 mg/L and >180 mg/L, the WQG is 0.002 and 0.004 mg/L, respectively. For hardness ranging from 82 to 180 mg/L, the WQG (mg/L) = 0.2 * e ^{(0.8545[ln(hardness)] - 1.465)} /1,000. ^c

Notes: WQG = Water Quality Guideline. AEMP = Aquatic Effects Monitoring Plan. mg/L = milligrams per litre. CCME = Canadian Council of Ministers of the Environment. - = no applicable units, guideline, or benchmark or no comment. CaCO₃ = calcium carbonate. < = less than. > = greater than. BC = British Columbia; FEQG = Federal Environmental Quality Guideline. DOC = Dissolved Organic Carbon. BLM = Biotic Ligand Model.

^a WQG for the protection of freshwater aquatic life include WQG from the CCME (2026), FEQG (ECCC 2024), and BC WQG (BCMOE 2025a,b). Parameters with site-specific benchmarks (Baffinland 2024) were not screened to generic WQG derived for other jurisdictions in Canada.

^b Aquatic Effects Monitoring Plan (AEMP) benchmarks apply to all stream/river or lake systems unless otherwise indicated (Baffinland 2024).

^c Sample-specific or area-specific (mean) values for modifiers (e.g., temperature, pH, DOC, hardness) were used to calculate the WQG or benchmarks.

^d AEMP benchmark is specific to stations Camp Lake Tributaries (CLT and CLT2).

^e AEMP benchmark is specific to Mary River and Mary River Tributary-F (MRTF).

^f AEMP benchmark is specific to Sheardown Lake Tributaries (SDLT).

^g AEMP benchmark is specific to Camp lake (JL0).

^h AEMP benchmark is specific to Mary Lake North (BL0-01) and South Basins (BL0-02).

ⁱ AEMP benchmark is specific to deep stations at Sheardown Lake Northwest (NW; DL0-01) and Sheardown Lake Southeast (SE; DL0-02) (Intrinsik 2013).

^j AEMP benchmark is specific to shallow stations at Sheardown Lake NW (DL0-01) and Sheardown Lake SE (DL0-02) (Intrinsic 2013).

Table 2.3: Water Quality Guidelines and Benchmarks for the Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Water Quality					Supporting Information and/or Calculations Used to Derive WQG/AEMP Benchmark
		Units	Long-term WQG ^a		AEMP Benchmark ^b		
			Value	Type	Stream/River	Lake	
Total Metals	Iron (Fe)	mg/L	-	-	0.326 ^d , 0.874 ^e , 0.543 ^f	0.300	Benchmarks for stream/river stations are equal to the 97.5th percentiles of baseline data for each system. CCME (2026) WQG was adopted as the benchmark for lakes.
	Lead (Pb)	mg/L	Variable	CCME	-	-	CCME (2026) WQG is hardness (mg/L CaCO ₃) dependent. At hardnesses <60 mg/L and >180 mg/L, the WQG is 0.001 and 0.007 mg/L, respectively. For hardness ranging from 60 to 180 mg/L, the WQG (mg/L) = e ^{(1.273[ln(hardness)] - 4.705)} /1,000. ^c
	Manganese (Mn)	mg/L	Variable	BC WQG	-	-	Approved BC WQG (BCMOE 2025a) is hardness (mg/L CaCO ₃) dependent, and is calculated using the equation Mn (mg/L) = 0.0044*(hardness)+0.605. ^c
	Mercury (Hg)	mg/L	0.000026	CCME	-	-	-
	Molybdenum (Mo)	mg/L	7.600	BC WQG	-	-	Approved BC WQG (BC MOE 2025a).
	Nickel (Ni)	mg/L	-	-	Variable	Variable	CCME (2026) WQG was adopted as the benchmark and is hardness (mg/L CaCO ₃) dependent. At hardnesses <60 mg/L and >180 mg/L, the benchmark is 0.025 and 0.150 mg/L, respectively. For hardness ranging from 60 to 180 mg/L, the benchmark (mg/L) = e ^{(0.76[ln(hardness)] + 1.06)} /1,000. ^c
	Selenium (Se)	mg/L	-	-	0.001	0.001	Benchmark was adopted from CCME (2026) following approval of the Revision 2 AEMP study design.
	Silver (Ag)	mg/L	-	-	0.0001	0.0001	Approved BC WQG, rounded to one decimal place, was adopted as the benchmark (BCMOE 2025a).
	Strontium (Sr)	mg/L	2.5	FEQG	-	-	FEQG (ECCC 2024) for dissolved strontium was adopted as the benchmark for total strontium.
	Thallium (Tl)	mg/L	-	-	0.0008	0.0008	Benchmark is adopted from CCME (2026).
	Uranium (U)	mg/L	-	-	0.015	0.015	Benchmark was adopted from CCME (2026) following approval of the Revision 2 AEMP study design.
	Vanadium (V)	mg/L	-	-	0.06	0.06	Working BC WQG was adopted as the benchmark (BCMOE 2025b).
Dissolved Metals	Cadmium (Cd)	mg/L	Variable	BC WQG	-	-	Approved BC WQG (BCMOE 2025a) is hardness (mg/L CaCO ₃) dependent, and is calculated using the equation dissolved Cd (mg/L) = (2.718 ^{(0.736*ln(hardness)-4.943)})/1,000. ^c
	Cobalt (Co)	mg/L	Variable	BC WQG	-	-	Approved BC WQG (BCMOE 2025a) is hardness (mg/L CaCO ₃) dependent, and is calculated using the equation dissolved Co (mg/L) = (e ^{(0.414*ln(hardness)-1.887)} /2)/1,000. ^c
	Copper (Cu)	mg/L	-	-	Variable	Variable	FEQG (ECCC 2024) was adopted as the benchmark. The benchmark is hardness (mg/L CaCO ₃), pH, temperature, and DOC dependent and is calculated using a BLM. ^c
	Lead (Pb)	mg/L	-	-	Variable	Variable	FEQG (ECCC 2024) was adopted as the benchmark and is hardness (mg/L CaCO ₃) and DOC dependent. The benchmark is calculated using the equation dissolved Pb (mg/L) = (e ^{(0.514*ln(DOC)+0.214*ln(hardness)+ 0.4354)})/1,000. ^c
	Manganese (Mn)	mg/L	-	-	Variable	Variable	CCME (2026) WQG was adopted as the benchmark and is hardness (mg/L CaCO ₃) and pH dependent. The benchmark is calculated using the calculator from CCME (2026). ^c
	Nickel (Ni)	mg/L	Variable	BC WQG	-	-	Approved BC WQG (BCMOE 2025a) is hardness (mg/L CaCO ₃), pH, temperature, and DOC dependent and is calculated using a BLM. ^c
	Strontium (Sr)	mg/L	2.5	FEQG	-	-	FEQG (ECCC 2024) for dissolved strontium was adopted as the benchmark for total strontium.
	Zinc (Zn)	mg/L	-	-	Variable	Variable	CCME (2026) WQG was adopted as the benchmark and is hardness (mg/L CaCO ₃), pH, and DOC dependent. The benchmark is calculated using the equation dissolved Zn (mg/L) = (e ^{(0.947*(ln(hardness))-0.815*(pH)+0.398*(ln(DOC))+4.625)})/2/1,000. ^c

Notes: WQG = Water Quality Guideline. AEMP = Aquatic Effects Monitoring Plan. mg/L = milligrams per litre. CCME = Canadian Council of Ministers of the Environment. - = no applicable units, guideline, or benchmark or no comment. CaCO₃ = calcium carbonate. < = less than. > = greater than. BC = British Columbia; FEQG = Federal Environmental Quality Guideline. DOC = Dissolved Organic Carbon. BLM = Biotic Ligand Model.

^a WQG for the protection of freshwater aquatic life include WQG from the CCME (2026), FEQG (ECCC 2024), and BC WQG (BCMOE 2025a,b). Parameters with site-specific benchmarks (Baffinland 2024) were not screened to generic WQG derived for other jurisdictions in Canada.

^b Aquatic Effects Monitoring Plan (AEMP) benchmarks apply to all stream/river or lake systems unless otherwise indicated (Baffinland 2024).

^c Sample-specific or area-specific (mean) values for modifiers (e.g., temperature, pH, DOC, hardness) were used to calculate the WQG or benchmarks.

^d AEMP benchmark is specific to stations Camp Lake Tributaries (CLT and CLT2).

^e AEMP benchmark is specific to Mary River and Mary River Tributary-F (MRTF).

^f AEMP benchmark is specific to Sheardown Lake Tributaries (SDLT).

^g AEMP benchmark is specific to Camp lake (JL0).

^h AEMP benchmark is specific to Mary Lake North (BL0-01) and South Basins (BL0-02).

ⁱ AEMP benchmark is specific to deep stations at Sheardown Lake Northwest (NW; DL0-01) and Sheardown Lake Southeast (SE; DL0-02) (Intrinsik 2013).

^j AEMP benchmark is specific to shallow stations at Sheardown Lake NW (DL0-01) and Sheardown Lake SE (DL0-02) (Intrinsik 2013).

benchmarks for cobalt, lead, manganese, strontium, and zinc that supersede the benchmarks from the Revision 1 AEMP (Baffinland 2015; Table 2.3). Additionally, to address reviewer comments received as part of Baffinland's Water License renewal, the Canadian Council of Ministers of the Environment (CCME) WQG for total selenium and uranium were adopted as AEMP benchmarks (Table 2.3; Section 2.2.3.2.2; CCME 2026). For water quality parameters without benchmarks, the most recent WQG for the protection of freshwater aquatic life (i.e., the WQG based on the most up-to-date information) was selected from the CCME WQG, Federal Environmental Quality Guidelines (FEQG), or British Columbia Ministry of Environment and Climate Change Strategy (BC MOE) WQG (BC WQG; Table 2.3). For AEMP benchmarks and WQG that are calculated using data for other parameters (e.g., hardness, field pH), data for individual samples were used, and calculations were completed according to established formulas (Table 2.3).

The concentration of a parameter being above the respective AEMP benchmark may trigger various actions, such as modifications to the sampling design, additional statistical assessments, and/or consideration of mitigation measures, to better understand and reduce the potential for risks to aquatic biota (Section 2.7; Baffinland 2024). Water chemistry parameters with concentrations that were higher at mine-exposed areas compared to reference areas and/or baseline conditions, or relative to AEMP benchmarks or WQG, were plotted to assess changes in concentrations over time and differences between baseline (2005 to 2013) and mine operational years (2015 to 2025). A mine-related effect was determined if the mean concentration of a parameter was above the upper limits of the reference area and baseline normal ranges, either across all seasons or in any individual season, and/or if qualitative evaluation of temporal plots suggested a mine-related increase over time relative to the AEMP benchmark.

2.2.3.2.2 Special Investigations

As recommended in the 2024 CREMP report (see Section 6 in Minnow 2025), special investigations were completed in instances where a mine-related influence was concluded for a water quality parameter (Table 2.4). One type of water quality special investigation involved temporal trend analyses for parameters with concentrations above AEMP benchmarks, baseline data, and/or reference area data across all seasons. Temporal trends were assessed in R (R Core Team 2023) using the non-parametric seasonal Kendall test described by Hirsch et al. (1982). The seasonal Kendall test assesses temporal trends separately for each season and combines the results for each season into an overall test for trend. The test is non-parametric and assesses whether there is a monotonic increasing or monotonic decreasing trend over time. The tests were conducted by calculating the test statistic (S_i), which is equal to the sum of the number of increases and decreases from a time period (t) to all time periods after t for each



Table 2.4: Summary of Special Investigations Associated with Action Level Responses for Water Quality, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Waterbody Type	Waterbody Name	Station(s)	Special Investigation Type	Parameter(s)	Year Identified	Results Section
Stream	Camp Lake Tributary 1 Upper Main Stem (CLT1)	L2-03	Temporal trend analysis	Sulphate and total and dissolved aluminum, iron, molybdenum, sodium, uranium	2024 (uranium), 2023 (remaining parameters)	3.1.1.3
			Analysis of total versus dissolved concentrations	Total and dissolved aluminum, iron, and uranium	2024	3.1.1.3
			Benchmark development	Total uranium	2024	3.1.1.3
	Sheardown Lake Tributary 1 (SDLT1)	D1-05 D1-00	Temporal trend analysis	Specific conductance, chloride, nitrate, sulphate, TDS, TKN, and total and dissolved barium, calcium, cadmium, cobalt, lithium, magnesium, manganese, molybdenum, potassium, selenium, sodium, strontium, and uranium	2023 (chloride, nitrate, sulphate, cadmium, lithium, magnesium, manganese, potassium, strontium, uranium), 2024 (specific conductance, TDS, TKN, barium, calcium, cobalt, molybdenum, selenium, sodium)	4.1.1.2
			Analysis of total versus dissolved concentrations	Total and dissolved barium, calcium, cadmium, cobalt, lithium, magnesium, manganese, molybdenum, potassium, selenium, sodium, strontium, and uranium	2024	4.1.1.2
			Benchmark development	Total uranium	2024	4.1.1.2
	Sheardown Lake Tributary 12 (SDLT12) ^a	D12-1 (previously LDFG-OUT)	Temporal trend analysis	Alkalinity, hardness, specific conductance, chloride, TDS, and total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium	2024	4.2.1.2
			Analysis of total versus dissolved concentrations	Total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium	2024	4.2.1.2
	Mary River Tributary-F (MRTF)	F0-01	Temporal trend analysis	Nitrate and sulphate	2023	5.2.1.2
			MDMER data evaluation	Nitrate and sulphate	2024	5.2.1.2
Lake	Camp Lake (JL0)	All	Temporal trend analysis	Total and dissolved uranium	2024	3.3.1.2
			Analysis of total versus dissolved concentrations	Total and dissolved uranium	2024	3.3.1.2
			Benchmark development	Total uranium	2024	3.3.1.2
	Sheardown Lake Northwest (DL0-01)	All	Temporal trend analysis	Chloride, nitrate, sulphate, and total and dissolved concentrations of molybdenum, strontium, and uranium	2024	4.4.1.2
			Benchmark development	Total uranium	2024	4.4.1.2
	Sheardown Lake Southeast (DL0-02)	All	Temporal trend analysis	Nitrate, sulphate, and total and dissolved concentrations of molybdenum and uranium	2024	4.5.1.2
			Spatial comparisons within lake	Nitrate	2024	4.5.1.2
			Benchmark development	Total uranium	2024	4.5.1.2

Notes: TDS = total dissolved solids. TKN = total Kjeldahl nitrogen. MDMER = Metal and Diamond Mining Effluent Regulations.

^a No water chemistry samples were collected from SDLT12 in 2025 due to low water levels during the spring, summer, and fall sampling events. Therefore, special investigations were completed using data from 2021 to 2024.

observation in season (i). The overall test statistic (S) was computed as the sum of S_i for all seasons. The significance of the observed S was determined by comparing it to a critical value of S (at the significance level alpha [α] = 0.05) determined from the exact sampling distribution of S (calculated by determining all possible permutations and combinations of S based on the increases and decreases from the number of pairwise comparisons made; Hirsch et al. 1982). If more than 45 pairwise comparisons are made (equivalent to the number of pairwise comparisons for $n = 10$ in a single season), then the normal approximation was used to calculate a p-value and to assess significance (Hirsch et al. 1982). The standard normal deviate (Z) was calculated as:

$$Z = \begin{cases} \frac{S - 1}{\sqrt{\sigma_S}} & \text{if } S > 0 \\ 0 & \text{if } S = 0 \\ \frac{S + 1}{\sqrt{\sigma_S}} & \text{if } S < 0 \end{cases}$$

where $\sigma_S = \sum_{i=1}^k \frac{n_i(n_i-1)(2n_i+5) - \sum T_i t_i(t_i-1)(2t_i+5)}{18}$ and n_i is the number of samples in season i , t_i is the number of tied values for each tied value T_i , and k is the number of seasons (Hirsch et al. 1982).

The trend slope over time was estimated by computing the median of all slopes between data pairs within the same season (Helsel and Hirsch 2002). The slope was reported as a percentage change in concentration per season and per year. The intercept of a line through the time series was estimated as the median intercept of all lines through each point with the estimated slope (Pohlert 2016). The trend analysis was conducted only when no fewer than five pairwise comparisons were possible (i.e., the minimum number required for all consecutive increases or decreases to be significant at $\alpha = 0.05$). The seasonal averages used in the analysis were calculated using the Kaplan-Meier (K-M) method in R (R Core Team 2023) following the methods described in Helsel (2012).

Another type of water quality special investigation explored the relationship between total and dissolved concentrations of select parameters at the CLT1 Upper Main Stem, Camp Lake, SDLT1, and SDLT12¹⁵ (Table 2.4), to assess bioavailability and further evaluate the potential effects on aquatic biota. Scatterplots of total and dissolved concentrations of water quality parameters measured since the baseline period were examined to qualitatively identify any temporal or seasonal changes in the relative concentrations of the two fractions that may suggest

¹⁵ Comparisons of total and dissolved concentrations of water quality parameters at SDLT12 were completed using data collected during baseline (2007 and 2008) and between 2021 and 2024 (Table 2.4). No water chemistry samples were collected from SDLT12 in 2025 due to low water levels during the spring, summer, and fall sampling events.



greater bioavailability or increased risk of potential effects to biota. In some cases, Relative Percent Differences (RPDs) were calculated between paired total and dissolved concentrations to better understand the magnitude of the difference between values.

In 2025 and early-2026, Baffinland and TCC explored the development of an AEMP benchmark for aqueous concentrations of total uranium using the Background Concentration Procedure (BCP; Table 2.4; Minnow 2025). The benchmark development process involved an evaluation of total uranium data representing reference and baseline conditions, as well as consideration of potential TMFs (TCC 2026c). Data for mine-exposed and reference waterbodies evaluated annually as part of the CREMP were included in the analysis, to support development of appropriate benchmarks for each waterbody (e.g., Camp Lake, Mary River). However, aqueous total uranium concentrations at reference sites were consistently below the CCME WQG, thereby precluding the use of the BCP, which is most suitable for use where site-specific conditions result in natural background concentrations of parameters being above generic WQG. Consequently, the CCME (2026) long-term WQG for the protection of freshwater aquatic life was adopted as the AEMP benchmark for total uranium concentrations at all CREMP waterbodies (Tables 2.3 and 2.4; TCC 2026a).

As an outcome of the 2024 CREMP report (Minnow 2025), Baffinland committed to completing a special investigation of nitrate and sulphate concentrations in effluent from the MS-08 Final Discharge Point (FDP), as well as water samples from the receiving environment, using data that are routinely collected as part of Metal and Diamond Mining Effluent Regulations (MDMER) requirements. The objective of the investigation was to evaluate the influence of the MS-08 FDP as a potential source of nitrate and sulphate to MRTF. This was achieved through qualitative comparisons of effluent quality (MS-08) and receiving environment water quality (Mary River upstream [reference] and downstream [exposed]) data that were originally compiled and evaluated as part of the Phase 4 Environmental Effects Monitoring (EEM) Study Design for the Mary River Project (TCC 2026b).

To address a request received from Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) in 2025, Baffinland agreed to consider investigating potential relationships between dustfall and water chemistry data as part of the 2025 reporting cycle for the Lake Sedimentation Monitoring Program (LSMP) and/or CREMP. As a first step, the study team evaluated the data requirements and potential statistical approaches using water quality data collected from monitoring stations in Sheardown Lake NW in 2025 and dustfall chemistry data from three passive dustfall monitoring stations (i.e., Stations DF-M-01, DF-M-02, and DF-M-03) located near the lake and within the prevailing wind direction. The use of these dustfall monitoring stations and



Sheardown Lake NW as the preliminary study lake is consistent with the approach taken for evaluating dustfall and sediment trap chemistry under the LSMP (TCC 2026c).

Surface water quality data from April, July, and August were available for three stations (DD-HAB9-STN1, DL0-01-2, DL0-01-7), whereas another three stations within Sheardown Lake NW (DL0-01-1, DL0-01-4, DL0-01-5) were only sampled in April. Therefore, there were only three water quality monitoring stations with data points covering the duration of the open water season. Given the limited number of temporally aligned data points ($n \leq 3$), correlation analyses could not be completed using the 2025 data. Qualitative evaluation of potential spatial and seasonal patterns was also considered unreliable with such a small dataset. These limitations precluded a meaningful assessment of potential linkages between dustfall deposition and water quality in 2025. However, this preliminary evaluation highlighted opportunities for developing and implementing a more robust assessment of the potential relationships between dustfall and water chemistry. These include aligning sampling frequency (e.g., monthly) to enable more direct comparisons of monthly dustfall data with potential changes in water quality and considering the use of multi-year monitoring data to increase statistical power. Additionally, consideration of sampling at depth (e.g., near the sediment–water interface), where recently deposited materials may exert greater influence on water chemistry, may further enhance the ability to detect potential effects of dustfall on water quality in Sheardown Lake NW.

Finally, a special investigation involving spatial comparisons of nitrate concentrations within Sheardown Lake SE was completed in 2025 to support evaluation of the overall influence of inputs from the Dyno Nobel Emulsion Plant (Dyno facility) via SDLT9 into the lake (Minnow 2025). Sample sizes for water quality in 2025 were not sufficient to complete statistical comparisons among stations. However, nitrate data for individual stations in Sheardown Lake SE were plotted to support qualitative comparisons among stations and seasons; these comparisons, along with supporting data from SDLT9, were used to inform the potential need for further investigations and mitigation of nitrate concentrations in Sheardown Lake SE.

2.3 Sediment Quality

2.3.1 General Design

Sediment quality monitoring for the CREMP was designed to assess potential mine-related influences (e.g., from effluent discharge and dust deposition) on sediment quality of creek/river and lake environments in the vicinity of the Mary River Mine Site (Baffinland 2024). Sediments sampling in lakes occurs annually, whereas sampling in the Camp Lake tributaries, Sheardown Lake tributaries, and Mary River occurs once every three years; no sediment



sampling in creeks or rivers was conducted in 2025¹⁶. In 2025, sediment sampling was completed at five to nine stations per study lake (including mine-exposed and reference areas) to support physical and chemical characterization of sediments, as outlined in the Revision 2 AEMP (Baffinland 2024; see also Table 2.5 and Figures 2.3 and 2.4). The lake sediment sampling stations were classified as littoral or profundal based on a depth cutoff of 12 m, which was used to define lake zonation during baseline characterization studies (KP 2014, 2015). Littoral sediment sampling stations were co-located with BIC sampling stations, so that the characteristics of the sediment samples would be representative of the conditions BIC are exposed to.

Similar to water quality, the evaluation of potential mine-related influence on sediments in the mine-exposed lakes focused on the use of established AEMP benchmarks as well as comparisons to reference areas and baseline conditions.

2.3.2 Sample Collection and Laboratory Analysis

A gravity corer (Hoskin Scientific Ltd., Model E-777-00) fitted with a clean 5.1 cm inside-diameter polycarbonate tube was used to collect sediment samples from littoral and profundal habitats of mine-exposed lakes and Reference Lake 3 (Table 2.5; Figures 2.3 and 2.4). From each retrieved, intact core that was representative of the sediment-water interface, the top two cm of sediment were manually extruded into a graded core collar, sectioned with a core knife, and placed into a pre-labeled plastic sample bag. If a core was not intact when retrieved, it was discarded and a new one was collected. Samples from a minimum of three cores treated in this manner were composited to create a single sample at each station. Supporting measurements of core penetration depth and depths of visually apparent redox boundaries/horizons, as well as notes regarding sediment texture and colour for each visible horizon, general sediment odour (e.g., hydrogen sulphide), and presence of algae or plants on or in the sediment, were recorded for each core sample.

A hand-held global positioning system (GPS) device (Garmin International Inc., Olathe, Kansas) was used to record GPS coordinates at each sediment sampling station in Universal Transverse Mercator (UTM) units and based on 1983 North American Datum (NAD 83). Following collection, all sediment samples were placed into a cooler and transported to the mine, where they were stored until shipment to a CALA-accredited analytical laboratory, both under cool conditions.

¹⁶ The next round of sediment sampling at creek/river stations is planned for 2026.



Table 2.5: Lake Sediment Quality and Benthic Invertebrate Community Monitoring Station Coordinates, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

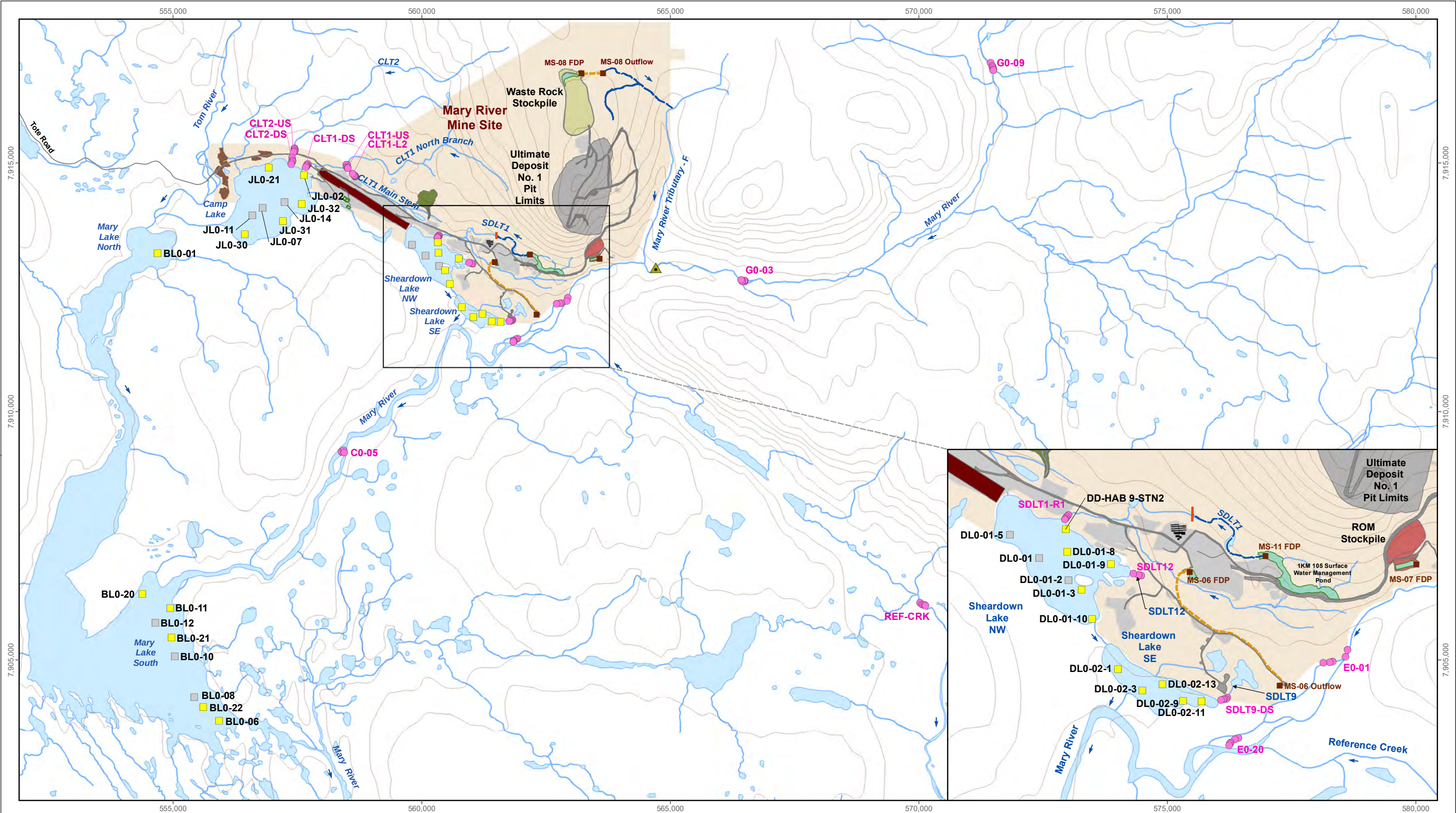
Waterbody	Sampling Habitat	Station ID	UTM Zone 17N, NAD83		Sample Type	
			Easting	Northing	Sediment Core ^{a,b}	Benthic Invertebrate
Reference Lake 3	littoral	REF-03-1	575820	7852759	✓	✓
		REF-03-2	574200	7852330	✓	✓
		REF-03-3	574564	7852840	✓	✓
		REF-03-4	574301	7852705	✓	✓
		REF-03-5	573694	7853613	✓	✓
	profundal	REF-03-7	575076	7852750	✓	-
		REF-03-9	574168	7852975	✓	-
		REF-03-10	574358	7853400	✓	-
Camp Lake	littoral	JL0-02	557629	7914751	✓	✓
		JL0-21	556926	7914912	✓	✓
		JL0-30	556446	7913562	✓	✓
		JL0-31	557213	7913826	✓	✓
		JL0-32	557590	7914174	✓	✓
	profundal	JL0-07	556803	7914096	✓	-
		JL0-11	556594	7913947	✓	-
		JL0-14	557244	7914215	✓	-
Sheardown Lake Northwest (NW)	littoral	DD-HAB 9-STN2	560324	7913401	✓	✓
		DL0-01-8	560338	7913193	✓	✓
		DL0-01-9	560745	7913077	✓	✓
		DL0-01-3	560471	7912838	✓	✓
		DL0-01-10	560570	7912567	✓	✓
	profundal	DL0-01-5	559805	7913349	✓	-
		DL0-01	560078	7913132	✓	-
		DL0-01-2	560350	7912928	✓	-
Sheardown Lake Southeast (SE)	littoral	DL0-02-1	560808	7912101	✓	✓
		DL0-02-11	561585	7911800	✓	✓
		DL0-02-9	561413	7911807	✓	✓
		DL0-02-13 ^c	561222	7911958	✓	✓
		DL0-02-3 ^c	561038	7911899	✓	✓
Mary Lake	littoral	BL0-01	554690	7913187	✓	✓
		BL0-06	555925	7903772	✓	✓
		BL0-20	554382	7906326	✓	✓
		BL0-21	554966	7905443	✓	✓
		BL0-22	555607	7904040	✓	✓
		BL0-11	554942	7906033	✓	✓
	profundal	BL0-12	554643	7905743	✓	-
		BL0-10	555033	7905066	✓	-
		BL0-08	555424	7904240	✓	-

Notes: ID = identifier. UTM = Universal Transverse Mercator. NAD = North American Datum. ✓ = stations sampled. - = stations not samples. TOC = Total Organic Carbon. AEMP = Aquatic Effects Monitoring Plan.

^a Sediment core samples are analyzed for particle sizes, TOC content, and total concentrations of metals. Under the Revision 2 AEMP (Baffinland 2024), sediment cores are collected from each of the lake benthic invertebrate monitoring locations. Therefore, collection of additional sediment samples for particle size analysis using a Petite Ponar (as was done in 2024 to support interpretation of co-located benthic invertebrate community data; Minnow 2025) was not required in 2025.

^b Sampling locations are based on Figure 3.3 of the Revision 2 AEMP (Baffinland 2024).

^c Reclassification of Stations DL0-02-13 and DL0-02-3 as "littoral" represents a change relative to the 2024 CREMP Report (Minnow 2025), wherein these two stations were considered as "profundal".



LEGEND

- Stream Benthic Invertebrate Sample Location
- Littoral (lake) Sediment and Benthic Invertebrate Sampling Location
- Profundal (lake) Sediment Sampling Location
- Final Discharge Point (FDP)
- Mary River Cascade Barrier
- Airstrip
- Mine Site Complex
- Pond
- ROM Stockpile
- Road
- Open Pit
- Waste Rock Facility
- Infrastructure
- Borrow Pit
- Quarry
- Mine Site Area
- Fish Barrier
- Overland Surface Water Flow
- HDPE Pipe
- Contour (20m)

Map Projection: UTM Zone 17N NAD 1983
Data Source: Reproduced under licence from His Majesty the King in Rights of Canada, Department of Natural Resources Canada. All rights reserved.

Core Receiving Environment Monitoring Program (CREMP) Sediment and Benthic Invertebrate Community Monitoring Stations, 2025

Date: March 2026
Project 257202.5067

Figure 2.4

Sediment samples (whole samples, not field-sieved) were sent to ALS (Waterloo, Ontario) for analysis of moisture content, particle sizes, TOC content, and concentrations of metals using standard laboratory methods¹⁷. The QA/QC program included an assessment of laboratory sensitivity, accuracy, and precision (Province of BC 2020). Specifically, data quality was evaluated based on the ability to achieve minimum LRLs and acceptable results for laboratory duplicate, spike recovery, blank, and certified reference material (CRM) samples (Appendix A).

2.3.3 Data Analysis

2.3.3.1 Standard Assessment

Sediment quality data from the mine-exposed lakes were compared to reference area data from similar habitats (i.e., Reference Lake 3), applicable sediment quality guidelines (SQG) or AEMP benchmarks, and, where available, baseline sediment quality data. Physical characteristics of sediment (e.g., moisture content, particle size) and TOC at study area lakes were summarized by calculating the mean, standard deviation (SD), standard error, minima, and maxima for both littoral and profundal habitats. Statistical comparisons of physical characteristics and chemistry data for sediment samples collected from mine-exposed and reference lakes, as well as in 2025 relative to baseline, were completed in R (R Core Team 2023). First, data were assessed for normality and homogeneity of variances. If the data were found to be non-normal, transformations including $\log_{10}$ and $\log_{10}(x+1)$ were applied, followed by re-evaluation for normality. The transformation that resulted in normal data with the highest p-value from a Shapiro-Wilks normality test was selected for use in the Analysis of Variance (ANOVA). In cases where normality could not be achieved through transformation, non-parametric Kruskal-Wallis (K-W) H-tests were used to conduct multiple-group comparisons on rank-transformed data. Normally distributed data were subject to Tukey's Honestly Significant Difference (HSD) test and non-parametric post-hoc tests were completed using Dunn's K-W Multiple Comparisons test (Dunn 1964). All statistical comparisons were conducted using an α (p-value) for defining differences of 0.05.

As noted in Section 2.2.3, because the Project is located within an area of metal enrichment (hence its attractiveness for mining), concentrations of metals or other parameters in sediment may naturally be above generic guidelines developed for other regions of Canada. The AEMP benchmarks, which are provided in Table 2.6 and intended to inform management decisions under the AEMP Data Assessment and Response Framework (Baffinland 2024), were developed

¹⁷ The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by the United States Environmental Protection Agency, American Public Health Association Standard Methods, ASTM International, International Organization for Standardization, and Environment and Climate Change Canada.



Table 2.6: Sediment Quality Guidelines and Benchmarks for Mine-exposed Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Sediment Quality					Supporting Information Used to Derive SQG/AEMP Benchmark
		Units	SQG ^a			AEMP Benchmark	
			Lower	Upper	Type	Lake	
Nutrients and Organics	Phosphorus	mg/kg dw	-	-	-	1,962 ^b , 2,302 ^c , 1,861 ^d , 2,010 ^e	Benchmarks are based on the average of the 97.5th percentile of baseline and reference lake concentrations.
	Total Organic Carbon (TOC)	%	1	10	ON PSQG	-	-
Metals	Arsenic (As)	mg/kg dw	-	-	-	11.5	Benchmark is the average of the ISQG and PEL from CCME (2026).
	Cadmium (Cd)	mg/kg dw	-	-	-	2.1	Benchmark is the average of the ISQG and PEL from CCME (2026).
	Chromium (Cr)	mg/kg dw	-	-	-	89 ^b , 94 ^c , 86 ^d , 99 ^e	Benchmarks for Camp Lake and Sheardown Lake SE are based on the average of the 97.5th percentiles of baseline and reference lake concentrations. Benchmarks for Sheardown Lake NW and Mary Lake are based on the 97.5th percentile of baseline data.
	Copper (Cu)	mg/kg dw	-	-	-	84 ^b , 89 ^c , 87 ^d , 79 ^e	Benchmarks are based on the average of the 97.5th percentile of baseline and reference lake concentrations.
	Iron (Fe)	mg/kg dw	-	-	-	67,866 ^b , 71,736 ^c , 61,247 ^d , 68,967 ^e	Benchmarks are based on the average of the 97.5th percentile of baseline and reference lake concentrations.
	Lead (Pb)	mg/kg dw	-	-	-	63	Benchmark is the average of the ISQG and PEL from CCME (2026).
	Manganese (Mn)	mg/kg dw	-	-	-	3,441 ^b , 4,754 ^c , 2,089 ^d , 4,486 ^e	Benchmarks for Camp Lake and Sheardown Lake SE are based on the average of the 97.5th percentile of baseline and reference lake concentrations. Benchmarks for Sheardown Lake NW and Mary Lake are based on the 97.5th percentile of baseline data.
	Mercury (Hg)	mg/kg dw	-	-	-	0.33	Benchmark is the average of the ISQG and PEL from CCME (2026).
	Molybdenum (Mo)	mg/kg dw	25	23,000	BC WSQG	-	-
	Nickel (Ni)	mg/kg dw	-	-	-	72 ^b , 82 ^c , 66 ^d , 69 ^e	Benchmarks are based on the 97.5th percentile of baseline data.
	Silver (Ag)	mg/kg dw	0.5	-	BC WSQG	-	-
	Zinc (Zn)	mg/kg dw	-	-	-	219	Benchmark is the average of the ISQG and PEL from CCME (2026).

Notes: SQG = Sediment Quality Guideline. AEMP = Aquatic Effects Monitoring Plan. mg/kg dw = milligrams per kilogram dry weight. ON PSQG = Ontario Provincial Sediment Quality Guideline. - = no applicable guideline or benchmark or no comment. % = percent. ISQG = Interim Sediment Quality Guideline. PEL = Probable Effect Level. CCME = Canadian Council of Ministers of the Environment. SE = southeast. NW = northwest. BC WSQG = British Columbia Working Sediment Quality Guideline. LEL = Lowest Effect Level. SEL = Severe Effect Level. TEL = Threshold Effect Level. Unless otherwise specified, guidelines and/or benchmarks apply to all lakes.

^a SQG for the protection of freshwater aquatic life include LEL and SEL PSQG from Ontario (MECP 2026) and lower and upper WSQG from British Columbia (BCMOE 2025b). The lower and upper BC WSQG are equivalent to the TEL/ISQGs and PEL, respectively, from the CCME (2026). Parameters with site-specific benchmarks (Baffinland 2024) were not screened to generic SQG derived for other jurisdictions in Canada. Because all sediment quality parameters with CCME (2026) SQG have AEMP benchmarks, no screening to CCME SQG was completed.

^b AEMP benchmark is specific to Camp lake (JL0).

^c AEMP benchmark is specific to Sheardown Lake NW (DL0-01).

^d AEMP benchmark is specific to Sheardown Lake SE (DL0-02).

^e AEMP benchmark is specific to Mary Lake North (BL0-01) and South Basins (BL0-02).

based on an evaluation of reference and baseline sediment chemistry, as well as existing Canadian SQG. For sediment parameters without benchmarks, the most recent SQG (i.e., the SQG based on the most up-to-date information) were selected from the CCME (2026) SQG, Ontario Provincial Sediment Quality Guidelines (ON PSQG; MECP 2026), or British Columbia Working Sediment Quality Guidelines (BC WSQG; BC MOE 2025b; Table 2.6). Comparisons to SQG included the lower SQG, which represent the Lowest Effect Level (LEL; ON PSQG) or Threshold Effect Level (TEL)/Interim Sediment Quality Guideline (ISQG; CCME and BC WSQG), as well as the upper SQG, which represent Severe Effect Level (SEL; ON PSQG) or Probable Effect Level (PEL; CCME and BC WSQG) concentrations (Table 2.6).

The concentration of a parameter being above the respective AEMP benchmark may trigger various actions, such as modifications to the sampling design, additional statistical assessments, and/or consideration of mitigation measures, to better understand and reduce the potential for effects (Section 2.7; Baffinland 2024). Sediment quality parameters with concentrations that were higher at mine-exposed areas compared to reference areas and/or baseline conditions, or relative to AEMP benchmarks or SQG, were plotted to assess changes in concentrations over time and differences among baseline (2005 to 2013), construction (2014), and mine operational years (2015 to 2025). Concentrations of parameters identified as site-specific parameters of concern in previous studies were also plotted. A mine-related effect was determined if the mean concentration of a parameter was significantly different relative to reference and baseline, and/or if qualitative evaluation of temporal plots suggested a mine-related increase over time.

2.3.3.2 Special Investigations

Special investigations were completed for sediment quality parameters in study lakes where a potential for mine-related influence was identified, based on the outcomes of the 2024 CREMP (Table 2.7; Minnow 2025). In 2025 specifically, this corresponded to special investigations of iron concentrations in littoral and profundal sediments of Sheardown Lake NW. Sediment quality data for individual stations in Sheardown Lake NW were compared qualitatively, based on plotted and tabulated data, to identify potential spatial patterns in concentrations of metals. These comparisons were used to inform the potential need for further investigations and mitigation of metal concentrations in sediments from Sheardown Lake NW. Because only one sampling event was conducted each year over the period of record, temporal trends in sediment iron concentrations were assessed for each station using a Mann-Kendall test for trend (Mann 1945). This approach uses the same methods described for the seasonal Kendall test used in special investigations of water chemistry temporal trends (Section 2.2.3.2.2) but only



Table 2.7: Summary of Special Investigations Associated with Action Level Responses for Sediment Quality, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Waterbody Type	Waterbody Name	Station(s)	Special Investigation Type	Parameter	Year Identified	Results Section
Lake	Sheardown Lake Northwest (DL0-01)	Littoral and profundal	Temporal trend analysis	Iron	2023	4.4.2
			Spatial comparisons within lake		2024	4.4.2

includes one “season” in the analysis. Trends were also assessed within a given lake by adapting the non-parametric seasonal Kendall test (Hirsch et al.1982) to a regional Kendall test that assessed temporal trends separately for each station (or “region”) within a lake and combined the results into an overall test for trend (Helsel and Frans 2006). The test was completed using customized R scripts (R Core Team 2023) and according to the same methods described for the seasonal Kendall test used in special investigations of water chemistry temporal trends (Section 2.2.3.2.2), but with trends combined for each station rather than over seasons. The trend slope over time was estimated by computing the median of all slopes between data pairs within the same station, rather than the same season (Helsel and Hirsch 2002).

2.4 Phytoplankton

2.4.1 General Design

Phytoplankton monitoring was conducted by Baffinland environment department personnel concurrently with water quality monitoring (Table 2.2; Baffinland 2024). Sampling completed in lakes during winter (April to May 2025) followed the Revision 1 AEMP study design (Baffinland 2015), whereas sampling completed thereafter in creeks, rivers, and lakes, followed the Revision 2 AEMP study design (Baffinland 2024). Overall, phytoplankton samples for analysis of chlorophyll-a concentrations were collected from as many as 50 stations during each sampling event (Table 2.2; Figures 2.2 and 2.3).

The evaluation of potential mine-related effects on phytoplankton abundance near the mine was based on comparisons of chlorophyll-a concentrations to applicable reference area data, baseline data, and the site-specific AEMP benchmark of 3.7 micrograms per litre ($\mu\text{g/L}$; Baffinland 2024). The site-specific AEMP benchmark was developed to maintain the baseline trophic status of mine-exposed lakes (i.e., oligotrophic) and considers trophic status data from the scientific literature.

2.4.2 Sample Collection and Laboratory Analysis

Chlorophyll-a, the primary pigment of phytoplankton (including algae and other photosynthetic microbiota suspended in the water column), is commonly used as a surrogate to evaluate the abundance of photosynthetic microbiota in aquatic environments (Wetzel 2001) and support understanding of the productivity of a system. Water samples for analysis of aqueous chlorophyll-a concentrations were collected by Baffinland environment department personnel at the same stations and same time, and using the same methods and equipment, as those employed for the collection of water chemistry samples (Table 2.2; Figures 2.2 and 2.3; Section 2.2.3.1). Surface and bottom water samples for analysis of chlorophyll-a concentrations



were collected from lakes in winter; surface samples were collected from lakes in summer and fall 2025.¹⁸

The samples for chlorophyll-a analysis were collected into 1 L glass amber bottles and maintained in a cool and dark environment prior to submission to ALS for analysis (Mary River On-site Laboratory, Nunavut). Within 48 hours of sample collection, the on-site laboratory filtered the samples through a 0.45-micrometre (μm) cellulose acetate membrane filter using a vacuum pump. Following filtration, the membrane filter was wrapped in aluminum foil, inserted into a labelled envelope, and then frozen. At the completion of field collections for each seasonal sampling event, the filters were shipped frozen to ALS in Waterloo, Ontario, for analysis of chlorophyll-a concentrations using standard laboratory methods¹⁹. The field QA/QC applied during collection of samples for chlorophyll-a analysis was similar to that described for water chemistry sampling (Section 2.2.3.1).

2.4.3 Data Analysis

The analysis of aqueous chlorophyll-a concentration data followed a similar approach to that used for the water quality evaluation. Chlorophyll-a concentrations were compared to reference area and baseline normal ranges that were calculated by waterbody type (i.e., creeks, rivers, and lakes) and season using the approach described in Section 2.2.2.2. Chlorophyll-a concentrations were also compared to the 3.7 $\mu\text{g/L}$ AEMP benchmark that was established for the Project (Baffinland 2024) and used to assess potential mine-related nutrient enrichment and subsequent effects to phytoplankton productivity in mine-exposed waterbodies. Additionally, chlorophyll-a concentrations were plotted to qualitatively assess seasonal and spatial patterns within individual waterbodies or systems (e.g., the Camp Lake system). If a chlorophyll-a concentration was above the upper bounds of its respective reference area and baseline normal ranges, and/or if qualitative evaluation of temporal plots suggested a mine-related increase in concentrations over time, the results were investigated further to determine whether the effects are likely mine-related. This process includes use of a weight-of-evidence approach that considers results from other study components (e.g., water chemistry). Consistent with the Data Assessment and Response Framework and TARP from the Revision 2 AEMP (Baffinland 2024), thresholds that would trigger pre-defined Low or Moderate

¹⁸ Under Revision 2 of the AEMP (Baffinland 2024), the presence of a thermocline would have required collection of surface and bottom water samples for analysis of water chemistry and chlorophyll-a concentrations.

¹⁹ The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by the United States Environmental Protection Agency, American Public Health Association Standard Methods, ASTM International, International Organization for Standardization, and Environment and Climate Change Canada.



Risk Responses were based on the 3.7 µg/L AEMP benchmark for aqueous chlorophyll-a concentrations.

2.5 Benthic Invertebrate Community

2.5.1 General Design

The BIC study for the CREMP includes sampling to characterize potential mine-related effects in lotic (creek/river) and lentic (lake) environments (Tables 2.8 and 2.5, respectively; Baffinland 2024). Additionally, BIC data are collected every three years as a part of the EEM program for the Project; sampling is completed in MRTF, downstream (effluent exposed) and upstream (reference) from the primary mine effluent discharge (MS-08; see Figure 2.4). The Phase 3 EEM was conducted concurrently with the CREMP in 2023, and BIC results were summarized in the 2023 CREMP report (Minnow 2024a).

In alignment with the federal EEM program, the CREMP includes sampling at five BIC stations in each creek/river study area, with the exception of SDLT12, where only three stations are typically sampled due to limited suitable habitat (Baffinland 2024). Where possible, the same station locations used in previous studies were sampled in 2025 to maintain continuity across historical baseline, construction, and operational period studies. This includes CLT1-L2 on the CLT1 Upper Main Stem, which was specifically recommended for continued monitoring under the CREMP to support evaluation of water chemistry conditions at that location, using a weight-of-evidence approach (Minnow 2025).

In 2025, BIC sampling was completed at littoral stations (2 to 12 m depth) within four mine-exposed study lakes (i.e., $n = 5$ stations in each of Camp, Sheardown Lake NW, Sheardown Lake SE, and Mary lakes), and at Reference Lake 3 ($n = 5$), consistent with the Revision 2 AEMP study design (Table 2.5, Figures 2.3 and 2.4). The BIC sampling stations for each study lake were selected based on the previously established suite of littoral BIC stations for the CREMP.²⁰ This approach supports temporal continuity with the baseline studies, to the extent possible.

An ecologically meaningful difference in BIC endpoints, either between mine-exposed and reference areas or the current year and baseline conditions, is concluded when the corresponding Magnitude of Difference (MOD) exceeds a critical effect size (CES) of ± 2 reference mean or baseline mean standard deviations (SD_{REF} and $SD_{BASELINE}$, respectively; Environment Canada 2012). This threshold is analogous to differences that are larger than expected based on natural variability between two areas uninfluenced by anthropogenic inputs (i.e., between

²⁰ Two stations from Sheardown Lake SE that were previously treated as profundal sampling stations were re-classified as littoral stations in the Revision 2 AEMP study design, because depths at these stations were shallower than the 12 m cutoff used to delineate littoral (shallow) from profundal (deep) habitats (Baffinland 2024).



Table 2.8: Stream and River Benthic Invertebrate Community Monitoring Station Coordinates, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Lake System	Waterbody	Station ID	Station Type	UTM Zone 17W, NAD83		Benthic Invertebrate
				Easting	Northing	
Angajurjualuk Lake	Unnamed Tributary / "Reference Creek"	REF-CRK-B1	Reference	570025	7906148	✓
		REF-CRK-B2	Reference	570060	7906115	✓
		REF-CRK-B3	Reference	570093	7906110	✓
		REF-CRK-B4	Reference	570121	7906099	✓
		REF-CRK-B5	Reference	570137	7906086	✓
Camp Lake	Camp Lake Tributary 1	CLT1-US-B1	Mine-Exposed	558502	7914967	✓
		CLT1-US-B2	Mine-Exposed	558488	7914963	✓
		CLT1-US-B3	Mine-Exposed	558494	7914930	✓
		CLT1-US-B4	Mine-Exposed	558509	7914903	✓
		CLT1-US-B5	Mine-Exposed	558517	7914890	✓
		CLT1-L2-B1	Mine-Exposed	558670	7914728	✓
		CLT1-L2-B2	Mine-Exposed	558662	7914737	✓
		CLT1-L2-B3	Mine-Exposed	558657	7914742	✓
		CLT1-L2-B4	Mine-Exposed	558642	7914753	✓
		CLT1-L2-B5	Mine-Exposed	558613	7914782	✓
		CLT1-DS-B1	Mine-Exposed	557710	7914978	✓
		CLT1-DS-B2	Mine-Exposed	557693	7914957	✓
		CLT1-DS-B3	Mine-Exposed	557686	7914944	✓
		CLT1-DS-B4	Mine-Exposed	557678	7914932	✓
		CLT1-DS-B5	Mine-Exposed	557672	7914917	✓
	Camp Lake Tributary 2	CLT2-US-B1	Mine-Exposed	557441	7915291	✓
		CLT2-US-B2	Mine-Exposed	557451	7915275	✓
		CLT2-US-B3	Mine-Exposed	557450	7915251	✓
		CLT2-US-B4	Mine-Exposed	557441	7915237	✓
		CLT2-US-B5	Mine-Exposed	557423	7915215	✓
		CLT2-DS-B1	Mine-Exposed	557392	7915104	✓
		CLT2-DS-B2	Mine-Exposed	557398	7915053	✓
		CLT2-DS-B3	Mine-Exposed	557400	7915032	✓
		CLT2-DS-B4	Mine-Exposed	557997	7915008	✓
		CLT2-DS-B5	Mine-Exposed	557377	7914971	✓
Sheardown Lake Northwest (NW)	Sheardown Lake Tributary 1 (Reach 1)	SDLT1-R1-B1	Mine-Exposed	560352	7913522	✓
		SDLT1-R1-B2	Mine-Exposed	560338	7913520	✓
		SDLT1-R1-B3	Mine-Exposed	560328	7913507	✓
		SDLT1-R1-B4	Mine-Exposed	560320	7913497	✓
		SDLT1-R1-B5	Mine-Exposed	560313	7913493	✓
	Sheardown Lake Tributary 12	SDLT12-B1	Mine-Exposed	560953	7912988	✓
		SDLT12-B2	Mine-Exposed	561003	7912975	✓
		SDLT12-B3	Mine-Exposed	561016	7912971	✓
Sheardown Lake Southeast (SE)	Sheardown Lake Tributary 9	SDLT9-DS-B1	Mine-Exposed	561848	7911860	✓
		SDLT9-DS-B2	Mine-Exposed	561825	7911838	✓
		SDLT9-DS-B3	Mine-Exposed	561798	7911824	✓
		SDLT9-DS-B4	Mine-Exposed	561785	7911816	✓
		SDLT9-DS-B5	Mine-Exposed	561767	7911812	✓
Mary Lake	Mary River	G0-09-B1	Reference	571447	7917010	✓
		G0-09-B2	Reference	571479	7916946	✓
		G0-09-B3	Reference	571489	7916919	✓
		G0-09-B4	Reference	571499	7916883	✓
		G0-09-B5	Reference	571503	7916858	✓
		G0-03-B1	Mine-Exposed	566489	7912626	✓
		G0-03-B2	Mine-Exposed	566509	7912616	✓
		G0-03-B3	Mine-Exposed	566491	7912605	✓
		G0-03-B4	Mine-Exposed	566425	7912630	✓
		G0-03-B5	Mine-Exposed	566425	7912642	✓
		E0-01-B1	Mine-Exposed	562944	7912281	✓
		E0-01-B2	Mine-Exposed	562922	7912214	✓
		E0-01-B3	Mine-Exposed	562806	7912171	✓
		E0-01-B4	Mine-Exposed	562778	7912165	✓
		E0-01-B5	Mine-Exposed	562717	7912158	✓
		E0-20-B1	Mine-Exposed	561930	7911460	✓
		E0-20-B2	Mine-Exposed	561895	7911447	✓
		E0-20-B3	Mine-Exposed	561858	7911420	✓
		E0-20-B4	Mine-Exposed	561848	7911408	✓
		E0-20-B5	Mine-Exposed	561841	7911393	✓
		C0-05-B1	Mine-Exposed	558465	7909208	✓
		C0-05-B2	Mine-Exposed	558387	7909183	✓
		C0-05-B3	Mine-Exposed	558365	7909214	✓
		C0-05-B4	Mine-Exposed	558355	7909224	✓
		C0-05-B5	Mine-Exposed	558359	7909209	✓

Notes: ID = identifier. UTM = Universal Transverse Mercator. NAD = North American Datum. ✓ = stations sampled.

pristine reference areas; see Munkittrick et al. 2009; Environment Canada 2012). Sampling five stations at each study area (except in SDLT12) provides adequate statistical power to detect ecologically meaningful differences in BIC endpoints using an equal α and beta (β) of 0.10 (Environment Canada 2012).

2.5.2 Sample Collection and Laboratory Analysis

Two types of equipment and methods were used during the 2025 CREMP BIC study. These are as follows:

- at **creek/river stations** (i.e., areas with predominantly cobble and/or gravel substrate in flowing waters), BIC samples were collected using a Surber sampler (0.0929 square metre [m^2] sampling area) equipped with 500- μm mesh. At each station, one composite sample was collected by combining three Surber sampler grabs (i.e., 0.279 m^2 area). A concerted effort was made to select sampling locations with water velocity and substrate characteristics that were comparable between the respective mine-exposed and reference area stations, minimizing natural influences on community variability. Once all three sub-samples were collected at each station, the material gathered in the Surber sampler net was transferred to a plastic sampling jar, which was labelled both externally and internally with the station identifier while working over a catch-tote.
- at **lake stations** (i.e., areas with predominantly soft silt-sand, silt, and/or clay substrates and variable amounts of organics), BIC sampling was conducted using a Petite Ponar grab sampler (15.24 x 15.24 cm; 0.023 m^2 sampling area). A single composite sample, consisting of five grabs (i.e., 0.115 m^2 sampling area), was collected at each station. Only acceptable grabs were included in the composite sample (i.e., individual grabs were evaluated to confirm they captured enough surface material to fill to the edges of the Petite Ponar). Any incomplete grabs were discarded. For each acceptable grab, the Petite Ponar was thoroughly rinsed, and the material was then field-sieved through a 500- μm mesh. After sieving all five grabs, the retained material was carefully transferred into a plastic sampling jar, which was labelled externally and internally with the station identifier while working over a catch-tote.

Following collection, the BIC samples were preserved in 10% buffered formalin in ambient water. At creek and river stations, supporting measurements and information, including sampling depth, water velocity, and a description of the presence of aquatic vegetation/algae, were collected at each replicate grab location. Additionally, *in situ* water quality measurements at the bottom of the water column, as well as GPS coordinates, were collected at each creek or river BIC station.



For each lake BIC station, supporting information recorded included substrate description, presence of aquatic vegetation/algae, sampling depth, *in situ* water quality at both the surface and bottom of the water column, and GPS coordinates.

The BIC samples collected in 2025 were submitted to Zeas Inc. (Nobleton, Ontario) for processing, where standard sorting, identification, and counting methods were applied, as described by Environment Canada (2014). Upon arrival at the laboratory, a biological stain was added to each sample to enhance sorting accuracy. The samples were first washed free of formalin in a 500-µm sieve, and the remaining sample material was then examined under a stereomicroscope at a magnification of at least 10 times. Benthic invertebrates were carefully removed from the sample debris and placed into vials containing 70% ethanol, organized by major taxonomic groups (typically at the order or family level). A senior taxonomist later identified and enumerated the organisms to the lowest practical level (LPL) of taxonomy (usually genus or species) using up-to-date taxonomic keys. Laboratory QA/QC procedures used during sample processing included organism recovery and sub-sampling checks on up to 10% of the total samples collected for the 2025 CREMP (Appendix A).

2.5.3 Data Analysis

BIC data were evaluated separately for creek, river, and lake environments and were used to calculate primary EEM endpoints of mean invertebrate density (i.e., average number of organisms per m²), mean taxonomic richness (number of taxa identified to the LPL), and Simpson's Evenness Index. Simpson's Evenness was calculated using the Krebs method (Smith and Wilson 1996). Additional analyses were performed using percent composition of dominant/indicator taxa, functional feeding groups (FFGs), and habit preference groups (HPGs). Percent composition of taxa and groups were calculated as the raw abundance of each respective group relative to the total number of organisms in the sample. Dominant/indicator taxonomic groups were defined as those groups representing, on average, greater than (>) 5% of total raw organism abundance for a study area or any groups considered to be important indicators of environmental stress (e.g., Ephemeroptera). The FFG and HPG were assigned based on Pennak (1989), Mandaville (2002), and/or Merritt et al. (2008) descriptions/designations for each taxon.

The Bray-Curtis Index was used to evaluate community-level differences between study areas, with calculations and statistical assessments following the procedures recommended for federal EEM studies (see Borcard and Legendre 2013). Specifically, pairwise community-level differences between study areas were assessed using ln-transformed density data, and homogeneity of group variance was calculated according to the Permutational Analysis of Multivariate Dispersions (PERMDISP2) procedure (Anderson 2006). To further investigate



differences in community structure, a Mantel Test and distance-based Redundancy Analysis (dbRDA) were applied using R statistical software (as per Borcard and Legendre 2013).

Statistical comparisons of BIC endpoints and community composition endpoints were conducted using the same tests described previously for sediment (Section 2.3.3.1). Statistical comparisons were conducted using R programming (R Core Team 2023). A significant difference between BIC endpoints for any paired mine-exposed and reference areas was defined at a p-value of 0.10; the same p-value was also used for comparisons relative to baseline within a given area. For each endpoint that showed a significant difference, the MOD was calculated between study area or annual means. Given that the benthic study was designed to have sufficient power to detect a difference (effect size) of ± 2 SD, the MODs for comparisons to reference and baseline were expressed as the number of SD_{REF} or the number of $SD_{BASELINE}$, respectively, using equations provided by Environment Canada (2012). Significant differences between mine-exposed and reference areas that had MODs outside of the CES for BIC (CES_{BIC}) of ± 2 SD_{REF} were considered indicative of ecologically meaningful differences, and further evaluation was completed to determine whether the differences were mine-related. The same approach was taken for MODs for temporal comparisons (e.g., 2025 relative to baseline) that were outside the CES_{BIC} of ± 2 $SD_{BASELINE}$. These evaluations considered the direction of the response and used a weight-of-evidence approach, incorporating results from other study components (e.g., water chemistry) and BIC endpoints.

Consistent with the Data Assessment and Response Framework and TARP from the Revision 2 AEMP (Baffinland 2024), thresholds for Low and Moderate Risk Responses were based on performance indicators of total benthic invertebrate densities, Simpson's Evenness, and taxonomic richness. A Low Risk Response was triggered if density, evenness, or richness at a mine-exposed area in 2025 differed significantly from reference or baseline ($p < 0.1$) in one or non-consecutive studies, regardless of whether the difference was large enough (i.e., outside the CES) to be considered ecologically meaningful. A Moderate Risk Response was triggered if density, evenness, or richness at a mine-exposed area in 2025 differed significantly from reference or baseline, and the difference was outside the CES, for two consecutive assessments (Baffinland 2024).

2.6 Fish Populations

2.6.1 General Design

The design of the CREMP fish population study closely aligns with the Environment Canada (2012) recommendations for non-lethal fish studies and is meant to assess potential mine-related effects on fish populations in mine-exposed lakes (Baffinland 2024).



The study targets arctic charr, as this species is the most abundant in the region's lakes and has sufficient baseline data to support a before-after statistical evaluation. Arctic charr are also culturally significant, serving as a key subsistence food source for Inuit communities. Target sample sizes for the CREMP, based on the Revision 2 AEMP study design (Baffinland2024) are 100 arctic charr from nearshore lake habitats and 50 arctic charr from littoral/profundal lake habitats.²¹ Sampling nearshore habitats with a backpack electrofisher mainly captures small, juvenile fish, whereas littoral/profundal habitat sampling with gill nets targets larger, sub-adult, and adult fish. By sampling both habitats and using two gear types, most age classes within the population are represented.

The fish study focuses on four mine-exposed lakes: Camp Lake, Sheardown Lake NW, Sheardown Lake SE, and Mary Lake (Figure 2.5). These mine-exposed study lakes were sampled during 2002, 2005, 2006, 2007, 2008, and 2013²² to establish baseline conditions. In 2015 (i.e., the first year of mine operations), Reference Lake 3 was added to the study and has been sampled for nearshore and littoral/profundal fish since (Figure 2.6). Overall, the sampling design allows for statistical evaluation of potential health effects on arctic charr populations at mine-exposed lakes compared to a reference lake, as well as among baseline (2007 to 2013), construction (2014), and operational periods (2015 to 2025). Under the EEM, fish population studies²³ are conducted every three years in the Mary River mine-exposed area and an unnamed tributary to Angijurjuk Lake, which serves as a reference area. The most recent EEM was completed in 2023 (Phase 3) and the results were incorporated into the 2023 CREMP report (Minnow 2024a,b).

2.6.2 Sample Collection

2.6.2.1 Nearshore Sampling

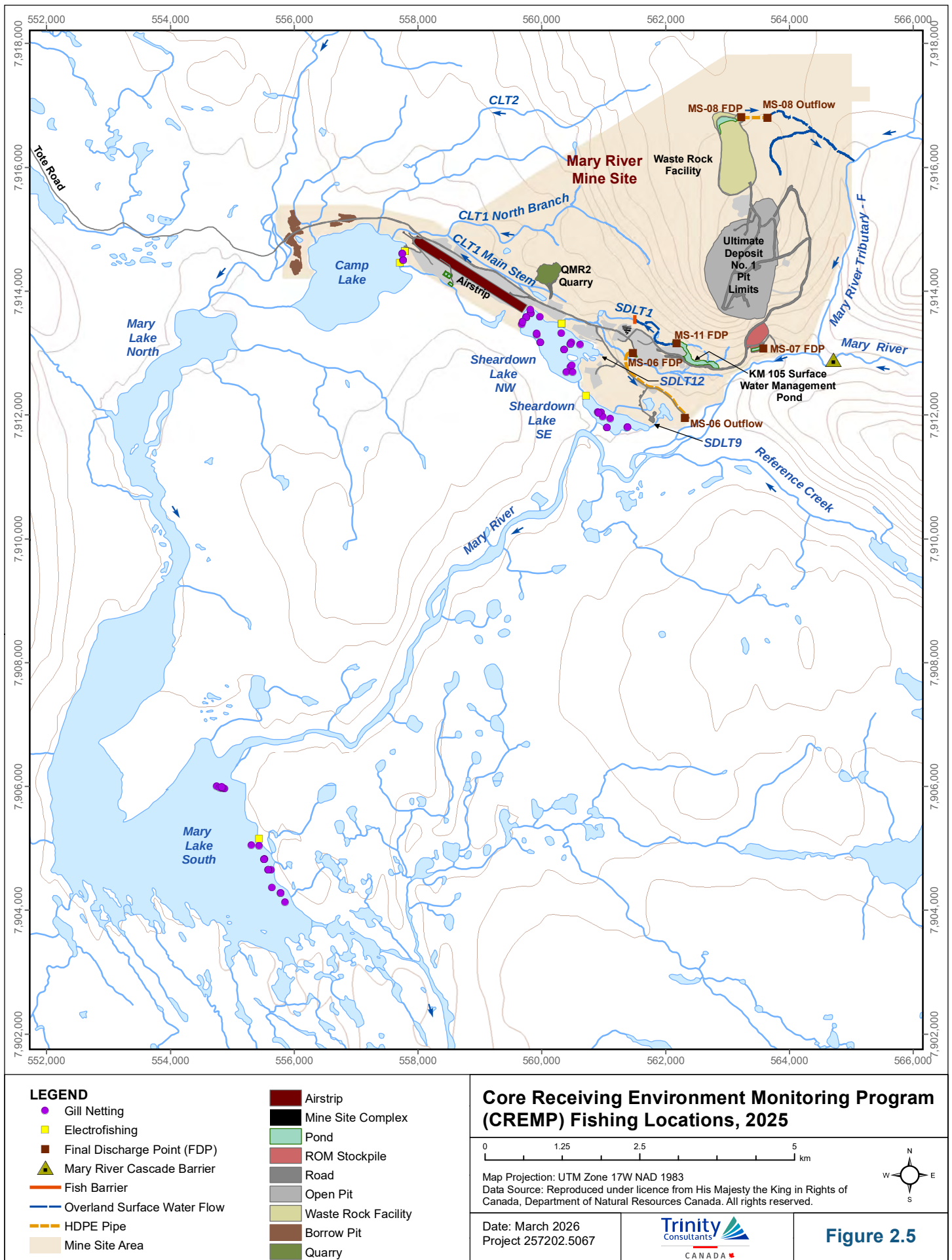
Nearshore areas of study lakes were sampled for arctic charr using a battery-powered backpack electrofishing unit (Model LR-24, Smith-Root Inc., Vancouver, Washington). An electrofishing

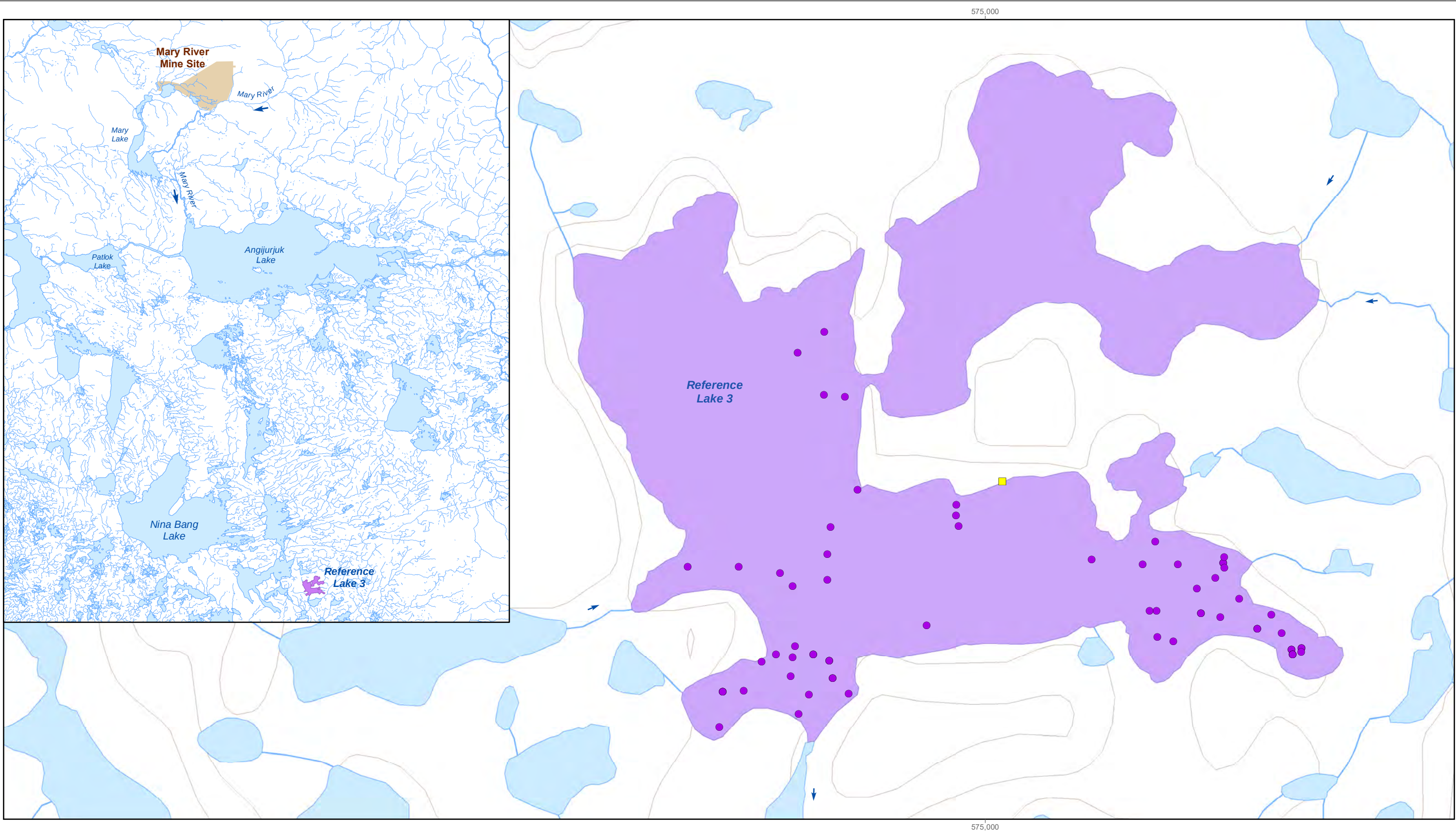
²¹ At the recommendation of Minnow, and based on the results of power analyses completed as part of CREMP reporting for 2024 to confirm minimum sample size requirements to detect changes larger than the CES of 10% (condition) or 25% (all other fish health endpoints), the 2025 CREMP fish study targeted 100 arctic charr from littoral/profundal lake habitats. This target sample size is consistent with target sample sizes from the Revision 1 AEMP (Baffinland 2015; see also Table 2.1).

²² Nearshore electrofishing baseline data were collected in 2013 in Camp Lake; in 2002, 2005, 2006, 2008, and 2013 at Sheardown Lake NW; and in 2007 at Sheardown Lake SE. No nearshore electrofishing baseline data were collected at Mary Lake. Littoral/profundal gill netting baseline data were collected in 2006, 2008, and 2013 at Camp Lake and Sheardown Lake NW; in 2007 and 2008 at Sheardown Lake SE; and in 2006 and 2007 at Mary Lake.

²³ The EEM fish studies include aspects of both lethal and non-lethal sampling designs to reflect the presence of fish in non-reproductive condition (e.g., juveniles) and the consequent inability to visually identify the sex of these individuals using external cues.

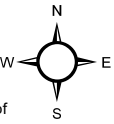
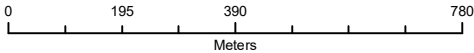






LEGEND

- Gill Netting
- Electrofishing



Map Projection: UTM Zone 17N NAD 1983
 Data Source: Reproduced under licence from His Majesty the King in Right of Canada, Department of Natural Resources Canada. All rights reserved.

Core Receiving Environment Monitoring Program (CREMP) Fishing Locations, Reference Lake 3, 2025

Date: March 2026
 Project 257202.5067



Figure 2.6

team, consisting of the operator and a single netter, fished at up to three shoreline reaches per lake (Figures 2.5 and 2.6). The number of passes conducted at each reach was based on the initial catch success; additional passes were made if the target sample numbers were not achieved during the first pass. All fish captured during each pass were temporarily retained in buckets containing aerated water. At the conclusion of each pass, fishing effort (i.e., electrofishing seconds) was recorded to facilitate the calculation of time standardized catch rates. Captured fish were identified to species, enumerated, and any non-target species were released alive at the site of capture. All captured arctic charr were temporarily retained for processing using methods described in Section 2.6.3. Additional supporting data were collected during each electrofishing pass, including GPS coordinates at the boundaries of each electrofishing reach and a description of the habitat within the reach.

2.6.2.2 Littoral/Profundal Sampling

Littoral/profundal areas of the study lakes were sampled for arctic charr using experimental (gang index) gill nets. The gill nets were multi-panel, 2 m high, between 61 to 91 m (200' to 300') total length, and made up of bar mesh sizes ranging from 38 to 76 millimetres (mm; 1.5" to 3"). These nets were set on the lake bottom during daylight hours and for short durations, ranging from 0.40 to 3.0 hours per set, with an average set duration of 1.1 hours. Upon retrieval, all captured fish were identified to species, enumerated, and processed separately according to the mesh size of the gill net panels. Processing details are described in Section 2.6.3. For each gill net set, the following information was recorded: net length, mesh size, duration of sampling, sampling depth range, GPS coordinates, and habitat descriptions.

2.6.3 Field and Laboratory Processing

Following completion of each electrofishing pass and retrieval of each individual gill net panel, all captured arctic charr were processed in the field. The external condition of each fish (live and incidental mortalities) was visually assessed for abnormalities, including deformities, erosions, lesions, and tumours (DELT) and evidence of parasites. All observations were recorded on field sheets, and supporting photographs taken. Each fish was then measured for both fork and total length to the nearest mm using a standard measuring board. Fish captured by electrofishing were individually weighed to the nearest milligram (mg) using an Ohaus Model 123 Scout-Pro analytical balance (Ohaus Corp., Pine Brook, New Jersey) with a draft shield for accuracy. Fish captured by gill net were weighed using Pesola™ spring scales (Pesola AG, Baar, Switzerland), which are accurate to within $\pm 0.3\%$ of the fish's mass. The scale was selected so that the weight of the fish was near the top of the scale's range to ensure a measurement resolution near 1%. Once measurements were taken, all live arctic charr, whether captured by electrofishing or gill netting, that were not selected for aging structure collection, were



released near the location of capture. In line with the EEM guidance (Environment Canada 2012) for non-lethal fish population surveys, approximately 10% of the arctic charr captured by electrofishing were sacrificed for collection of aging structures. The whole body of sacrificed fish and any incidental mortalities during electrofishing were retained for age determination. The fish were placed in a labelled WhirlPak™ bag with a unique fish identifier and frozen for storage before being shipped on ice to the aging laboratory.

The aging structures (otoliths) were extracted from whole body fish by North/South Consultants Inc. (Winnipeg, Manitoba) for age determination. The otoliths were processed by embedding the cleaned structures in epoxy resin, which was allowed to harden. Once hardened, the otoliths were sectioned near the center and mounted on glass slides using a mounting medium. The age from each otolith was determined by counting the annuli under a compound microscope using transmitted light. The age was recorded along with a condition index that assessed both qualitative characteristics (e.g., pattern clarity) and quantitative characteristics (e.g., repeatability of age assignment by the aging technician). A subsample of 10% of the otolith structures was aged by a different technician to evaluate accuracy and consistency (Appendix A).

2.6.4 Data Analysis

Fish community data from both the mine-exposed and reference areas were described based on total catch and catch-per-unit-effort (CPUE) for each sampling method. Electrofishing CPUE was calculated as the number of fish captured per electrofishing minute for each lake's nearshore area. Gill netting CPUE was determined by the number of fish captured per 100 metre-hours of net deployed in the littoral/profundal area of each study lake. Temporal comparisons of fish community assemblages were made qualitatively, using electrofishing CPUE and gill netting CPUE, to assess changes in fish catches at study lakes. These comparisons examined shifts in fish community composition/structure between baseline conditions and the years of mine operation from 2015 to 2025.

Health endpoints for arctic charr populations were assessed separately for nearshore (electrofishing) and littoral/profundal (gill netting) datasets. Initial data analysis involved plotting length-frequency distributions (LFD) from the nearshore dataset to differentiate young-of-the-year (YOY) individuals from older juvenile/adult age classes (i.e., non-YOY). Size and age classes were assessed and assigned qualitatively through visual inspection of LFD. Where distinct gaps were observed in the length distribution between age-0 and age-1+ individuals, the upper size boundary of the age-0 group was designated as the YOY cutoff. This approach was applied individually to each lake dataset. A potential source of error in visually determining the YOY cutoff is an overlap in length between age-0 and age-1+ individuals, especially in populations with variable growth rates. This can lead to misclassification when size classes within LFD



distributions are not clearly distinct. In these cases, supporting length, weight, and age data were also used to further inform distinctions between age-0 and age-1+ individuals. Subjectivity in visual assessment may introduce inconsistencies across datasets or observers.

Lake nearshore fish survey endpoints were analysed separately for the YOY and non-YOY age classes; analyses for YOY fish were only completed if sample sizes permitted (i.e., $n \geq 10$). Fish size endpoints, including fork length and fresh body weight, were summarized by calculating and reporting mean, median, minimum, maximum, SD, standard error, and sample size by age class within each study lake. These measurement endpoints formed the basis for evaluating four key response categories (i.e., survival, growth, reproduction, and energy storage) as outlined by Environment Canada (2012) for EEM (Table 2.9). Relative LFDs were compared between the mine-exposed lakes and the reference lake using 2025 data (i.e., control-impact analysis), as well as between the combined baseline period and 2025 for individual lakes (i.e., before-after analysis), employing a non-parametric two-sample Kolmogorov-Smirnov (K-S) test. The MODs associated with the LFD comparisons were calculated as the maximum difference in the cumulative relative frequency distributions (CRFD) between areas or periods (i.e., 2025 relative to baseline). A negative difference implies that the exposed area/2025 has a greater number of fish with lengths that are less than where the maximum difference in CRFDs was observed. A positive difference implies that the exposed area/2025 has fewer fish with length measures that are less than where the maximum difference in CRFDs was observed. To assess potential differences in reproductive success between paired study areas, the proportion of YOY arctic charr in the mine-exposed and reference areas was evaluated. Specifically, K-S test results were compared both with and without the inclusion of YOY individuals in the datasets (Environment Canada 2012). If including the YOY changed the significance of the difference between areas or periods, relative to the result with YOY excluded, then it was concluded that a difference in the relative abundance of YOY exists.

Mean fork length and body weight were compared between mine-exposed and reference study areas using data collected in 2025, as well as between the mine baseline period and 2025, separately for each study lake. Prior to statistical testing, the data were evaluated for normality and homogeneity of variance to determine the appropriateness of parametric statistical tests such (e.g., ANOVA). In cases where data did not meet assumptions of normality and homogeneity of variance, even after log transformation, a non-parametric Mann-Whitney U-test was used to test for differences between study areas or study periods. Body weight at fork length (condition) was compared using Analysis of Covariance (ANCOVA). Prior to conducting the ANCOVA tests, scatter plots of all variable and covariate combinations were reviewed to identify outliers,



Table 2.9: Fish Population Study Endpoints for the Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Response Category	Endpoint	Statistical Procedure ^{a,b}	Critical Effect Size (CES) ^c
Survival	Length-frequency distribution ^d	K-S Test	±25%
Growth	Size (fresh body weight) of YOY (age-0) and age-1+ fish at the end of growth period ^d	ANOVA	±25%
	Size (fork length) of YOY (age-0) and age-1+ fish at the end of growth period ^d	ANOVA	±25%
Reproduction	Relative abundance of YOY (% composition) ^d	K-S Test or Chi-Squared Test	Not applicable
Energy Storage	Condition (body weight against length) ^d	ANCOVA	±10%

Notes: K-S Test = Kolmogorov-Smirnov Test. ANOVA = Analysis of Variance. % = percent. YOY = Young of the Year. ANCOVA = Analysis of Covariance.

^a ANOVA used except for non-normal data, where Mann Whitney U-tests were used.

^b For the ANCOVAs, the first term in parentheses is the endpoint (dependent variable Y) that is analyzed to identify a potential effect. The second term in parentheses is the covariate, X (age, weight, or length).

^c The Revision 2 AEMP (Baffinland 2024) indicates CES apply in only one direction (i.e., statistically significant differences in condition [CES = 10%] and other health endpoints [CES = 25%] are only considered ecologically relevant if the mine-exposed area is lower relative to reference or baseline). Based on recommendations from Minnow Environmental Inc. and recognition that, as an example, higher condition in mine-exposed fish can signal potential mine-related effects (e.g., due to changes in productivity), bi-directional CES (i.e., ±) were applied in the 2025 CREMP.

^d Endpoints used for determining "effects" as designated by statistically significant difference between mine-exposed and reference areas (Baffinland 2024; see also Environment Canada 2012).

high-leverage values, or other unusual data points²⁴. These plots were also examined for adequate overlap between the 2025 data for mine-exposed and reference areas, as well as between the 2025 mine-exposed and baseline data, and to confirm a linear relationship between the variable and the covariate. To verify the linearity of the relationship, linear regression analysis was performed for each area, with evaluation at a level of 0.05. If no significant linear relationship was found between the variable and covariate for the 2025 mine-exposed area and reference or baseline data, ANCOVA was not conducted.

Once it was determined that ANCOVA could be used for statistical analysis, the first step was to test whether the slopes of the regression lines between datasets were equal. This was done by including an interaction term (dependent $\times$ covariate) in the ANCOVA model and evaluating its significance. If the interaction term was significant, it indicated that the regression slopes were not equal between the datasets, and the resulting ANCOVA would provide spurious results. In cases where the interaction term was significant, the process for determining whether a full ANCOVA could proceed involved the following steps: 1) removal of influential points using Cook's distance and re-assessing the equality of slopes; and/or, 2) evaluating Coefficients of Determination (r^2), which considered slopes equal regardless of the interaction effect (Environment Canada 2012). For the Coefficients of Determination, the full ANCOVA was conducted to test for main effects. If the r^2 value of both the parallel regression model (with the interaction term) and full regression model were > 0.8 and within 0.02 units of each other, the parallel-regression ANCOVA model was considered valid (Environment Canada 2012). If neither method was acceptable, a statistically significant interaction effect (indicating unequal slopes) was noted, and the magnitude of effect was estimated at both the minimum and maximum overlap of covariates between the areas (Environment Canada 2012). If the interaction term was not significant (i.e., slopes were homogeneous between the two populations), the full ANCOVA model was run without the interaction term to test for differences in adjusted means between the two datasets. The adjusted mean was then used as an estimate of the population mean, accounting for the value of the covariate in the ANCOVA model.

For endpoints showing significant differences, the MOD between the 2025 mine-exposed and reference data or between 2025 mine-exposed and baseline data was calculated as outlined by Environment Canada (2012). This calculation used either mean values (for ANOVA), adjusted mean values (for ANCOVA with no significant interaction), or predicted values (for ANCOVA with a significant interaction). In cases where the endpoint values were

²⁴ Coloured plot boxes represent the IQR (i.e. 25th to 75th percentile), bold horizontal line represents the median, grey square represents the mean, and vertical lines (i.e. whiskers) represent smallest and biggest numbers within 1.5 times the IQR. Outliers are represented by black circle markers outside whiskers.



$\log_{10}$ transformed, the anti-log of the mean, adjusted mean, or predicted mean value was used in the equations. If no significant difference was found between datasets, the minimum detectable effect size was calculated as a percent difference from the reference mean or mine-exposed baseline mean for ANOVA, or from the adjusted reference mean or mine-exposed baseline mean for ANCOVA, at a level of 0.10. The square root of the mean square error (calculated during the ANOVA or ANCOVA procedures) was used as a measure of variability in the sample population, based on the formula provided by Environment Canada (2012). If outliers or high-leverage values were identified upon examination of scatter plots and residuals, those values were removed, and both ANOVA or ANCOVA tests were repeated using the reduced dataset. Similar to the CES applied in the BIC survey, a CES of $\pm 10\%$ was applied for condition to define ecologically relevant differences, in alignment with EEM guidelines (Table 2.9; Munkittrick et al. 2009; Environment Canada 2012).

Differences beyond the CES are considered greater than those that would naturally occur (i.e., between two pristine reference areas) and therefore warranted further evaluation to determine whether the difference was mine-related. This assessment considered the direction of the response and used a weight-of-evidence approach, incorporating results from other study components (e.g., water and sediment chemistry, phytoplankton, and BIC). Consistent with the Data Assessment and Response Framework and TARP from the Revision 2 AEMP (Baffinland 2024), a Low Risk Response was triggered if a fish health endpoint at a mine-exposed area in 2025 differed significantly from reference or baseline ($p < 0.1$) in one or non-consecutive studies, regardless of whether the difference was large enough (i.e., outside the CES) to be considered ecologically meaningful. A Moderate Risk Response was triggered if a fish health endpoint at a mine-exposed area in 2025 differed significantly from reference or baseline, and the difference was outside the CES, for two consecutive assessments (Baffinland 2024).

Finally, an *a priori* power analysis was conducted to determine the appropriate fish sample sizes for future surveys, as recommended by Environment Canada (2012). These analyses were based on the mean square error values generated during the ANOVA or ANCOVA procedures, with both α and β set equally at 0.10. The power analysis was based on two key assumptions: 1) representativeness of populations: it was assumed that fish caught in both the mine-exposed and reference areas in 2025, or at mine-exposed areas in 2025 and baseline periods, were representative of the larger population. This assumes similar distribution and variance for the examined parameters across these areas; 2) population stability: it was assumed that the characteristics of the fish populations would not change substantially between the 2025 survey and the next study. The results of the power analysis were reported as the minimum sample size (number of fish per area) required to detect a specified MOD (effect size) between the mine-exposed and reference areas (or between the mine-exposed areas in 2025 and baseline)



for each endpoint. The MOD was expressed as a percentage increase or decrease relative to the reference area/baseline mean for each endpoint, calculated using the observed pooled SD of the residuals from ANOVA or parallel slope ANCOVA model.

2.7 Effects Assessment

2.7.1 2025 Effects Determination

An effects determination was conducted for all study waterbodies in the Camp Lake, Sheardown Lake, and Mary River and Mary Lake systems. This included a summary of instances where the AEMP benchmarks for water quality, sediment quality, and phytoplankton productivity (i.e., chlorophyll-a concentrations) were exceeded at waterbodies examined under the CREMP. Additionally, a mine-related influence on water or sediment quality was determined if concentrations of water or sediment quality parameters were elevated relative to both reference and baseline conditions at mine-exposed areas during at least one season in 2025.

Determining a mine-related effect on BIC and fish involved a weight-of-evidence approach. This considered incidences where AEMP benchmarks were exceeded and/or mine-related influences were identified in water and sediment quality, alongside corroboration of adverse effects on aquatic biota from biological monitoring results. The effects determination aimed to identify potential biological effects at these waterbodies in 2025 and, where appropriate, provide recommendation(s) for future study to assist Baffinland in making informed decisions about management actions (Baffinland 2024).

2.7.2 Comparisons to FEIS Predictions

As outlined in the Revision 2 AEMP study design, results of the 2025 CREMP were also compared to the effects predictions from the Final Environmental Impact Statement (FEIS) for the Project (Baffinland 2012, 2024). Water and sediment quality data from the 2025 CREMP were compared to thresholds established in the FEIS for predicting the magnitude of potential effects on water quality from mine contact water and site runoff. Parameters were considered to conform to FEIS predictions if their concentrations fell within the predicted ranges based on the 'magnitude of effect' significance ratings for residual water and sediment quality impacts²⁵.

Water quality data were compared to FEIS predictions for the following non-point source emissions: SWSQ-2 (Site Water Management; all stations), SWSQ-4 (Explosives; CLT1 Upper

²⁵ Significance ratings were: Negligible – concentrations of indicator(s) predicted to be less than threshold value(s); Level I - concentrations of indicator(s) predicted to be above but within an order of magnitude of threshold value(s) (1 to 10x the threshold); Level II - concentrations of indicator(s) predicted to exceed threshold value(s) by an order of magnitude to two orders of magnitude (10 to 100x the threshold); Level III - concentrations of indicator(s) predicted to exceed threshold value(s) by more than two orders of magnitude (greater than 100x the threshold).



and Lower Main Stems, and SDLT9 and Sheardown Lake SE), SWSQ-5 (Quarries and Borrow Areas; CLT1 Upper and Lower Main Stems), SWSQ-7 (Camps and Fuel Management; Camp Lake and Sheardown Lake systems), and SWSQ-9 (Airstrip and Airstrip Use; Camp Lake and Sheardown Lake Systems). In each case, water quality data were compared to a Level II magnitude of effect rating, as predicted in the FEIS for these specific sources.

Sediment quality data were compared to FEIS predictions for the effects of airborne emissions (i.e., fugitive dust; FEIS Issue SWSQ-17-3) on the Camp Lake, Sheardown Lakes, and Mary River and Mary Lake systems. The sediment data were assessed against 'magnitude of effect' significance ratings of negligible (chromium, copper, lead, and zinc), Level I (nickel), Level II (arsenic and cadmium), and Level III (iron), as predicted for the airborne emissions in the FEIS.

The FEIS fish health and condition predictions were based on water and sediment quality parameters meeting specific thresholds. Therefore, the 2025 CREMP water and sediment quality data were used along with the outcomes of the fish health assessment results for 2025, to evaluate the conformance of arctic charr health and condition with the FEIS predictions (i.e., it was determined whether water and sediment quality were within the predicted 'magnitude of effect' significance ratings^{26,27}). Water quality data were compared to predictions for the effects on freshwater biota (arctic charr health and condition) linked to the following Project activities:

- Ore and waste rock dust generation and dispersion: sediment quality changes (Level II)
- Discharge of east waste rock, ore stockpile runoff, and pit water/run of mine stockpile to the Mary River (Level II); and
- Aqueous non-point sources (Level I).

Comparisons for effects on direct mortality of arctic charr were addressed in the 2024/2025 LSMP report (TCC 2026c), and were assessed based on sediment accumulation thicknesses not exceeding 1 mm/year in Sheardown Lake NW.

²⁶ Significance ratings for water quality were: Not Assessed (Level 0) – water quality change within the Canadian CCME WQG for the protection of aquatic life or other water quality thresholds; Level I – water quality change 1 to 10x the CCME WQG or other water quality thresholds; Level II – water quality change 10 to 100x the CCME WQG or other water quality thresholds; Level III – water quality change >100x the CCME WQG or other water quality thresholds (CCME 2011).

²⁷ Significance ratings for sediment quality were: Not Assessed (Level 0) – sediment quality change within sediment quality guidelines (LEL ON PSQG and CCME ISQG for the protection of aquatic life); Level I – sediment quality change greater than LEL ON PSQG or CCME ISQG but less than the SEL ON PSQG or PEL CCME SQG; Level II – sediment quality change 1 to 10x times LEL ON PSQG or CCME ISQG but less than SEL ON PSQG or PEL CCME SQG; Level III – sediment quality change >10x LEL ON PSQG or CCME ISQG (CCME 2003).



2.7.3 Implementation of 2025 Effects Assessment

The effects Data Assessment and Response Framework outlined above was applied to data collected in 2025 for the CREMP, which led to development of recommendations for addressing instances where AEMP benchmarks for water quality, sediment quality, or chlorophyll-a concentrations were exceeded, and/or a potential mine-related influence was determined for water or sediment quality parameters, BIC endpoints, or fish health endpoints, based on comparisons to reference and/or baseline (Baffinland 2024). A summary of effect determinations based on the 2024 CREMP results (Minnow 2025), along with recommendations and action level responses implemented by Baffinland in 2025, is presented in this report (Table 2.10; see also Tables 2.4 and 2.7). Table 2.10 tracks the management responses to previously identified mine-related influences on each applicable waterbody and aquatic system. Recommendations from the effects assessment in this report, based on the 2025 CREMP data, will be implemented and reported on as part of the 2026 CREMP.



Table 2.10: Summary of Effects Determination for 2024 and Associated Action Level Responses, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Waterbody	2024 Effects Determination Summary	Action Level Response
Camp Lake Tributary 1 (CLT1)	At the CLT1 Upper Main Stem, aqueous concentrations of sulphate; total aluminum and iron; and total and dissolved uranium (total concentration exceeded the WQG of 0.015 mg/L in summer and fall), sodium, and molybdenum had elevated concentrations compared to reference and baseline in 2024. Significant increasing temporal trends since the baseline period (2005 to 2024) were observed for sulphate, total iron, and total and dissolved sodium and molybdenum but there were no similar significant increasing trends for these parameters over the mine operations period (2015 to 2024). Similarly, visual assessment of temporal patterns for aluminum indicated higher concentrations in mine operations relative to baseline periods but no clear increasing pattern over the mine operations period. Results indicate a potential mine-related influence on aluminum, iron, sulphate, sodium, and molybdenum that has not been intensifying with ongoing mine operations. Significant increasing temporal trends since the baseline period (2005 to 2024) and over the mine operations period (2015 to 2024) were observed for total and dissolved uranium concentrations, indicating a mine-related influence. The 2024 results for aqueous aluminum and iron triggered a Moderate Action Response, whereas a Low Action Response was triggered for sulphate and aqueous concentrations of uranium, molybdenum, and sodium.	BIC monitoring at CLT1-L2 continued in 2025 to support evaluation of elevated (relative to AEMP benchmarks/WQG) aluminum, iron, and uranium concentrations in water using a weight-of-evidence approach. Temporal trend analyses were completed for aqueous concentrations of sulphate and total and dissolved aluminum, iron, molybdenum, sodium, and uranium in the CLT1 Main Stem. Additionally, an analysis of total compared to dissolved aqueous concentrations of aluminum, iron, and uranium was completed to investigate biological availability and further determine potential for effects on aquatic biota. Potential sources of sulphate, aluminum, iron, molybdenum, sodium, and uranium to CLT1 were also investigated, as this stream has multiple inputs that are not being captured individually, and an activity audit was completed. A Digital Elevation Model is being developed based off of current satellite imagery in an effort to help determine sources of the water quality parameters listed above. Finally, the CCME WQG for total uranium was adopted as a water quality benchmark under the AEMP.
Sheardown Lake Tributary 1 (SDLT1)	Aqueous total cadmium concentrations exceeded the AEMP benchmark and WQG in summer and fall 2024, were elevated compared to reference and baseline in the same seasons in 2024, and showed significant increasing trends across all seasons since the baseline period (2005 to 2024) and over the mine operations period (2015 to 2024), indicating a mine-related influence. These results for cadmium triggered a Moderate Action Response. Several other water quality parameters, including barium, calcium, chloride, cobalt, specific conductance, lithium, magnesium, manganese, molybdenum, nitrate, potassium, selenium, sodium, strontium, sulphate, TDS, TKN, and uranium, had concentrations that were elevated compared to reference and baseline in at least one season in 2024. These parameters also showed either statistically significant increasing trends or visually increasing patterns in total concentrations, particularly from 2022 to 2024, indicating mine-related influence. The results for these parameters triggered a Low Action Response. Mine-related influences on the BIC were detected, thereby triggering a Low Action Response. However, the observed results were likely driven by organic matter enrichment and differences in physical habitat conditions rather than metal contamination as a primary stressor. Influences associated with site water management and remediation efforts at the KM 105 Pond are consistent with the factors that may have resulted in shifts to the SDLT1 BIC in 2024.	Monitoring of the BIC at SDLT1 continued in 2025 to track potential effects on biota and support the evaluation of water quality parameters with concentrations that were elevated relative to AEMP benchmarks, reference, and/or baseline, using a weight-of-evidence approach. Temporal trend analyses for water quality parameters that triggered action level responses were also completed, along with comparisons of total and dissolved concentrations. Potential sources of elevated/increasing water quality parameters in SDLT1 were further investigated to better define mine-related influence. Finally, the CCME WQG for total uranium was adopted as a water quality benchmark under the AEMP. In 2025, the KM 105 Pond remediation efforts focused on enhanced sediment control measures, incorporating chemical treatment, filtration, and improved settling structures. Water quality information collected during the 2025 CREMP was used to monitor water quality of SDLT1 as a basis for informing the potential need for further investigations and mitigation. Additionally, a filter berm was installed upstream from the water license Surveillance Network Program monitoring location Station MS-C-D to further mitigate for mine-related contributions of TSS to SDLT1.
Sheardown Lake Tributary 9 (SDLT9)	The aqueous total ammonia and nitrate concentrations in SDLT9 exceeded AEMP benchmarks in at least one season in 2024. Additionally, concentrations of nitrate, TKN, nitrite, and total ammonia were elevated compared to reference and baseline in at least one season and visual assessment of temporal data indicated that these parameters had concentrations that were higher than reference and baseline consistently in the fall and frequently in the summer from 2021 to 2024. These results for water quality triggered a Low Action Response.	Water quality monitoring continued at SDLT9 in 2025, as part of the CREMP. An activity audit concerning the transportation, storage, and handling of ammonium nitrate at the Dyno facility was implemented in 2025, along with additional water and seepage sampling during the open water season (August), to help identify point source(s) of aqueous nitrogen compounds. An activity audit was also completed to identify areas where blasting products could be exposed to the environment. Upgrades to the Dyno plant were completed in November and December 2025. These included mechanical piping upgrades and installation of new double-wall tanks, auger chute, insulated housing, chain hoist with trolley, and a four point sack lifter beam. Monitoring of ash bin cleanup is ongoing, and the burn bin will be relocated to reduce the potential for ammonium products to enter adjacent waterbodies.
Sheardown Lake Tributary 12 (SDLT12)	Alkalinity, specific conductance, and hardness, as well as aqueous concentrations of chloride, TDS, and total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium were elevated compared to reference and baseline in spring 2024, and there were patterns of increasing spring concentrations over time since the initiation of sampling in 2021. Results indicated a potential mine-related influence on these water quality parameters, thereby triggering a Low Action Response.	In 2025, temporal trend analysis of alkalinity, conductivity, hardness, chloride, TDS, and aqueous concentrations of total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium were completed to further investigate temporal patterns. Additionally, an analysis of total compared to dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium was completed. Finally, potential sources of these water chemistry parameters to SDLT12 were investigated.

Notes: WQG = Water Quality Guidelines. mg/L = milligrams per litre. BIC = benthic invertebrate community. AEMP = Aquatic Effects Monitoring Plan. CCME = Canadian Council of Ministers of the Environment. TDS = total dissolved solids. TKN = total Kjeldahl nitrogen. CREMP = Core Receiving Environment Monitoring Program. TSS = total suspended solids. FDP = Final Discharge Point. LRL = Laboratory Reporting Limit. MDMER = Metal and Diamond Mining Effluent Regulations.

Table 2.10: Summary of Effects Determination for 2024 and Associated Action Level Responses, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Waterbody	2024 Effects Determination Summary	Action Level Response
Camp Lake (JL0)	Aqueous uranium concentrations were below the WQG (0.015 mg/L), but were elevated compared to reference and baseline in summer 2024. A visual assessment of temporal patterns indicated a defined increase in total uranium concentrations in all seasons between 2017 and 2022, though concentrations appear to have stabilized from 2022 to 2024. Results indicate a mine-related influence on uranium. These results for uranium triggered a Low Acton Response .	Temporal trend analysis of aqueous total and dissolved uranium concentrations were completed for Camp Lake. Additionally, total and dissolved aqueous concentrations of uranium were compared to investigate biological availability and further determine potential for effects on aquatic biota. Potential sources of uranium to Camp Lake were also investigated. Finally, the CCME WQG for aqueous total uranium was adopted as an AEMP benchmark.
Sheardown Lake Northwest (DL0-01)	Aqueous concentrations of nitrate, sulphate, chloride and total and dissolved manganese, strontium, and uranium were elevated compared to reference and baseline in at least one season in 2024. Total and/or dissolved concentrations of each of these parameters, except manganese, showed statistically significant increasing trends since the baseline period and over the mine operations period and/or visual patterns of increasing trends, generally starting in 2018 or 2019 and persisting in 2024. Manganese concentrations showed no evidence of increasing patterns over time indicating no mine-related influence. Total and/or dissolved concentrations of molybdenum (although only elevated compared to reference in 2024) also showed statistically significant increasing trends since the baseline period and over the mine operations period. Results indicate a mine-related influence on nitrate, sulphate, chloride, molybdenum, strontium, and uranium, thereby triggering a Low Action Response for these parameters.	In 2025, temporal trends were assessed for aqueous concentrations of chloride, nitrate, sulphate, and total and dissolved molybdenum, uranium, and strontium. Additionally, the CCME WQG for total uranium was adopted as the AEMP benchmark. Potential sources of chloride, nitrate, sulphate, molybdenum, uranium, and strontium to Sheardown Lake NW were investigated to better define mine-related influence. The KM 105 Pond remediation efforts for 2025 focused on enhancing sediment control measures, incorporating chemical treatment, filtration, and improved settling structures. Water quality information collected during the 2025 CREMP was used to monitor water quality of SDLT1 and Sheardown Lake NW as a basis for informing the potential need for further investigations and mitigation.
	Mean iron concentrations in littoral and profundal sediments exceeded the AEMP benchmark, and there were statistically significant increasing trends over both baseline and mine operation periods. Spatial patterns in iron concentration within the lake were also observed. These findings suggest the emergence of a mine-related influence on sediment quality, and triggered a Low Action Response . Manganese concentrations in sediments from individual sampling stations exceeded the AEMP benchmark. Despite these exceedances, manganese concentrations were not elevated compared to reference and baseline suggesting that elevated concentrations are likely due to natural processes rather than mine-related influence.	In 2025, temporal trend analysis of iron concentrations in littoral and profundal sediment were completed to support determination of mine related influences. Further spatial comparisons between iron concentrations in sediment within the lake were also completed to support the determination of the influence of key lake tributaries on the influx of sediment iron into Sheardown Lake NW.
Sheardown Lake Southeast (DL0-02)	Aqueous concentrations of nitrate and sulphate were elevated compared to reference and baseline in all seasons (spring, summer, fall) in 2024. Total concentrations of nitrate and sulphate, as well as total and/or dissolved molybdenum and uranium showed statistically significant increasing trends since the baseline period and over the mine operations period. Results indicate a mine-related influence on these water quality parameters, thereby triggering a Low Action Response .	In 2025, temporal trend analysis of aqueous concentrations of nitrate, sulphate, and total and dissolved molybdenum and uranium were completed for Sheardown Lake SE; spatial comparisons of the concentrations of nitrate within the lake were also completed to evaluate the overall influence of inputs from the Dyno facility (via SDLT9). Additionally sulphate, molybdenum, and uranium were investigated to better define mine-related influence. The CCME WQG for aqueous total uranium was adopted as the AEMP benchmark. The KM 105 Pond remediation efforts in 2025 focused on enhanced sediment control measures, incorporating chemical treatment, filtration, and improved settling structures. Given potential influences of water management at the KM 105 Pond on water quality at Sheardown Lake SE (through inputs from Sheardown Lake NW), water quality information collected during the 2025 CREMP was used as a basis for informing the potential need for further investigations and mitigation.
Mary River Tributary-F (MRTF)	Aqueous concentrations of sulphate, nitrate, and selenium were elevated compared to reference and baseline in at least one season in 2024. Nitrate and sulphate concentrations showed statistically significant increasing trends since the baseline period and over the mine operations period, indicating a mine-related influence. Visual assessment of temporal data showed increases started in 2019 and 2017 for nitrate and sulphate, respectively, but have not be consistent over time, suggesting they are not intensifying with ongoing mine operations. Regardless, mine-related influences on nitrate and sulphate concentrations at MRTF may be associated with effluent discharge (i.e., from the MS-08 FDP into MRTF). A Low Action Response was triggered for nitrate and sulphate parameters. Selenium concentrations at MRTF have frequently been below the LRL and evaluation for a temporal pattern is confounded by changing LRLs, therefore evidence does not suggest a potential mine-related effect on selenium at MRTF.	In 2025, temporal trend analysis of aqueous concentrations of nitrate and sulphate were completed. Additionally, effluent and receiving water quality data that are routinely collected as part of MDMER requirements for the MS-08 FDP were evaluated to better understand the influence of the MS-08 FDP as a potential source of nitrate and sulphate to MRTF.

Notes: WQG = Water Quality Guidelines. mg/L = milligrams per litre. BIC = benthic invertebrate community. AEMP = Aquatic Effects Monitoring Plan. CCME = Canadian Council of Ministers of the Environment. TDS = total dissolved solids. TKN = total Kjeldahl nitrogen. CREMP = Core Receiving Environment Monitoring Program. TSS = total suspended solids. FDP = Final Discharge Point. LRL = Laboratory Reporting Limit. MDMER = Metal and Diamond Mining Effluent Regulations.

3 CAMP LAKE SYSTEM

3.1 Camp Lake Tributary 1 (CLT1)

3.1.1 Water Quality

3.1.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at CLT1 concurrent and co-located with water quality sampling completed by Baffinland environment department personnel in spring, summer, and fall and BIC sampling led by Minnow staff in August (Tables 2.2 and 2.8). During the spring, summer, and fall water quality monitoring events, DO saturation at CLT1 North Branch and Main Stem stations was consistently near full saturation (i.e., all concentrations were $\geq 93.0\%$; Table 3.1; Appendix Figure B.1; Appendix Table B.1). Similarly, DO concentrations measured at water chemistry and BIC sampling stations on CLT1 North Branch, CLT1 Upper Main Stem, and CLT1 Lower Main Stem were above the CCME WQG for protection of early life stages of cold-water biota (i.e., 9.5 milligrams per litre [mg/L]), except for one value (9.27 mg/L) reported for CLT1 Upper Main Stem (L2-03) in summer 2025 (Table 3.1; Appendix Figure B.1; Appendix Tables B.1 and B.2). Mean DO concentrations were within the reference and baseline normal ranges during the 2025 water quality monitoring events, except during spring and summer, when lower concentrations were observed in the CLT1 Upper (spring and summer) and Lower (spring only) Main Stem (Table 3.1; baseline and reference normal ranges are in Appendix Tables B.3 and B.4, respectively). These differences relative to both reference and baseline in 2025 trigger a Low Risk Response for DO concentrations in the CLT1 Main Stem (Baffinland 2024).

In 2025, mean field pH values measured by Baffinland environment department personnel in spring, summer, and fall were generally higher at the CLT1 stations relative to the corresponding seasonal reference normal ranges, but within baseline normal ranges and the CCME WQG range (Table 3.1). Similarly, pH values measured during the BIC sampling in August 2025 were within CCME WQG (i.e., within 6.5 to 9; Appendix Table B.2).

Mean SPC measured at CLT1 water quality monitoring stations in spring, summer, and fall 2025 were consistently above the upper limit of the seasonal reference area normal range, regardless of sampling location within CLT1 (i.e., North Branch or Upper or Lower Main Stem; Table 3.1). Additionally, mean SPC values reported in the CLT1 Upper Main Stem in spring and summer 2025 were above both reference and baseline normal ranges, thereby triggering a Low Risk Response under the TARP (Baffinland 2024). Consistent with spatial patterns observed in 2024, mean SPC within CLT1 was highest in the Upper Main Stem and lower within the North Branch and Lower Main Stem (Table 3.1; Minnow 2025). This pattern reflects mixing of water from the



Table 3.1: Mean Water Chemistry at Camp Lake Tributary 1 (CLT1) Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^c or AEMP Benchmark ^d	Reference Creeks (n = 3)			North Branch (n = 2)			Upper Main Stem (n = 1)			Lower Main Stem (n = 3)		
				Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Conventional	Conductivity (lab)	µS/cm	-	40.4	97.0	134	99.8	160	182	271	285	315	130	231	242
	Specific Conductance (field)	µS/cm	-	34.5	100	135	73.4	157	192	264	305	333	109	220	254
	pH (lab)	pH	-	6.90	7.78	7.79	7.54	8.07	7.97	7.65	8.15	8.04	7.66	8.18	8.07
	pH (field)	pH	6.5 - 9.0	7.50	7.85	7.76	7.80	8.15	8.13	7.83	8.19	8.10	7.85	8.19	8.22
	Temperature, Field	mg/L	-	4.46	8.70	1.90	5.15	6.75	<u>0.600</u>	14.5	18.6	4.50	12.5	10.6	2.40
	Hardness (as CaCO ₃) -Total	mg/L	-	18.7	50.4	68	51.2	84.6	95.5	124	128	156	66.7	122	123
	Total Suspended Solids (TSS)	mg/L	-	1.82	<1	1.82	1.63	<1	<1.2	1.40	3.70	7.50	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	29.8	55.0	64.0	53.0	82.0	108	160	178	179	75.0	116	120
	Dissolved Oxygen	mg/L	> 9.5	12.3	10.9	13.2	12.2	11.8	13.7	10.0	9.27	12.7	10.4	10.7	13.2
	Dissolved Oxygen	%	-	95.2	93.2	95	95.5	96	95.3	98.1	99.3	98.7	97.1	95.8	96.4
	Turbidity (lab)	NTU	-	2.73	8.69	5.68	0.563	0.345	0.335	5.50	6.10	10.7	0.615	1.08	1.26
	Turbidity (field)	NTU	-	2.35	8.02	4.14	0.850	0.265	0.190	4.82	5.07	3.80	0.727	0.977	1.04
	Alkalinity (as CaCO ₃)	mg/L	-	19.8	46.3	59.6	47.9	76.8	84.3	99.0	121	136	60.7	106	110
Nutrients and Organics	Total Ammonia ^e	mg/L	0.141 - 3.98	0.00532	0.00580	0.00785	<0.005	0.00535	<0.005	0.0402	0.0166	0.0257	0.00817	0.00633	0.00893
	Nitrate ^e	mg/L	3.00	<0.02	<0.02	0.0215	0.0445	0.0430	0.0480	0.114	0.0570	0.203	0.0203	0.0430	0.0920
	Nitrite ^e	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.0750	0.106	0.0842	0.0855	0.106	0.104	0.315	0.222	0.235	0.103	0.157	0.134
	Dissolved Organic Carbon	mg/L	-	1.41	1.74	1.71	1.60	2.63	2.04	3.63	4.33	3.65	1.82	3.11	2.98
	Total Organic Carbon	mg/L	-	1.64	2.32	2.13	2.30	3.02	2.55	4.03	5.10	5.60	2.43	3.85	3.41
	Total Phosphorus	mg/L	-	0.00365	0.00632	0.00518	0.00235	0.00370	<0.002	0.00740	0.00690	0.00400	0.00233	0.00547	<0.002
	Phenols	mg/L	0.00400	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00120	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.100	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride Cl ^e	mg/L	120	0.668	1.12	3.18	1.05	2.01	4.32	16.3	10.3	11.2	2.28	5.06	6.25
	Sulphate (SO ₄) ^e	mg/L	128 - 309	0.568	1.59	3.91	1.30	2.00	2.58	12.4	9.26	9.52	2.07	4.04	4.98
Total Metals	Aluminum Al ^e	mg/L	0.179	0.0740	0.313	0.117	0.0220	0.0148	0.0111	0.124	0.170	0.124	0.0204	0.0244	0.0239
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic As ^e	mg/L	0.00500	<0.0001	0.000122	0.000110	<0.0001	<0.0001	<0.0001	0.000140	0.000150	0.000130	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00276	0.00760	0.00826	0.00664	0.00977	0.0108	0.0147	0.0150	0.0145	0.00782	0.0126	0.0129
	Beryllium (Be)	mg/L	0.000130	<0.00002	0.0000272	0.0000202	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0180	0.0170	0.0140	<0.01	<0.01	<0.01
	Cadmium Cd ^e	mg/L	0.0000400 - 0.000226	<0.000005	0.00000502	<0.000005	<0.000005	<0.000005	<0.000005	0.00000790	0.00000520	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.83	9.80	13.7	9.95	16.0	17.6	24.6	24.4	28.2	13.2	23.2	22.6
	Cesium (Cs)	mg/L	-	0.0000175	0.0000495	0.0000260	0.0000115	0.0000145	0.0000120	0.0000170	0.0000240	0.0000150	0.0000113	0.0000130	0.0000110
	Chromium (Cr)	mg/L	0.00500	0.000540	<u>0.000902</u>	0.000620	<0.0005	<0.0005	<0.0005	0.000570	0.000630	<0.0005	<0.0005	<0.0005	0.000543
	Cobalt Co ^e	mg/L	0.000778 - 0.00122	0.000102	0.000165	0.000125	<0.0001	<0.0001	<0.0001	0.000130	0.000170	0.000150	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00341	0.000662	0.00133	0.00101	0.00176	0.00236	0.00200	0.00141	0.00160	0.00126	0.00160	0.00217	0.00173
	Iron Fe ^e	mg/L	0.326	0.0825	0.304	0.145	0.0290	0.0180	0.0130	0.307	0.504	0.442	0.0443	0.114	0.117
	Lead (Pb)	mg/L	0.00100 - 0.00550	0.000100	0.000261	0.000167	0.0000540	<0.00005	<0.00005	0.000178	0.000192	0.0000880	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	0.00100	<0.001	0.00100	<0.001	<0.001	<u>0.00470</u>	0.00330	0.00320	0.00117	0.00163	0.00167
	Magnesium (Mg)	mg/L	-	2.22	6.29	8.18	6.41	10.8	12.6	15.3	16.2	20.8	8.21	15.7	16.2
	Manganese (Mn)	mg/L	0.768 - 1.28	0.00114	0.00326	0.00198	0.000785	0.000695	0.000570	0.0410	0.0447	0.0287	0.00237	0.00654	0.00654
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000150	0.000345	0.000408	0.000521	0.000951	0.00102	0.00281	0.00292	0.00229	0.000686	0.00115	0.00116
	Nickel Ni ^e	mg/L	0.0250 - 0.132	0.000505	0.000770	0.000922	0.000580	0.000655	0.000525	0.00107	0.00133	0.00115	0.000643	0.00102	0.000820
	Potassium (K)	mg/L	-	0.358	0.807	1.35	2.10	2.14	2.14	4.02	3.33	3.55	1.63	2.37	2.38
	Rubidium (Rb)	mg/L	-	0.000910	0.00268	0.00195	0.00376	0.00552	0.00538	0.00529	0.00469	0.00424	0.00398	0.00513	0.00454
	Selenium (Se)	mg/L	0.001	<0.00005	<0.00005	<0.00005	<0.00005	0.0000575	<0.00005	0.0000650	0.0000760	0.0000810	<0.00005	0.0000563	<0.00005
	Silicon (Si)	mg/L	-	0.605	1.34	1.10	0.660	0.935	1.01	0.860	1.30	1.32	0.630	1.15	1.17
	Silver A ^e	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.491	1.45	2.22	0.650	1.08	1.12	6.30	7.21	8.23	1.62	3.65	3.93
	Strontium (Sr)	mg/L	-	0.00341	0.00961	0.0138	0.00576	0.0100	0.0124	0.0499	0.0293	0.0300	0.0109	0.0192	0.0195
	Sulphur (S)	mg/L	-	<0.5	0.625	1.42	<0.5	0.730	1.13	4.35	3.27	3.86	0.737	1.48	2.08
	Thallium Tl ^e	mg/L	0.000800	<0.00001	0.0000128	0.0000105	<0.00001	0.0000105	0.0000105	0.0000110	0.0000120	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	0.000145	0.000458	0.000268	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.00412	0.0149	0.00758	0.00106	0.000395	0.000370	0.00390	0.00691	0.00546	0.000763	0.000793	0.000920

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLDIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underlineIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 3.1: Mean Water Chemistry at Camp Lake Tributary 1 (CLT1) Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^c or AEMP Benchmark ^d	Reference Creeks (n = 3)			North Branch (n = 2)			Upper Main Stem (n = 1)			Lower Main Stem (n = 3)		
				Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Total Metals	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000268	0.00161	0.00372	0.000684	<u>0.00232</u>	0.00393	0.0113	0.0159	0.0184	0.00145	0.00442	<u>0.00642</u>
	Vanadium (V) ^e	mg/L	-	<0.0005	0.000850	0.000612	<0.0005	<0.0005	0.000530	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	0.000230	0.000488	0.000332	<0.0002	0.000205	<0.0002	0.000240	0.000330	0.000220	<0.0002	0.000203	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	<u>0.0192</u>	<u>0.0478</u>	<u>0.0219</u>	0.00495	0.00610	0.00420	0.0114	<u>0.0139</u>	0.00480	0.00543	0.00997	0.00313
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000120	0.000120	0.000110	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00241	0.00631	0.00782	0.00658	0.0104	0.0112	0.0141	0.0145	0.0138	0.00789	0.0134	0.0131
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0160	0.0180	0.0130	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000290	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00000500	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.86	9.68	13.6	9.07	15.6	17.5	24.5	27.5	28.4	12.4	22.6	22.4
	Cesium (Cs)	mg/L	-	0.0000102	0.0000140	0.0000132	0.0000100	0.0000140	0.0000115	<0.00001	<0.00001	<0.00001	<0.00001	0.0000123	0.0000107
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000609	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00885	0.000485	0.000908	0.000782	0.00162	0.00233	0.00196	0.00119	0.00146	0.00108	0.00150	0.00204	0.00173
	Iron (Fe) ^e	mg/L	-	0.0150	0.0335	0.0152	<0.01	0.0115	<0.01	0.0420	0.110	<u>0.128</u>	0.0153	0.0597	0.0423
	Lead (Pb) ^e	mg/L	0.00294 - 0.00942	<0.00005	0.0000610	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	<0.001	<0.001	0.00130	0.00105	0.00480	<u>0.00370</u>	0.00330	<0.001	0.00230	0.00197
	Magnesium (Mg)	mg/L	-	2.46	5.59	7.48	6.22	9.96	12.4	15.6	16.8	20.1	8.03	14.2	14.8
	Manganese (Mn) ^e	mg/L	0.200 - 0.390	0.000288	0.000545	0.000422	0.000280	0.000445	0.000405	0.0375	0.0400	0.0235	0.00132	0.00571	0.00545
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000142	0.000382	0.000428	0.000527	0.000970	0.000992	0.00276	0.00283	0.00224	0.000656	0.00119	0.00122
	Nickel (Ni)	mg/L	0.000600 - 0.00350	<0.0005	0.000528	0.000512	0.000500	0.000635	0.000525	0.000770	0.00111	0.000940	0.000540	0.000933	0.000747
	Potassium (K)	mg/L	-	0.356	0.706	0.815	1.39	2.13	2.16	4.02	3.19	3.49	1.66	2.34	2.43
	Rubidium (Rb)	mg/L	-	0.000685	0.00173	0.00163	0.00374	0.00554	0.00552	0.00512	0.00452	0.00391	0.00393	0.00507	0.00465
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	0.0000610	0.0000560	0.0000760	0.0000810	0.0000710	0.0000510	0.0000517	0.0000503
	Silicon (Si)	mg/L	-	0.509	0.934	0.913	0.621	0.939	0.982	0.635	0.999	1.12	0.575	1.15	1.08
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.512	1.32	2.00	0.668	1.02	1.11	6.39	7.17	8.01	1.61	3.38	3.82
	Strontium (Sr) ^e	mg/L	2.50	0.00342	0.00880	0.0139	0.00575	0.00992	0.0124	0.0494	0.0297	0.0300	0.0108	0.0189	0.0198
	Sulphur (S)	mg/L	-	<0.5	0.678	1.31	<0.5	0.810	1.10	4.28	3.34	3.79	0.657	1.58	2.10
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	0.0000115	0.0000110	0.0000100	0.0000110	<0.00001	<0.00001	0.0000103	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000650	0.00180	0.000752	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000470	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000228	0.00154	0.00386	0.000659	<u>0.00238</u>	0.00388	0.0110	0.0158	0.0180	0.00139	0.00444	0.00616
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000500	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	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
	Zirconium (Zr)	mg/L	-	<0.0003	0.000312	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLDIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underlineIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Upper Main Stem and North Branch before it enters the Lower Main Stem, and is considered suggestive of a potential mine-related influence at the CLT1 Upper Main Stem (Figure 2.2).

Mean field turbidity throughout the CLT1 North Branch and Main Stem was within seasonal reference normal ranges in 2025 (Table 3.1; insufficient data were available to calculate baseline normal ranges for field turbidity).

3.1.1.2 Water Chemistry

3.1.1.2.1 North Branch (CLT1-US)

At the CLT1 North Branch stations (L1-08 and L1-02), concentrations of water quality parameters were below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025; copper was the only exception (Table 3.1; Appendix Table B.1). Specifically, the concentration of dissolved copper at Station L1-08 was above the AEMP benchmark in spring 2025, and the concentrations of total copper at Stations L1-08 and L1-02 were above the WQG in summer 2025 (Table 3.1; Appendix Table B.1). Mean concentrations of total copper in the CLT1 North Branch in spring 2025 were also above the reference area normal range, and concentrations in summer and fall were above the reference and baseline normal ranges (Table 3.1). Similar to total concentrations, mean dissolved copper concentrations for spring, summer, and fall 2025 were higher than the reference normal range; the mean concentration for summer was also above the baseline normal range (Table 3.1). Therefore, although concentrations of dissolved copper in the CLT1 North Branch have generally remained within the range of baseline concentrations since the start of mining (Appendix Figure B.2), mean concentrations above the AEMP benchmark in spring and normal ranges in summer triggered Low Risk Responses (Baffinland 2024). Additionally, the mean total copper concentrations being above the reference and baseline normal ranges in summer and fall, triggered a Low Risk Response.

In addition to total and dissolved copper, Low Risk Responses were triggered for mean concentrations of total barium, total and dissolved molybdenum and potassium, and dissolved uranium, based on concentrations that were elevated relative to both the reference and baseline normal ranges in at least one season in 2025 (Table 3.1; Baffinland 2024). Concentrations of these parameters were not elevated relative to the baseline normal ranges at the reference creeks, signaling changes over time in the CLT1 North Branch were not driven by broader regional influences. Within the CLT1 North Branch, there was an additional sub-set of parameters with mean concentrations that were consistently above the upper limit of the reference normal ranges, but comparable to baseline. These included hardness, alkalinity, and concentrations of total and dissolved calcium, magnesium, and rubidium and dissolved barium (Table 3.1).



Overall, the results of the 2025 comparisons to AEMP benchmarks and WQG are generally similar to those reported for CLT1 North Branch in 2024 (Minnow 2025). Apart from total and dissolved copper concentrations being above WQG and AEMP benchmarks, respectively, water quality at the CLT1 North Branch has consistently met applicable WQG and AEMP benchmarks since mining began in 2015.

3.1.1.2.2 Upper Main Stem (CLT1-L2)

At the CLT1 Upper Main Stem (Station L2-03), parameters with concentrations above AEMP benchmarks or WQG in 2025 were limited to total iron and total uranium; aqueous concentrations of these two parameters were above AEMP benchmarks in summer and fall (Table 3.1; Appendix Table B.1; Appendix Figure B.2). Comparisons to previous years of data indicate that aqueous total iron concentrations at the CLT1 Upper Main Stem were above the AEMP benchmark periodically throughout the mine operation period (Appendix Figure B.2). Similarly, aqueous total uranium concentrations in summer and fall were routinely above the AEMP benchmark from 2018 to 2025 (Appendix Figure B.2). Additionally, concentrations of total iron were above the upper limit of the reference area normal range in spring and baseline normal ranges in summer and fall 2025. Aqueous total uranium concentrations in the CLT1 Upper Main Stem were above reference and baseline normal ranges during each of the spring, summer, and fall sampling events. These results for total iron and uranium triggered Low and Moderate Risk Responses, respectively, under the TARP (Baffinland 2024).

In addition to total iron and total uranium, Low Risk Responses were triggered for hardness; TDS; alkalinity; DOC; TOC; chloride; sulphate; total nickel; total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, and strontium; and dissolved uranium, based on concentrations in at least one season being above reference and baseline normal ranges (Table 3.1; Baffinland 2024). Concentrations of these parameters were not elevated relative to the baseline normal ranges at the reference creeks, signaling that changes over time in the CLT1 Upper Main Stem were not driven by broader regional influences.

Aqueous concentrations of sulphate and total and dissolved aluminum, iron, molybdenum, sodium, and uranium at CLT1 Upper Main Stem were assessed for temporal trends in 2025, as part of a special investigation triggered under the TARP in 2024 (Table 2.4; Minnow 2025). Significant increasing trends in concentrations of total and dissolved aluminum, total iron, total molybdenum, and total and dissolved uranium were identified, based on combined datasets from the mine baseline and operational periods (Appendix Figure B.2; Appendix Table G.1). Temporal trend analyses for concentrations of these parameters at corresponding reference stations did not show similar patterns of increase over time, especially within individual seasons; however, MRY-REF3 did show some overall increases in total and dissolved aluminum



concentrations over time from 2014 to 2025. When the data for the mine operational period (i.e., 2015 to 2025) were analyzed separately from the baseline data, there were no statistically significant increasing trends over time for total aluminum and iron at the mine-exposed area (Appendix Figure B.2; Appendix Table G.2). Similarly, concentrations of total molybdenum measured in summer and fall; total uranium and dissolved aluminum in spring and fall; and dissolved uranium in spring, summer, and fall did not increase significantly at CLT1 Upper Main Stem over the mine operation period (i.e., 2015 to 2025).

For total aluminum and iron, specifically (and, depending on season, dissolved aluminum, total molybdenum, and total and dissolved uranium) there was step-change increase in concentrations from baseline to early operations, but then concentrations remained relatively consistent thereafter, as evidenced by no statistically significant increasing trends from 2015 onward (Appendix Figure B.2; Appendix Tables G.1 and G.2). Notably, total and dissolved aluminum concentrations in the CLT1 Upper Main Stem were within reference normal ranges throughout 2025, and total concentrations were consistently below the AEMP benchmark (Appendix Table B.1). Total iron concentrations measured in summer and fall were also within reference normal ranges, despite being higher relative to baseline and the AEMP benchmark (Table 3.1). The comparisons to baseline normal ranges and temporal trend analyses for the reference creeks indicate that mean total and dissolved aluminum and iron concentrations have increased over time, specifically at MRY-REF3 (Table 3.1; Appendix Figure B.2; Appendix Tables G.1 and G.2). These results for the reference creek suggest a regional source of aluminum and iron to surface water environments, and the latter is consistent with the region being attractive for iron mining (i.e., due to the presence of rock formations with naturally high iron content).

Similar to total aluminum and iron, results of the temporal trend analyses for sulphate, total and dissolved sodium, and dissolved iron and molybdenum differed depending on whether the baseline data were included or excluded from the analysis (Appendix Tables G.1 and G.2). For sulphate, it appears concentrations in fall, as well as in the combined dataset, increased from baseline to 2016 and then levelled off thereafter (fall) or began to decrease (combined dataset; Appendix Figure B.2; Appendix Table G.2). Similarly, the combined dataset for total sodium, as well as the combined, spring, and summer datasets for dissolved molybdenum, were indicative of significant increases in concentrations over time at CLT1 Upper Main Stem. However, these increases occurred as step-changes between baseline and early operations and do not appear to represent sustained year-over-year increases in concentrations (Appendix Figure B.2; Appendix Tables G.1 and G.2). Instead, the temporal trend analyses for the period of mine operations only (i.e., 2015 to 2025) indicate overall decreases in total and dissolved sodium concentrations over time since 2015 (Appendix Figure B.2; Appendix Table G.2). Dissolved molybdenum concentrations have not increased or have decreased significantly over



the period of mine operation (Appendix Figure B.2; Appendix Table G.2). Similarly, no significant temporal trends were identified for dissolved iron over the mine operational period (i.e., 2015 to 2025), nor were there any significant temporal trends in dissolved iron concentrations over the period from baseline to 2025 (Appendix Tables G.1 and G.2).

Baffinland committed to comparing aqueous total and dissolved concentrations of aluminum, iron, and uranium in the CLT1 Upper Main Stem in 2025, to address reviewer comments on the 2024 CREMP report (Table 2.4; Minnow 2025). The objective of the comparisons was to provide insight into bioavailability of these parameters and determine potential for effects to aquatic biota. Additionally, Baffinland committed to reviewing toxicity studies/datasets that include consideration of colloidal or precipitated forms of aluminum and iron in response to reviewer comments on the 2024 CREMP report (Minnow 2025).

Mean dissolved aluminum concentrations at Station L2-03 on the CLT1 Upper Main Stem were consistently below 0.06 mg/L over the period of record from 2011 to 2025, and were typically comparable to or lower than reference (Appendix Figures B.2 and G.1).²⁸ The contribution of dissolved aluminum to total aluminum, based on comparisons of concentrations reported for concurrent and co-located samples varied widely, from 1.8 to 100% of the total aluminum fraction. This wide range of variation was not observed for any of the other parameters or locations for which comparisons of total: dissolved concentrations were completed. Additionally, results of toxicity studies published since 2018 indicate dissolved aluminum concentrations do not correspond well with toxicity (e.g., BC MOE 2023; ECCC 2022; Wang et al. 2018). This is partially attributed to the pH-dependency of aluminum speciation and solubility, complexation of aluminum with fluoride, sulphate, nitrate, or silicates, as well as the ability of aluminum colloids and precipitates to elicit toxic effects at pH values typical of freshwater environments (ECCC 2022; Gensemer and Playle 1999). Mean total aluminum concentrations at Station L2-03 exceeded the AEMP benchmark in at least one season in each of 2014, 2017 to 2021, and 2023 and 2024, but were consistently below the benchmark and upper limit of the reference normal range throughout 2025 (Table 3.1; Appendix Table B.1; Appendix Figure B.2). Additionally, the results of the temporal trend analyses completed in 2025 (above) indicate that total aluminum concentrations in the CLT1 Upper Main Stem have not increased significantly since the commencement of mining operations in 2015 (Appendix Table G.2). Therefore, potential risks to biota from exposure to aqueous aluminum in the CLT1 Upper Main Stem in 2025 were considered comparable to reference. Continued water quality monitoring in CLT1 will be important for understanding potential risks based on changes in concentrations over time and informing

²⁸ Exceptions were limited to mean springtime concentrations in each of 2018 and 2020 to 2023, which were higher at L2-03 relative to reference (Appendix Figure B.2).



potential management actions. Additionally, to align the CREMP with the current state-of-the-science and more accurately characterize potential risks to freshwater biota, the next revision of the AEMP will adopt the variable FEQG as the total aluminum benchmark.

Studies have shown that iron precipitates and other non-dissolved forms of iron can elicit adverse physical effects (e.g., iron-containing flocculants that clog gill membranes), in addition to chemical effects, to biota (e.g., Cardwell et al. 2023; ECCC 2024). The conditions of pH and DO concentrations in the CLT1 Main Stem in 2025 were conducive to formation of Fe(III) oxides and hydroxides that precipitate out of solution (Cardwell et al. 2023). However, toxicity tests with fathead minnow (*Pimephales promelas*) exposed to varying pH and concentrations of iron, DOC, and hardness indicated that iron toxicity was reduced (i.e., the 10% Effect Concentrations [EC₁₀] for growth were higher) whenever DOC was added, regardless of pH (Cardwell et al. 2023). Aqueous DOC concentrations in the CLT1 Upper Main Stem were above reference normal ranges throughout spring, summer, and fall 2025, as well as the baseline normal range in fall. It is therefore possible that DOC provided a protective effect against iron toxicity, despite aqueous concentrations of total iron in the CLT1 Upper Main Stem being above the reference normal range in spring and AEMP benchmarks and baseline normal ranges in summer and fall 2025 (Table 3.1; Appendix Table B.1; Appendix Figure B.2).

Similar to aluminum, total iron concentrations at the CLT1 Upper Main stem underwent a step-change increase from baseline to early operations but have not increased significantly over the period of mine operations (i.e., from 2015 to 2025; Appendix Table G.2). Additionally, from 2015 to 2024, there was no indication of adverse mine-related effects to primary productivity (phytoplankton) or BIC at the CLT1 Upper Main Stem, and differences in BIC endpoints relative to reference in 2025 are attributable to differences in habitat conditions between areas (Section 3.1.3.2). It is therefore considered unlikely that exposure of organisms to total iron concentrations at the CLT1 Upper Main Stem is causing adverse effects to biota.

The free uranyl ion (UO₂²⁺) and uranyl hydroxide (UO₂(OH)₂) are the main bioavailable forms of uranium in freshwater systems; however, uranium speciation and/or bioavailability is often driven by a variety of site-specific factors, including pH, DOC, temperature, hardness, and alkalinity (CCME 2011; Markich 2002). Modelling uranium speciation and bioavailability is a complicated process, as it must account for interactions between uranium and the parameters listed above, as well as suspended particulates, humic materials, and other substances that may complex with uranium (Markich 2002). The simplest and most conservative approach to evaluating potential risks to aquatic biota is to therefore focus on total uranium concentrations, consistent with the approach taken by the CCME in developing the Canadian WQG for protection of freshwater aquatic life (CCME 2011; Markich 2002) and adopted by Baffinland for the



AEMP benchmark (Table 2.3). For L2-03, the risk of overestimating uranium bioavailability by focusing on the total fraction is considered low, because, throughout the mine operation period, RPDs between aqueous total and dissolved uranium concentrations at that location were consistently <11% (Appendix Figure G.1). As noted above, total uranium concentrations were above the reference normal range in spring, as well as the newly adopted AEMP benchmark of 0.015 mg/L²⁹ and the baseline normal range in summer and fall 2025 (Table 3.1). Results of the temporal trend analysis also indicate general increases in total uranium concentrations over time relative to baseline and during the mine operation period (Appendix Tables G.1 and G.2).

As noted in the 2024 CREMP report, increasing uranium concentrations in surface water environments around the Project are likely attributable to changing permafrost conditions resulting from both climate change and mine-related disturbance (Minnow 2025). Briefly, rapid warming of the Arctic (i.e., at twice the global average rate) is destabilizing and thawing permafrost, thereby deepening the active layer³⁰ (Hindshaw et al. 2018; Schnurr 2019). As the active layer deepens, decomposition of previously frozen organic matter can release bound elements, including uranium, into adjacent aquatic environments (e.g., Hindshaw et al. 2018). Mining (and associated on-site activities) can further accelerate permafrost thaw through infrastructure development, vegetation removal, and ground disturbance, all of which reduce the insulating capacity of the surface and increase heat transfer into the ground (Langer et al. 2023; TCC 2026a).

3.1.1.2.3 Lower Main Stem (CLT1-DS)

None of the water quality parameters measured in samples collected from the CLT1 Lower Main Stem (Stations L1-09, L1-05, and L0-01) in 2025 had concentrations above AEMP benchmarks and, for parameters without benchmarks, there were no instances of WQG exceedances (Table 3.1; Appendix Figures B.1 and B.2; Appendix Table B.1). Overall, these results are consistent with the 2024 water quality screening results for the CLT1 Lower Main Stem (Appendix Figure B.2; Minnow 2025).

Mean water hardness, alkalinity, and concentrations of total and dissolved barium, magnesium, molybdenum, potassium, sodium, and uranium and dissolved copper at the CLT1 Lower Main Stem were above reference and baseline normal ranges in at least one season in 2025 (Table 3.1). Consequently, Low Risk Responses were triggered for these parameters (Baffinland 2024). There was also a subset of parameters with mean concentrations above reference normal ranges in at least one season, despite concentrations being comparable to

²⁹ As noted in Section 2.2.3.2.2 and Table 2.3, the CCME (2011; 2026) WQG for the protection of freshwater aquatic life was adopted as the AEMP benchmark following approval of the Revision 2 AEMP (Baffinland 2024).

³⁰ The active layer is the uppermost soil layer that undergoes seasonal freeze-thaw cycles (Hindshaw et al. 2018).



baseline. These included TDS, TKN, TOC, DOC, chloride, total and dissolved calcium, copper, manganese, rubidium, and strontium, and dissolved iron (Table 3.1). The differences relative to reference, but not baseline, suggest that concentrations of these parameters were likely historically higher at the CLT1 Lower Main Stem relative to reference (i.e., even in the absence of potential mine influence; Appendix Figure B.2).

3.1.2 Phytoplankton

Chlorophyll-a concentrations at the CLT1 North Branch (Stations L1-08 and L1-02) were comparable to those observed at the reference creek stations during the spring, summer, and fall 2025 sampling events, based on values being below the upper limit of the reference normal range (Figure 3.1, Appendix Table D.1). This indicates phytoplankton productivity is similar between the CLT1 North Branch and reference stations (Figure 3.1, Appendix Table D.1). Chlorophyll-a concentrations within the CLT1 Main Stem were also comparable to reference, except at the upstream-most Main Stem station (L2-03) where chlorophyll-a concentrations were above the upper limit of the reference normal range in spring and summer (Figure 3.1, Appendix Table D.1). These results are generally consistent with the spatial pattern reported for CLT1 in 2024 (Figure 3.2, Appendix Table D.1; Minnow 2025). Similar to 2024, the results for Station L2-03 are potentially reflective of nitrogen inputs, as evidenced by higher TKN³¹ (all seasons) and nitrate (fall) concentrations relative to reference and other CLT1 stations in 2025 (Table 3.1; Appendix Table B.1).

Chlorophyll-a concentrations at all CLT1 North Branch and Main Stem monitoring stations were well below the AEMP benchmark of 3.7 µg/L across all 2025 seasonal sampling events (Figure 3.1; Appendix Table D.1). These results indicate limited phytoplankton productivity and are characteristic of oligotrophic conditions (i.e., chlorophyll-a concentrations were well below the oligotrophic-mesotrophic boundary of 8 µg/L from Dodds et al. 1998; Figure 3.1, Appendix Table D.1). The observed conditions also align with an ultraoligotrophic to oligotrophic categorization under the CCME Phosphorus Guidance Framework for the Management of Freshwater Systems (CCME 2004). Specifically, mean aqueous total phosphorus concentrations were less than 10 µg/L at each of the CLT1 North Branch and Main Stem stations during all spring, summer, and fall sampling events (Table 3.1, Appendix Table B.1).

Mean chlorophyll-a concentrations at the CLT1 North Branch in 2025 were similar to, or lower than, mean concentrations observed during the 2005 to 2013 baseline period in all seasons, based on qualitative comparisons (Figure 3.2). These results are consistent with the results of the comparison to the baseline normal range for spring (Appendix Table D.1). At the CLT1

³¹ TKN concentrations are reflective of concentrations of ammonia and organic nitrogen compounds in water.



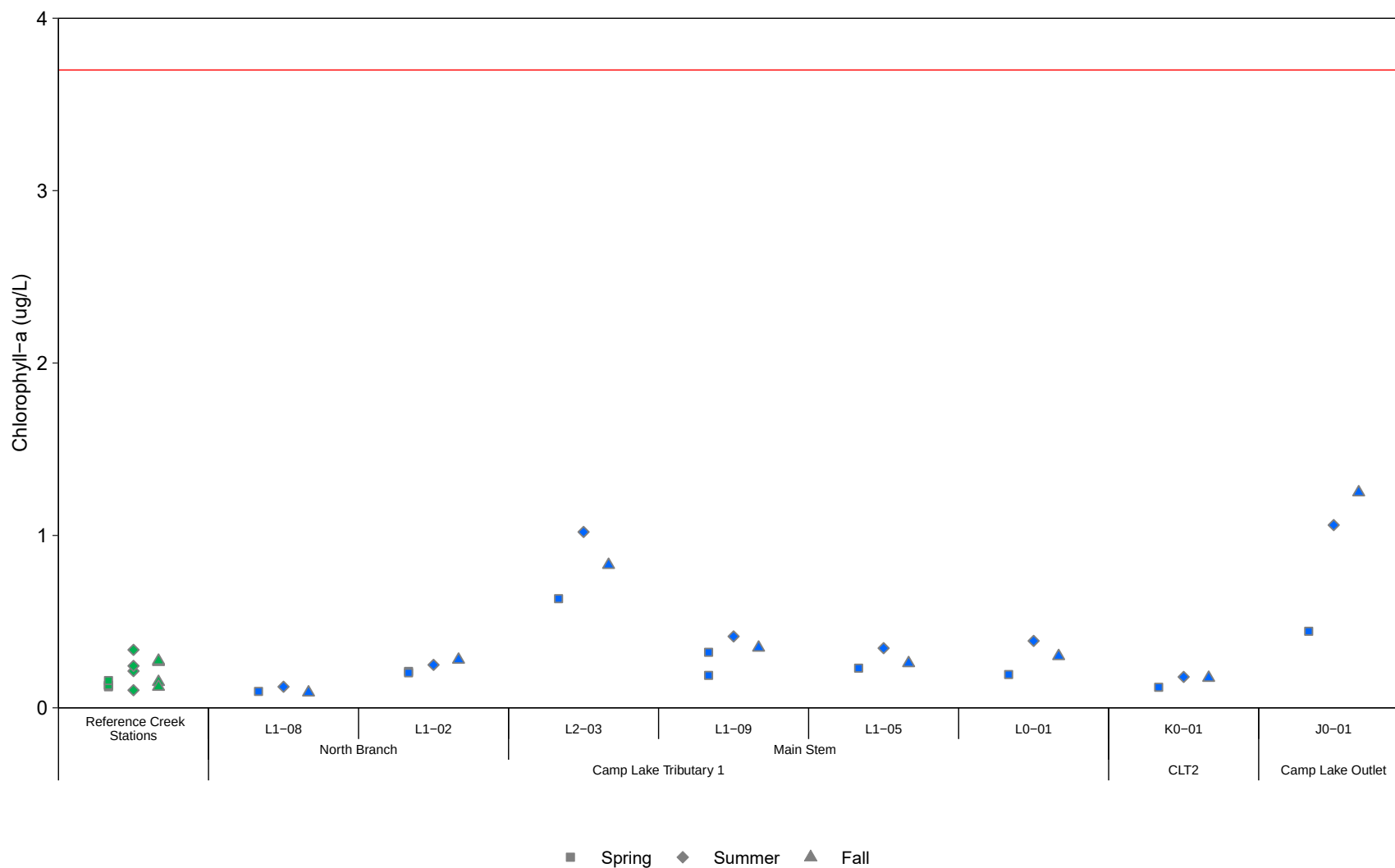


Figure 3.1: Chlorophyll-a Concentrations at Phytoplankton Monitoring Stations in Camp Lake Tributary 1 (CLT1), Tributary 2 (CLT2), and Camp Lake Outlet, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations reported below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. "Reference Creek Stations" includes data from stations CLT-REF4, CLT-REF3, MRY-REF3, and MRY-REF2. Reference areas are shown in green and mine-exposed areas are shown in blue.

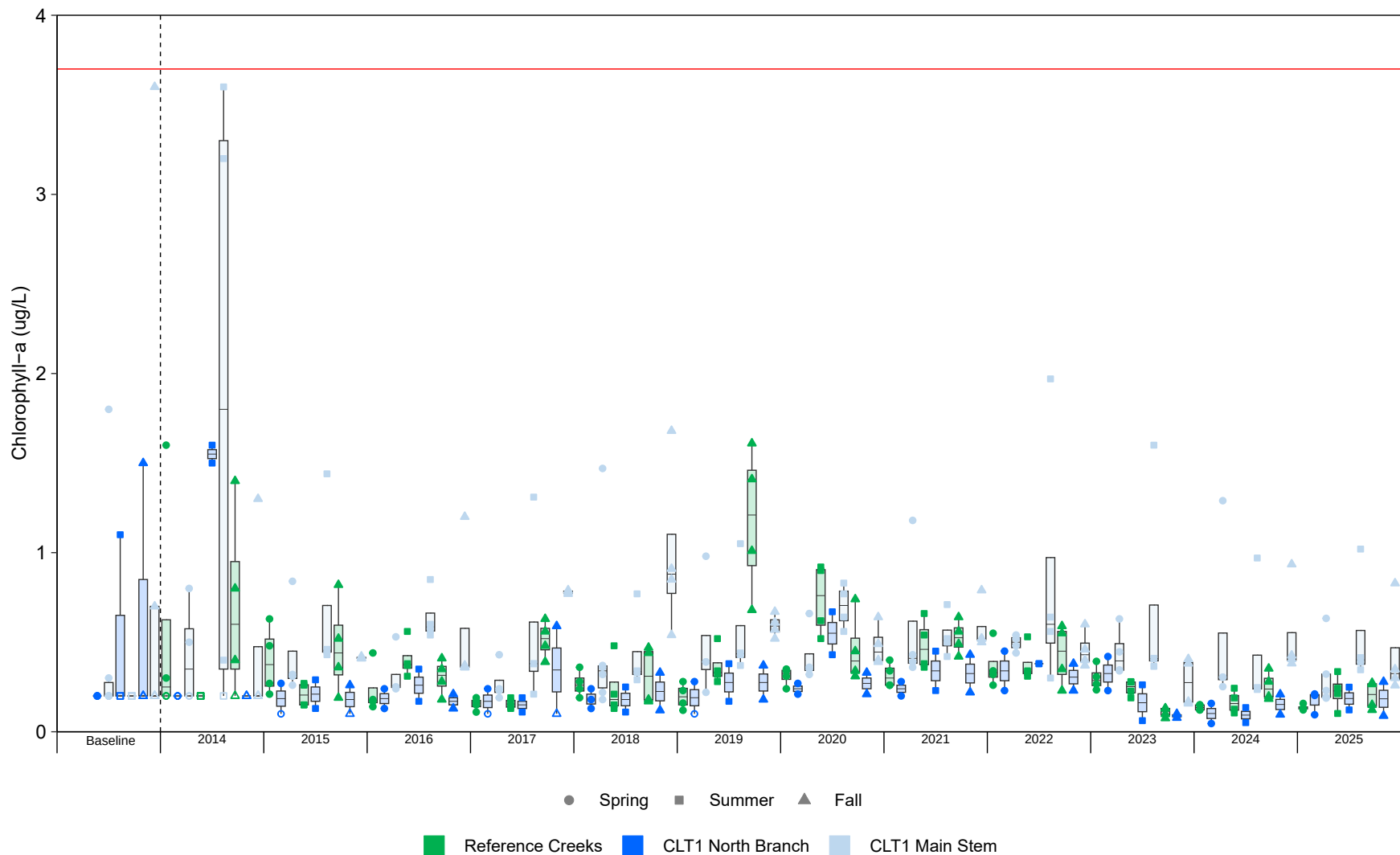


Figure 3.2: Temporal Comparison of Chlorophyll-a Concentrations at Camp Lake Tributary 1 (CLT1) and Reference Creeks Based on Data for the Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. "Reference Creeks" includes stations CLT-REF4, CLT-REF3, MRY-REF3, and MRY-REF2. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Main Stem, mean chlorophyll-a concentrations were higher in summer 2025 relative to baseline, whereas spring and fall concentrations were comparable to baseline conditions (Figure 3.2; Appendix Table D.1). Across the 2015 to 2025 mine operational period, no consistent increasing or decreasing pattern in mean chlorophyll-a concentrations were evident at either the CLT1 North Branch or CLT1 Main Stem. Chlorophyll-a concentrations were also well below the AEMP benchmark of 3.7 µg/L throughout the 2015 to 2025 operational period (Figure 3.2).

Overall, spatial and temporal patterns in mean chlorophyll-a concentrations indicate there have been no mine-related effects to phytoplankton productivity within the CLT North Branch or CLT1 Main Stem, except at Station L2-03 (Figure 2.2). Higher phytoplankton productivity at L2-03, relative to reference, is likely attributed to higher nutrient availability (e.g., TKN, nitrate) observed at this location in recent years (e.g., Minnow 2025). Regardless, chlorophyll-a concentrations at all CLT1 stations were below the AEMP benchmark and consistent with oligotrophic conditions in 2025, similar to historical observations. Further, across the full mine operational period (2015 to 2025), mean chlorophyll-a concentrations at both the CLT1 North Branch and Main Stem show no consistent increasing or decreasing patterns relative to the 2005 to 2013 baseline, based on qualitative comparisons. Collectively, these results indicate no long-term or wide-spread mine-related effects on phytoplankton productivity at CLT1, and no action level responses were triggered for phytoplankton productivity at this location in 2025 (Baffinland 2024).

3.1.3 Benthic Invertebrate Community

3.1.3.1 North Branch (CLT1-US)

In 2025, most BIC endpoints at the CLT1 North Branch (Station CLT1-US) were comparable to those observed at Reference Creek (Station REF-CRK), except total invertebrate density and the relative abundances of *Ostracoda*, *Chironomidae*, filterers, and shredders (Table 3.2; Appendix Figure E.1; Appendix Tables E.1 to E.3). Benthic invertebrate density was higher at CLT1-US (Measure of Central Tendency [MCT] = 962 individuals/m²) compared to the reference area (MCT = 203 individuals/m²; Table 3.2). Similarly, the relative proportion of shredders was greater at CLT1-US (MCT = 34%) than at the reference area (MCT = 4.7%; Table 3.2). The differences for these two endpoints were the only differences large enough to be considered ecologically meaningful, based on MODs outside the CES_{BIC} of ±2 SD_{REF} (Table 3.2). Additionally, Bray-Curtis similarity analysis indicated statistically significant differences in community composition and structure between the CLT1 North Branch and Reference Creek (Appendix Table E.4; see also Appendix Tables E.2 and E.3).



Table 3.2: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK) Study Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Area Comparison			Area	MCT	Pair-wise, Post-hoc Comparisons	
	Statistical Test ^a	Data Transformation	Area P-value			Post-hoc P-value	MOD ^b
Density (org/m ²)	ANOVA	log ₁₀	<0.001	REF-CRK	203	nc	nc
				CLT1-US	962	<0.001	2.7
				CLT1-L2	2,657	<0.001	4.5
				CLT1-DS	275	0.742	ns
Richness (No. of Taxa)	ANOVA	none	0.022	REF-CRK	14	nc	nc
				CLT1-US	18	0.216	ns
				CLT1-L2	17	0.530	ns
				CLT1-DS	13	0.684	ns
Simpson's Evenness (Krebs)	ANOVA	log ₁₀	0.027	REF-CRK	0.91	nc	nc
				CLT1-US	0.90	0.998	ns
				CLT1-L2	0.79	0.039	-1.6
				CLT1-DS	0.89	0.966	ns
% Nematoda	K-W	rank	0.075	REF-CRK	0	nc	nc
				CLT1-US	1.0	0.392	ns
				CLT1-L2	2.5	0.013	nm
				CLT1-DS	0	0.600	ns
% Oligochaeta	K-W	rank	0.003	REF-CRK	0	nc	nc
				CLT1-US	0.79	0.126	ns
				CLT1-L2	13	<0.001	nm
				CLT1-DS	0	0.662	ns
% Hydracarina	ANOVA	none	0.118	REF-CRK	4.3	ns	ns
				CLT1-US	2.6	ns	ns
				CLT1-L2	2.6	ns	ns
				CLT1-DS	5.6	ns	ns
% Ostracoda	K-W	rank	0.007	REF-CRK	10	nc	nc
				CLT1-US	0	0.004	-0.89
				CLT1-L2	0.23	0.016	-0.87
				CLT1-DS	0	0.002	-0.89
% Chironomidae	ANOVA	none	0.003	REF-CRK	56	nc	nc
				CLT1-US	79	0.012	1.3
				CLT1-L2	77	0.022	1.2
				CLT1-DS	84	0.003	1.6
% Metal Sensitive Chironomidae	ANOVA	log ₁₀	0.160	REF-CRK	6.8	ns	ns
				CLT1-US	8.2	ns	ns
				CLT1-L2	7.0	ns	ns
				CLT1-DS	14	ns	ns
% Simuliidae	K-W	rank	<0.001	REF-CRK	11	nc	nc
				CLT1-US	1.5	0.130	ns
				CLT1-L2	0	<0.001	-1.8
				CLT1-DS	0	0.001	-1.8
% Tipulidae	ANOVA	none	0.032	REF-CRK	3.4	nc	nc
				CLT1-US	5.0	0.650	ns
				CLT1-L2	1.0	0.319	ns
				CLT1-DS	4.6	0.823	ns
% Collector Gatherers	ANOVA	log ₁₀	0.039	REF-CRK	64	nc	nc
				CLT1-US	58	0.787	ns
				CLT1-L2	64	1.000	ns
				CLT1-DS	77	0.184	ns
% Filterers	K-W	rank	<0.001	REF-CRK	11	nc	nc
				CLT1-US	1.5	0.007	-1.6
				CLT1-L2	4.5	0.260	ns
				CLT1-DS	0	<0.001	-1.8
% Shredders	ANOVA	log ₁₀	<0.001	REF-CRK	4.7	nc	nc
				CLT1-US	34	<0.001	3.9
				CLT1-L2	26	<0.001	3.4
				CLT1-DS	11	0.050	1.7
% Clingers	ANOVA	log ₁₀	0.012	REF-CRK	17	nc	nc
				CLT1-US	27	0.254	ns
				CLT1-L2	28	0.192	ns
				CLT1-DS	13	0.700	ns
% Sprawlers	ANOVA	none	<0.001	REF-CRK	72	nc	nc
				CLT1-US	64	0.405	ns
				CLT1-L2	52	0.006	-2.1
				CLT1-DS	79	0.557	ns
% Burrowers	ANOVA	none	<0.001	REF-CRK	9.8	nc	nc
				CLT1-US	8.3	0.938	ns
				CLT1-L2	19	0.011	3.8
				CLT1-DS	7.1	0.708	ns

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a significant difference (p-value <0.1) outside the CES of ±2 SD_{REF} (i.e., a difference from reference that is considered ecologically meaningful).

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = number of organisms per square metre. ANOVA = Analysis of Variance. < = less than. ns = not significant. No. = number. nc = not calculated. % = percent. nm = MOD could not be calculated due to SD = 0. SD = standard deviation. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

^a Statistical tests include ANOVA followed by Dunnett post hoc tests, or Kruskal-Wallis H-test (K-W) followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{Exp} - MCT_{Ref})/SD_{Ref} where the MCT is reported as geometric means for log₁₀-transformed data, medians for rank-transformed data, and means for untransformed

The observed differences between the BIC at CLT1-US and REF-CRK in 2025 is likely driven by natural habitat variation between the North Branch and Reference Creek. For example, the higher relative abundance of shredders versus filterers at CLT1-US relative to reference is expected to reflect a greater abundance of coarse organic material at CLT1-US (Appendix Table E.5). Bryophytes, which were present at CLT1-US but absent from the reference creek in 2025, provide habitat complexity that is effective at trapping both coarse and fine particulate matter, resulting in greater retention of food resources for benthic invertebrates (Habdija et al. 2004; Suren 1992). Additionally, comparisons among creeks with and without bryophytes have demonstrated that bryophytes act as a source of refugia, especially for smaller invertebrates like chironomids (which made up a significantly larger proportion of the BIC at CLT1-US relative to REF-CRK; Table 3.2), and can support higher invertebrate densities relative to creeks without bryophytes (Averett et al. 2025). Further, the lack of significant differences in relative proportions of metal-sensitive *Chironomidae*, key bioindicators of metal contamination, between the CLT1-US and reference BIC suggests that mining-related stress is not a primary factor influencing the BIC at CLT1-US. Finally, given chlorophyll-a concentrations were similar between CLT1-US and REF-CRK in 2025, it is considered unlikely that phytoplankton productivity influenced the observed differences between BIC sampling areas in 2025 (see Section 3.1.2).

The Revision 2 AEMP study design includes TARP thresholds for benthic invertebrate density, Simpson's Evenness, and taxonomic richness (Baffinland 2024). The ecologically meaningful (i.e., outside the $CES_{BIC} \pm 2 SD_{REF}$ threshold; Table 3.2) difference in benthic invertebrate densities between the CLT1 North Branch and the reference area in 2025 triggered a Low Risk Response. However, because no significant differences in benthic invertebrate densities were identified between CLT1-US and REF-CRK in 2024 (Minnow 2025), the results for 2025 did not trigger a Moderate Risk Response under the TARP (Baffinland 2024).

Most BIC endpoints at the CLT1 North Branch differed significantly from at least one baseline year (2007 or 2011) during mine operations (2015 to 2025; Appendix Table E.6, Appendix Figure E.2). The exceptions were richness and the relative proportions of metal sensitive *Chironomidae* and shredders; these endpoints were comparable throughout baseline and the mine operational period (Appendix Table E.6, Appendix Figure E.2). Ecologically meaningful differences (i.e., based on MODs outside the $CES_{BIC} \pm 2 SD_{REF}$) relative to baseline were not consistent across the mine operation period and were generally observed only in comparison to the 2007 baseline dataset, not both baseline years (i.e., 2007 and 2011; Appendix Table E.6, Appendix Figure E.2). In 2025, specifically, Simpson's Evenness was significantly higher than the 2007 baseline year; this difference was considered ecologically meaningful and triggered a Low Risk Response (Appendix Table E.6, Appendix Figure E.2; Baffinland 2024).



Overall, the BIC at the CLT1 North Branch does not exhibit patterns consistent with mine-related effects. Although some statistically significant differences were observed relative to reference and baseline conditions, few were ecologically meaningful and none showed consistent patterns over time. The only endpoints outside the CES_{BIC} in 2025 were total density and the relative proportion of shredders, which are more plausibly associated with natural habitat variability than mine influence. However, the differences in invertebrate densities between CLT1 North Branch and the reference area and Simpson's Evenness relative to baseline were sufficient to trigger Low Risk Responses, based on the TARP in the Revision 2 AEMP (Baffinland 2024).

3.1.3.2 Upper Main Stem (CLT1-L2)

In 2025, total invertebrate densities and the relative proportions of *Nematoda*, *Oligochaeta*, *Chironomidae*, shredders, and burrowers were significantly higher at the CLT1 Upper Main Stem (CLT1-L2) compared to the reference area (Table 3.2, Appendix Figure E.1; Appendix Tables E.1 to E.3). In contrast, Simpson's Evenness and the relative proportions of *Ostracoda*, *Simuliidae*, and sprawlers were significantly lower at the CLT1 Upper Main Stem relative to the Reference Creek (Table 3.2; Appendix Figure E.1). Of these endpoints, only density and the relative proportions of shredders, sprawlers, and burrowers were outside the $CES_{BIC} \pm 2 SD_{REF}$, indicating ecologically meaningful differences (Table 3.2).³² Bray–Curtis similarity analysis also identified significant differences in community structure between CLT1-L2 and the reference area; the results of the dbRDA analysis in particular indicated strong environmental controls on community dissimilarity (Appendix Table E.4). These patterns likely reflect localized habitat differences between the Upper Main Stem and Reference Creek, rather than mine influence. Variations in organic matter inputs can favour specific functional groups, and the presence of bryophytes, as noted in Section 3.1.3.1, can create favourable refugia and increase food retention/availability for taxa like chironomids and shredder FFGs. Similar to CLT1-US, bryophytes were present at CLT1-L2 in 2025, but not the reference area (Appendix Table E.5). Additionally, substrates were also less embedded at the CLT1-L2 stations (mean = 17%) relative to reference (mean = 28%; Appendix Table E.5) and phytoplankton productivity upstream at L2-03 was higher relative to the reference area normal ranges for spring and summer in 2025 (Figures 2.2 and 2.4; Section 3.1.2). Finally, the lack of significant differences in relative proportions of metal-sensitive *Chironomidae* between the CLT1-L2 and reference BIC suggests that mining-related stress is not a primary factor influencing the BIC at CLT1-L2.

The TARP in the Revision 2 AEMP outline action level responses for invertebrate densities, Simpson's Evenness, and taxonomic richness (Baffinland 2024). The ecologically meaningful

³² No MODs could be calculated for the comparisons involving nematodes and oligochaetes because $SD_{REF} = 0$ (Table 3.2).



(i.e., outside the $CES_{BIC} \pm 2 SD_{REF}$; Table 3.2) difference in benthic invertebrate densities between CLT1 Upper Main Stem and the reference area in 2025 triggers a Low Risk Response. Further, the significantly lower Simpson's Evenness at CLT1-L2 in 2025 also triggers a Low Risk Response, despite the difference being within the $CES_{BIC} \pm 2 SD_{REF}$ (Table 3.2; Baffinland 2024).

Most BIC endpoints measured at the CLT1 Upper Main Stem during mine operations (2015 to 2025) differed significantly from the 2011 baseline, except taxonomic richness, Simpson's Evenness, and the relative proportions of *Oligochaeta*, *Hydracarina*, *Chironomidae*, and metal-sensitive *Chironomidae* (Appendix Table E.7, Appendix Figure E.2). Differences relative to baseline were often intermittent and did not show sustained patterns over time, except for density, which has been significantly lower relative to baseline since 2016 (Appendix Table E.7). In 2025 specifically, ecologically meaningful differences in BIC endpoints relative to baseline (2011) included higher relative proportions of *Nematoda* and collector-gatherers, and lower proportions of *Ostracoda* and filterers (Appendix Table E.7, Appendix Figure E.2). These temporal patterns likely reflect inter-annual variability in habitat conditions and community composition. Changes in the relative proportions of collector-gatherers may be driven by availability of fine particulate organic matter, whereas the relative abundance of nematodes may change in association with localized changes in substrate conditions and availability of bacterial, fungal, and/or detrital food sources (Ptatscheck and Traunspurger 2020). The lower proportions of filterers in 2025 may reflect variation in suspended particulates, flow, or microhabitat structure. Importantly, the observed differences relative to baseline are not part of a consistent directional pattern over the operational period.

Overall, comparisons of invertebrate density, Simpson's Evenness, and taxonomic richness between 2025 and baseline triggered a Low Risk Response for density, based on lower invertebrate densities at the mine-exposed area in 2025 (Appendix Table E.7; Baffinland 2024).

Although statistically significant and occasionally ecologically meaningful differences were identified at the CLT1 Upper Main Stem in 2025 relative to both reference and baseline conditions, these patterns were largely driven by shifts in FFG composition rather than sustained changes in core endpoints of organism densities, evenness, and richness. Additionally, the absence of consistent directional patterns across years and the lack of progressive taxonomic loss do not suggest a persistent or escalating mine-related effect. However, the ecologically significant difference in organism density relative to reference and the subtle differences in Simpson's Evenness and density relative to reference and baseline, respectively, will be considered further as part of a Low Risk Response (Baffinland 2024).



3.1.3.3 Lower Main Stem (CLT1-DS)

In 2025, most BIC endpoints at the CLT1 Lower Main Stem (Station CLT1-DS) were comparable to the Reference Creek (Station REF-CRK), except the relative abundances of *Ostracoda*, *Chironomidae*, *Simuliidae*, and the filterer and shredder FFGs (Table 3.2; Appendix Figure E.1; Appendix Tables E.1 to E.3). Despite being reflected in the results of the Bray–Curtis similarity analysis (Appendix Table E.4), significant differences between areas were not large enough to be considered ecologically meaningful, based on a CES_{BIC} of $\pm 2 SD_{REF}$. Additionally, the lack of significant differences in relative proportions of metal-sensitive *Chironomidae*, key bioindicators of metal contamination, between the CLT1-DS and reference BIC suggests that mining-related stress is not a primary factor influencing the BIC at CLT1-DS. Instead, the BIC being generally comparable between CLT1-DS and REF-CRK in 2025 is thought to reflect similarities in habitat conditions between areas. Specifically, chlorophyll-a concentrations in the CLT1 Lower Main Stem were within reference area normal ranges, signaling primary productivity was similar between the exposed and reference area (Section 3.1.2). Additionally, the BIC sampling areas at CLT1-DS and REF-CRK had similar sample station velocities and substrate embeddedness values, and bryophytes were absent from most of the replicate sampling locations (Appendix Table E.5).

Differences in BIC between the CLT1 Upper and Lower Main Stem and the reference creek are most consistent with a longitudinal gradient in changing habitat conditions rather than a mine-related influence. More pronounced differences in invertebrate densities and functional shifts upstream (e.g., higher proportions of shredders and burrowers) relative to reference likely reflect localized habitat conditions, whereas downstream patterns are subtler and within CES_{BIC} . Additionally, unlike areas further upstream on the CLT1 North Branch and Main Stem, no Low Risk Response thresholds were triggered at CLT1 Lower Main Stem, based on comparisons to reference in 2025 (Table 3.2; Baffinland 2024).

Apart from organism densities, Simpson's Evenness, and the relative proportions of *Nematoda*, *Ostracoda*, and filterer FFG, most BIC endpoints at the CLT1 Lower Main Stem differed significantly from at least one baseline year (2007 or 2011) during mine operations (2015 to 2025; Appendix Table E.8; Appendix Figure E.2). However, few endpoints exhibited consistent temporal patterns across the mine operation period, except relative proportions of *Hydracarina* and collector-gatherers, which were often significantly lower and higher, respectively, during mine operational years relative to the 2011 baseline (Appendix Table E.8). Importantly, these differences relative to 2011 were rarely reflected in the comparisons to the 2007 baseline and have not occurred concurrently with progressive declines in richness, density, or evenness over the operational period.



In 2025 specifically, the relative proportion of collector-gatherers was significantly higher, and the relative proportion of shredders was significantly lower, than the 2011 baseline year; both differences exceeded the CES_{BIC} of $\pm 2 SD_{REF}$, indicating ecologically meaningful differences (Appendix Table E.8, Appendix Figure E.2). Of the endpoints associated with action level responses (i.e., density, Simpson's Evenness, and taxonomic richness; Baffinland 2024), richness was the only one that differed relative to baseline (2007 only) in 2025, thereby triggering a Low Risk Response (Appendix Table E.8).

Overall, most BIC endpoints in 2025 were comparable to both reference and baseline conditions, and ecologically meaningful differences were limited with no spatial or temporal patterns that could be directly attributed to mine influence. The weight-of-evidence suggests that observed differences reflect natural interannual and habitat-driven variability within a structurally stable community. However, a Low Risk Response was triggered, based on a statistically significant (but not ecologically meaningful) difference in richness at CLT1-DS in 2025 relative to baseline.

3.1.4 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

3.1.4.1 North Branch (CLT1-US)

3.1.4.1.1 Effects Assessment

At the CLT1 North Branch stations (L1-08 and L1-02), exceedances of AEMP benchmarks were limited to mean dissolved copper concentrations from spring 2025. This benchmark exceedance triggered a Low Risk Response (Baffinland 2024). The mean dissolved copper concentration for summer was also above reference and baseline normal ranges. Mean total copper concentrations for summer and fall were also above normal ranges, thereby triggering a Low Risk Response (Baffinland 2024).

In addition to total and dissolved copper, Low Risk Responses were triggered for concentrations of total barium, total and dissolved molybdenum and potassium, and dissolved uranium, based on concentrations that were elevated relative to both the reference and baseline normal ranges in at least one season in 2025.

Sediment is collected from creek stations on a three-year cycle; the most recent creek sediment sampling for the CREMP was completed in 2023, and the next sampling event is planned for 2026. Consequently, there are no 2025 creek sediment quality data presented in this report.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in the CLT1 North Branch, and most BIC endpoints were comparable to reference and baseline in 2025. Exceptions included higher total invertebrate densities in the CLT1 North Branch relative to reference and higher Simpson's Evenness relative



to baseline. Both of these differences were large enough to be considered ecologically meaningful and triggered Low Risk Responses under the TARP (Baffinland 2024). However, observed differences in invertebrate densities between areas in 2025 appear to be driven by differences in habitat, including greater habitat complexity and availability of potential food resources at CLT1 North Branch relative to reference, rather than mine-related influence.

3.1.4.1.2 Recommendations

Low Risk Responses for the CLT1 North Branch were triggered for aqueous concentrations of total barium, total and dissolved copper, molybdenum, and potassium, and dissolved uranium, as well as BIC endpoints of total invertebrate densities and Simpson's Evenness. The following actions are recommended as part of the Low Risk Responses for the CLT1 North Branch:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of dissolved copper concentrations above AEMP benchmarks using a weight-of-evidence approach.
- Complete temporal trend analyses for aqueous concentrations of total barium, total and dissolved copper, molybdenum, and potassium, and dissolved uranium to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources of copper, barium, molybdenum, potassium, and uranium to better define mine-related influence.
- Complete a Before-After-Control-Impact (BACI)-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to evaluate whether differences between mine-exposed and reference areas have changed over time.
- Continue to use data for indicator taxa, FFGs, and HPGs in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

3.1.4.1.3 Comparisons to FEIS Predictions

Water quality data collected from the CLT1 North Branch in spring, summer, and fall 2025 were compared to FEIS predictions for Aqueous Non-point Source Emissions effects related to Surface Water and Sediment Quality-2 (SWSQ-2; Site Water Management), SWSQ-7 (Camp Management), and SWSQ-9 (Airstrips and Airstrip Use). All water quality parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7)



expected for the waterbody during mine operations. Therefore, water quality at CLT1 North Branch was in conformance with predictions made in the FEIS (Baffinland 2012).

3.1.4.2 Main Stem (CLT1-L2 and CLT1-DS)

3.1.4.2.1 Effects Assessment

At the CLT1 Main Stem, exceedances of AEMP benchmarks were limited to mean total iron and total uranium concentrations at the Upper Main Stem in summer and fall 2025. Aqueous total uranium concentrations in the CLT1 Upper Main Stem were also above reference and baseline normal ranges during each of the spring, summer, and fall sampling events. These benchmark exceedances triggered a Low Risk Response for total iron and a Moderate Risk Response for total uranium (Baffinland 2024).

In addition to total iron and uranium, Low Risk Responses were triggered for mean SPC; DO; hardness; TDS; alkalinity; DOC; TOC; chloride; sulphate; total nickel; total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, and strontium; and dissolved uranium, based on concentrations that were elevated in the CLT1 Upper Main Stem relative to both the reference and baseline normal ranges in at least one season in 2025. Low Risk Responses were also triggered for hardness, alkalinity, total and dissolved barium, magnesium, molybdenum, potassium, sodium, and uranium and dissolved copper at the CLT1 Lower Main Stem, based on mean concentrations being above both reference and baseline normal ranges in at least one season in 2025.

Aqueous concentrations of sulphate and total and dissolved aluminum, iron, molybdenum, sodium, and uranium at CLT1 Upper Main Stem were assessed for temporal trends in 2025, as part of action level responses triggered under the TARP in 2024 (Minnow 2025). The results of the analysis indicated that concentrations of total aluminum and iron underwent a step-change increase from baseline to early operations, but were stable thereafter (i.e., from 2015 to 2025). A similar pattern was observed for the remaining parameters, depending on season (i.e., spring, summer, fall). Total and dissolved aluminum and total iron concentrations were generally within reference area normal ranges in 2025, signaling potential regional effects (i.e., regional geology) on concentrations of these parameters in surface water.

Comparisons between total and dissolved concentrations of aluminum, iron, and uranium in the CLT1 Upper Main Stem were completed to better understand the bioavailability of these parameters and potential for effects to aquatic biota. For all three parameters, it was determined that total, rather than dissolved, data should be used to conservatively estimate the bioavailable fraction and evaluate potential effects to biota. Additionally, it was concluded that potential risks to biota from exposure to aqueous aluminum and iron in the CLT1 Upper Main Stem in 2025 were



likely low, as there has been no indication of adverse mine-related effects to primary productivity (phytoplankton) or BIC over the mine operation period, and there has been little change in the concentrations of these parameters during that time.

Sediment is collected from creek stations on a three-year cycle; the most recent creek sediment sampling for the CREMP was completed in 2023, and the next sampling event is planned for 2026. Consequently, there are no 2025 creek sediment quality data presented in this report.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in the CLT1 Main Stem in 2025 and differences in BIC endpoints relative to reference and baseline appear to be driven by differences in habitat (e.g., in-stream vegetation, substrate embeddedness) and food availability between areas, rather than mine-related influence. However, higher total invertebrate densities and lower Simpson's Evenness in the CLT1 Upper Main Stem relative to reference in 2025 triggered Low Risk Responses under the TARP (Baffinland 2024). Low Risk Responses were also triggered for lower invertebrate densities and richness at the CLT1 Upper and Lower Main Stem areas, respectively, relative to baseline.

3.1.4.2.2 Recommendations

Low Risk Responses for the CLT1 Main Stem were triggered for SPC; DO; hardness; TDS; alkalinity, DOC; TOC; chloride; sulphate; total iron and nickel; dissolved copper; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium, as well as BIC endpoints of total invertebrate densities, Simpson's Evenness, and taxonomic richness. The following actions are recommended as part of the Low Risk Responses for the CLT1 Main Stem:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of total iron and uranium concentrations above AEMP benchmarks using a weight-of-evidence approach.
- Complete temporal trend analyses for SPC; DO; hardness; TDS; alkalinity, DOC; TOC; chloride; sulphate; total iron and nickel; dissolved copper; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources or factors influencing SPC, DO, hardness, TDS, alkalinity, DOC, TOC, chloride, sulphate, iron, nickel, copper, barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium in the CLT1 Main Stem to better define mine-related influence.



- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to evaluate whether differences between mine-exposed and reference areas have changed over time.
- Consider completing a comparison of environmental conditions and BIC endpoints among years of baseline data (where more than one year of baseline data exist for a given area) to identify regional patterns that may be influencing data interpretation (e.g., do BIC endpoints for CLT1-DS differ between the 2007 and 2011 baseline years, and if so, is it because one of the years was exceptionally dry, cold, etc.?).
- Continue to use data for indicator taxa, FFGs, and HPGs in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

3.1.4.2.3 Comparison to FEIS Predictions

A comparison of water quality at the CLT1 Main Stem in spring, summer, and fall 2025 to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-4 (Explosives), SWSQ-5 (Quarries and Borrow Areas), SWSQ-7 (Camp Management) and SWSQ-9 (Airstrips and Airstrip Use) indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at CLT1 Upper and Lower Main Stem was in conformance with predictions made in the FEIS (Baffinland 2012).

3.2 Camp Lake Tributary 2 (CLT2)

3.2.1 Water Quality

3.2.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at CLT2 concurrent and co-located with water quality sampling completed by Baffinland environment department personnel in spring, summer, and fall and BIC sampling led by Minnow staff in August (Tables 2.2 and 2.8). During the spring, summer, and fall water quality monitoring events, DO saturation at the CLT2 station was consistently near full saturation (i.e., all concentrations were $\geq 96.3\%$; (Table 3.3; Appendix Figure B.1; Appendix Table B.1). Similarly, DO concentrations measured at all water quality and BIC sampling stations on CLT2 were above the CCME WQG for protection of early life stages of cold-water biota (i.e., 9.5 mg/L; Table 3.3; Appendix Figure B.1; Appendix Tables B.1 and B.2). Mean DO concentrations were also generally within reference and baseline normal ranges during the 2025 water quality monitoring events, except during the spring, when lower concentrations were



Table 3.3: Mean Water Chemistry at Camp Lake Tributary 2 (CLT2) Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^c or AEMP Benchmark ^d	Reference Creeks (n = 3)			Camp Lake Tributary 2 (n = 1)		
				Spring	Summer	Fall	Spring	Summer	Fall
Conventionals	Conductivity (lab)	µS/cm	-	40.4	97.0	134	100	234	258
	Specific Conductance (field)	µS/cm	-	34.5	100	135	91.6	224	270
	pH (lab)	pH	-	6.90	7.78	7.79	7.52	8.27	8.15
	pH (field)	pH	6.5 - 9.0	7.50	7.85	7.76	7.82	8.30	8.29
	Temperature, Field	mg/L	-	4.46	8.70	1.90	9.05	9.60	2.30
	Hardness (as CaCO ₃) -Total	mg/L	-	18.7	50.4	68	52.0	131	134
	Total Suspended Solids (TSS)	mg/L	-	1.82	<1	1.82	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	29.8	55.0	64.0	61.0	113	126
	Dissolved Oxygen	mg/L	> 9.5	12.3	10.9	13.2	11.4	11.0	13.3
	Dissolved Oxygen	%	-	95.2	93.2	95	98.0	96.3	97.4
	Turbidity (lab)	NTU	-	2.73	8.69	5.68	0.560	0.240	0.580
	Turbidity (field)	NTU	-	2.35	8.02	4.14	0.690	0.170	0.320
	Alkalinity (as CaCO ₃)	mg/L	-	19.8	46.3	59.6	47.3	114	122
Nutrients and Organics	Total Ammonia ^e	mg/L	0.282 - 3.98	0.00532	0.00580	0.00785	0.00730	0.0492	<0.005
	Nitrate ^e	mg/L	3.00	<0.02	<0.02	0.0215	<0.02	0.0230	<0.02
	Nitrite ^e	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.0750	0.106	0.0842	0.0690	0.177	0.162
	Dissolved Organic Carbon	mg/L	-	1.41	1.74	1.71	1.19	2.77	2.31
	Total Organic Carbon	mg/L	-	1.64	2.32	2.13	1.46	3.14	2.82
	Total Phosphorus	mg/L	-	0.00365	0.00632	0.00518	<0.002	0.00470	<0.002
Anions	Phenols	mg/L	0.00400	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromide (Br)		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	0.668	1.12	3.18	0.960	3.57	5.56
Total Metals	Sulphate (SO ₄) ^e	mg/L	128 - 309	0.568	1.59	3.91	2.33	2.82	4.18
	Aluminum (Al) ^e	mg/L	0.179	0.0740	0.313	0.117	0.0178	0.0101	0.0156
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	<0.0001	0.000122	0.000110	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00276	0.00760	0.00826	0.00579	0.0127	0.0133
	Beryllium (Be)	mg/L	0.000130	<0.00002	0.0000272	0.0000202	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000400 - 0.000195	<0.000005	0.00000502	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.83	9.80	13.7	10.1	24.4	24.8
	Cesium (Cs)	mg/L	-	0.0000175	0.0000495	0.0000260	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	0.000540	0.000902	0.000620	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^e	mg/L	0.000778 - 0.00113	0.000102	0.000165	0.000125	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00293	0.000662	0.00133	0.00101	0.000960	0.00202	0.00145
	Iron (Fe) ^e	mg/L	0.326	0.0825	0.304	0.145	0.0170	0.0140	0.0200
	Lead (Pb)	mg/L	0.00100 - 0.00438	0.000100	0.000261	0.000167	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	0.00100	<0.001	<0.001	0.00120	0.00140
	Magnesium (Mg)	mg/L	-	2.22	6.29	8.18	6.51	17.0	17.6
	Manganese (Mn)	mg/L	0.768 - 1.17	0.00114	0.00326	0.00198	0.000380	0.000310	0.000660
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000150	0.000345	0.000408	0.000326	0.000617	0.000633
	Nickel (Ni) ^e	mg/L	0.0250 - 0.116	0.000505	0.000770	0.000922	0.000500	0.00156	0.000580
	Potassium (K)	mg/L	-	0.358	0.807	0.870	1.06	2.03	1.90
	Rubidium (Rb)	mg/L	-	0.000910	0.00268	0.00195	0.00222	0.00403	0.00326
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.605	1.34	1.10	0.490	1.04	1.06
	Silver (Ag) ^e	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.491	1.45	2.22	1.04	3.23	3.58
	Strontium (Sr)	mg/L	-	0.00341	0.00961	0.0138	0.00612	0.0168	0.0172
	Sulphur (S)	mg/L	-	<0.5	0.625	1.42	0.790	0.990	1.76
	Thallium (Tl) ^e	mg/L	0.000800	<0.00001	0.0000128	0.0000105	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	0.000145	0.000458	0.000268	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.00412	0.0149	0.00758	0.000570	0.000320	0.000700
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000268	0.00161	0.00372	0.000394	0.00244	0.00278
	Vanadium (V) ^e	mg/L	-	<0.0005	0.000850	0.000612	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	0.000230	0.000488	0.000332	<0.0002	0.000210	<0.0002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 3.3: Mean Water Chemistry at Camp Lake Tributary 2 (CLT2) Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^c or AEMP Benchmark ^d	Reference Creeks (n=3)			Camp Lake Tributary 2 (K0-01, n = 1)		
				Spring	Summer	Fall	Spring	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0192	0.0478	0.0219	0.00620	0.00420	0.00200
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00241	0.00631	0.00782	0.00582	0.0133	0.0136
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000254	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.86	9.68	13.6	10.0	24.4	24.6
	Cesium (Cs)	mg/L	-	0.0000102	0.0000140	0.0000132	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000566	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00536	0.000485	0.000908	0.000782	0.000840	0.00176	0.00148
	Iron (Fe) ^e	mg/L	-	0.0150	0.0335	0.0152	<0.01	<0.01	<0.01
	Lead (Pb) ^e	mg/L	0.00294 - 0.00730	<0.00005	0.0000610	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	<0.001	<0.001	0.00210	0.00170
	Magnesium (Mg)	mg/L	-	2.46	5.59	7.48	6.50	15.0	16.3
	Manganese (Mn) ^e	mg/L	0.200 - 0.350	0.000288	0.000545	0.000422	0.000160	0.000190	0.000370
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000142	0.000382	0.000428	0.000328	0.000644	0.000643
	Nickel (Ni)	mg/L	0.000600 - 0.00250	<0.0005	0.000528	0.000512	<0.0005	0.000710	0.000570
	Potassium (K)	mg/L	-	0.356	0.706	0.815	1.05	1.96	1.92
	Rubidium (Rb)	mg/L	-	0.000685	0.00173	0.00163	0.00217	0.00389	0.00325
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	0.0000510	<0.00005
	Silicon (Si)	mg/L	-	0.509	0.934	0.913	0.445	1.02	0.990
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.512	1.32	2.00	1.06	2.89	3.50
	Strontium (Sr) ^e	mg/L	2.50	0.00342	0.00880	0.0139	0.00608	0.0162	0.0179
	Sulphur (S)	mg/L	-	<0.5	0.678	1.31	0.700	1.14	1.76
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000650	0.00180	0.000752	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000228	0.00154	0.00386	0.000371	0.00246	0.00296
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	<0.0003	0.000312	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

observed compared to reference only (Table 3.3; baseline and reference normal ranges are summarized in Appendix Tables B.3 and B.4, respectively).

In 2025, mean field pH values measured by Baffinland environment department personnel in spring, summer, and fall were higher at the CLT2 stations relative to the corresponding seasonal reference normal ranges but were within baseline normal ranges and the CCME WQG (Table 3.3). Similarly, pH values measured during the BIC sampling in August 2025 were within CCME WQG (i.e., within 6.5 to 9; Appendix Table B.2).

Mean SPC measured at CLT2 water quality monitoring stations in spring, summer, and fall 2025 were consistently above the upper limit of the seasonal reference area normal ranges, but comparable to baseline (Table 3.3). This suggests that there has been no detectable mine-related increase in SPC at CLT2, relative to baseline. Consistent with patterns observed in 2024, mean SPC within CLT2 was lowest in the spring and highest in the fall (Table 3.3; Minnow 2025). This pattern likely reflects the influence of the spring freshet, when snowmelt with very low dissolved ion concentrations dilutes the creek. As flows decline later in the season, creek discharge becomes increasingly influenced by groundwater and subsurface flow through soils and mineral substrates, resulting in higher dissolved ion concentrations (Allan et al., 2021).

Mean field turbidity values reported for CLT2 in spring, summer, and fall 2025 were consistently within reference normal ranges (Table 3.3; insufficient data were available to calculate reference normal ranges for field turbidity).

No action level responses were triggered for *in situ* water quality parameters in CLT2 in 2025, based on comparisons to reference and baseline data.

3.2.1.2 Water Chemistry

At the CLT2 station (K0-01), concentrations of water quality parameters were below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025 (Table 3.3; Appendix Table B.1). Additionally, none of the water quality parameters measured in 2025 had mean concentrations that were consistently above their corresponding reference area and baseline normal ranges for all three of spring, summer, and fall (Table 3.3). However, there was a sub-set of parameters with mean concentrations that were above the upper limit of the reference and baseline normal ranges in one or two seasons in 2025. These included hardness, alkalinity, total nickel, dissolved molybdenum, and total and dissolved concentrations of barium, magnesium, potassium, and sodium (Table 3.3). Low Risk Responses were triggered for these parameters in CLT2 in 2025 (Baffinland 2024).



3.2.2 Phytoplankton

Chlorophyll-a concentrations reported for CLT2 (Station K0-01) in 2025 were below the upper limit of the reference area normal ranges for spring, summer, and fall, indicating that chlorophyll-a concentrations were comparable between areas (Figure 3.1, Appendix Table D.1). Chlorophyll-a concentrations at CLT2 were also well below the AEMP benchmark of 3.7 µg/L throughout 2025 (Figure 3.1, Appendix Table D.1); therefore, no action level responses were triggered for phytoplankton productivity at this location in 2025 (Baffinland 2024). Additionally, the chlorophyll-a and aqueous total phosphorus concentrations measured at CLT2 in 2025 indicate limited phytoplankton productivity and are consistent with oligotrophic conditions, based on criteria from Dodds et al. (1998) and the CCME (2004) Phosphorus Guidance Framework, respectively (Table 3.3, Appendix Table B.1; see Section 3.1.2 for additional trophic status classification details).

When qualitatively comparing 2025 results to the baseline (2005 to 2013), construction (2014), and mine-operational (2015 to 2025) periods, mean chlorophyll-a concentrations at CLT2 in 2025 were similar to or lower relative to previous years, and across all seasons (Figure 3.3). Additionally, chlorophyll-a concentrations at CLT2 and reference creeks appear to follow the same temporal patterns, which is particularly evident based on the 2021 to 2025 data, suggesting that phytoplankton productivity at CLT2 likely reflects natural interannual variability rather than mine-related change (Figure 3.3). For these reasons, and because chlorophyll-a concentrations at CLT2 have remained representative of oligotrophic conditions and were well below the AEMP benchmark throughout baseline, construction, and operations, there is no evidence of mine-related effects to phytoplankton productivity in CLT2.

3.2.3 Benthic Invertebrate Community

3.2.3.1 Upstream (CLT2-US)

In 2025, most BIC endpoints at CLT2 Upstream (Station CLT2-US) were comparable to those observed at Reference Creek (Station REF-CRK), except the relative proportions of *Oligochaeta*, *Ostracoda*, *Chironomidae*, metal sensitive *Chironomidae*, collector-gatherers, sprawlers, and burrowers (Table 3.4; Appendix Figure E.3; Appendix Tables E.3, E.9, and E.10). Ecologically meaningful differences (i.e., MODs outside the $CES_{BIC} \pm 2 SD_{REF}$) were limited to higher relative proportions of *Oligochaeta* and metal sensitive *Chironomidae* (MCT = 2.7% and 30%, respectively) and a lower relative proportion of burrowers (MCT = 4.9%) at CLT2-US relative to reference (MCT = 0.25%, 7.4%, and 9.6%, respectively; Table 3.4; Appendix Figure E.3). Bray-Curtis similarity analysis further identified a statistically significant difference in overall BIC structure between CLT2-US and the reference area (Appendix Table E.4). The patterns in BIC



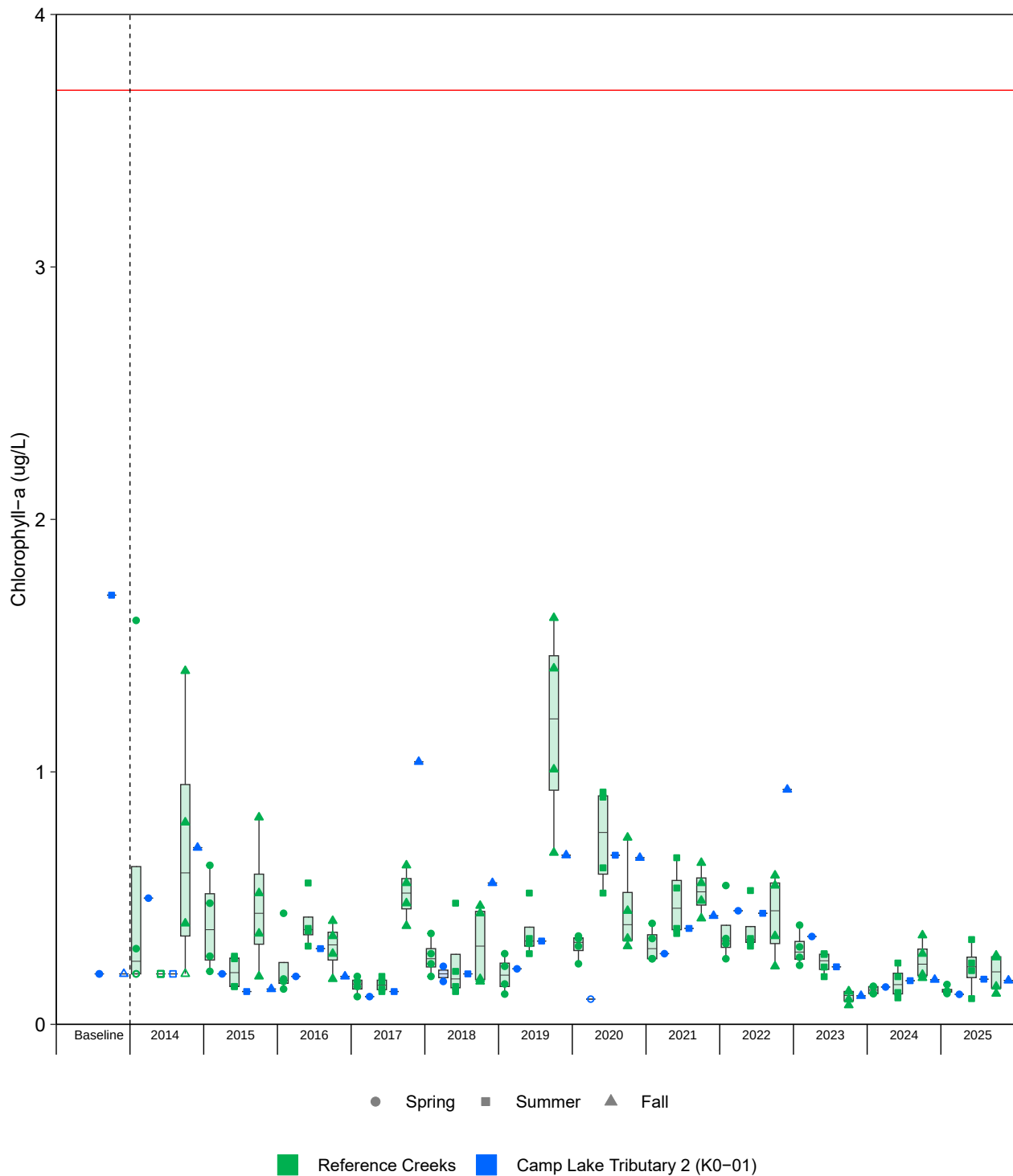


Figure 3.3: Temporal Comparison of Chlorophyll-a Concentrations at Camp Lake Tributary 2 (CLT2) and Reference Creeks Based on Data for the Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. "Reference Creeks" includes stations CLT-REF4, CLT-REF3, MRY-REF3, and MRY-REF2. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Table 3.4: Statistical Comparison of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK) Study Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Area Comparison			Area	MCT	Pair-wise, Post-hoc comparisons	
	Statistical Test ^a	Data Transformation	Area P-value			Post-hoc P-value	MOD ^b
Density (org/m ²)	ANOVA	log ₁₀	0.160	REF-CRK	203	ns	ns
				CLT2-US	284	ns	ns
				CLT2-DS	348	ns	ns
Richness (No. of Taxa)	ANOVA	none	0.571	REF-CRK	14	ns	ns
				CLT2-US	13	ns	ns
				CLT2-DS	13	ns	ns
Simpson's Evenness (Krebs)	ANOVA	none	0.512	REF-CRK	0.91	ns	ns
				CLT2-US	0.89	ns	ns
				CLT2-DS	0.87	ns	ns
% Nematoda	K-W	rank	0.581	REF-CRK	0	ns	ns
				CLT2-US	0	ns	ns
				CLT2-DS	0	ns	ns
% Oligochaeta	ANOVA	none	0.003	REF-CRK	0.25	nc	nc
				CLT2-US	2.7	0.004	4.4
				CLT2-DS	0.61	0.856	ns
% Hydracarina	ANOVA	log ₁₀ (x+1)	0.572	REF-CRK	4.3	ns	ns
				CLT2-US	5.3	ns	ns
				CLT2-DS	3.4	ns	ns
% Ostracoda	K-W	rank	0.001	REF-CRK	10	nc	nc
				CLT2-US	0	0.002	-0.89
				CLT2-DS	0	0.002	-0.89
% Chironomidae	ANOVA	none	0.006	REF-CRK	56	nc	nc
				CLT2-US	75	0.046	1.1
				CLT2-DS	84	0.006	1.6
% Metal Sensitive Chironomidae	ANOVA	none	<0.001	REF-CRK	7.4	nc	nc
				CLT2-US	30	<0.001	7.0
				CLT2-DS	26	0.001	5.7
% Simuliidae	ANOVA	log ₁₀ (x+1)	0.005	REF-CRK	13	nc	nc
				CLT2-US	6.7	0.105	ns
				CLT2-DS	1.9	0.004	-1.8
% Tipulidae	ANOVA	none	0.439	REF-CRK	3.4	ns	ns
				CLT2-US	2.0	ns	ns
				CLT2-DS	3.3	ns	ns
% Collector Gatherers	ANOVA	log ₁₀	0.007	REF-CRK	64	nc	nc
				CLT2-US	78	0.041	1.2
				CLT2-DS	84	0.007	1.6
% Filterers	ANOVA	log ₁₀ (x+1)	0.005	REF-CRK	13	nc	nc
				CLT2-US	6.7	0.105	ns
				CLT2-DS	1.9	0.004	-1.8
% Shredders	ANOVA	log ₁₀	0.330	REF-CRK	4.7	ns	ns
				CLT2-US	5.6	ns	ns
				CLT2-DS	7.0	ns	ns
% Clingers	ANOVA	none	0.011	REF-CRK	18	nc	nc
				CLT2-US	12	0.254	ns
				CLT2-DS	5.9	0.008	-1.7
% Sprawlers	ANOVA	none	0.004	REF-CRK	72	nc	nc
				CLT2-US	82	0.069	1.1
				CLT2-DS	90	0.003	1.9
% Burrowers	ANOVA	log ₁₀	0.010	REF-CRK	9.6	nc	nc
				CLT2-US	4.9	0.045	-3.0
				CLT2-DS	4.1	0.012	-3.7

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a significant difference (p-value <0.1) outside the CES of ±2 SD_{REF} (i.e., a difference from reference that is considered ecologically meaningful).

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = number of organisms per square metre. ANOVA = Analysis of Variance. < = less than. ns = not significant. No. = number. nc = not calculated. % = percent. nm = MOD could not be calculated due to SD = 0. SD = standard deviation. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

^a Statistical tests include ANOVA followed by Dunnett post hoc tests, or Kruskal-Wallis H-test (K-W) followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{Exp} - MCT_{Ref})/SD_{Ref} where the MCT is reported as geometric means for log₁₀-transformed data, medians for rank-transformed data, and means for untransformed data.

composition are considered reflective of localized habitat differences between areas, rather than mine-related influences on water quality or primary productivity. Concentrations of water quality parameters at CLT2 in 2025 were below applicable AEMP benchmarks and WQG throughout 2025 (Section 3.2.1), and aqueous chlorophyll-a concentrations were comparable between CLT2 and the reference creek (see Section 3.2.2). The higher proportions of *Oligochaeta* (*Enchytraeidae*, in particular) at CTL2-US, for example, may be attributed to higher benthic algal productivity, and subsequently more organic particulate matter and associated fungi and bacteria for oligochaetes to feed on, relative to reference (Appendix Table E.11; Coleman et al. 2024). Overall, the differences in BIC composition between CLT2-US and REF-CRK had no bearing on overall organism densities, Simpson's Evenness, or taxonomic richness (Table 3.4). Therefore, no action level responses were triggered for the 2025 spatial comparison for CLT2 Upstream relative to reference.

Most BIC endpoints at CLT2 Upstream exhibited interannual variability during the mine operations period; however, total organism densities and relative proportions of *Nematoda*, *Oligochaeta*, *Ostracoda*, and *Tipulidae* were consistently statistically similar to baseline (2007) throughout 2017 to 2025 (Appendix Table E.12, Appendix Figure E.4). Ecologically meaningful differences (i.e., MODs outside the $CES_{BIC} \pm 2 SD_{BASELINE}$) were identified intermittently across the mine operational period; however, there were no consistent patterns of increase or decrease over time relative to baseline. In 2025 specifically, ecologically meaningful differences relative to 2007 were limited to a significantly higher relative proportion of metal-sensitive *Chironomidae* and a significantly lower relative proportion of shredders (Appendix Table E.12, Appendix Figure E.4). The increasing dominance of metal-sensitive taxa at CLT2-US since 2023 does not align with a signal of metal-related stress; rather, it suggests either improved habitat conditions for these taxa or natural variability in life history dynamics and recruitment. Finally, because organism densities, Simpson's Evenness, and taxonomic richness were comparable between 2025 and baseline, no action level responses were triggered for the 2025 baseline comparison.

Overall, the patterns observed at CLT2 Upstream indicate periodic, taxon-specific shifts (that are often too small to be considered ecologically meaningful) in BIC composition rather than sustained or progressively intensifying changes in community endpoints over the mine operational period. Ecologically meaningful differences have been intermittent and limited in scope, with no evidence of loss of diversity or structural instability in the community. Collectively, the results herein suggest that the 2025 data reflect interannual variability and localized habitat-driven fluctuations within an otherwise stable BIC. Consistent with this interpretation, no action level responses were triggered for BIC in 2025 when compared to either reference or baseline conditions, further supporting the conclusion that mine-related effects are not evident at this location.



3.2.3.2 Downstream (CLT2-DS)

In 2025, most BIC endpoints at CLT2 Downstream (Station CLT2-DS) were comparable to those observed at Reference Creek (Station REF-CRK), except the relative proportions of *Ostracoda*, *Chironomidae*, metal-sensitive *Chironomidae*, *Simuliidae*, collector-gatherer and filterer FFG, and clinger and burrower HPG (Table 3.4; Appendix Figure E.3). Of these, ecologically meaningful differences (i.e., MODs outside the $CES_{BIC} \pm 2 SD_{REF}$) were limited to relative proportions of metal-sensitive *Chironomidae* and burrowers, which were higher and lower at CLT2-DS relative to reference, respectively (Table 3.4; Appendix Figure E.3). Bray–Curtis similarity analysis further identified a statistically significant difference in overall community structure between CLT2-DS and the reference area (Appendix Table E.4). These patterns likely reflect localized habitat or substrate conditions in CLT2 that influence the relative abundance of specific taxa. For example, the sparse bryophytes observed at a small number of CLT2-DS BIC sampling stations may provide more refugia for smaller invertebrates like chironomids, relative to reference (Appendix Table E.11; Averett et al. 2025). Additionally, the presence of algae at CLT2-DS, but not REF-CRK, may have contributed to the higher densities of some chironomid taxa, like *Diamesa* spp., at CLT2-DS, given algae and associated biota (e.g., diatoms, bacteria) are among their preferred food items (Lencioni et al. 2025). The higher relative proportion of metal-sensitive *Chironomidae* at the mine-exposed area also provides evidence that the community-level differences between areas are not attributed to mine influence. Conversely, the reduced abundance of burrowers may indicate localized differences in fine sediment distribution and substrate packing.

As noted previously, the endpoints outlined in the AEMP Revision 2 TARP tables that would trigger action level responses include organism densities, Simpson's Evenness, and taxonomic richness (Baffinland 2024). In 2025, none of these endpoints differed significantly between CLT2 Downstream and the Reference Creek. Therefore, no action level responses were triggered for the 2025 spatial comparisons between these areas.

Most BIC endpoints reported for CLT2 Downstream during the mine operations period (2015 to 2025) were statistically comparable to the 2007 baseline year (Appendix Table E.13, Appendix Figure E.4). Specifically, the only endpoints that did differ significantly from baseline in at least one mine operational year were Simpson's Evenness and the relative proportions of *Chironomidae*, *Tipulidae*, and filterers (Appendix Table E.13, Appendix Figure E.4). Ecologically meaningful differences relative to baseline were also identified for each of these endpoints, but these were intermittent and not temporally consistent across the operational period. Notably, no significant or ecologically meaningful differences relative to the



2007 baseline were observed in 2025 (Appendix Table E.13, Appendix Figure E.4). Accordingly, no action level responses were triggered for the 2025 baseline comparison.

Overall, the BIC assessment results for CLT2 Downstream indicate localized compositional differences relative to reference in 2025, and limited evidence of sustained structural change over mine operations. Core BIC endpoints of density, evenness, and richness are generally comparable to reference and baseline, suggesting that observed differences between areas and over time reflect interannual variability and localized habitat-driven dynamics rather than mine-related effects. Consistent with this interpretation, no action level responses were triggered for BIC in 2025 when compared to either reference or baseline conditions.

3.2.1 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

3.2.1.1 Effects Assessment

At CLT2 (Station K0-01), concentrations of water quality parameters were consistently below AEMP benchmarks in 2025. However, mean hardness, alkalinity, and concentrations of total nickel, dissolved molybdenum, and total and dissolved barium, magnesium, potassium, and sodium were above both reference and baseline normal ranges in one or two seasons (predominantly summer) in 2025, thereby triggering Low Risk Responses.

Sediment is collected from creek stations on a three-year cycle; the most recent creek sediment sampling for the CREMP was completed in 2023, and the next sampling event is planned for 2026. Consequently, there are no 2025 creek sediment quality data presented in this report.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in CLT2 in 2025, and most BIC endpoints were comparable to reference and baseline in 2025, including those associated with TARP action response thresholds (i.e., organism densities, Simpson's Evenness, and taxonomic richness; Baffinland 2024). Consequently, no action level responses were triggered for phytoplankton productivity or BIC in CLT2 in 2025.

3.2.1.2 Recommendations

Low Risk Responses for CLT2 were triggered for hardness, alkalinity, and aqueous concentrations of total nickel, dissolved molybdenum, and total and dissolved barium, magnesium, potassium, and sodium. The following actions are recommended as part of the Low Risk Responses for CLT2:

- Complete temporal trend analyses for hardness, alkalinity, and aqueous concentrations of total nickel, dissolved molybdenum, and total and dissolved barium, magnesium,



potassium, and sodium to investigate temporal patterns and confirm potential mine-related influences.

- Investigate potential sources or factors influencing hardness, alkalinity, and aqueous concentrations of nickel, molybdenum, barium, magnesium, potassium, and sodium in CLT2 to better define mine-related influence.

3.2.1.3 Comparison to FEIS Predictions

A comparison of water quality at CLT2 in spring, summer, and fall 2025 to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-7 (Camp Management) and SWSQ-9 (Airstrips and Airstrip Use) indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at CLT2 conformed with predictions made in the FEIS (Baffinland 2012).

3.3 Camp Lake (JL0)

3.3.1 Water Quality

3.3.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at Camp Lake concurrent with water quality sampling conducted by Baffinland environment department personnel during the winter, summer, and fall monitoring events, as well as BIC sampling completed by Minnow staff in August (Tables 2.2 and 2.5). The winter 2025 water quality profiles (mean measures) indicated a slight increase in temperature from surface to bottom in the winter (i.e., up to approximately 2.3°C), consistent with the results for winter 2024 (Appendix Figure B.4; Appendix Table B.5; Minnow 2025). In summer, water temperatures decreased from surface to bottom by approximately 2.0 to 5.7°C (Appendix Figure B.4; Appendix Table B.6). Changes with increasing depth (i.e., per 1 m interval) were relatively large between the surface and 6 m deep (i.e., >0.5°C); however, the biggest changes per metre occurred between the surface and 3 m deep (Appendix Figure B.4; Appendix Table B.6). The temperature profile at Camp Lake had a cooler surface layer than Reference Lake 3 in summer, but bottom temperatures were comparable (Appendix Figure B.4). Similar to 2024, water temperature was consistent from surface to bottom in Camp Lake during the fall 2025 sampling event, which captured the period of fall lake turnover (Appendix Figure B.4; Appendix Table B.7; Minnow 2025). Temperatures at the profile station in Camp Lake were also cooler relative to reference at depths between surface and 25 m; at 25 m depth, water in Reference Lake 3 became cooler relative to Camp Lake (Appendix Figure B.4).



Mean DO saturation measurements collected from Camp Lake in 2025 indicated the water was moderately to well saturated (i.e., >80.0%) at depths <17 m in winter, throughout the water column during summer and fall monitoring events, and during BIC sampling completed in August (Appendix Figure B.4; Appendix Tables B.5 to B.7). However, lower DO saturation was observed at depths >17 m during winter sampling (i.e., 31.4 to 79.7% saturation; Appendix Figure B.4; Appendix Table B.5). Despite these localized reductions in DO saturation at depth in Camp Lake during winter, mean DO saturation remained within baseline and reference normal ranges in 2025 (Table 3.5; baseline and reference normal ranges are summarized in Appendix Tables B.8 and B.9, respectively).

Similarly, DO concentrations measured at water chemistry and BIC sampling stations in Camp Lake in 2025 were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L) across most depths and seasons (Table 3.5; Appendix Figure B.4; Appendix Tables B.5 to B.10). Concentrations below the CCME WQG were only observed at Station JL0-07 during winter, and at depths greater than approximately 24 m, consistent with the presence of a winter oxycline (Appendix Figure B.4; Appendix Table B.5). Regardless, mean DO concentrations were within baseline and reference normal ranges during the 2025 monitoring events (Table 3.5; Appendix Figure B.4; Appendix Table B.10). Lower DO concentrations at depth during winter are typical in high Arctic lakes and are therefore likely reflective of natural seasonal processes rather than mining-related influences. Under ice cover, atmospheric exchange and wind-driven mixing are limited, but microbial respiration and decomposition of organic material continue to consume oxygen in deeper waters (Wetzel 2001). These processes, which depend on factors like lake size and depth, percent littoral area, and productivity, can lead to gradual oxygen depletion at depth (Leppi et al. 2016; Wetzel 2001). Longer periods of ice cover (e.g., during an early-onset winter) can also exacerbate low DO concentrations (Leppi et al. 2016); therefore, because under-ice DO measurements at Camp Lake are taken near the end of the ice-cover period, they likely represent a worst-case scenario of under-ice DO concentrations.

Arctic charr are a highly adaptable fish species and have been shown to shift their patterns of habitat use in response to low winter DO concentrations. For example, a study of landlocked arctic charr near Cumberland Sound, Nunavut found that arctic charr were predominantly captured from the littoral zone in fall and winter, and although they were associated with DO concentrations as low as 5 mg/L, there was a significant positive correlation between arctic charr abundance and DO concentrations (Young and Tallman 2021). Therefore, it is possible that arctic charr in Camp Lake respond to low DO concentrations at depth in winter by moving into littoral habitats, where DO concentrations are higher (e.g., JL-02; Figure 2.2; Appendix Table B.5). Additionally, arctic charr may reduce their activity and feeding levels in winter, as a method of



Table 3.5: Mean Water Chemistry at Camp Lake (JL0) and Reference Lake 3 (REF-03) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^c or AEMP Benchmark ^d	Reference Lake (n=3)		Camp Lake Stations (n = 5)		
				Summer	Fall	Winter	Summer	Fall
Conventional	Conductivity (lab)	µS/cm	-	75.7	81.8	176	153	164
	Specific Conductance (field)	µS/cm	-	73.7	72.8	176	156	156
	pH (lab)	pH	-	7.80	7.79	7.60	8.07	7.95
	pH (field)	pH	6.5 - 9.0	7.74	7.54	7.68	8.04	7.80
	Temperature, Field	mg/L	-	11.1	6.90	0.850	9.47	6.68
	Hardness (as CaCO ₃) -Total	mg/L	-	35.6	35.4	84.4	76.1	75.5
	Total Suspended Solids (TSS)	mg/L	-	<1	<1	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	53.0	42.7	83.2	73.8	70.5
	Dissolved Oxygen	mg/L	> 9.5	11.0	11.5	12.6	11.6	11.7
	Dissolved Oxygen	%	-	99.8	94.5	88	101	96.0
	Turbidity (lab)	NTU	-	0.323	0.303	0.210	0.862	0.562
	Turbidity (field)	NTU	-	118	0.410	0.804	4.15	0.598
	Alkalinity (as CaCO ₃)	mg/L	-	<u>32.8</u>	<u>32.5</u>	77.6	68.8	68.3
Nutrients and Organics	Total Ammonia ^e	mg/L	0.282 - 6.02	0.00587	0.00853	0.0179	<0.005	0.0231
	Nitrate ^e	mg/L	3.00	<0.02	<0.02	0.0347	<0.02	<0.02
	Nitrite ^e	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.177	0.174	0.177	0.121	0.152
	Dissolved Organic Carbon	mg/L	-	<u>3.26</u>	<u>2.92</u>	2.56	<u>2.52</u>	<u>2.46</u>
	Total Organic Carbon	mg/L	-	<u>3.91</u>	<u>3.42</u>	2.35	<u>2.93</u>	<u>2.46</u>
	Total Phosphorus	mg/L	-	0.00280	0.00207	0.00457	0.00432	0.00350
	Phenols	mg/L	0.00400	0.00120	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	1.22	1.21	5.05	4.03	4.08
	Sulphate (SO ₄) ^e	mg/L	218 - 309	2.87	2.75	4.68	<u>3.75</u>	<u>3.82</u>
Total Metals	Aluminum (Al) ^e	mg/L	0.100	0.00737	0.00523	0.00630	0.0134	0.00812
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	0.000122	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	<0.0001	<0.0001	0.000103	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	<u>0.00628</u>	<u>0.00640</u>	0.00888	0.00796	0.00813
	Beryllium (Be)	mg/L	0.000130	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000675 - 0.000143	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	6.89	7.07	16.7	14.9	14.7
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	<0.0005	<0.0005	0.000504	<0.0005	<0.0005
	Cobalt (Co) ^e	mg/L	0.000778 - 0.000968	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00213	0.000977	0.000850	0.00144	0.00117	0.00103
	Iron (Fe) ^e	mg/L	0.300	0.0167	0.0120	0.0100	0.0225	0.0198
	Lead (Pb)	mg/L	0.00100 - 0.00271	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<u><0.001</u>	<0.001	0.00115	<u>0.00112</u>	0.00103
	Magnesium (Mg)	mg/L	-	4.47	4.32	10.3	9.44	9.44
	Manganese (Mn)	mg/L	0.768 - 0.993	0.000787	0.000660	0.000930	0.00192	0.00143
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000163	0.000159	0.000551	0.000493	0.000508
	Nickel (Ni) ^e	mg/L	0.0250 - 0.0869	<0.0005	<0.0005	0.000838	<u>0.00127</u>	0.000778
	Potassium (K)	mg/L	-	0.887	0.869	1.63	1.43	1.45
	Rubidium (Rb)	mg/L	-	0.000960	0.000957	0.00341	0.00300	0.00301
	Selenium (Se)	mg/L	0.001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.463	0.423	0.694	0.542	0.492
	Silver (Ag) ^e	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.934	0.882	2.62	2.06	2.13
	Strontium (Sr)	mg/L	-	0.00825	0.00830	0.0140	0.0118	0.0123
	Sulphur (S)	mg/L	-	1.01	1.01	1.60	1.46	1.42
	Thallium (Tl) ^e	mg/L	0.000800	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	0.000115	<0.0001
	Titanium (Ti)	mg/L	-	0.000343	<0.0003	0.000304	0.000470	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000318	0.000308	0.00185	0.00152	0.00156
	Vanadium (V) ^e	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 3.5: Mean Water Chemistry at Camp Lake (JL0) and Reference Lake 3 (REF-03) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^c or AEMP Benchmark ^d	Reference Lake (n=3)		Camp Lake Stations (n = 5)		
				Summer	Fall	Winter	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	0.00300	0.00147	0.00253	0.00310	0.00213
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00633	0.00678	0.00904	0.00855	0.00851
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000992 - 0.000193	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	6.98	7.34	16.3	14.3	15.1
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000484	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000705 - 0.00415	0.000920	0.000710	0.00108	0.00111	0.000858
	Iron (Fe) ^e	mg/L	-	0.0103	<0.01	<0.01	0.0115	0.0168
	Lead (Pb) ^e	mg/L	0.00549 - 0.00702	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	0.00107	0.00110	0.00110
	Magnesium (Mg)	mg/L	-	4.47	4.82	9.90	8.94	10.0
	Manganese (Mn) ^e	mg/L	0.220 - 0.560	0.000317	0.000233	0.000359	0.000735	0.000612
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000157	0.000140	0.000517	0.000507	0.000466
	Nickel (Ni)	mg/L	0.00100 - 0.00210	<0.0005	<0.0005	0.000691	0.000690	0.000595
	Potassium (K)	mg/L	-	0.913	0.881	1.49	1.50	1.44
	Rubidium (Rb)	mg/L	-	0.000953	0.000937	0.00324	0.00307	0.00298
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.444	0.428	0.655	0.525	0.482
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	0.0000112	<0.00001
	Sodium (Na)	mg/L	-	0.957	0.920	2.46	2.03	2.14
	Strontium (Sr) ^e	mg/L	2.50	0.00837	0.00830	0.0136	0.0121	0.0122
	Sulphur (S)	mg/L	-	1.08	0.993	1.56	1.46	1.43
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000300	0.000273	0.00162	0.00160	0.00142
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	0.00117	<0.001	0.00128	0.00105	0.00128
	Zirconium (Zr)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

- Indicates a parameter concentration above an applicable WQG or AEMP benchmark.
- BOLD**

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.
- underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

reducing metabolic activity, energy expenditure, and oxygen demand, thereby promoting survival under extreme cold temperatures and low DO (Ducros et al. 2024; Christopher 2023). It has also been hypothesized that survival of arctic charr populations over winter is partially related to low rates of interspecies aggression, relative to other salmonids (Bommersbach et al. 2024). Given that under-ice DO concentrations in Camp Lake in 2025 were characteristic of Arctic lakes and arctic charr are well adapted to the observed under-ice conditions, there is no evidence of DO-mediated mine-related effects to arctic charr in Camp Lake.

In 2025, mean field pH values measured by Baffinland environment department personnel in winter, summer, and fall were within the corresponding seasonal reference normal ranges, baseline normal ranges, and the CCME WQG (Table 3.5). Similarly, pH values measured during the BIC sampling in August 2025 were within CCME WQG (i.e., within 6.5 to 9; Appendix Table B.6).

Mean SPC measurements collected from Camp Lake water quality monitoring stations during the summer and fall 2025 monitoring events were above the upper limits of the corresponding seasonal baseline normal ranges but not reference area normal ranges (Table 3.5; Appendix Table B.10). SPC values ranging from 150 to 180 microSiemens per centimetre ($\mu\text{S}/\text{cm}$) indicate moderately mineralized waters and reflect the presence of dissolved ions in the lake. Concentrations within this range are not uncommon in northern lakes (Wetzel 2001) and, in the absence of consistent increases relative to both baseline and reference conditions, generally reflect natural geochemical inputs rather than mine-related influence.

Mean field turbidity at Camp Lake during winter, summer, and fall water quality monitoring events was consistently low and values reported in summer and fall were within reference normal ranges in 2025 (insufficient data were available to calculate baseline normal ranges, or reference normal ranges for winter; Table 3.5; Appendix Table B.10). Turbidity measurements collected during both water quality and BIC sampling events also indicated a generally clear water column across all stations throughout the year (Appendix Tables B.5 to B.7).

Overall, no action level responses were triggered for *in situ* water quality parameters at Camp Lake in 2025 based on comparisons with reference and baseline conditions.

3.3.1.2 Water Chemistry

At Camp Lake, mean concentrations of water quality parameters were below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025 (Table 3.5; Appendix Table B.10; Appendix Figure B.5). Therefore, no action level responses were triggered based on comparisons to AEMP benchmarks for water quality (Baffinland 2024).



At Camp Lake in 2025, Low Risk Responses were triggered for hardness, alkalinity, chloride, and total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium, based on mean concentrations in at least one season being above reference and baseline normal ranges (Table 3.5; Baffinland 2024). Concentrations of these parameters, except for alkalinity and total and dissolved barium, were not elevated relative to the baseline normal ranges at Reference Lake 3, signaling that changes over time in Camp Lake were not driven by broader regional influences on water quality.

Aqueous concentrations of total and dissolved uranium at Camp Lake were assessed for temporal trends in 2025, as part of a special investigation triggered under the TARP in 2024 (Table 2.4; Minnow 2025). Significant increasing trends in concentrations of total and dissolved uranium were identified for each of the water quality monitoring stations in Camp Lake, based on data for 2007 to 2025 (baseline, construction, and mine operations) and 2015 to 2025 (operations; Appendix Tables G.3 and G.4). No significant increasing or decreasing trends in total or dissolved uranium concentrations were observed at any of the reference lake stations over the period of record (Appendix Tables G.3 and G.4). As noted above, mean total and dissolved uranium concentrations were above reference and baseline normal ranges throughout 2025, but were below the AEMP benchmark (Table 3.5).

Baffinland committed to comparing aqueous total and dissolved concentrations of uranium in Camp Lake in 2025 (Table 2.4; Minnow 2025). The objective of the comparisons was to provide insight into bioavailability and potential for effects to aquatic biota. However, as discussed in Section 3.1.1.3.1, uranium speciation and bioavailability are driven by a variety of site-specific factors, including pH, DOC, temperature, hardness, and alkalinity (CCME 2011; Markich 2002). Therefore, the simplest and most conservative approach to evaluating potential risks to aquatic biota is to focus on total uranium concentrations, consistent with the approach taken by the CCME in developing the Canadian WQG for protection of freshwater aquatic life (CCME 2011; Markich 2002). For Camp Lake, the risk of overestimating uranium bioavailability by focusing on the total fraction is considered low, because, over the period of record, RPDs between aqueous total and dissolved uranium concentrations were <10% for most (91%) samples (Appendix Figure G.2). As noted above, aqueous total uranium concentrations in Camp Lake were below the newly adopted AEMP benchmark of 0.015 mg/L³³ throughout 2025 (Table 3.5; see also Section 3.1.1.3.1), despite increasing over time relative to baseline and during the mine operation period (Appendix Tables G.3 and G.4). Increasing uranium concentrations in surface water environments around the Project are likely attributed to changing permafrost conditions

³³ As noted in Section 2.2.3.2.2 and Table 2.3, the CCME (2011; 2026) WQG for the protection of freshwater aquatic life was adopted as the AEMP benchmark following approval of the Revision 2 AEMP (Baffinland 2024).



resulting from both climate change and mine-related disturbance (see Section 3.1.1.3.1; Minnow 2025; TCC 2026a).

3.3.2 Sediment Quality

Surficial sediments (i.e., the top 2 cm) collected from littoral and profundal areas of Camp Lake in 2025 were composed of reddish brown to dark brown silt and sand with visible algae; mean TOC content was $\leq 2.2\%$ (Figures 3.4 and 3.5; Appendix Tables C.1 to C.3). There were no significant differences in the proportions of sand, silt, or clay in sediments from littoral areas of Camp Lake and Reference Lake 3 in 2025 (Figure 3.4; Appendix Table C.1). Additionally, although littoral sediments from Camp Lake had significantly lower TOC content relative to Reference Lake 3 in 2025, littoral sediments from both lakes had mean TOC concentrations above the LEL ON PSQG, but well below the SEL ON PSQG (Figure 3.4; Table 3.6; see also Appendix Tables C.4 and C.5). The TOC content of sediments from profundal areas of Camp Lake were significantly lower relative to reference in 2025; however, results for both lakes were well below the SEL ON PSQG; Figure 3.5; Table 3.6). Profundal areas of Camp Lake had significantly lower and higher proportions of sand and silt, respectively, relative to reference (Figure 3.5; Appendix Table C.2). There was no detectable hydrogen sulphide scent from any of the Camp Lake or Reference Lake 3 cores (Appendix Tables C.3 and C.6). Overall, sediment characteristics in Camp Lake and Reference Lake 3 were considered generally comparable at the time of sampling in 2025.

In 2025, sediment composition in littoral areas of Camp Lake was comparable to baseline, except for significantly lower proportions of clay in 2025; profundal sediments had less sand and more silt in 2025 relative to baseline (Appendix Tables C.7 and C.8; Appendix Figures C.1 and C.2). The profundal sediments also had higher proportions of TOC in 2025, relative to baseline (Appendix Table C.8; Appendix Figure C.2). Together, these results suggest a shift in profundal sediment composition toward finer, more organic-rich material in 2025 compared to baseline conditions, whereas littoral sediments remained relatively consistent over time aside from a reduction in clay content. The observed differences do not indicate a clear mine-related effect and are more suggestive of natural variation in depositional conditions, particularly in deeper profundal areas where fine sediments and organic matter tend to accumulate.

Metal concentrations in sediments were generally higher at the littoral station closest to the inlet (JL0-02) of Camp Lake, relative to the littoral station closest to the outlet (JL0-30; Figure 2.4; Appendix Table C.4). However, mean metal concentrations in sediments from littoral and profundal stations in Camp Lake were below AEMP benchmarks and SQG, except for mean concentrations of manganese at JL0-31 (littoral) and nickel at JL0-32 (littoral) and JL0-07 (profundal; Figure 3.6; Appendix Table C.4). Manganese and nickel concentrations in sediments from Camp Lake being higher than AEMP benchmarks is at least partially attributable to regional



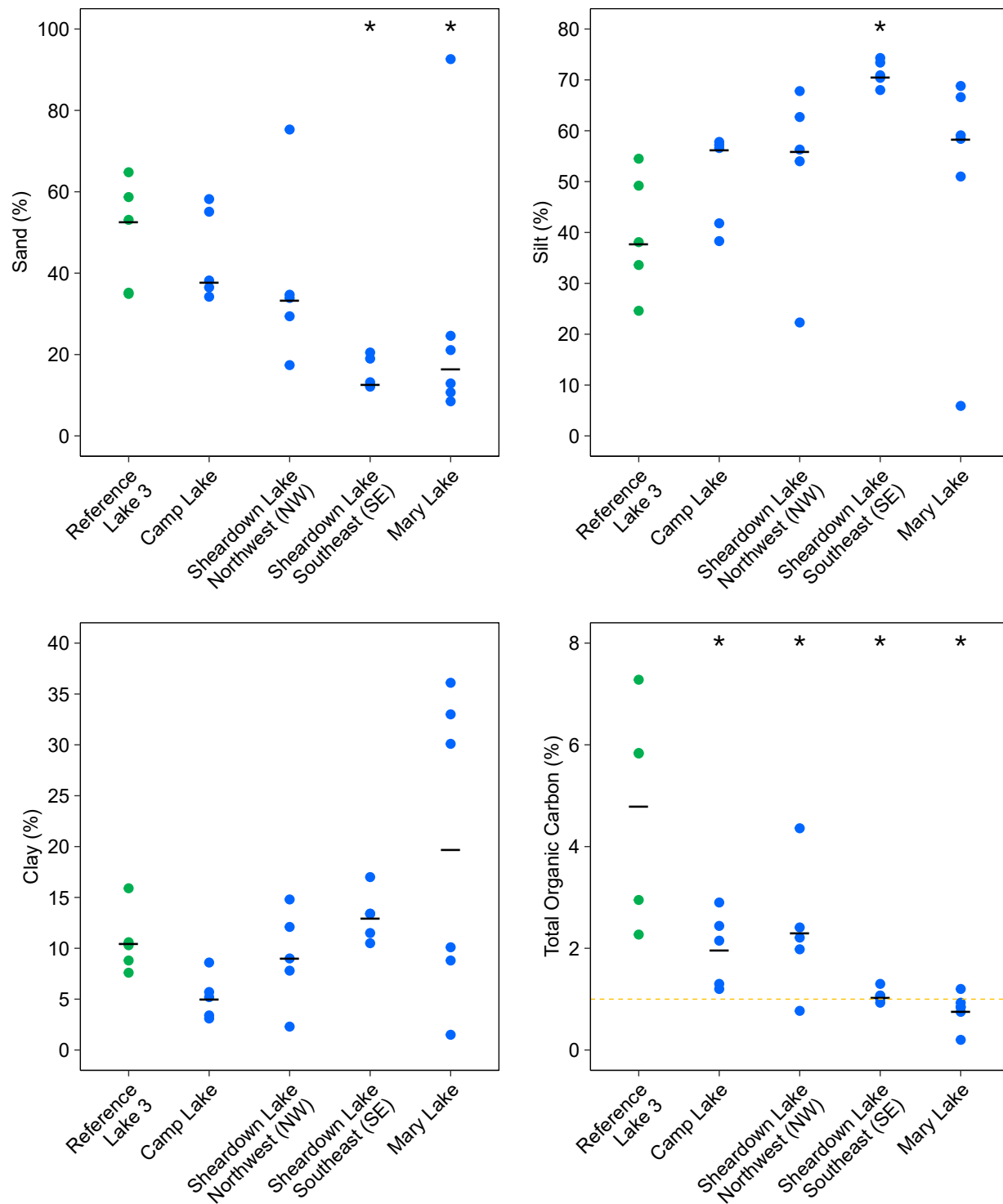


Figure 3.4: Sediment Particle Sizes and Total Organic Carbon (TOC) Content Comparisons Among Littoral Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different (alpha < 0.05) from the reference area.

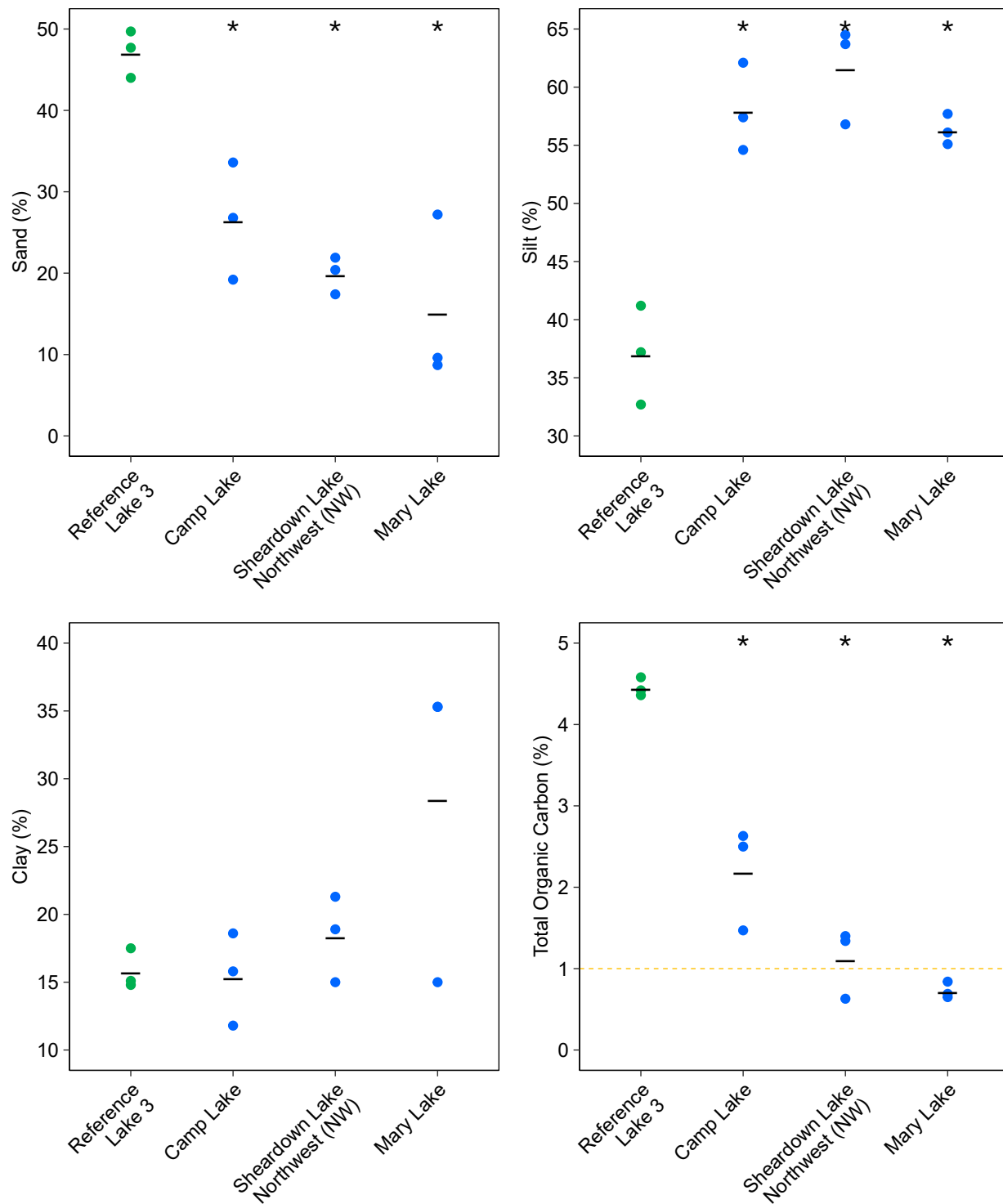


Figure 3.5: Sediment Particle Sizes and Total Organic Carbon (TOC) Content Comparisons Among Profundal Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different ($\alpha < 0.05$) from the reference area.

Table 3.6: Total Organic Carbon (TOC) Content and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Camp Lake (JL0) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	SQG ^a		AEMP Benchmark ^b	Littoral Stations						Profundal Stations					
						Reference Lake (n = 5)			Camp Lake (n = 5)			Reference Lake (n = 3)			Camp Lake (n = 3)		
			Lower	Upper		Mean	SD	SE	Mean	SD	SE	Mean	SD	SE	Mean	SD	SE
Total Organic Carbon (TOC)		%	1	10	-	4.83	2.13	0.953	2.00	0.734	0.328	4.45	0.114	0.0658	2.20	0.636	0.367
Phosphorus (P)		mg/kg	-	-	1,962	1,334	930	416	1,101	357	160	1,167	11.5	6.64	908	137	79.1
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	17,420	4,164	1,862	15,460	3,071	1,373	26,400	557	322	20,733	1,650	953
	Antimony (Sb)	mg/kg	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-
	Arsenic (As)	mg/kg	-	-	11.5	4.62	2.58	1.15	6.13	2.42	1.08	5.53	0.196	0.113	3.90	1.51	0.872
	Barium (Ba)	mg/kg	-	-	-	121	43.2	19.3	98.0	35.8	16.0	141	7.77	4.49	77.3	10.9	6.29
	Beryllium (Be)	mg/kg	-	-	-	0.672	0.166	0.0742	0.728	0.147	0.0657	0.930	0.0100	0.00577	1.03	0.0900	0.0520
	Bismuth (Bi)	mg/kg	-	-	-	<0.2	-	-	0.236	0.0353	0.0158	<0.2	-	-	0.337	0.0289	0.0167
	Boron (B)	mg/kg	-	-	-	15.4	3.58	1.60	21.4	3.43	1.53	20.2	0.351	0.203	32.6	3.04	1.76
	Cadmium (Cd)	mg/kg	-	-	2.1	0.175	0.0883	0.0395	0.175	0.0874	0.0391	0.174	0.00950	0.00548	0.236	0.0335	0.0193
	Calcium (Ca)	mg/kg	-	-	-	4,698	1,000	447	3,814	771	345	5,597	25.2	14.5	4,777	371	214
	Chromium (Cr)	mg/kg	-	-	89	55.4	14.4	6.44	60.8	10.8	4.83	81.0	1.92	1.11	81.0	7.67	4.43
	Cobalt (Co)	mg/kg	-	-	-	12.3	4.04	1.81	16.5	3.64	1.63	17.9	0.611	0.353	17.3	3.04	1.76
	Copper (Cu)	mg/kg	-	-	84	70.0	26.1	11.7	37.7	11.2	5.01	102	4.46	2.57	54.9	6.42	3.71
	Iron (Fe)	mg/kg	-	-	67,866	56,100	45,144	20,189	45,320	14,636	6,545	53,067	1,747	1,009	37,767	2,272	1,312
	Lead (Pb)	mg/kg	-	-	63	14.1	3.12	1.40	15.6	3.54	1.58	19.1	0.723	0.417	22.3	2.01	1.16
	Lithium (Li)	mg/kg	-	-	-	25.9	6.04	2.70	23.4	4.58	2.05	35.8	0.404	0.233	33.5	2.93	1.69
	Magnesium (Mg)	mg/kg	-	-	-	11,596	2,689	1,203	12,204	2,468	1,104	16,967	289	167	15,833	1,358	784
	Manganese (Mn)	mg/kg	-	-	3,441	1,057	926	414	2,203	1,580	707	1,277	81.4	47.0	717	713	412
	Mercury (Hg)	mg/kg	-	-	0.33	0.0447	0.0287	0.0128	0.0301	0.0118	0.00528	0.0752	0.0100	0.00577	0.0583	0.00976	0.00563
	Molybdenum (Mo)	mg/kg	25	23,000	-	5.92	5.26	2.35	2.38	1.60	0.716	2.72	0.191	0.110	1.15	0.202	0.117
	Nickel (Ni)	mg/kg	-	-	72	41.1	11.4	5.10	62.3	14.8	6.62	55.2	1.76	1.02	71.6	8.45	4.88
	Potassium (K)	mg/kg	-	-	-	4,320	1,078	482	3,834	736	329	6,303	233	135	5,650	622	359
	Selenium (Se)	mg/kg	-	-	-	0.736	0.404	0.181	0.330	0.0903	0.0404	0.837	0.00577	0.00333	0.467	0.0416	0.0240
	Silver (Ag)	mg/kg	0.5	-	-	0.152	0.0675	0.0302	0.106	0.0170	0.00760	0.253	0.0208	0.0120	0.173	0.0416	0.0240
	Sodium (Na)	mg/kg	-	-	-	329	88.7	39.7	169	31.9	14.3	489	8.14	4.70	324	93.9	54.2
	Strontium (Sr)	mg/kg	-	-	-	11.5	2.05	0.917	8.26	1.33	0.595	14.5	0.200	0.115	15.1	4.93	2.85
	Sulphur (S)	mg/kg	-	-	-	1,420	332	148	<1,000	-	-	1,300	100	57.7	2,200	-	-
	Thallium (Tl)	mg/kg	-	-	-	0.407	0.169	0.0756	0.427	0.149	0.0666	0.721	0.0201	0.0116	0.498	0.0740	0.0427
	Tin (Sn)	mg/kg	-	-	-	<2	-	-	<2	-	-	<2	-	-	<2	-	-
	Titanium (Ti)	mg/kg	-	-	-	1,127	205	91.7	862	176	78.7	1,440	50.0	28.9	1,090	72.1	41.6
	Uranium (U)	mg/kg	-	-	-	15.1	6.28	2.81	4.49	1.72	0.769	25.2	0.493	0.285	7.10	0.898	0.518
	Vanadium (V)	mg/kg	-	-	-	52.1	10.9	4.87	50.2	9.58	4.28	73.2	1.16	0.670	63.0	5.25	3.03
	Zinc (Zn)	mg/kg	-	-	219	71.3	15.5	6.93	48.2	10.0	4.47	97.3	1.80	1.04	65.7	6.93	4.00
	Zirconium (Zr)	mg/kg	-	-	-	3.90	1.38	0.617	4.14	2.17	0.970	3.77	0.115	0.0664	8.67	3.48	2.01

- Indicates a concentration above the lower SQG.
- Indicates a concentration above the lower and upper SQG.
- BOLD**

Indicates a concentration above the AEMP Benchmark.

Notes: SQG = sediment quality guideline. AEMP = Aquatic Effects Monitoring Plan. n = number of samples. SD = standard deviation. SE = standard error. % = percent. - = no value/not applicable. mg/kg = milligrams per kilogram dry weight.

^a For mine-exposed lakes, comparisons to generic SQG derived for other jurisdictions were only completed for parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Camp Lake.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

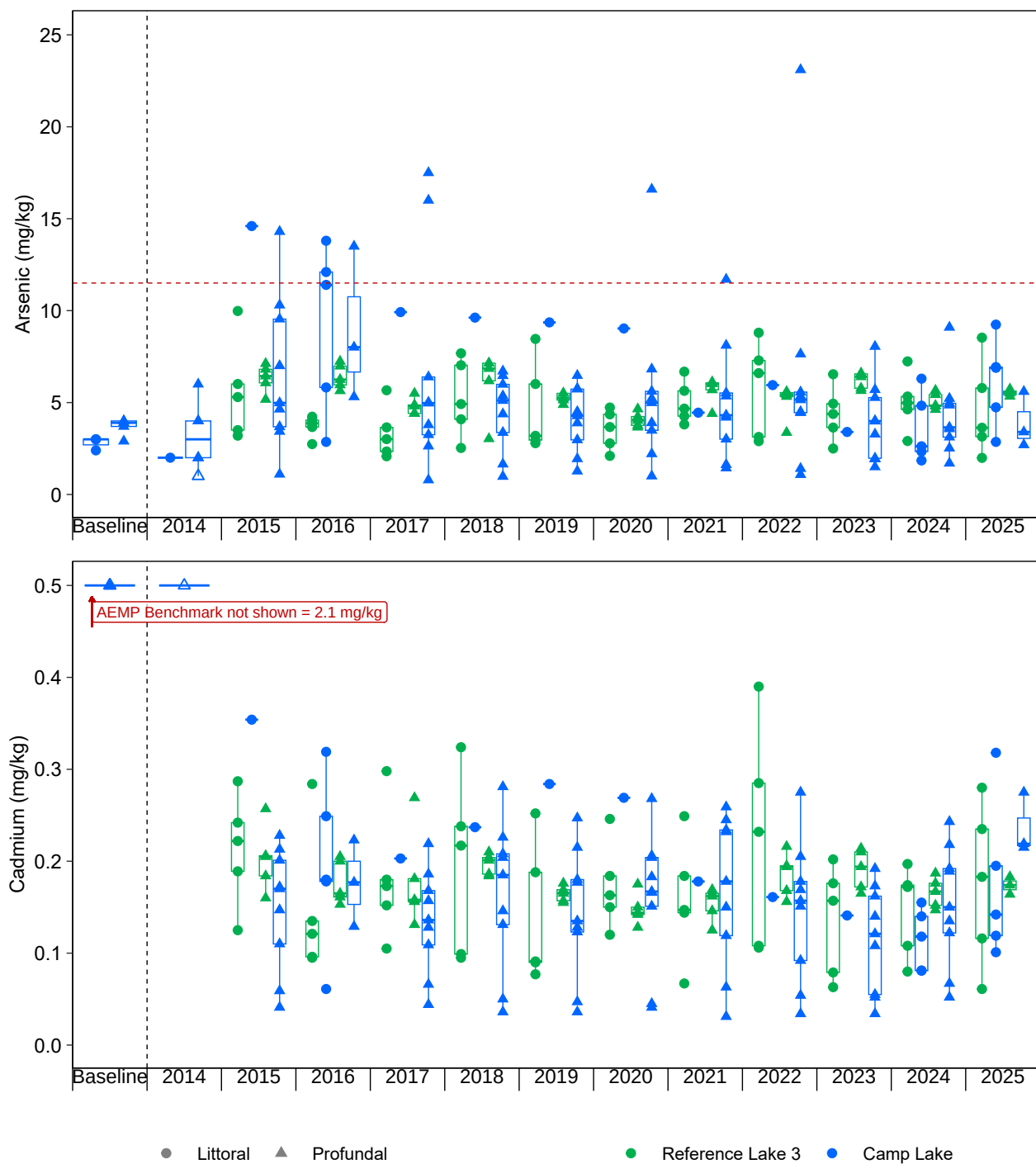


Figure 3.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Camp Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers).

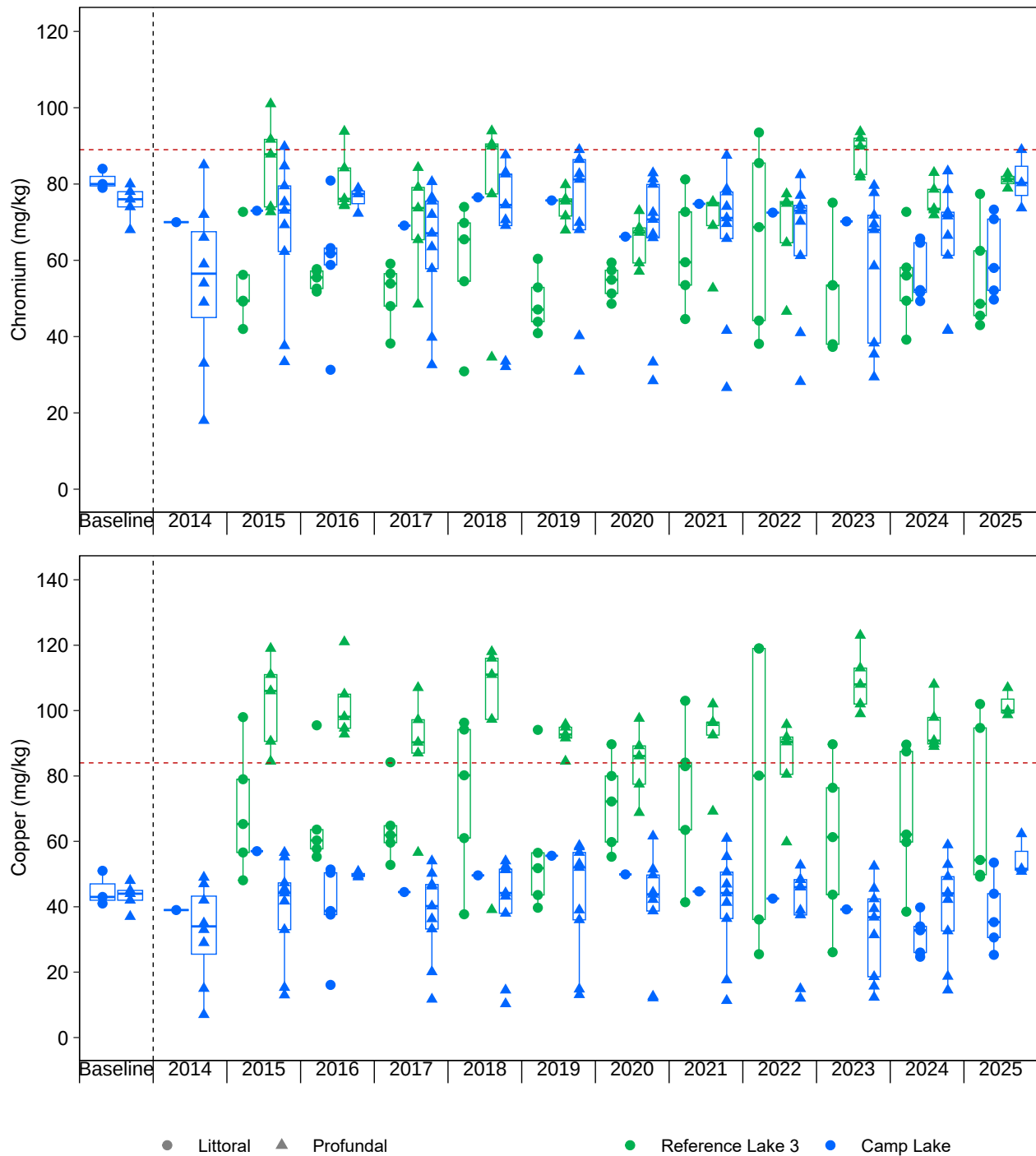


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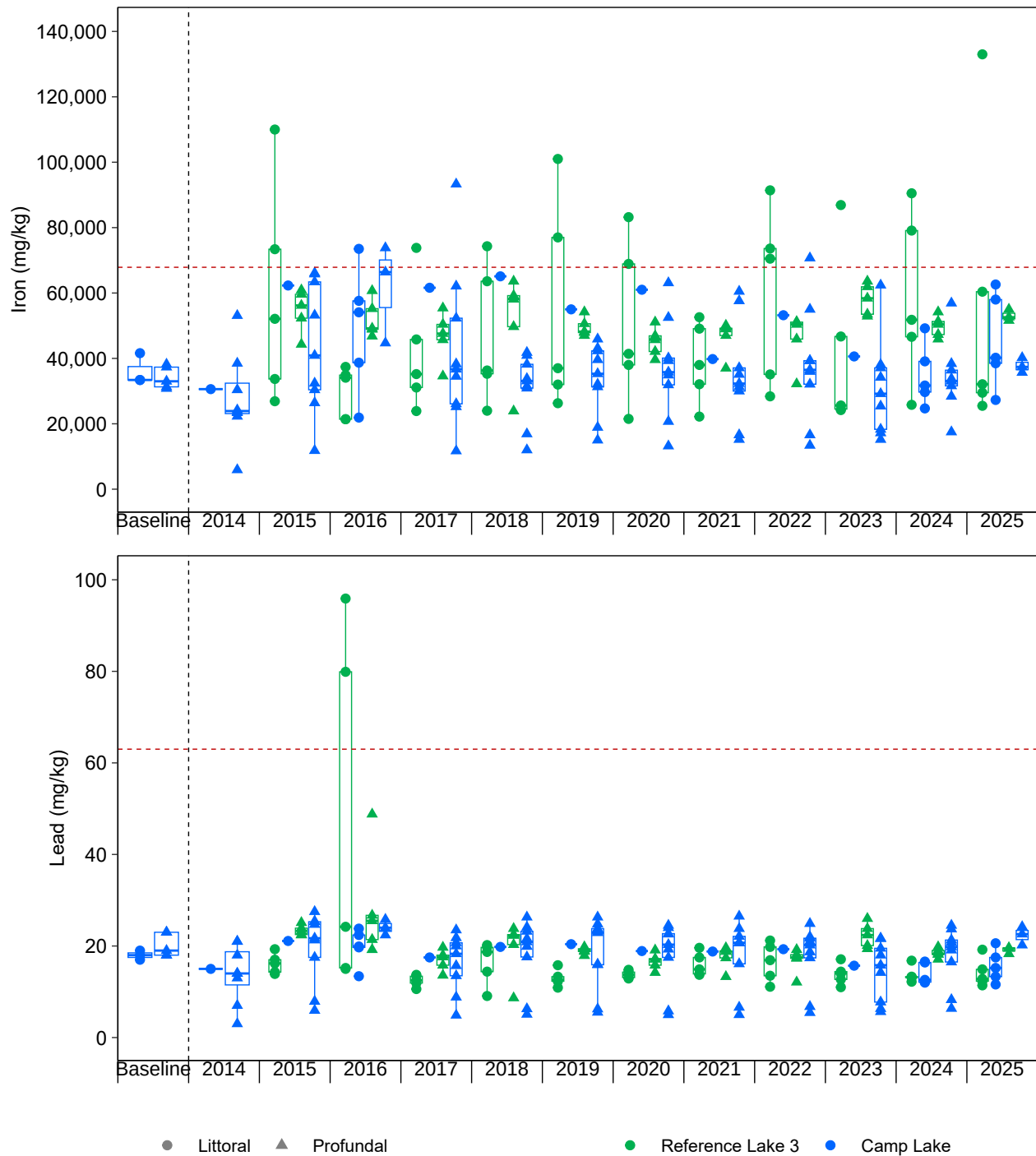


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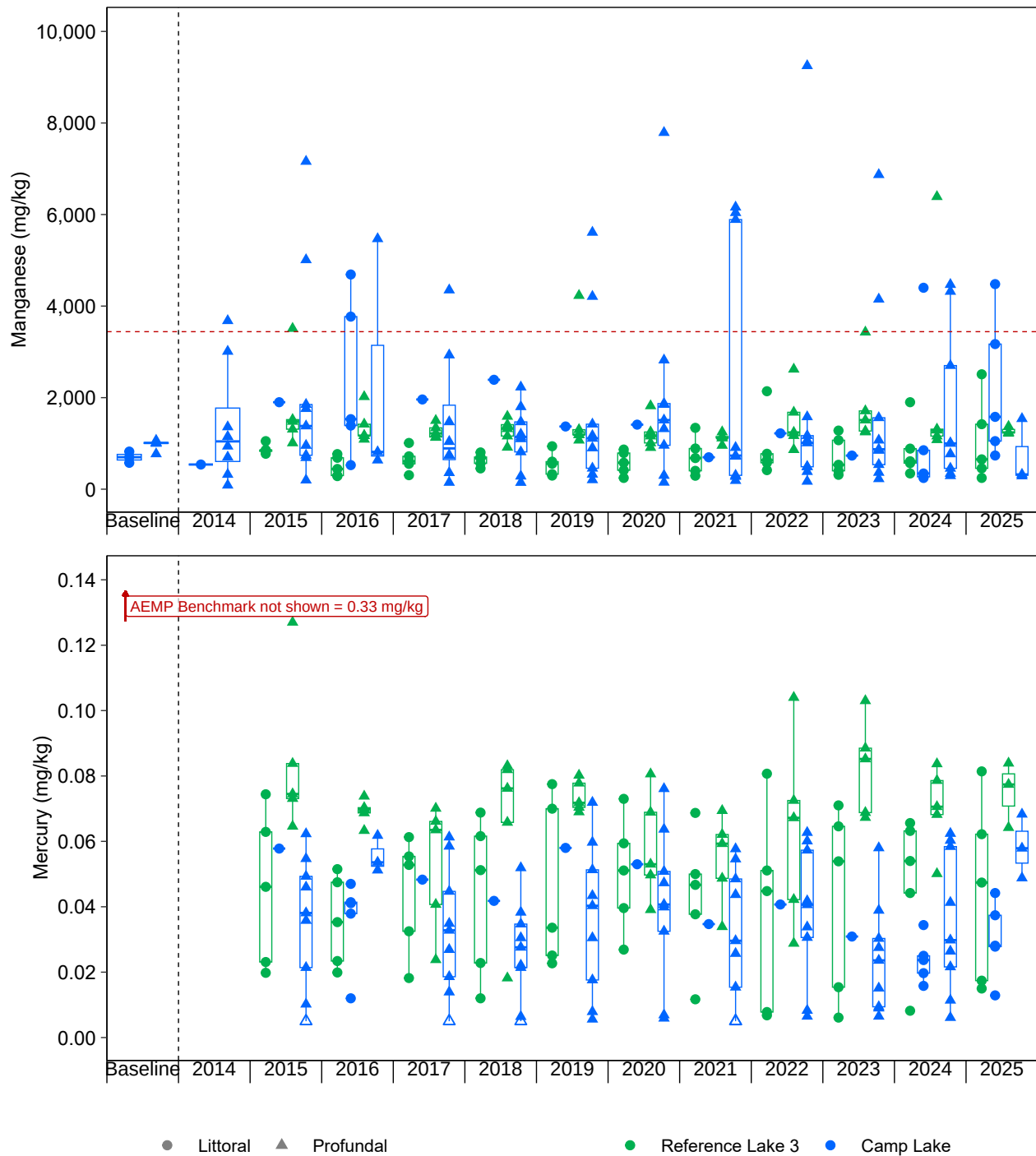


Figure 3.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Camp Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers).

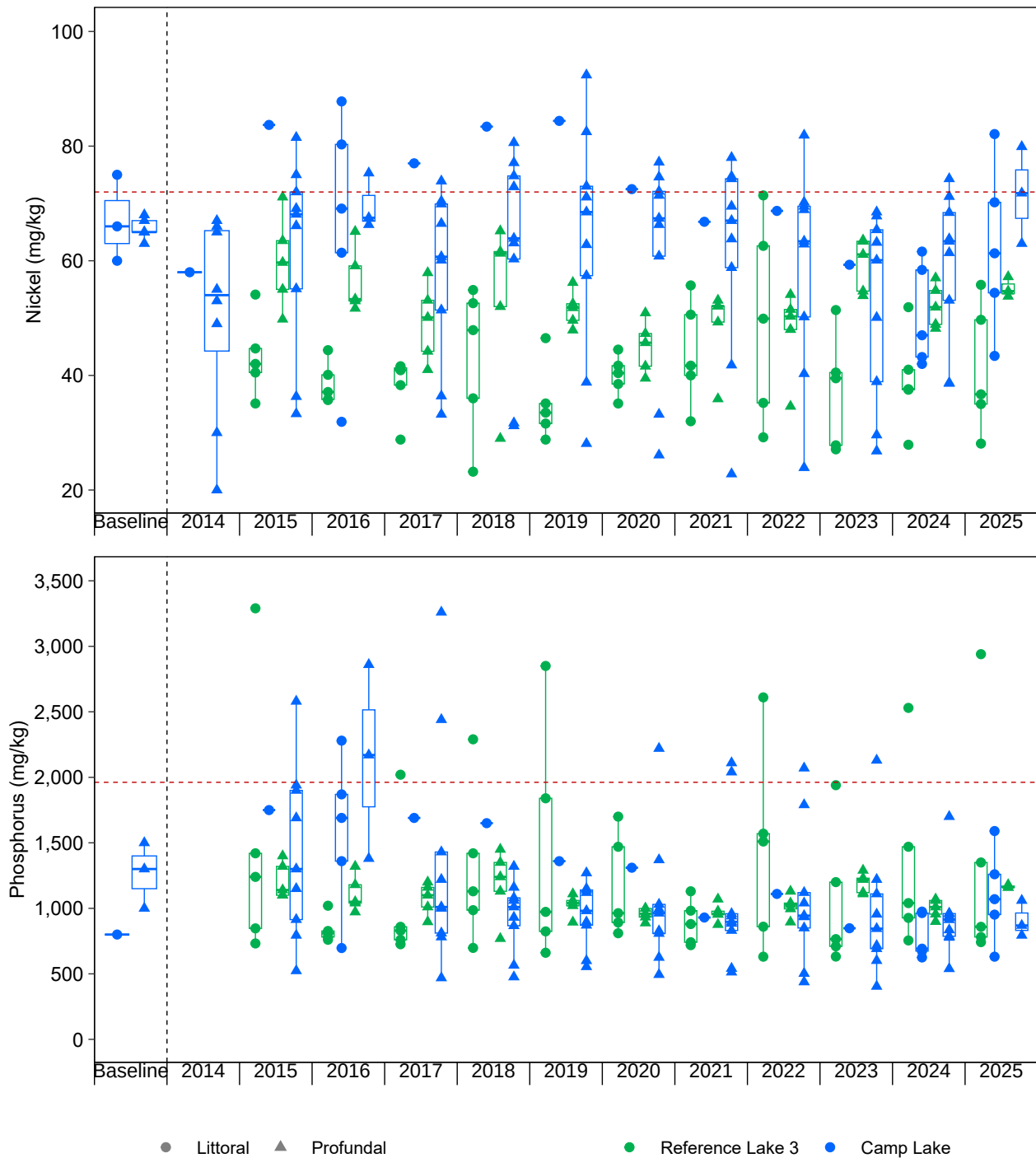


Figure 3.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Camp Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers).

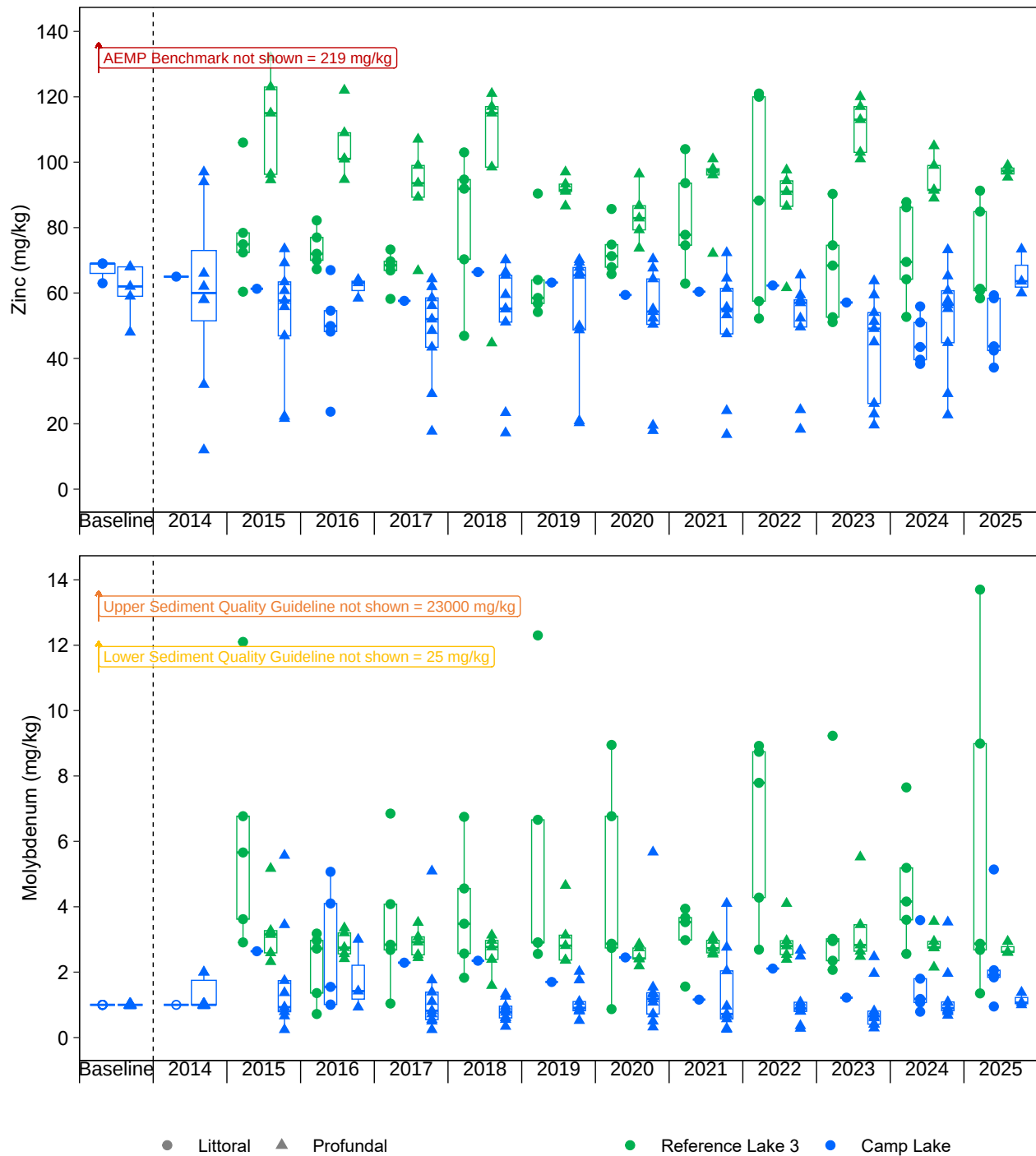


Figure 3.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Camp Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers).

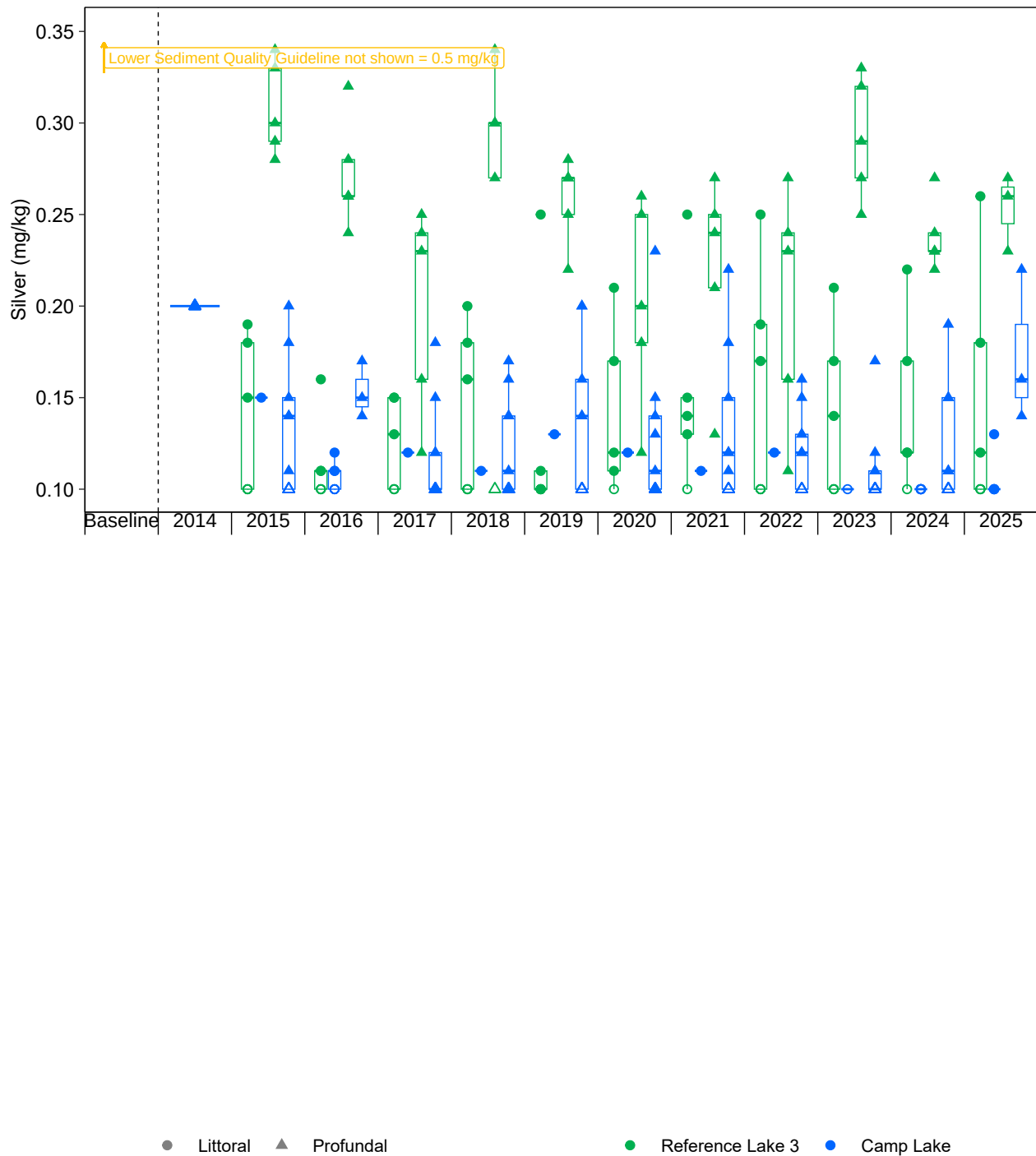


Figure 3.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Camp Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers).

geological enrichment, which makes this area attractive for metal mining, and is supported by the higher concentrations in sediments at Reference Lake 3 (i.e., concentrations in both lakes were statistically similar in 2025; Figure 3.6; Table 3.6; Appendix Tables C.4 and C.5). Additionally, mean copper (littoral and profundal) and zinc (profundal) concentrations in Camp Lake were significantly lower than in Reference Lake 3 in 2025 (Figures 3.6 to 3.8; Tables 3.7 and 3.8). Regardless, these results for manganese and nickel triggered a Low Risk Response under the TARP (Baffinland 2024).

Concentrations of metals measured in littoral and profundal sediments from Camp Lake in 2025 were generally comparable to baseline, except for lower concentrations of chromium and zinc in littoral sediments and higher concentrations of copper in profundal sediments in 2025 relative to baseline (Appendix Tables C.9 and C.10; Appendix Figures C.3 and C.4). Although mean copper concentrations in profundal sediments from Camp Lake were higher relative to baseline in 2025, they were lower relative to reference (see above). Therefore, although these results suggest an increase in profundal sediment copper concentrations relative to baseline, there appears to be a broader regional influence (e.g., of geogenic origin) on copper concentrations in sediments. No action level responses were triggered for the comparisons of sediment chemistry to reference and baseline conditions for Camp Lake in 2025 (Baffinland 2024).

3.3.3 Phytoplankton

In 2025, mean chlorophyll-a concentrations at the surface of Camp Lake were highest in winter, and lowest in summer; chlorophyll-a concentrations measured near the bottom of the water column in winter³⁴ 2025 were also low relative to concurrent and co-located surface samples (Figure 3.9; Appendix Table D.2; Appendix Figure D.1). Chlorophyll-a concentrations near the surface of Camp Lake in summer were below the corresponding upper limit of the reference area normal range. Conversely, chlorophyll-a concentrations measured at the surface of Camp Lake in fall 2025 were consistently above the upper limit of the reference area normal range, signaling a difference between mine-exposed and reference conditions (Figure 3.9; Appendix Table D.2). Regardless, chlorophyll-a concentrations at Camp Lake remained below the AEMP benchmark of 3.7 µg/L during all winter, summer, and fall sampling events in 2025. The observed concentrations indicate relatively low phytoplankton productivity and an oligotrophic trophic status (i.e., chlorophyll-a <4.5 µg/L; Wetzel 2001; Appendix Table D.2). Camp Lake being considered as a low-productivity, oligotrophic environment is further supported by the CCME (2004) Phosphorus Guidance Framework, as mean total phosphorus concentrations in Camp Lake were consistently below 10 µg/L throughout all seasonal sampling periods (Table 3.5; Appendix

³⁴ No bottom water samples for analysis of chlorophyll-a concentrations were collected in summer and fall 2025.



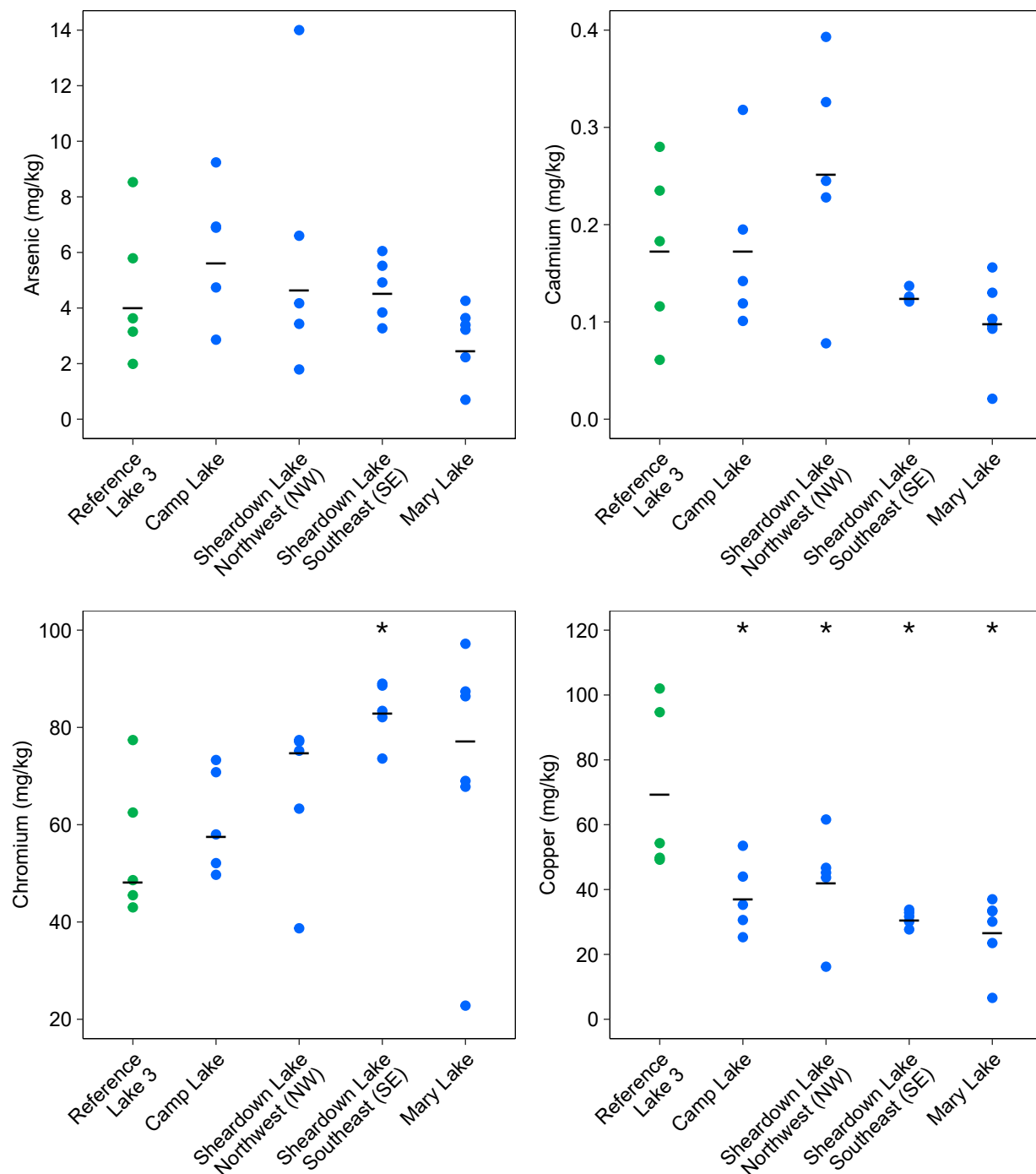


Figure 3.7: Comparisons of Metal Concentrations Among Sediment Samples from Littoral Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different (alpha < 0.05) from the reference area.

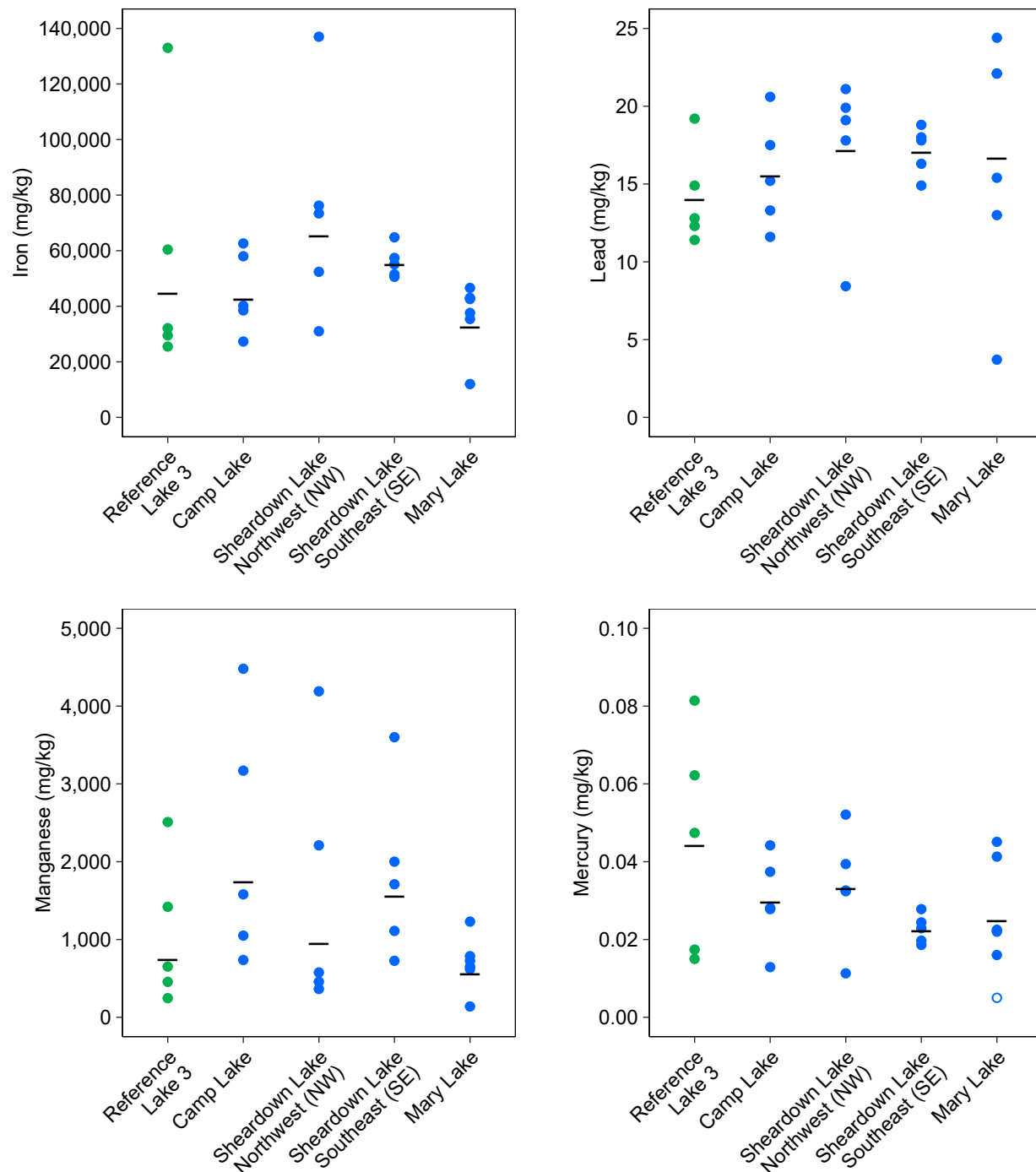


Figure 3.7: Comparisons of Metal Concentrations Among Sediment Samples from Littoral Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different (alpha < 0.05) from the reference area.

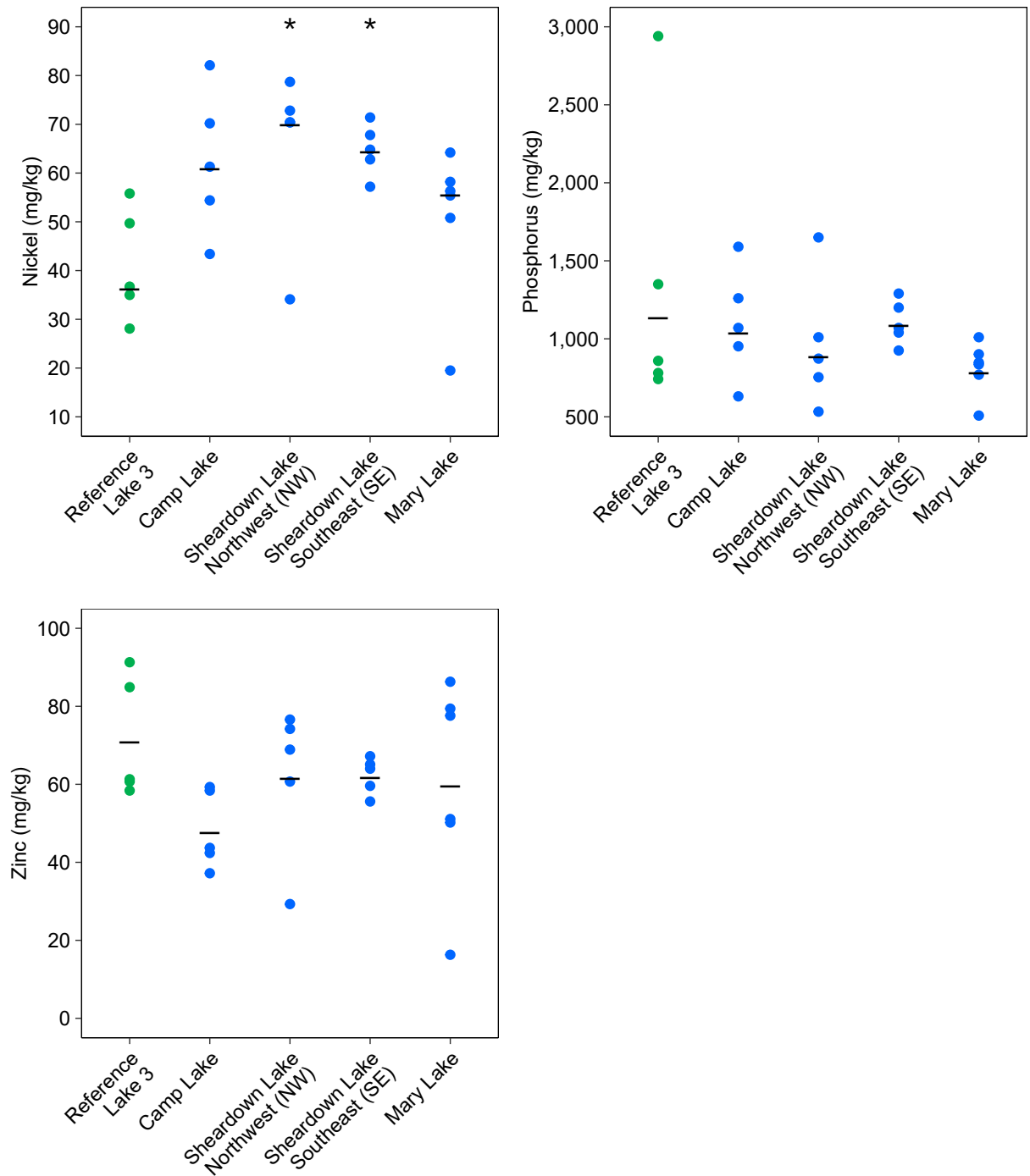


Figure 3.7: Comparisons of Metal Concentrations Among Sediment Samples from Littoral Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different (alpha < 0.05) from the reference area.

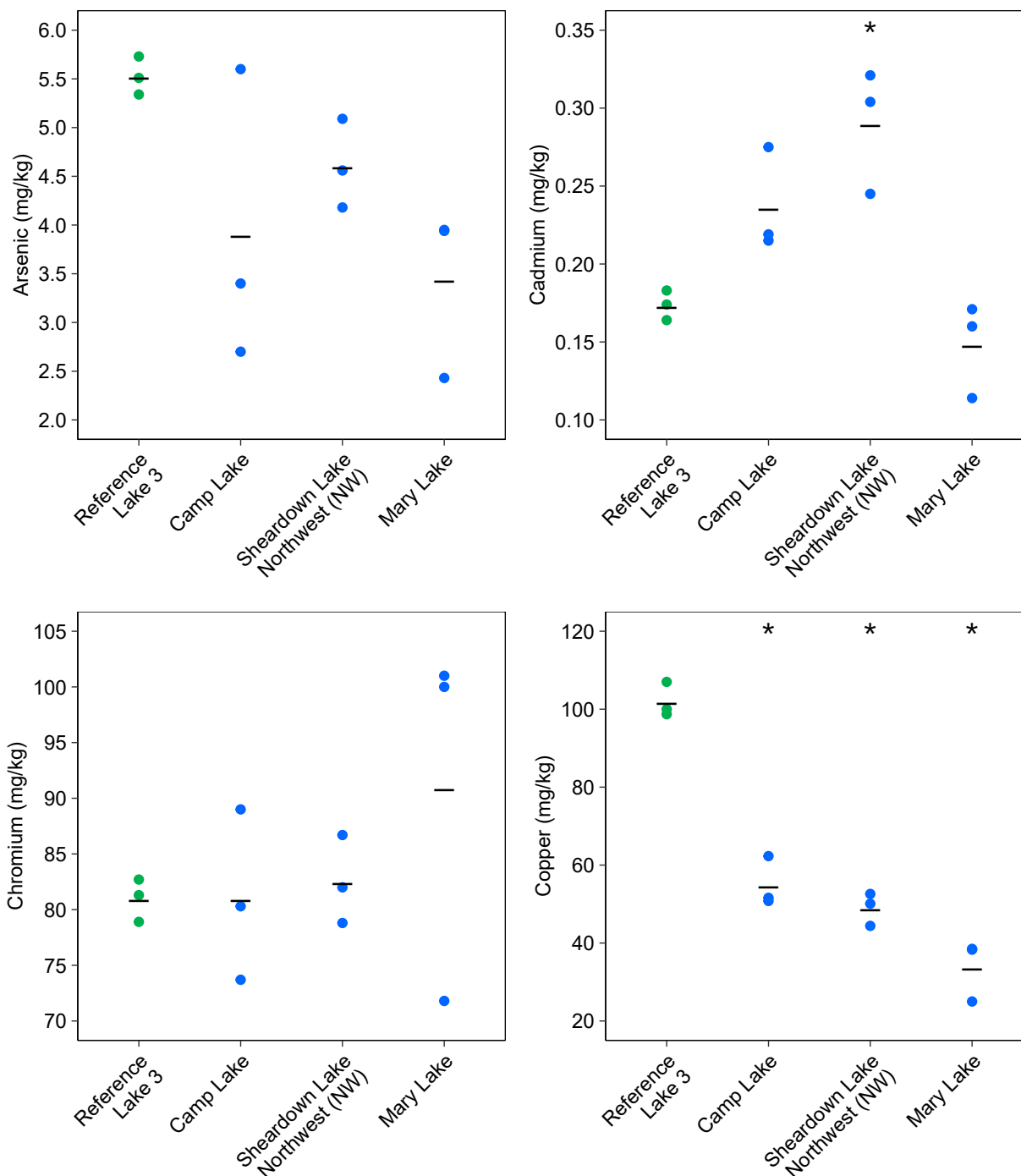


Figure 3.8: Comparisons of Metal Concentrations Among Sediment Samples from Profundal Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different (alpha < 0.05) from the reference area.

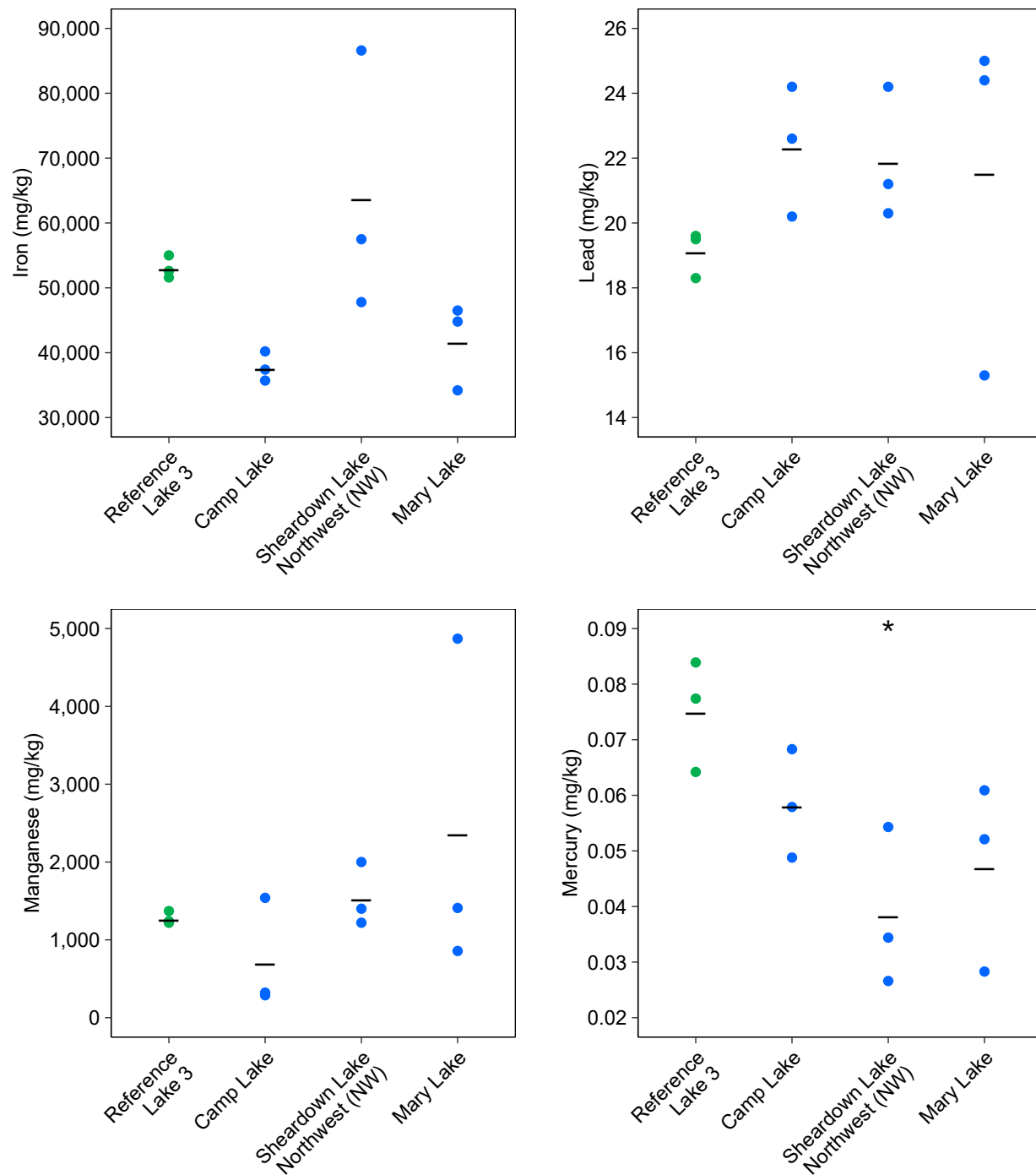


Figure 3.8: Comparisons of Metal Concentrations Among Sediment Samples from Profundal Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different (alpha < 0.05) from the reference area.

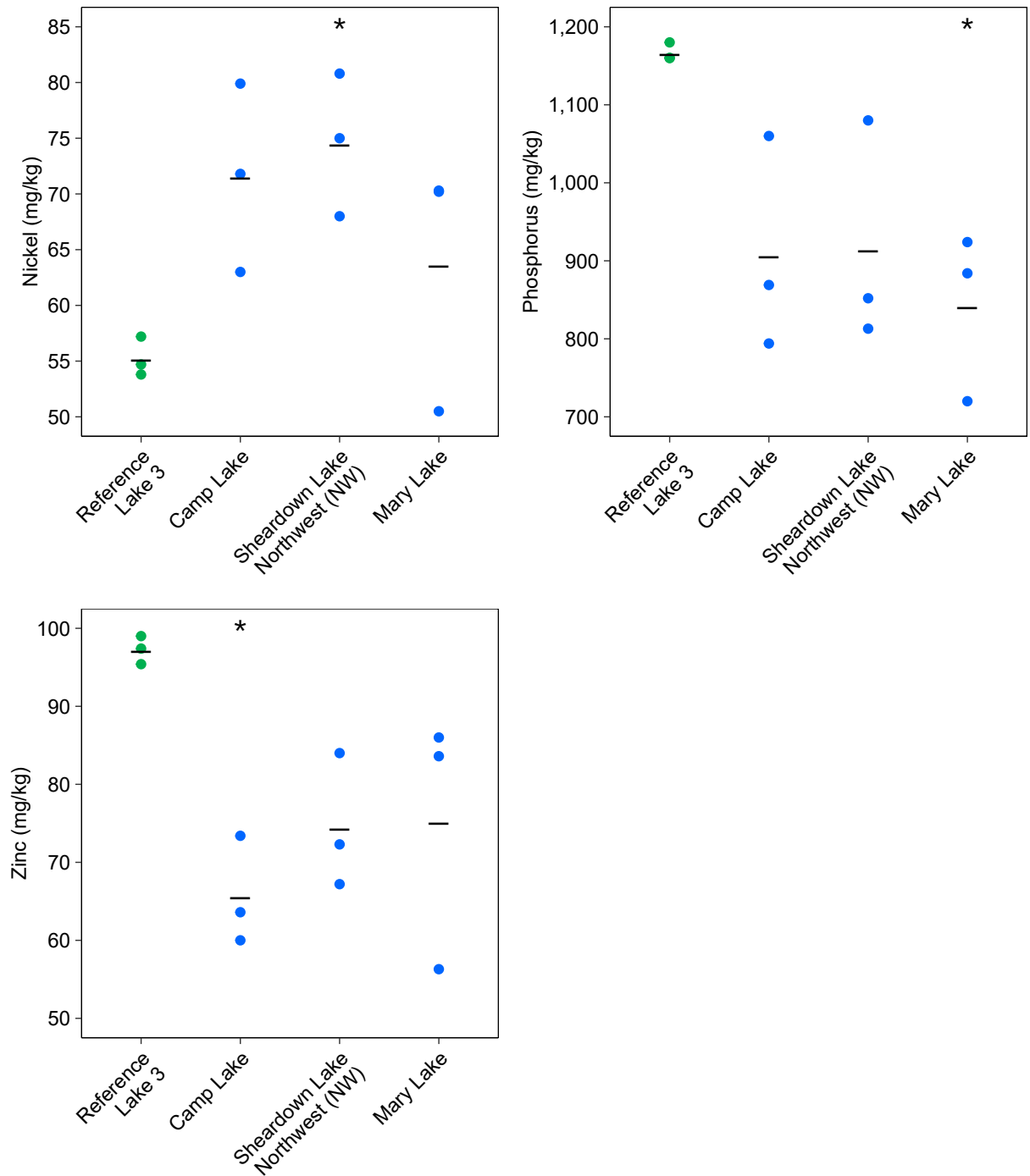


Figure 3.8: Comparisons of Metal Concentrations Among Sediment Samples from Profundal Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in blue. Black horizontal bars indicate the measure of central tendency. Lakes with an "*" are significantly different ($\alpha < 0.05$) from the reference area.

Table 3.7: Statistical Comparisons of Metal Concentrations in Sediments From Littoral Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters	Transformation	Overall P-value	Lake	MCT ^a	Exposed versus Reference		Summary Statistics					
					P-value	MOD ^b	n	Mean	SD	SE	Min	Max
Arsenic (mg/kg)	log ₁₀	0.213	Reference Lake 3	4.08	nc	nc	5	4.62	1.16	1.99	1.99	8.53
			Camp Lake	5.69	ns	ns	5	6.13	1.08	2.86	2.86	9.24
			Sheardown Lake Northwest (NW)	4.73	ns	ns	5	6.00	2.15	1.79	1.79	14.0
			Sheardown Lake Southeast (SE)	4.60	ns	ns	5	4.72	0.516	3.27	3.27	6.05
			Mary Lake	2.53	ns	ns	6	2.91	0.517	0.700	0.700	4.26
Cadmium (mg/kg)	none	0.042	Reference Lake 3	0.175	nc	nc	5	0.175	0.0395	0.0610	0.0610	0.280
			Camp Lake	0.175	1.000	ns	5	0.175	0.0391	0.101	0.101	0.318
			Sheardown Lake Northwest (NW)	0.254	0.344	ns	5	0.254	0.0530	0.0780	0.0780	0.393
			Sheardown Lake Southeast (SE)	0.126	0.699	ns	5	0.126	0.00282	0.121	0.121	0.137
			Mary Lake	0.0998	0.349	ns	6	0.0998	0.0186	0.0210	0.0210	0.156
Chromium (mg/kg)	rank	0.035	Reference Lake 3	48.6	nc	nc	5	55.4	6.45	43.0	43.0	77.4
			Camp Lake	58.0	0.957	ns	5	60.8	4.81	49.7	49.7	73.3
			Sheardown Lake Northwest (NW)	75.2	0.599	ns	5	66.3	7.38	38.7	38.7	77.4
			Sheardown Lake Southeast (SE)	83.4	0.017	71.6	5	83.3	2.79	73.6	73.6	89.0
			Mary Lake	77.7	0.183	ns	6	71.8	10.8	22.8	22.8	97.2
Copper (mg/kg)	none	0.002	Reference Lake 3	70.0	nc	nc	5	70.0	11.7	49.2	49.2	102
			Camp Lake	37.7	0.012	-46.1	5	37.7	5.00	25.3	25.3	53.5
			Sheardown Lake Northwest (NW)	42.7	0.036	-39.0	5	42.7	7.36	16.2	16.2	61.6
			Sheardown Lake Southeast (SE)	31.2	0.002	-55.4	5	31.2	1.08	27.7	27.7	33.8
			Mary Lake	27.3	<0.001	-61.0	6	27.3	4.54	6.59	6.59	37.0
Iron (mg/kg)	log ₁₀	0.216	Reference Lake 3	45,452	nc	nc	5	56,100	20,189	25,500	25,500	133,000
			Camp Lake	43,368	ns	ns	5	45,320	6,545	27,300	27,300	62,600
			Sheardown Lake Northwest (NW)	65,919	ns	ns	5	74,000	17,734	31,000	31,000	137,000
			Sheardown Lake Southeast (SE)	55,657	ns	ns	5	55,880	2,545	50,600	50,600	64,800
			Mary Lake	33,300	ns	ns	6	36,200	5,111	12,000	12,000	46,600
Lead (mg/kg)	none	0.827	Reference Lake 3	14.1	nc	nc	5	14.1	1.39	11.4	11.4	19.2
			Camp Lake	15.6	ns	ns	5	15.6	1.58	11.6	11.6	20.6
			Sheardown Lake Northwest (NW)	17.3	ns	ns	5	17.3	2.27	8.43	8.43	21.1
			Sheardown Lake Southeast (SE)	17.2	ns	ns	5	17.2	0.695	14.9	14.9	18.8
			Mary Lake	16.8	ns	ns	6	16.8	3.17	3.71	3.71	24.4
Manganese (mg/kg)	log ₁₀	0.180	Reference Lake 3	764	nc	nc	5	1,057	414	246	246	2,510
			Camp Lake	1,769	ns	ns	5	2,203	707	736	736	4,480
			Sheardown Lake Northwest (NW)	976	ns	ns	5	1,559	740	364	364	4,190
			Sheardown Lake Southeast (SE)	1,582	ns	ns	5	1,829	496	726	726	3,600
			Mary Lake	583	ns	ns	6	692	143	139	139	1,230
Mercury (mg/kg)	none	0.289	Reference Lake 3	0.0447	nc	nc	5	0.0447	0.0128	0.0150	0.0150	0.0814
			Camp Lake	0.0301	ns	ns	5	0.0301	0.00528	0.0129	0.0129	0.0442
			Sheardown Lake Northwest (NW)	0.0336	ns	ns	5	0.0336	0.00662	0.0113	0.0113	0.0521
			Sheardown Lake Southeast (SE)	0.0227	ns	ns	5	0.0227	0.00165	0.0186	0.0186	0.0278
			Mary Lake	0.0253	ns	ns	6	0.0253	0.00533	<0.005	<0.005	0.0451
Nickel (mg/kg)	rank	0.018	Reference Lake 3	36.7	nc	nc	5	41.1	5.08	28.1	28.1	55.8
			Camp Lake	61.3	0.095	ns	5	62.3	6.61	43.4	43.4	82.1
			Sheardown Lake Northwest (NW)	70.4	0.013	91.8	5	65.3	7.94	34.1	34.1	78.7
			Sheardown Lake Southeast (SE)	64.8	0.025	76.6	5	64.8	2.39	57.2	57.2	71.4
			Mary Lake	55.9	0.582	ns	6	50.7	6.49	19.5	19.5	64.2
Phosphorus (mg/kg)	log ₁₀	0.457	Reference Lake 3	1,146	nc	nc	5	1,334	416	742	742	2,940
			Camp Lake	1,052	ns	ns	5	1,101	159	631	631	1,590
			Sheardown Lake Northwest (NW)	898	ns	ns	5	964	189	533	533	1,650
			Sheardown Lake Southeast (SE)	1,098	ns	ns	5	1,105	63.7	925	925	1,290
			Mary Lake	795	ns	ns	6	812	69.1	508	508	1,010
Zinc (mg/kg)	none	0.373	Reference Lake 3	71.3	nc	nc	5	71.3	6.94	58.4	58.4	91.3
			Camp Lake	48.2	ns	ns	5	48.2	4.48	37.2	37.2	59.3
			Sheardown Lake Northwest (NW)	61.9	ns	ns	5	61.9	8.60	29.3	29.3	76.6
			Sheardown Lake Southeast (SE)	62.3	ns	ns	5	62.3	2.08	55.6	55.6	67.2
			Mary Lake	60.1	ns	ns	6	60.1	10.7	16.3	16.3	86.3

- P-value <0.05.
- MOD >0, indicating result for mine-exposed lake is significantly higher relative to Reference Lake 3.
- MOD <0, indicating result for mine-exposed lake is significantly lower relative to Reference Lake 3.

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. n = number of samples. SD = standard deviation. SE = standard error. Min = minimum. Max = maximum.mg/kg = milligrams per kilogram. nc = no contrast. ns = not significant. < = less than. > = greater than.

^a MCT is the estimated marginal mean, back-transformed esimated marginal mean, or the median when data are untransformed, log₁₀-transformed, or rank-transformed, respectively.

^b MOD = (MCT_{exp} - MCT_{Ref})/MCT_{Ref}*100, where MCT_{exp} is the MCT for the exposed lake and MCT_{Ref} is the MCT for Reference Lake 3.

Table 3.8: Statistical Comparisons of Metal Concentrations in Sediments From Profundal Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters	Transformation	Overall P-value	Lake	MCT ^a	Exposed versus Reference		Summary Statistics					
					P-value	MOD ^b	n	Mean	SD	SE	Min	Max
Arsenic (mg/kg)	none	0.095	Reference Lake 3	5.53	nc	nc	3	5.53	0.113	5.34	5.34	5.73
			Camp Lake	3.90	ns	ns	3	3.90	0.874	2.70	2.70	5.60
			Sheardown Lake Northwest (NW)	4.61	ns	ns	3	4.61	0.264	4.18	4.18	5.09
			Mary Lake	3.44	ns	ns	3	3.44	0.505	2.43	2.43	3.95
Cadmium (mg/kg)	none	0.002	Reference Lake 3	0.174	nc	nc	3	0.174	0.00549	0.164	0.164	0.183
			Camp Lake	0.236	0.090	ns	3	0.236	0.0194	0.215	0.215	0.275
			Sheardown Lake Northwest (NW)	0.290	0.004	67.0	3	0.290	0.0230	0.245	0.245	0.321
			Mary Lake	0.148	0.629	ns	3	0.148	0.0175	0.114	0.114	0.171
Chromium (mg/kg)	none	0.540	Reference Lake 3	81.0	nc	nc	3	81	1.11	78.9	78.9	82.7
			Camp Lake	81.0	ns	ns	3	81.0	4.43	73.7	73.7	89.0
			Sheardown Lake Northwest (NW)	82.5	ns	ns	3	82.5	2.29	78.8	78.8	86.7
			Mary Lake	90.9	ns	ns	3	90.9	9.57	71.8	71.8	101
Copper (mg/kg)	none	<0.001	Reference Lake 3	102	nc	nc	3	102	2.58	98.7	98.7	107
			Camp Lake	54.9	<0.001	-46.1	3	54.9	3.71	50.8	50.8	62.3
			Sheardown Lake Northwest (NW)	49.0	<0.001	-51.9	3	49.0	2.43	44.4	44.4	52.6
			Mary Lake	33.9	<0.001	-66.7	3	33.9	4.47	25.0	25.0	38.5
Iron (mg/kg)	none	0.064	Reference Lake 3	53,067	nc	nc	3	53,067	1,009	51,600	51,600	55,000
			Camp Lake	37,767	ns	ns	3	37,767	1,312	35,700	35,700	40,200
			Sheardown Lake Northwest (NW)	63,967	ns	ns	3	63,967	11,658	47,800	47,800	86,600
			Mary Lake	41,833	ns	ns	3	41,833	3,848	34,200	34,200	46,500
Lead (mg/kg)	none	0.607	Reference Lake 3	19.1	nc	nc	3	19.1	0.418	18.3	18.3	19.6
			Camp Lake	22.3	ns	ns	3	22.3	1.16	20.2	20.2	24.2
			Sheardown Lake Northwest (NW)	21.9	ns	ns	3	21.9	1.18	20.3	20.3	24.2
			Mary Lake	21.6	ns	ns	3	21.6	3.14	15.3	15.3	25.0
Manganese (mg/kg)	none	0.418	Reference Lake 3	1,277	nc	nc	3	1,277	47.0	1,220	1,220	1,370
			Camp Lake	717	ns	ns	3	717	412	288	288	1,540
			Sheardown Lake Northwest (NW)	1,540	ns	ns	3	1,540	236	1,220	1,220	2,000
			Mary Lake	2,379	ns	ns	3	2,379	1,256	857	857	4,870
Mercury (mg/kg)	none	0.041	Reference Lake 3	0.0752	nc	nc	3	0.0752	0.00580	0.0642	0.0642	0.0839
			Camp Lake	0.0583	0.338	ns	3	0.0583	0.00563	0.0488	0.0488	0.0683
			Sheardown Lake Northwest (NW)	0.0384	0.023	-48.9	3	0.0384	0.00825	0.0266	0.0266	0.0543
			Mary Lake	0.0471	0.076	ns	3	0.0471	0.00974	0.0283	0.0283	0.0609
Nickel (mg/kg)	none	0.062	Reference Lake 3	55.2	nc	nc	3	55.2	1.02	53.8	53.8	57.2
			Camp Lake	71.6	ns	ns	3	71.6	4.88	63.0	63.0	79.9
			Sheardown Lake Northwest (NW)	74.6	ns	ns	3	74.6	3.70	68.0	68.0	80.8
			Mary Lake	63.7	ns	ns	3	63.7	6.58	50.5	50.5	70.3
Phosphorus (mg/kg)	none	0.034	Reference Lake 3	1,167	nc	nc	3	1,167	6.67	1,160	1,160	1,180
			Camp Lake	908	0.059	ns	3	908	79.2	794	794	1,060
			Sheardown Lake Northwest (NW)	915	0.067	ns	3	915	83.3	813	813	1,080
			Mary Lake	843	0.021	-27.8	3	843	62.4	720	720	924
Zinc (mg/kg)	none	0.025	Reference Lake 3	97.3	nc	nc	3	97.3	1.04	95.4	95.4	99.0
			Camp Lake	65.7	0.012	-32.5	3	65.7	4.00	60.0	60.0	73.4
			Sheardown Lake Northwest (NW)	74.5	0.059	ns	3	74.5	4.97	67.2	67.2	84.0
			Mary Lake	75.3	0.069	ns	3	75.3	9.53	56.3	56.3	86.0

- P-value <0.05.
- MOD >0, indicating result for mine-exposed lake is significantly higher relative to Reference Lake 3.
- MOD <0, indicating result for mine-exposed lake is significantly lower relative to Reference Lake 3.

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. n = number of samples. SD = standard deviation. SE = standard error. Min = minimum. Max = maximum.mg/kg = milligrams per kilogram. nc = no contrast. ns = not significant. < = less than. > = greater than.

^a MCT is the estimated marginal mean, back-transformed esimated marginal mean, or the median when data are untransformed, log₁₀-transformed, or rank-transformed, respectively.

^b MOD = (MCT_{exp} - MCT_{Ref})/MCT_{Ref}*100, where MCT_{exp} is the MCT for the exposed lake and MCT_{Ref} is the MCT for Reference Lake 3.

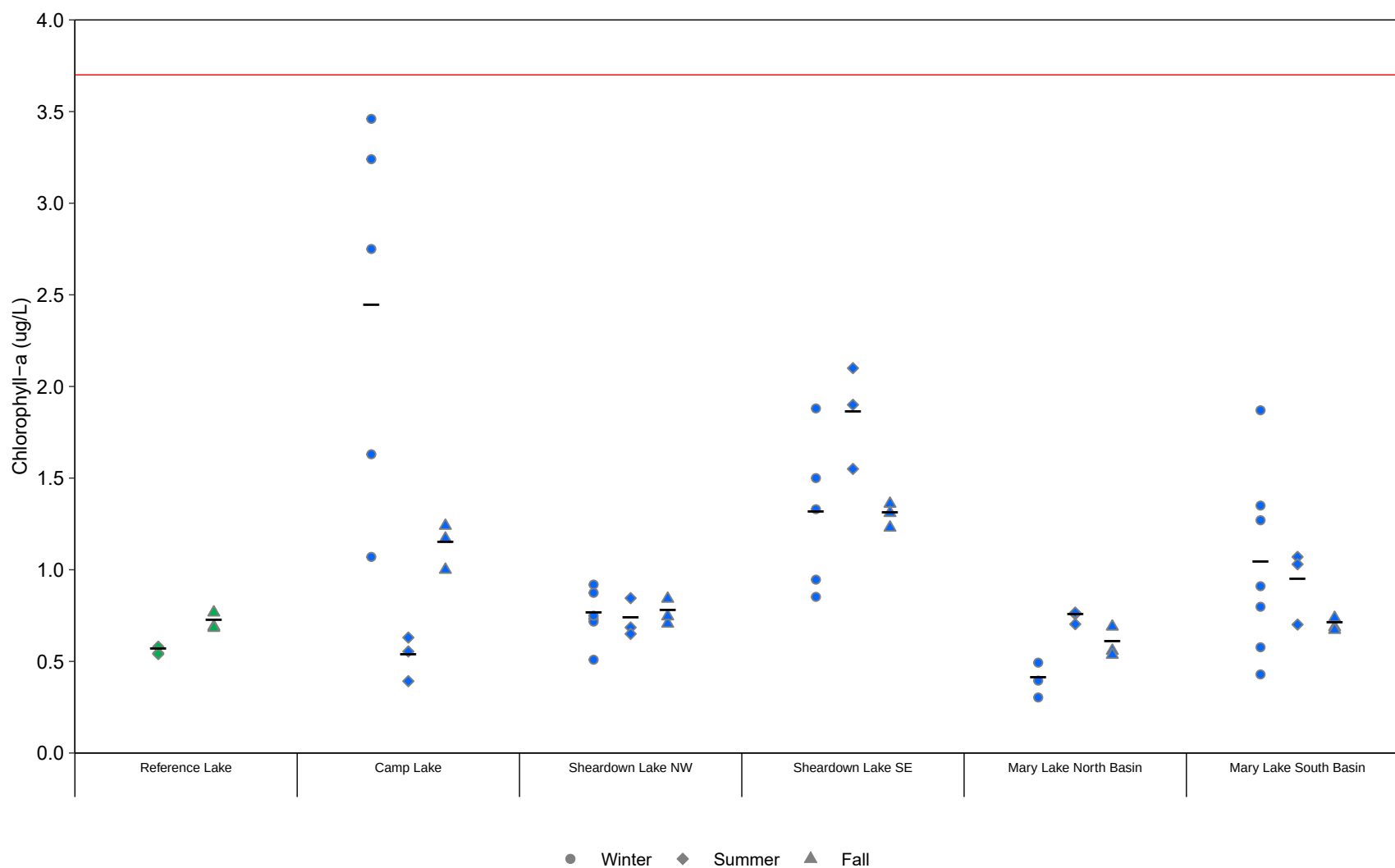


Figure 3.9: Chlorophyll-a Concentrations at Phytoplankton Monitoring Stations (surface) in Camp Lake (JL0), Sheardown Lake NW (DL0-1), Sheardown Lake SE (DL0-2), and Mary Lake (BL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations reported below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. Black horizontal bars represent the measure of central tendency. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. Reference areas are shown in green and mine-exposed areas are shown in blue.

Table B.10). Mean aqueous concentrations of nitrogen-containing compounds (e.g., nitrate, TKN) were also comparable to, or lower than, baseline and reference station concentrations throughout 2025 (Table 3.5; Appendix Table B.10).

Although chlorophyll-a concentrations at Camp Lake have varied seasonally and annually throughout mine construction (2014) and operation (2015 to 2025), no consistent temporal patterns were identified, and Reference Lake 3 has also exhibited seasonal and year-to-year variability in chlorophyll-a concentrations (Figure 3.10). Since mining began, chlorophyll-a concentrations in Camp Lake have been comparable to, or slightly higher than, those in Reference Lake 3 during at least one season each year (Minnow 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024a, 2025a). However, the differences between lakes have consistently been small ($<1 \mu\text{g/L}$; Figure 3.10) and likely reflect natural lake-specific factors (e.g., lake size, morphology, mixing potential, and light regime) rather than mine-related influences. The absence of consistent increases or decreases in chlorophyll-a concentrations at Camp Lake across seasons and years is supported by aqueous nutrient concentrations that are comparable to baseline and concentrations of water quality parameters generally being below AEMP benchmarks or WQG over the past decade of mine operations (Section 3.3.1). Although baseline chlorophyll-a data (2005 to 2013) were not collected for Camp Lake, concentrations during construction (2014) and throughout operations (2015 to 2025) have remained below the AEMP benchmark (Figure 3.10).

Overall, chlorophyll-a concentrations in Camp Lake show no consistent temporal patterns, remain largely comparable to those at Reference Lake 3, and have stayed below the AEMP benchmark throughout mine operation. Collectively, these findings indicate no adverse mine-related effects on phytoplankton productivity at Camp Lake in 2025, and no action level responses were triggered (Baffinland 2024).

3.3.4 Benthic Invertebrate Community

In 2025, most BIC endpoints from the littoral habitats of Camp Lake were comparable to those observed at Reference Lake 3, except taxonomic richness and the relative proportions of *Ostracoda* and *Chironomidae* (Table 3.9; Appendix Figure E.5; Appendix Tables E.14 to E.16). None of these differences were considered ecologically meaningful, as all MODs were within the $\text{CES}_{\text{BIC}} \text{ of } \pm 2 \text{ SD}_{\text{REF}}$ (Table 3.9; Appendix Figure E.5). Bray–Curtis similarity analysis identified a statistically significant difference in overall community structure between Camp Lake and Reference Lake 3, and the results of the dBRDA indicated that a moderate amount of the variation (adjusted $R^2 = 0.387$) between sites could be explained by differences in habitat (Appendix Table E.17). Further, the absence of ecologically meaningful endpoint-level differences suggests that structural variations in the BIC likely reflect natural lake-specific



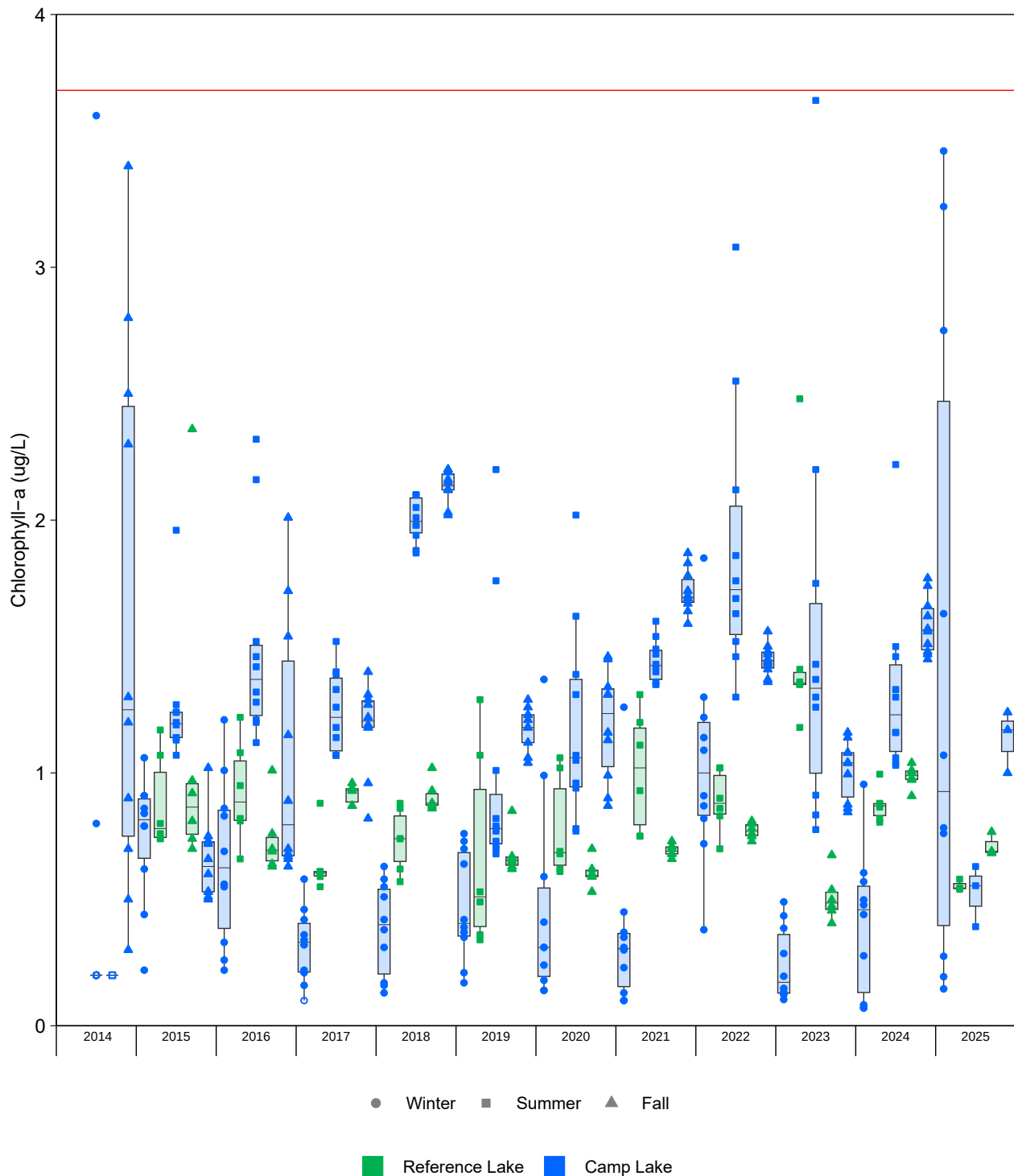


Figure 3.10: Temporal Comparison of Chlorophyll-a Concentrations in Camp Lake and Reference Lake 3 Based on Data for the Mine Construction (2014) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Table 3.9: Statistical Comparison of Benthic Invertebrate Community Endpoints Among Littoral Areas of Mine-exposed Lakes and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Area Comparison			Area	MCT	Pair-wise, post-hoc comparisons	
	Statistical Test ^a	Data Transformation	Area P-value			Post-hoc P-value	MOD ^b
Density (org/m²)	ANOVA	log ₁₀	0.008	Reference Lake 3	935	nc	nc
				Camp Lake	2,337	0.226	ns
				Sheardown Lake Northwest (NW)	2,478	0.177	ns
				Sheardown Lake Southeast (SE)	4,320	0.011	1.8
				Mary Lake	4,163	0.009	1.8
Richness (No. of Taxa)	ANOVA	none	0.012	Reference Lake 3	10	nc	nc
				Camp Lake	15	0.091	1.2
				Sheardown Lake Northwest (NW)	15	0.138	ns
				Sheardown Lake Southeast (SE)	9.4	0.998	ns
				Mary Lake	11	0.996	ns
Simpson's Evenness (Krebs)	ANOVA	none	0.022	Reference Lake 3	0.74	nc	nc
				Camp Lake	0.82	0.859	ns
				Sheardown Lake Northwest (NW)	0.82	0.850	ns
				Sheardown Lake Southeast (SE)	0.81	0.929	ns
				Mary Lake	0.59	0.306	ns
Shannon's Diversity	ANOVA	none	0.006	Reference Lake 3	2.1	nc	nc
				Camp Lake	2.7	0.253	ns
				Sheardown Lake Northwest (NW)	2.8	0.212	ns
				Sheardown Lake Southeast (SE)	2.2	0.994	ns
				Mary Lake	1.7	0.704	ns
% Nematoda	K-W	rank	0.425	Reference Lake 3	0	ns	ns
				Camp Lake	2.0	ns	ns
				Sheardown Lake Northwest (NW)	2.9	ns	ns
				Sheardown Lake Southeast (SE)	0.40	ns	ns
				Mary Lake	0.54	ns	ns
% Hydracarina	K-W	rank	0.252	Reference Lake 3	1.7	ns	ns
				Camp Lake	0.64	ns	ns
				Sheardown Lake Northwest (NW)	2.9	ns	ns
				Sheardown Lake Southeast (SE)	2.4	ns	ns
				Mary Lake	0.94	ns	ns
% Ostracoda	ANOVA	log ₁₀ (x+1)	0.013	Reference Lake 3	36	nc	nc
				Camp Lake	4.6	0.048	-1.6
				Sheardown Lake Northwest (NW)	32	0.996	ns
				Sheardown Lake Southeast (SE)	4.2	0.044	-1.6
				Mary Lake	16	0.334	ns
% Chironomidae	ANOVA	none	0.012	Reference Lake 3	58	nc	nc
				Camp Lake	92	0.064	1.4
				Sheardown Lake Northwest (NW)	59	1.000	ns
				Sheardown Lake Southeast (SE)	93	0.051	1.5
				Mary Lake	78	0.428	ns
% Metal Sensitive Chironomidae	ANOVA	log ₁₀	0.059	Reference Lake 3	31	nc	nc
				Camp Lake	19	0.945	ns
				Sheardown Lake Northwest (NW)	5.8	0.122	ns
				Sheardown Lake Southeast (SE)	33	1.000	ns
				Mary Lake	9.8	0.400	ns
% Collector Gatherers	ANOVA	none	0.037	Reference Lake 3	63	nc	nc
				Camp Lake	74	0.924	ns
				Sheardown Lake Northwest (NW)	80	0.720	ns
				Sheardown Lake Southeast (SE)	36	0.332	ns
				Mary Lake	62	1.000	ns
% Filterers	ANOVA	log ₁₀ (x+1)	0.048	Reference Lake 3	32	nc	nc
				Camp Lake	18	0.665	ns
				Sheardown Lake Northwest (NW)	5.9	0.086	-1.7
				Sheardown Lake Southeast (SE)	35	0.999	ns
				Mary Lake	22	0.829	ns
% Shredders	K-W	rank	0.407	Reference Lake 3	1.1	ns	ns
				Camp Lake	0	ns	ns
				Sheardown Lake Northwest (NW)	0	ns	ns
				Sheardown Lake Southeast (SE)	0	ns	ns
				Mary Lake	0	ns	ns
% Clingers	K-W	rank	0.019	Reference Lake 3	34	nc	nc
				Camp Lake	16	0.126	ns
				Sheardown Lake Northwest (NW)	4.6	0.006	-1.6
				Sheardown Lake Southeast (SE)	38	0.836	ns
				Mary Lake	29	0.307	ns
% Sprawlers	ANOVA	none	0.143	Reference Lake 3	60	ns	ns
				Camp Lake	66	ns	ns
				Sheardown Lake Northwest (NW)	68	ns	ns
				Sheardown Lake Southeast (SE)	33	ns	ns
				Mary Lake	56	ns	ns
% Burrowers	ANOVA	log ₁₀	0.024	Reference Lake 3	3.7	nc	nc
				Camp Lake	16	0.200	ns
				Sheardown Lake Northwest (NW)	22	0.066	2.2
				Sheardown Lake Southeast (SE)	24	0.055	2.2
				Mary Lake	6.2	0.916	ns

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a significant difference (p-value <0.1) outside the CES of ±2 SD_{REF} (i.e., a difference from reference that is considered ecologically meaningful).

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = number of organisms per square metre. ANOVA = Analysis of Variance. < = less than. ns = not significant. No. = number. nc = not calculated. % = percent. nm = MOD could not be calculated due to SD = 0. SD = standard deviation. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

^a Statistical tests include ANOVA followed by Dunnett post hoc tests, or Kruskal-Wallis H-test (K-W) followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{Exp} - MCT_{Ref})/SD_{Ref} where the MCT is reported as geometric means for log₁₀-transformed data, medians for rank-transformed data, and means for untransformed data.

habitat characteristics (e.g., dominant substrate types; Appendix Tables E.18 and E.19). Regardless, the statistically significant difference identified for taxonomic richness in 2025, relative to reference, triggers a Low Risk Response for Camp Lake, despite the difference being within the CES_{BIC} of $\pm 2 SD_{REF}$ (Baffinland 2024).

Most BIC endpoints reported for the littoral habitats of Camp Lake during the mine operations period (2015 to 2025) did not differ significantly from the baseline year of 2013; exceptions were total density and Simpson's Evenness (Appendix Table E.20; Appendix Figure E.6). Ecologically meaningful differences for density suggested a more recent and consistent decrease relative to baseline, with MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$ for the last three consecutive years (2023 to 2025; Appendix Table E.20; Appendix Figure E.6). Conversely, MODs outside the CES_{BIC} for Simpson's Evenness were infrequent (Appendix Table E.20). The lower invertebrate densities in 2023 to 2025 relative to baseline may reflect variability in littoral productivity (see Section 3.3.3) or water level fluctuations (e.g., habitats that are wetted one year may be dry the next, reducing the available habitat area for benthic invertebrates). Importantly, observed changes in organism densities relative to baseline were not accompanied by declines in taxonomic richness or major shifts in community composition, indicating that overall structural integrity of the BIC was maintained. Additionally, community composition was generally similar between Camp Lake and Reference Lake 3 in 2025, signaling that regional influences (e.g., dry versus wet conditions, which influence lake water levels), rather than local factors specific to Camp Lake, may be driving the observed inter-annual variability. Regardless, because invertebrate densities were outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$ for three consecutive years, a Moderate Risk Response was triggered for this endpoint in 2025 (Baffinland 2024).

Overall, the littoral BIC at Camp Lake showed only minor compositional differences relative to Reference Lake 3 and no ecologically meaningful differences at the endpoint level. Although Bray–Curtis analysis identified community-level variation between the lakes, these differences are most consistent with natural lake-specific habitat conditions or interannual variability. Temporally, most endpoints have remained comparable to the 2013 baseline, with ecologically meaningful differences occurring infrequently across the operational period. A more consistent pattern was observed for density, which fell outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$ for the last three consecutive years (2023 to 2025); however, these results were not accompanied by ecologically meaningful reductions in taxonomic richness or ecologically meaningful deviations from reference in 2025. Regardless, the differences in invertebrate densities in Camp Lake in 2025 relative to baseline will be investigated as part of a Moderate Risk Response under the TARP, along with significant differences in taxonomic richness between Camp Lake and the reference area in 2025 (Low Risk Response; Baffinland 2024).



3.3.5 Fish Population

3.3.5.1 Fish Community

Arctic charr (*Salvelinus alpinus*) and ninespine stickleback (*Pungitius pungitius*) were the only fish species captured at Camp Lake in 2025 (Table 3.10; Appendix Table F.1). Electrofishing CPUE was higher at Camp Lake relative to Reference Lake 3 in 2025, consistent with all previous years of monitoring³⁵ and the persistent pattern of higher fish catchability in Camp Lake relative to the reference area (Figure 3.11; Table 3.10; Appendix Table F.1). These results may reflect greater primary productivity (i.e., food availability) within Camp Lake, specifically higher phytoplankton productivity/abundance later in the growing season (see Section 3.3.3). Throughout the baseline (i.e., 2006 to 2013) and mine operation (i.e., 2015 to 2025) periods, CPUE for electrofishing in Camp Lake has shown moderate interannual variability, with years of lower (e.g., 2007, 2015), intermediate (e.g., 2017, 2020, 2022, 2024), and higher (e.g., 2013, 2016, 2018, 2021, 2023) CPUE (Figure 3.11). In 2025, electrofishing CPUE in Camp Lake fell within the lower range of historical values but was still higher relative to baseline in 2007 and early operations in 2015 (Figure 3.11). Overall, the electrofishing CPUE for 2025 suggests that catchability of arctic charr in littoral areas of Camp Lake is consistent with previous years of monitoring and likely reflective of natural interannual variability, rather than mine influence.

Similar to 2020 through 2024, gill net CPUE at Camp Lake in 2025 was higher relative to Reference Lake 3, reinforcing the pattern of higher fish catchability (i.e., as noted for electrofishing, above) in Camp Lake relative to the reference area (Figure 3.11; Table 3.10; Appendix Tables F.2 and F.3). Additionally, from 2020 to 2025, gill netting CPUE at Camp Lake was higher relative to pre-2020 values, including those reported for Camp Lake during baseline and construction years (i.e., 2006 to 2014; Figure 3.11). No consistent temporal patterns in chlorophyll-a concentrations (i.e., phytoplankton productivity) or ecologically significant differences in BIC endpoints have been observed in Camp Lake that would explain the higher gill net CPUEs reported between 2020 and 2025 (Sections 3.3.3 and 3.3.4). Regardless, the 2025 gill net CPUE suggests that, overall, arctic charr catchability in Camp Lake remains high relative to reference and previous years of monitoring, with no evidence of adverse mine influence.

Small differences in sample timing (e.g., slightly earlier or later sampling within August) and interannual variability in weather and climate conditions can affect fish movement and habitat use, as well as field crews' access to fishing locations. Water temperature affects fish metabolic

³⁵ No electrofishing or gill netting was completed at Reference Lake 3 during the baseline period (i.e., 2006 to 2013).



Table 3.10: Fish Catch and Community Summary from Backpack Electrofishing and Gill Netting Conducted at Camp Lake (JL0) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Lake	Method ^a		Number of Fish Caught and CPUE by Method			Total Number of Species
			Arctic Charr	Ninespine Stickleback	Total (all species)	
Reference Lake 3	Electrofishing	Number Caught	101	6	107	2
		CPUE	1.21	0.0720	1.28	
	Gill netting	Number Caught	54	0	54	
		CPUE	1.53	0	1.53	
Camp Lake	Electrofishing	Number Caught	116	10	126	2
		CPUE	2.44	0.210	2.65	
	Gill netting	Number Caught	100	0	100	
		CPUE	25.7	0	25.7	

^a Catch-per-unit-effort (CPUE) for electrofishing represents the number of fish captured per electrofishing minute and for gill netting represents the number of fish captured per 100 metre-hours of net deployed.

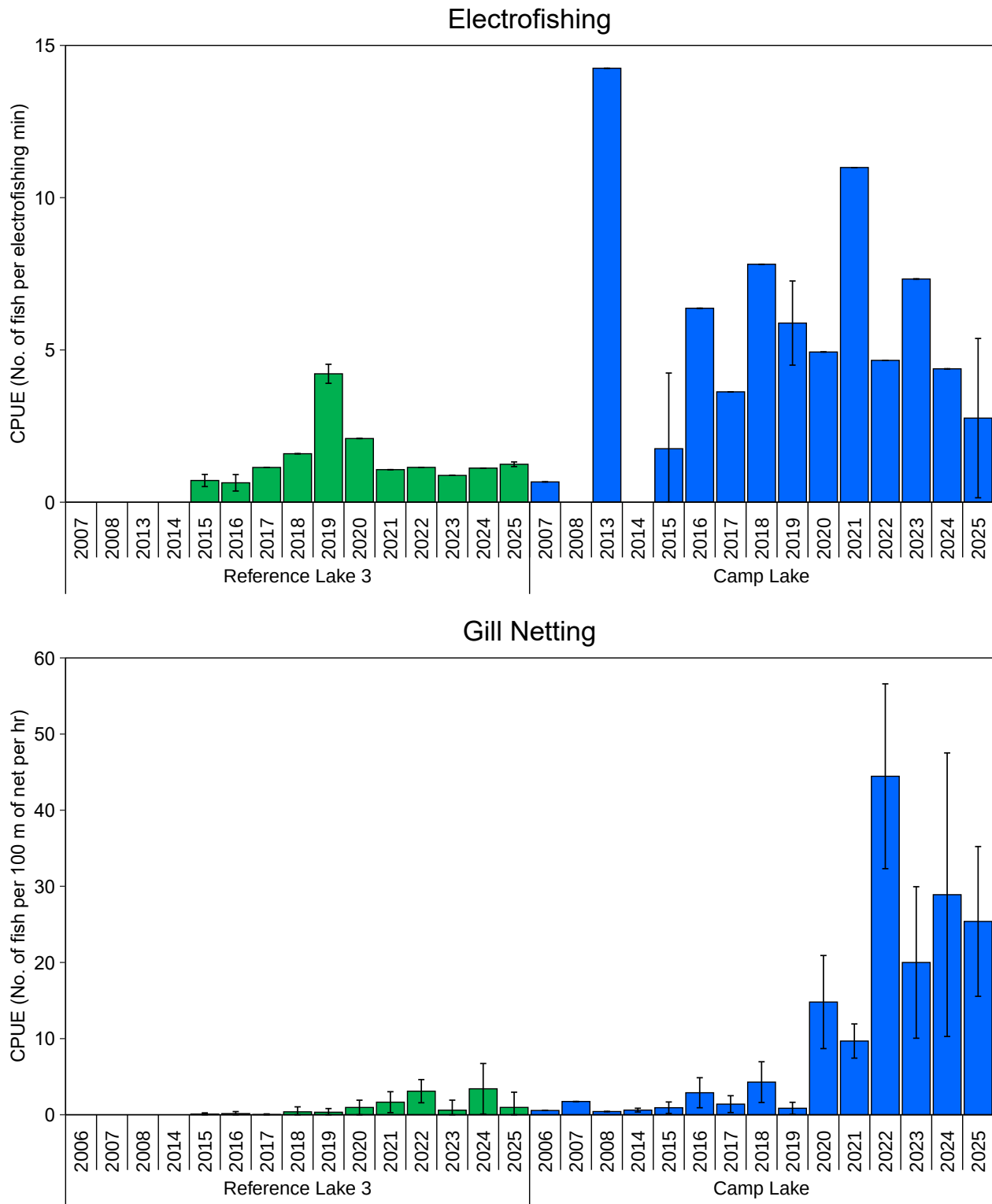


Figure 3.11: Catch-per-unit-effort (CPUE; mean $\pm$ standard deviation) of Arctic Charr Captured by Backpack Electrofishing and Gill Netting at Camp Lake (JL0) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Notes: Data presented for fish sampling conducted in summer during baseline (2006, 2007, 2008, 2013), construction (2014) and operational (2015 to 2025) mine phases. Reference areas are shown in green and mine-exposed areas are shown in blue.

demand and movement rates; warmer conditions generally lead to increased activity as fish seek prey to meet energy requirements (Reist et al. 2006). Because gill netting is a passive gear type that depends on fish swimming into stationary nets, increased fish movement can lead to higher catch rates. Additionally, arctic charr are known to shift between offshore and nearshore habitats and across depth gradients in response to temperature differences, prey availability, and other life-history requirements (e.g., feeding versus spawning; Klemetsen et al. 2003). Year-to-year changes in environmental conditions such as thermal stratification, oxygen availability, and prey distribution could influence the degree to which arctic charr aggregate in areas where nets are set, thereby affecting CPUE (Helland et al. 2011). Finally, weather conditions, particularly wind speed and direction, can also influence which lake areas are safely accessible for sampling, potentially contributing to variability in CPUE.

Overall, because both the 2025 electrofishing and gill netting CPUE values for Camp Lake fall within the range of variability observed during long-term monitoring, remain comparable to or higher than catches recorded during baseline, and continue to exceed those of Reference Lake 3, there is no evidence to suggest mine-related effects on arctic charr catchability in Camp Lake. Instead, the observed interannual variation is considered consistent with natural fluctuations in fish movement, environmental conditions, and passive-gear catchability rather than mine-related changes in fish populations.

3.3.5.2 Fish Health Assessment

3.3.5.2.1 Nearshore Arctic Charr

In August 2025, a total of 99 and 101 arctic charr from the nearshore habitats of Camp Lake and Reference Lake 3, respectively, were assessed for fish health endpoints (Appendix Tables F.4 and F.5). The YOY arctic charr were differentiated from older age classes (non-YOY) based on fork length, as determined from LFD and supporting measurements of individual fish lengths, weights, and ages (Figure 3.12). This resulted in fish from Camp Lake with fork lengths <5.0 cm and fish from Reference Lake 3 with fork lengths <4.0 cm being classified as YOY (Appendix Tables F.4 and F.5). Because fewer than ten YOY arctic charr were captured in Camp Lake in 2025 (Appendix Table F.4; see below), statistical comparisons of health endpoints were limited to the non-YOY age classes (Table 3.11) except for LFD comparisons relative to Reference Lake 3, which were conducted for the distribution of all nearshore arctic charr fish lengths, regardless of age class (Figures 3.12 and 3.13; Appendix Figures F.1 and F.2; Appendix Tables F.4 and F.5).

In 2025, body condition of non-YOY arctic charr captured by electrofishing in Camp Lake was comparable to Reference Lake 3, even though non-YOY arctic charr from Camp Lake were



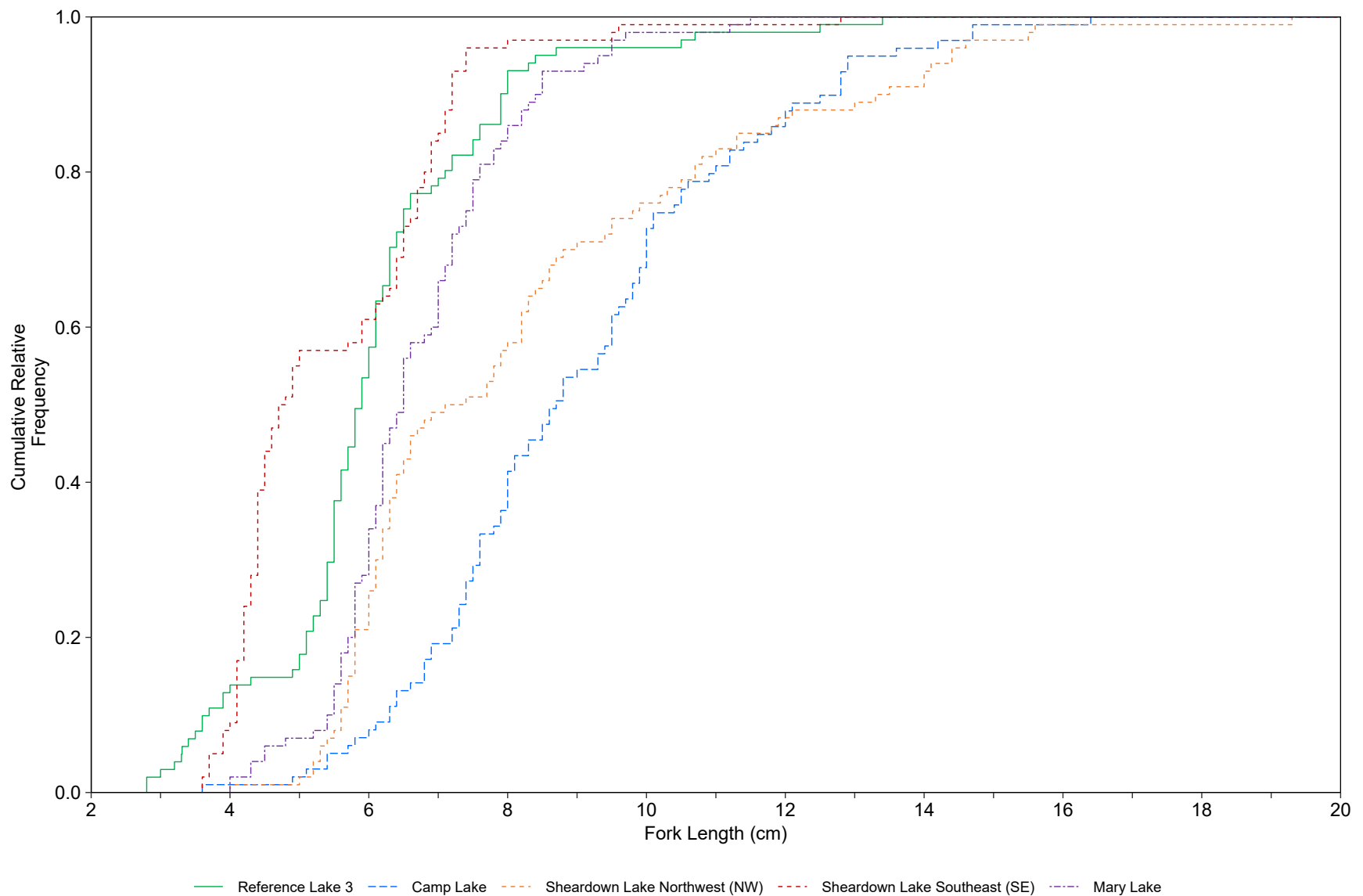


Figure 3.12: Cumulative Length–frequency Distribution for All Arctic Charr Captured by Backpack Electrofishing at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Table 3.11: Summary of Statistical Results for Arctic Charr Population Comparisons between Camp Lake (JL0) and Reference Lake 3 (REF-03), and between Mine Operational and Baseline Period Data for Camp Lake, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Data Set by Sampling Method	Response Category	Endpoint	Statistically Significant Differences Observed? ^a																						
			Relative to Reference Lake 3												Relative to Baseline Data for Camp Lake ^b										
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Nearshore Electrofishing	Survival ^c	Length-Frequency Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	
		Age	No	No	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Energy Use (non-YOY)	Size (mean fork length)	Yes (+41%)	No	Yes (+17%)	Yes (+40%)	Yes (+10%)	Yes (+8%)	Yes (+134%)	Yes (+54%)	Yes (+5.7%)	Yes (+66%)	Yes (+47%)	Yes (-15%)	Yes (-32%)	Yes (-35%)	Yes (-28%)	No	Yes (-22%)	Yes (+9.6%)	Yes (-22%)	Yes (-37%)	Yes (-25%)	Yes (-22%)	
		Size (mean weight)	Yes (+176%)	No	Yes (+51%)	Yes (+135%)	Yes (+29%)	Yes (+44%)	Yes (+1,103%)	Yes (+147%)	Yes (-4.2%)	Yes (+371%)	Yes (+216%)	Yes (-42%)	Yes (-71%)	Yes (-74%)	Yes (-56%)	No	Yes (-52%)	Yes (+38%)	Yes (-56%)	Yes (-76%)	Yes (-64%)	Yes (-53%)	
		Growth (weight-at-age)	Yes (+154%)	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Growth (fork length-at-age)	Yes (+36%)	Yes (+18%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Energy Storage (non-YOY)	Condition (body weight-at-fork length)	No	Yes (-6%)	No	Yes (-14%)	Yes (-7%)	Yes (+7%)	Yes (-7.4%)	No	Yes (-14%)	Yes (+5.7%)	No	Yes (-6%)	Yes (-10%)	Yes (-10%)	Yes (-9%)	Yes (-11%)	No	Yes (-3.5%)	Yes (-7.8%)	Yes (-6.3%)	Yes (-12%)	Yes (-6.7%)	
Littoral/Profundal Gill Netting ^d	Survival	Length Frequency Distribution	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Age	-	-	-	-	-	-	-	-	-	-	-	Yes (+48%)	Yes (+58%)	Yes (+ 46%)	-	-	-	-	-	-	-	-	
	Energy Use	Size (mean fork length)	-	-	-	Yes (+10%)	Yes (+28%)	Yes (+24%)	Yes (+33%)	Yes (+27%)	No	Yes (+33%)	Yes (+24%)	Yes (+6%)	No	Yes (+12%)	Yes (+15%)	Yes (+17%)	Yes (+19%)	Yes (+21%)	Yes (+19%)	Yes (+17%)	Yes (+16%)	Yes (+15%)	
		Size (mean weight)	-	-	-	Yes (+46%)	Yes (+130%)	Yes (+129%)	Yes (+180%)	Yes (+158%)	No	Yes (+142%)	Yes (+101%)	No	No	Yes (+37%)	Yes (+46%)	Yes (+44%)	Yes (+47%)	Yes (+52%)	Yes (+51%)	Yes (+34%)	Yes (+31%)	Yes (+29%)	
		Growth (fork length-at-age)	-	-	-	-	-	-	-	-	-	-	-	No	Yes (nc)	No	-	-	-	-	-	-	-	-	
		Growth (weight-at-age)	-	-	-	-	-	-	-	-	-	-	-	No	Yes (nc)	No	-	-	-	-	-	-	-	-	
	Energy Storage	Condition (body weight-at-fork length)	-	-	-	Yes (+12%)	Yes (+6%)	Yes (+18%)	Yes (+34%)	Yes (+30%)	Yes (-7.9%)	Yes (+20%)	Yes (+9.7%)	No	Yes (-3%)	No	No	No	No	Yes (-4.4%)	No	Yes (-6.6%)	Yes (-5.8%)	Yes (-7.3%)	

BOLD indicates a statistically significant difference.

Notes: - = insufficient data for comparison. % = percent. nc = not calculable. YOY = young-of-the-year.

^a Values in parentheses indicate direction and magnitude of any significant differences.

^b Baseline data include 2013 nearshore electrofishing data and 2006, 2008, and 2013 littoral/profundal gill netting data.

^c The length-frequency distribution comparisons to Reference Lake 3 include all fish, whereas for comparisons to baseline conditions, only non-YOY fish are included.

^d Due to low catches of arctic charr in gill nets at Reference Lake 3 in 2015, 2016, and 2017, no comparisons of fish health were conducted for gill netted fish in those years.

significantly longer and heavier relative to reference, and LFDs for both non-YOY and combined YOY and non-YOY age groups differed significantly between lakes (Figures 3.12 and 3.13; Appendix Figures F.1 to F.3; Appendix Table F.6). The MODs for lengths (MOD = +47%) and weights (MOD = +216%) of non-YOY fish and maximum differences in LFDs (MODs = + 63% and +61% for all fish and non-YOY, respectively) were larger than the CES ($\pm 25\%$) specified in the Revision 2 AEMP design (Table 2.9; Baffinland 2024). The significant differences in LFDs between lakes appear to be driven by Camp Lake having a broader and more evenly distributed size range of fish (i.e., between approximately 5 to 14 cm) relative to Reference Lake 3, where smaller fish between approximately 5 to 8 cm fork length dominated the catch (Figures 3.12 and 3.13, Appendix Table F.6). The comparison of LFDs between Camp Lake and Reference Lake 3 also revealed that, in 2025, the relative abundance of YOY fish did not differ between lakes (i.e., including the YOY in the LFDs did not change the interpretation of the significance of the difference between lakes; Environment Canada 2012).

Longer-term comparisons between Camp Lake and Reference Lake 3 show that body size (fork length and body weight) for non-YOY arctic charr and LFDs (combined YOY and non-YOY) have been frequently, if not consistently, significantly different throughout mine operations (i.e., 2015 to 2025; Table 3.11). The observed patterns have generally reflected larger and heavier fish at Camp Lake relative to Reference Lake 3, consistent with the results for 2025. Also, throughout 2015 to 2025, the condition of non-YOY arctic charr from Camp Lake was generally comparable to reference (i.e., in 2015, 2017, 2022, and 2025) or, when significant difference did exist, their magnitude was within the CES of $\pm 10\%$ (i.e., in 2016, 2019 to 2021, and 2024; Tables 2.9 and 3.11). Overall, the consistent and persistent long-term patterns observed when comparing fish health endpoints for Camp Lake and Reference Lake 3 are suggestive of natural variability between the two lakes, rather than adverse mine-related effects in Camp Lake.

Relative to baseline, arctic charr captured from Camp Lake in 2025 were significantly shorter and lighter, consistent with the results of the LFD comparison, which indicated Camp Lake had a greater number of fish with fork lengths less than approximately 12 cm (Appendix Figures F.4 and F.5, Appendix Table F.7). More specifically, fish collected in 2025 displayed a narrower size distribution dominated by smaller individuals (6 to 10 cm), whereas the baseline distribution was broader and included larger size classes (Appendix Figure F.4). The predominance of smaller non-YOY fish in 2025 may be related to the lower nutrient concentrations in Camp Lake in 2025 relative to baseline (Section 3.3.1) and subsequent shifts in lake productivity and competition for food resources among littoral arctic charr (e.g., Amundsen et al. 2007). Fish condition was significantly lower at Camp Lake in 2025 relative to baseline; however, following removal of



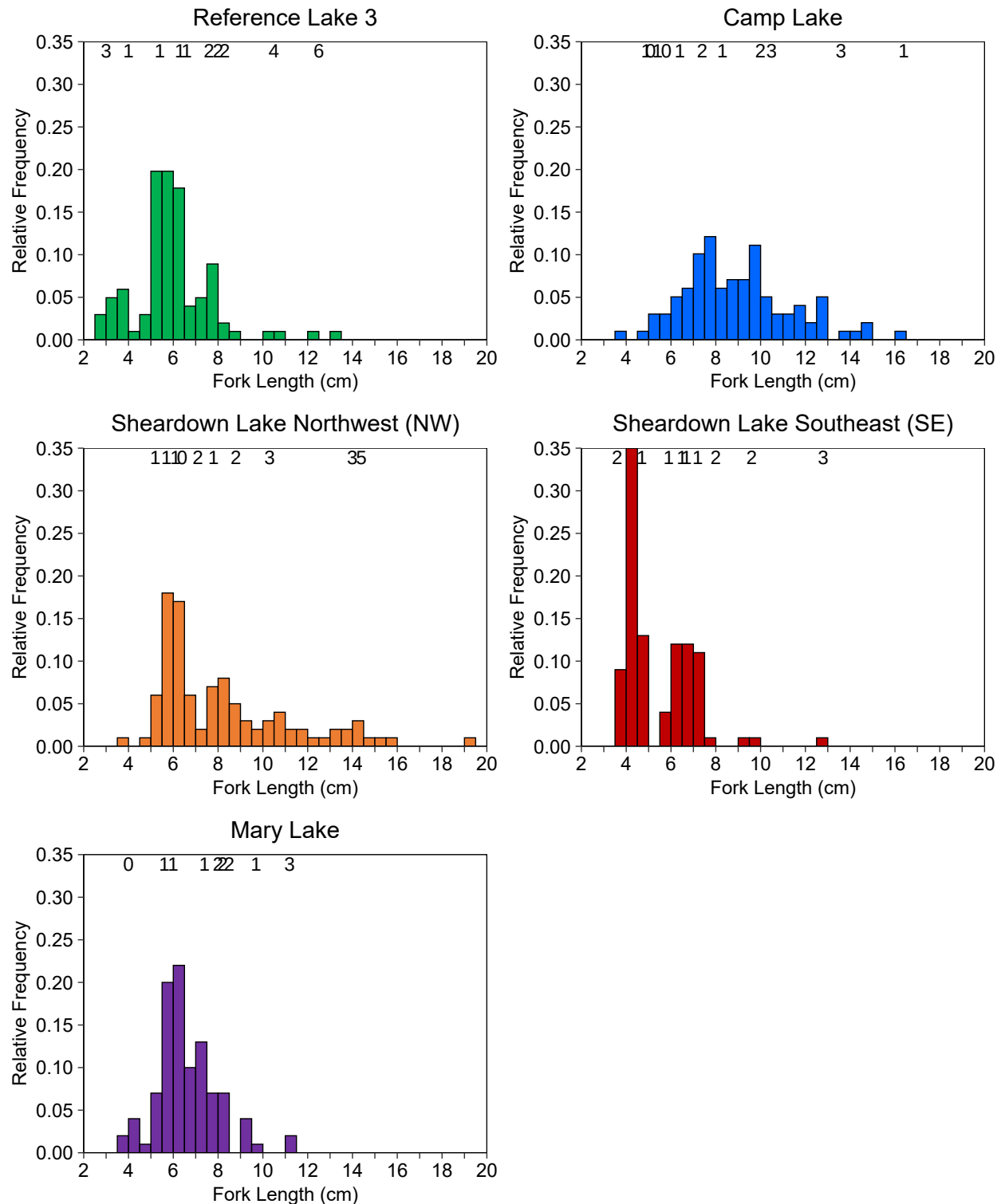


Figure 3.13: Relative Length–frequency for All Arctic Charr Captured by Backpack Electrofishing at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Fish ages are shown above the bars, where available.

outliers, the difference was not considered ecologically meaningful (i.e., MOD = -6.7%; Appendix Table F.7).

Overall, results from the 2025 nearshore fish health assessment at Camp Lake indicate that observed differences relative to Reference Lake 3 and the mine baseline period were driven primarily by shifts in size structure rather than by clear changes in overall fish health. Camp Lake continued to exhibit a broader LFD and larger non-YOY fish compared to the reference system, yet weight-at-length relationships showed that body condition was comparable between lakes in 2025. Although comparisons to baseline indicate a shift toward smaller fish in 2025 this change was not accompanied by ecologically meaningful changes in body condition. Temporal patterns observed over the mine operation period (i.e., 2015 to 2025) further demonstrate consistent differences in LFD and body size between Camp Lake and Reference Lake 3, but differences in condition, if identified, were typically not ecologically meaningful. Taken together, the 2025 results do not provide evidence of adverse mine-related effects on nearshore arctic charr health at Camp Lake.

3.3.5.2.2 Littoral/Profundal Arctic Charr

In August 2025, a total of 100 and 54 gill netted arctic charr from littoral and profundal habitats of Camp Lake and Reference Lake 3, respectively, were assessed for fish health (Table 3.10; Appendix Tables F.2 and F.3). The LFD differed significantly between the two lakes, driven by arctic charr at Camp Lake exhibiting larger-sized fish overall, with lengths generally clustered around 30 to 40 cm, compared to the smaller and more tightly grouped 20 to 35 cm distribution in Reference Lake 3 (Figures 3.14 and 3.15; Appendix Tables F.8 to F.10). This pattern suggests that Camp Lake supports a predominately larger-bodied population relative to the reference lake and is further supported by the significantly higher lengths (MOD = +24%) and body weights (MOD = +101%) of Camp Lake fish relative to reference (Appendix Table F.10). Condition (MOD = +9.7% with outliers removed) was also significantly higher at Camp Lake relative to Reference Lake 3 in 2025; however, the difference was not large enough to be considered ecologically meaningful (i.e., based on a CES of $\pm 10\%$; Figure 3.16, Appendix Table F.10).

In 2025, LFD and body size (fork length and body weight) for gill netted fish from Camp Lake were significantly higher compared to the baseline period (Appendix Table F.11). The LFD difference was driven by arctic charr in 2025 exhibiting a narrower and slightly larger-bodied size distribution relative to baseline (Appendix Figure F.6). This pattern is further reflected in the CRFD curve, where the steeper rise in 2025 indicates a more tightly clustered size structure around mid-sized fish compared to the more variable baseline distribution (Appendix Figure F.6). Despite the observed differences in fish size, the weight-at-length relationship suggests that any statistically significant differences in body condition between 2025 and baseline were not



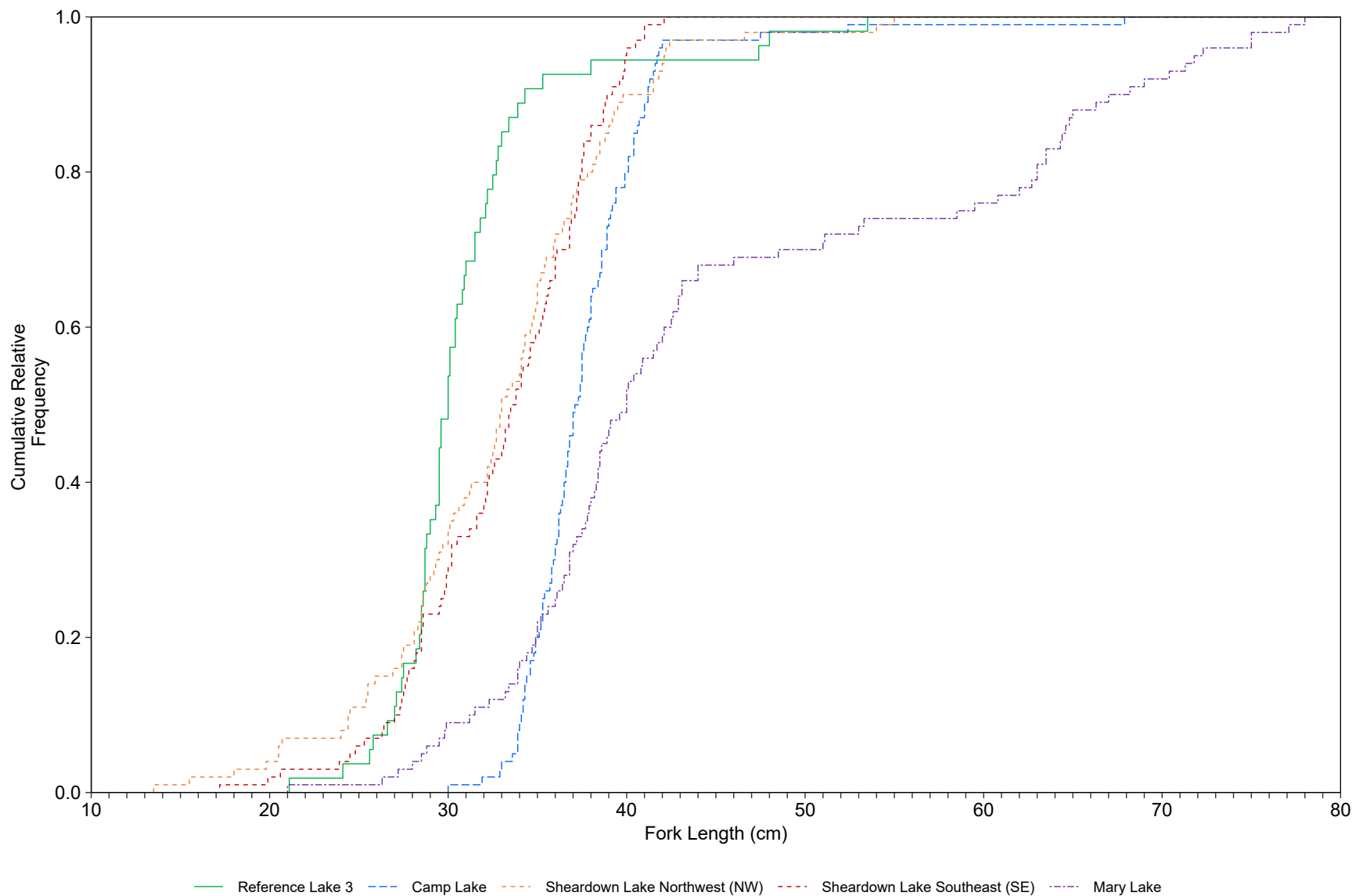


Figure 3.14: Cumulative Length–frequency Distribution for Arctic Charr Captured by Gill Netting at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

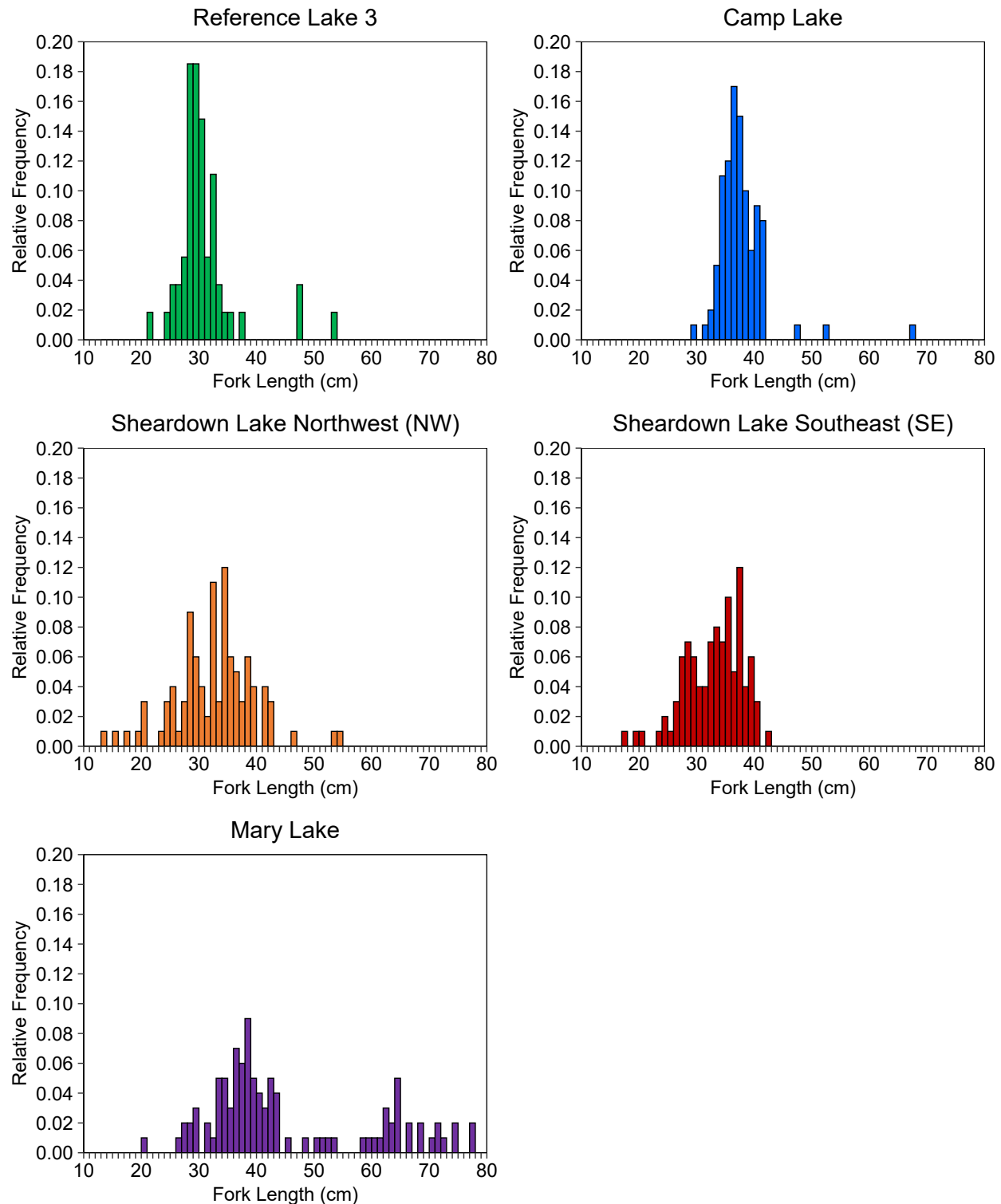


Figure 3.15: Relative Length–frequency for Arctic Charr Captured by Gill Netting at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

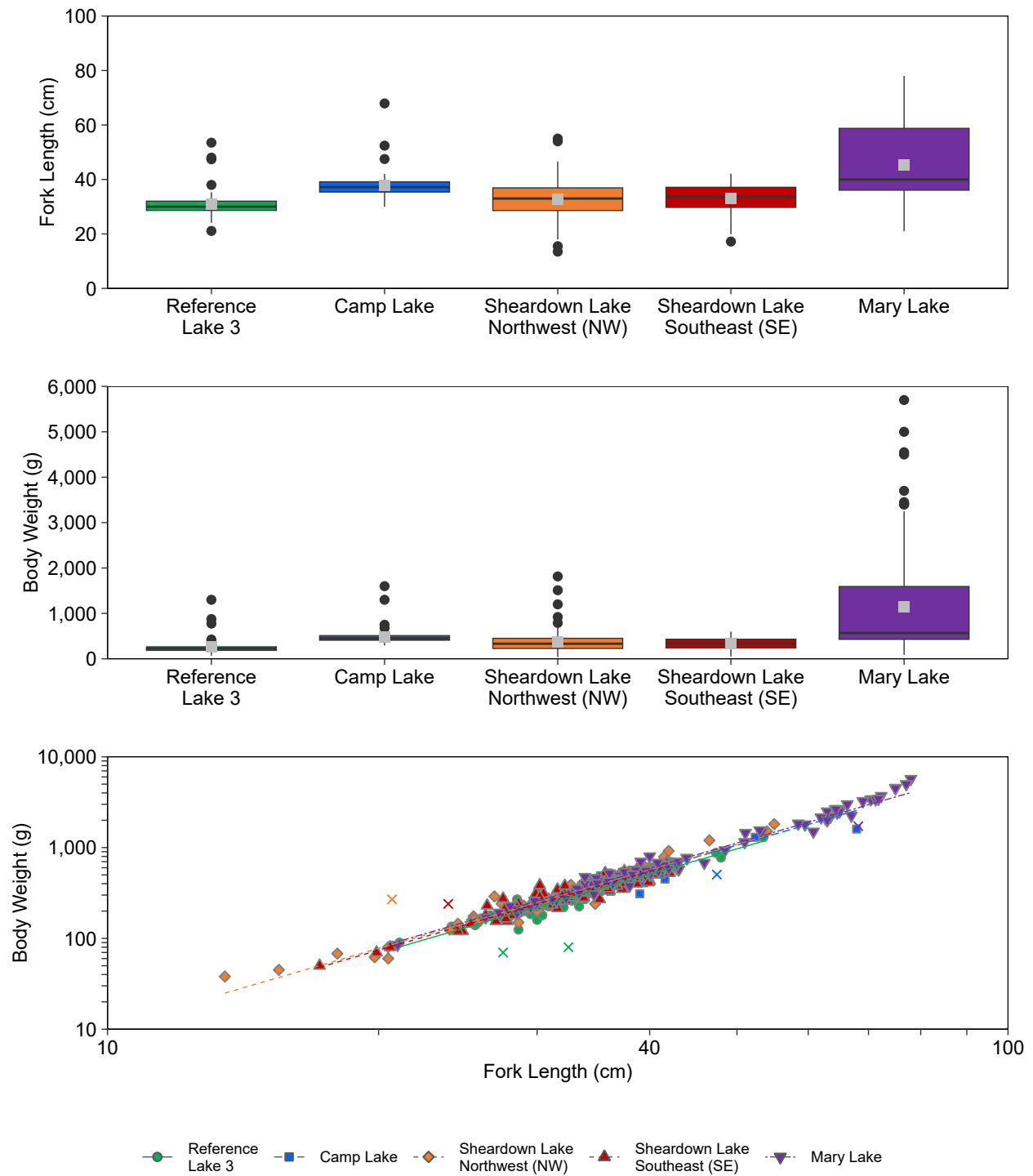


Figure 3.16: Comparison of Body Condition (weight-at-fork-length) for Arctic Charr Captured by Gill Netting at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

ecologically meaningful (i.e., based on a CES of $\pm 10\%$; Appendix Figure F.7; Appendix Table F.11).

Comparisons between gill netted fish from Camp Lake and Reference Lake 3 over time show that LFD, body size (fork length and body weight), and condition have been consistently and significantly different throughout mine operations (2015 to 2025; Table 3.11). These differences generally reflected larger, heavier fish with higher condition at Camp Lake relative to the reference lake, with only a few exceptions (e.g., 2023, when no body size differences were detected between lakes; Table 3.11). Comparisons to the Camp Lake baseline period similarly showed consistent significant increases in LFD and body size across the years of mine operation (Table 3.11). However, despite the size-related changes in gill netted fish over time, body condition was either comparable between mine operation years and baseline or, if significant differences were identified, they were within the range of natural environmental variability (i.e., within a CES of $\pm 10\%$; Table 3.11; Environment Canada 2012).

Overall, results from the 2025 littoral and profundal gill netting program at Camp Lake indicate that the observed differences relative to both Reference Lake 3 and the mine baseline period were driven primarily by differences in size structure, rather than clear changes in overall fish health. Camp Lake continued to support a predominately larger-bodied population relative to the reference lake and baseline, yet weight-at-length relationships showed that, in 2025, observed differences between lakes and relative to baseline were not large enough to be ecologically meaningful. Taken together, the 2025 findings do not indicate adverse mine-related effects on arctic charr health in Camp Lake. However, the significantly lower condition of nearshore and nearshore/profundal arctic charr in 2025 relative to baseline will be investigated further as part of a Low Risk Response under the TARP, along with the significantly higher condition of gill netted fish relative to reference in 2025 (Table 3.11; Baffinland 2024).

3.3.6 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

3.3.6.1 Effects Assessment

At Camp Lake, mean concentrations of all water quality parameters were consistently below AEMP benchmarks throughout 2025; therefore, no action level responses were triggered based on the comparisons to benchmarks (Baffinland 2024). DO concentrations at Station JL0-07 were below the WQG in winter. However, no adverse effects to arctic charr from low wintertime DO concentrations near the lake bottom are anticipated, based on the availability of suitably oxygenated areas within Camp Lake, and the ability of arctic charr to adjust their behaviour, and therefore oxygen demand, in winter.



Low Risk Responses were triggered for mean hardness; alkalinity; chloride; total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium, based on aqueous concentrations that were elevated in Camp Lake relative to both the reference and baseline normal ranges in at least one season in 2025.

Aqueous concentrations of total and dissolved uranium in Camp Lake were assessed for temporal trends and comparisons between total and dissolved concentrations were completed to better understand uranium bioavailability and potential for effects to biota. The temporal trend analyses identified significant increasing trends in total and dissolved uranium concentrations in Camp Lake relative to baseline and over the mine operation period. However, total concentrations, which are expected to provide a conservative, yet realistic, representation of bioavailable aqueous uranium, were below the AEMP benchmark in Camp Lake in 2025, signaling risk to aquatic biota from uranium in 2025 were low.

Sediment is collected annually from littoral and profundal stations in Camp Lake. In 2025, mean metal concentrations in sediments were below AEMP benchmarks, except for manganese and nickel; these results triggered a Low Risk Response (Baffinland 2024). No other action level responses were triggered for sediment chemistry in Camp Lake, based on mean concentrations in littoral and profundal sediments being comparable or lower relative to reference and baseline.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in Camp Lake in 2025 and differences in BIC endpoints relative to reference and baseline appear to be driven by differences in habitat between areas rather than mine-related influence. However, higher taxonomic richness at Camp Lake relative to reference in 2025 triggered a Low Risk Responses under the TARP (Baffinland 2024). Additionally, a Moderate Risk Response was triggered by lower invertebrate densities in Camp Lake over the period of 2023 to 2025, relative to baseline.

The assessment of arctic charr health at Camp Lake focused on endpoints related to survival (all fish), energy use (non-YOY life stages), and energy storage (i.e., condition; non-YOY life stages). The consistent and persistent long-term patterns observed when comparing fish health endpoints for Camp Lake and Reference Lake 3 were suggestive of natural variability between the two lakes, rather than adverse mine-related effects in Camp Lake. However, maximum differences in LFDs for non-YOY and combined YOY/non-YOY fish were outside CES (reference and baseline) in 2024 and 2025, and condition of non-YOY fish was lower in 2025 relative to baseline (but within the CES of $\pm 10\%$). These results triggered a Moderate Risk Response for non-YOY/YOY LFDs and a Low Risk Response for non-YOY condition (Baffinland 2024). Although the sample size for YOY fish was too small to support statistical analyses for this age class specifically, their inclusion/exclusion in the LFDs along with other



nearshore fish did not change the significance of the LFD comparisons and there was little change in the MOD, thereby suggesting relative abundance of YOY did not differ between areas. For gill netted fish, differences in LFDs relative triggered a Moderate Risk Response, based on the significant differences relative to reference and baseline in 2024 and 2025. Differences in condition of gill netted fish between 2025 and baseline triggered a Low Risk Response under the TARP, given the significant difference was within the CES (Baffinland 2024).

3.3.6.2 Recommendations

Low Risk Responses for Camp Lake were triggered for hardness; alkalinity; chloride; and total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium, as well as concentrations of manganese and nickel in sediments, taxonomic richness within the BIC, and condition of electrofished and gill netted fish. Moderate Risk Responses were triggered for biological endpoints, specifically invertebrate densities and, for arctic charr LFDs (all groups). The following actions are recommended as part of the Low and Moderate Risk Responses for Camp Lake:

- Complete temporal trend analyses for hardness; alkalinity; chloride; total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium in water to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources or factors influencing mean hardness; alkalinity; chloride; total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium in Camp Lake to better define mine-related influence.
- Adopt the variable FEQG as the AEMP benchmark for aqueous total aluminum.
- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of manganese and nickel concentrations above AEMP benchmarks in sediments using a weight-of-evidence approach.
- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time (i.e., have the BIC always differed between the mine-exposed and reference areas, and has that difference remained constant or changed over time?).
- Continue to use data for indicator taxa, FFGs, and HPGs in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving



differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

- Consider completing a BACI-style analysis of fish health endpoints (e.g., for condition; Kidd et al. 2014) using data collected from mine-exposed and reference areas over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time.

3.3.6.3 Comparison to FEIS Predictions

A comparison of water quality conditions at Camp Lake during spring, summer, and fall 2025 to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-7 (Camp Management) and SWSQ-9 (Airstrips and Airstrip Use) indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at Camp Lake conformed with predictions made in the FEIS (Baffinland 2012).

Comparisons of 2025 sediment quality data for Camp Lake against FEIS predictions related to Airborne Emission sources (i.e., fugitive dust; FEIS Issue SWSQ-17-3) indicated that all mean parameter concentrations were within the applicable significance rating magnitudes expected for lake sediments during mine operations. Therefore, sediment quality at Camp Lake conformed with predictions made in the FEIS (Baffinland 2012).

Because water and sediment quality parameter concentrations were within applicable FEIS significance rating magnitude predictions in 2025, it is generally expected that effects predictions for arctic charr health would also be met. Although significant differences in arctic charr length frequency distributions and condition relative to reference and baseline were identified in 2025, the long-term datasets indicate that spatial and temporal differences have existed throughout the mine operation period, and are likely driven by natural differences in habitat conditions (e.g., water quality, productivity) between systems and among years within Camp Lake (e.g., as a result of interannual variability in growing season degree days, water levels, etc.). The arctic charr population in Camp Lake has persisted throughout mine operations, and catchability has been higher relative to baseline and reference. However, outcomes of the Low and Moderate Risk Responses triggered for fish in 2025 will be necessary for understanding whether FEIS predictions for arctic charr are being met (Baffinland 2012).



3.4 Camp Lake Outlet

3.4.1 Water Quality

3.4.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at the Camp Lake Outlet (J0-01) concurrent and co-located with water quality sampling completed by Baffinland environment department personnel in spring, summer, and fall (Table 2.2). DO saturation at CLT1 North Branch and Main Stem stations was consistently near full saturation (i.e., all concentrations were $\geq 96.5\%$; Appendix Figure B.1; Appendix Table B.10). Similarly, DO concentrations measured at water chemistry stations on the Camp Lake Outlet creek were consistently above the CCME WQG for protection of early life stages of cold-water biota (i.e., 9.5 mg/L) and within or higher than baseline and reference normal ranges for summer and fall³⁶ (Appendix Figure B.1; Appendix Table B.10).

In 2025, field pH and turbidity values measured by Baffinland environment department personnel were within available seasonal reference and baseline normal ranges, and SPC was within the reference normal range, despite being higher relative to baseline normal ranges in summer and fall (Appendix Table B.10). pH values measured at the Camp Lake Outlet in 2025 were consistently within the CCME WQG range (i.e., 6.5 to 9; Appendix Table B.10).

3.4.1.2 Water Chemistry

At the Camp Lake Outlet (Station J0-01), concentrations of water quality parameters were consistently below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG, throughout 2025 (Appendix Table B.10).

Low Risk Responses were triggered in 2025 for hardness, TDS, alkalinity, chloride, dissolved manganese and silicon, and total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium, based on concentrations above both the reference and baseline normal ranges in at least one season (Appendix Table B.10; Baffinland 2024).

3.4.2 Phytoplankton

Chlorophyll-a concentrations for the Camp Lake Outlet creek (Station J0-01) were above the upper limit of the reference area normal range in summer 2025, signaling a difference between reference and mine-exposed conditions in that season (Appendix Table D.1). Concentrations observed at J0-01 in fall 2025 appeared elevated relative to concurrent data collected from reference creek stations, based on visual comparisons (Figure 3.1), but were not

³⁶ Too few data were available to calculate normal ranges for spring.



above the upper limit of the normal range (Appendix Table D.1). Regardless, chlorophyll-a concentrations at the Camp Lake Outlet creek were well below the AEMP benchmark of 3.7 µg/L (Figure 3.1; Appendix Table D.1) and indicative of limited phytoplankton productivity throughout 2025 (Dodds et al. 1998). Additionally, the aqueous total phosphorus concentrations measured at Station J0-01 in 2025 were consistent with oligotrophic conditions, based on criteria from the CCME (2004) Phosphorus Guidance Framework (Appendix Table B.10; see Section 3.1.3 for additional trophic status classification details). No action level responses were triggered for phytoplankton productivity at the Camp Lake Outlet creek in 2025 (Baffinland 2024).

3.4.3 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

3.4.3.1 Effects Assessment

At the Camp Lake Outlet (Station J0-01), concentrations of water quality parameters were consistently below AEMP benchmarks in 2025. However, hardness; TDS; alkalinity; chloride; dissolved manganese and silicon; and total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium were above both the reference and baseline normal ranges in 2025, signaling a potential mine influence. The results for these parameters triggered Low Risk Responses under the TARP (Baffinland 2024).

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in the Camp Lake Outlet in 2025, based on comparisons to the AEMP benchmark (Baffinland 2024). Consequently, no action level responses were triggered for phytoplankton productivity in the Camp Lake Outlet creek in 2025.

3.4.3.2 Recommendations

Low Risk Responses were triggered for hardness; TDS; alkalinity; chloride; dissolved manganese and silicon, and aqueous total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium at the Camp Lake Outlet. The following actions are recommended as part of the Low Risk Responses:

- Complete temporal trend analyses for hardness; TDS; alkalinity; chloride; dissolved manganese and silicon; and aqueous total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources or influences on hardness; TDS; alkalinity; chloride; and aqueous concentrations of manganese, barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium to better define mine-related influence.



3.4.3.3 Comparison to FEIS Predictions

A comparison of water quality at the Camp Lake Outlet creek in the 2025 spring, summer, and fall seasons to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-7 (Camp Management) and SWSQ-9 (Airstrips and Airstrip Use) indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at the Camp Lake Outlet conformed with predictions made in the FEIS (Baffinland 2012).



4 SHEARDOWN LAKE SYSTEM

4.1 Sheardown Lake Tributary 1 (SDLT1)

4.1.1 Water Quality

4.1.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at SDLT1 concurrent and co-located with water quality sampling completed by Baffinland environment department personnel in spring, summer, and fall and BIC sampling led by Minnow staff in August (Tables 2.2 and 2.8). During the spring, summer, and fall water quality monitoring events, DO saturation at SDLT1 stations was consistently near full saturation (i.e., all concentrations were $\geq 90.3\%$; (Table 4.1; Appendix Figure B.6; Appendix Table B.11). Similarly, DO concentrations measured at water quality and BIC sampling stations in SDLT1 were above the CCME WQG for protection of early life stages of cold-water biota (i.e., 9.5 mg/L; Table 4.1; Appendix Figure B.6; Appendix Tables B.11 and B.12), despite DO concentrations at water quality stations being below the reference normal range in spring and summer (Table 4.1; baseline and reference normal ranges are in Appendix Tables B.4 and B.13, respectively). DO concentrations in 2025 appeared to be similar to baseline, based on visual examination of the plots and comparisons to the baseline normal range for fall (Appendix Table B.11; Appendix Figure B.7).

In 2025, mean field pH and turbidity values measured by Baffinland environment department personnel were generally within corresponding seasonal reference area normal ranges; only the mean value reported for spring was outside the reference normal range (Table 4.1; baseline normal ranges could not be calculated for field pH and turbidity, due to insufficient baseline data). pH values measured at water quality and BIC monitoring stations throughout 2025 were consistently within CCME WQG (i.e., within 6.5 to 9; Table 4.1; Appendix Table B.12).

Mean SPC measured at SDLT1 water quality monitoring stations in spring, summer, and fall 2025 were consistently above the upper limit of the seasonal reference normal range, and above the baseline normal range in fall (Table 4.1). Consistent with temporal patterns observed in 2024, mean SPC within SDLT1 was lowest in the spring, followed by higher values in the summer and fall (Table 4.1; Appendix Figure B.7; Minnow 2025). This pattern likely reflects seasonal hydrology associated with the spring freshet, whereby dilute snowmelt reduces ion concentrations in spring, whereas increasing groundwater influence later in the season results in higher dissolved ion concentrations (Allan et al., 2021).

The 2024 CREMP report (Minnow 2025a) indicated that SPC was consistently higher at SDLT1 relative to reference creeks in spring, summer, and fall, and significantly higher (i.e., 400%)



Table 4.1: Mean Water Chemistry at Sheardown Lake Tributaries (SDLT1) and 12 (SDLT12) Monitoring Stations in Spring, Summer, and Fall, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Creeks (n=4)			Sheardown Lake Tributary 1 (n = 2)			Sheardown Lake Tributary 12
				Spring	Summer	Fall	Spring	Summer	Fall	Spring
Conventional	Conductivity (lab)	µS/cm	-	40.4	97.0	134	234	550	<u>571</u>	-
	Specific Conductance (field)	µS/cm	-	34.5	100	135	179	586	<u>596</u>	145
	pH (lab)	pH	-	6.90	7.78	7.79	7.59	7.98	7.97	-
	pH (field)	pH	6.5 - 9.0	7.50	7.85	7.76	7.81	7.98	7.98	8.10
	Temperature, Field	mg/L	-	4.46	8.70	1.90	8.63	13.4	3.27	4.17
	Hardness (as CaCO ₃) -Total	mg/L	-	18.7	50.4	68	113	249	<u>288</u>	-
	Total Suspended Solids (TSS)	mg/L	-	1.82	<1	1.82	<1	1.30	<1.1	-
	Total Dissolved Solids (TDS)	mg/L	-	29.8	55.0	64.0	127	348	356	-
	Dissolved Oxygen	mg/L	> 9.5	12.3	10.9	13.2	10.9	10.0	12.6	12.6
	Dissolved Oxygen	%	-	95.2	93.2	95	93.0	95.9	94.2	96.5
	Turbidity (lab)	NTU	-	<u>2.73</u>	<u>8.69</u>	<u>5.68</u>	1.08	0.685	<u>1.56</u>	-
	Turbidity (field)	NTU	-	2.35	8.02	4.14	3.54	0.305	0.577	10.0
	Alkalinity (as CaCO ₃)	mg/L	-	19.8	46.3	59.6	65.5	82.8	100	-
Nutrients and Organics	Total Ammonia ^c	mg/L	0.197 - 3.98	0.00532	0.00580	0.00785	0.00720	0.00665	0.00520	-
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	0.0215	1.49	8.12	6.94	-
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.0750	0.106	0.0842	0.206	0.396	<u>0.272</u>	-
	Dissolved Organic Carbon	mg/L	-	1.41	1.74	1.71	1.60	2.66	2.17	-
	Total Organic Carbon	mg/L	-	1.64	2.32	2.13	2.14	3.02	3.36	-
	Total Phosphorus	mg/L	-	0.00365	0.00632	0.00518	0.00235	0.00255	<0.002	-
	Phenols	mg/L	0.00400	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	<0.1	<0.1	0.120	0.180	-
	Chloride (Cl) ^c	mg/L	120	0.668	1.12	3.18	4.39	16.3	16.8	-
	Sulphate (SO ₄) ^c	mg/L	128 - 429	0.568	1.59	3.91	35.4	134	131	-
Total Metals	Aluminum (Al) ^c	mg/L	0.350	0.0740	0.313	<u>0.117</u>	0.0278	0.0162	<u>0.0273</u>	-
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	0.000122	0.000110	<0.0001	<0.0001	<0.0001	-
	Barium (Ba)	mg/L	1.00	0.00276	0.00760	0.00826	0.00996	0.0228	<u>0.0230</u>	-
	Beryllium (Be)	mg/L	0.000130	<0.00002	0.0000272	0.0000202	<0.00002	<0.00002	<0.00002	-
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	0.0160	0.0210	<u>0.0195</u>	-
	Cadmium (Cd) ^c	mg/L	0.0000400 - 0.000371	<0.000005	0.00000502	<0.000005	0.0000153	0.0000822	0.0000255	-
	Calcium (Ca)	mg/L	-	3.83	9.80	13.7	19.9	40.9	45.9	-
	Cesium (Cs)	mg/L	-	0.0000175	0.0000495	0.0000260	0.0000100	0.0000175	0.0000130	-
	Chromium (Cr)	mg/L	0.00500	0.000540	<u>0.000902</u>	0.000620	0.000520	<0.0005	<u><0.0005</u>	-
	Cobalt (Co) ^c	mg/L	0.000778 - 0.00158	0.000102	0.000165	0.000125	0.000140	0.000695	0.000560	-
	Copper (Cu)	mg/L	0.00200 - 0.00400	0.000662	0.00133	0.00101	0.00147	0.00199	0.00164	-
	Iron (Fe) ^c	mg/L	0.543	0.0825	<u>0.304</u>	0.145	0.0580	0.0575	0.0575	-
	Lead (Pb)	mg/L	0.00100 - 0.00700	0.000100	0.000261	0.000167	0.0000585	<0.00005	0.000148	-
	Lithium (Li)	mg/L	-	<0.001	0.00100	<0.001	0.00400	0.00725	<u>0.00595</u>	-
	Magnesium (Mg)	mg/L	-	2.22	6.29	8.18	15.3	35.8	42.0	-
	Manganese (Mn)	mg/L	0.768 - 1.87	0.00114	0.00326	0.00198	0.00407	0.0190	<u>0.00458</u>	-
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	-
	Molybdenum (Mo)	mg/L	7.60	0.000150	0.000345	0.000408	0.00662	0.00604	<u>0.00522</u>	-
	Nickel (Ni) ^c	mg/L	0.0250 - 0.150	0.000505	0.000770	0.000922	0.000670	0.00123	0.000935	-
	Potassium (K)	mg/L	-	0.358	0.807	0.870	4.34	6.24	6.17	-
	Rubidium (Rb)	mg/L	-	0.000910	0.00268	0.00195	0.00580	0.00920	0.00840	-
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	<0.00005	0.000184	0.000431	0.000478	-
	Silicon (Si)	mg/L	-	0.605	<u>1.34</u>	1.10	1.30	1.64	1.78	-
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-
	Sodium (Na)	mg/L	-	0.491	1.45	2.22	2.24	6.59	7.23	-
	Strontium (Sr)	mg/L	-	0.00341	0.00961	0.0138	0.0439	0.0940	<u>0.0940</u>	-
	Sulphur (S)	mg/L	-	<0.5	0.625	1.42	12.2	46.4	50.1	-
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	0.0000128	0.0000105	0.0000130	0.0000250	0.0000125	-
	Thorium (Th)	mg/L	-	0.000145	0.000458	0.000268	<0.0001	<0.0001	<0.0001	-
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Titanium (Ti)	mg/L	-	0.00412	0.0149	0.00758	0.000920	<0.0006	0.00120	-
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Uranium (U)	mg/L	-	0.000268	0.00161	0.00372	0.00462	0.0104	0.0173	-
	Vanadium (V) ^c	mg/L	-	<0.0005	0.000850	0.000612	<0.0005	<0.0005	<0.0005	-
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-
	Zirconium (Zr)	mg/L	-	0.000230	0.000488	0.000332	<0.0002	<0.0002	<0.0002	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 4.1: Mean Water Chemistry at Sheardown Lake Tributaries (SDLT1) and 12 (SDLT12) Monitoring Stations in Spring, Summer, and Fall, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Creeks (n=4)			Sheardown Lake Tributary 1 (n = 2)			Sheardown Lake Tributary 12
				Spring	Summer	Fall	Spring	Summer	Fall	Spring
Dissolved Metals	Aluminum (Al)	mg/L	-	<u>0.0192</u>	<u>0.0478</u>	<u>0.0219</u>	0.00650	0.00825	<u>0.00415</u>	-
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Barium (Ba)	mg/L	-	0.00241	0.00631	0.00782	0.0100	0.0244	<u>0.0230</u>	-
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	-
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	0.0145	0.0200	0.0180	-
	Cadmium (Cd)	mg/L	0.0000329 - 0.000457	<0.000005	<0.000005	<0.000005	0.0000135	0.0000874	0.0000233	-
	Calcium (Ca)	mg/L	-	3.86	9.68	13.6	18.5	46.6	<u>45.5</u>	-
	Cesium (Cs)	mg/L	-	0.0000102	0.0000140	0.0000132	<0.00001	0.0000170	0.0000110	-
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-
	Cobalt (Co)	mg/L	0.000389 - 0.000789	<0.0001	<0.0001	<0.0001	0.000130	0.000675	0.000530	-
	Copper (Cu) ^c	mg/L	0.000200 - 0.00523	0.000485	0.000908	0.000782	0.00140	0.00199	0.00150	-
	Iron (Fe) ^c	mg/L	-	0.0150	0.0335	0.0152	0.0240	0.0240	0.0175	-
	Lead (Pb) ^c	mg/L	0.00294 - 0.00873	<0.00005	0.0000610	<0.00005	<0.00005	0.0000510	<0.00005	-
	Lithium (Li)	mg/L	-	<0.001	<0.001	<0.001	0.00355	0.00760	0.00580	-
	Magnesium (Mg)	mg/L	-	2.46	5.59	7.48	15.0	37.5	<u>40.3</u>	-
	Manganese (Mn) ^c	mg/L	0.200 - 0.430	0.000288	0.000545	0.000422	0.00330	0.0188	<u>0.00370</u>	-
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	-
	Molybdenum (Mo)	mg/L	-	0.000142	0.000382	0.000428	0.00668	0.00563	<u>0.00510</u>	-
	Nickel (Ni)	mg/L	0.000600 - 0.00470	<0.0005	0.000528	0.000512	0.000575	0.00142	0.000850	-
	Potassium (K)	mg/L	-	0.356	0.706	0.815	4.50	6.46	<u>6.10</u>	-
	Rubidium (Rb)	mg/L	-	0.000685	0.00173	0.00163	0.00590	0.00964	0.00826	-
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	0.000215	0.000530	0.000504	-
	Silicon (Si)	mg/L	-	0.509	0.934	0.913	1.24	1.59	1.68	-
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-
	Sodium (Na)	mg/L	-	0.512	1.32	2.00	2.25	6.62	<u>6.93</u>	-
	Strontium (Sr) ^c	mg/L	2.50	0.00342	0.00880	0.0139	0.0440	0.0961	<u>0.0941</u>	-
	Sulphur (S)	mg/L	-	<0.5	0.678	1.31	12.2	46.7	48.8	-
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	0.0000115	0.0000255	0.0000115	-
	Thorium (Th)	mg/L	-	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001	-
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Titanium (Ti)	mg/L	-	0.000650	0.00180	0.000752	<0.0003	<0.0003	<0.0003	-
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Uranium (U)	mg/L	-	0.000228	0.00154	0.00386	0.00444	0.0106	0.0170	-
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-
	Zinc (Zn) ^c	mg/L	-	<0.001	<0.001	<0.001	<0.001	0.00255	0.00150	-
	Zirconium (Zr)	mg/L	-	<0.0003	0.000312	<0.0003	<0.0003	<0.0003	<0.0003	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLDIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underlineIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

at SDLT1 compared to the unnamed reference creek during the August 2024 BIC sampling. It was concluded that these results were suggestive of a potential mine influence, thereby triggering temporal trend analyses as an action level response (Minnow 2025; Baffinland 2015). Results of the temporal trend analyses indicated an overall increase in SPC at both SDLT1 water quality monitoring stations (D1-05 and D1-00) over the period of record from baseline to 2025, regardless of season (Appendix Table G.5). Similar patterns of increasing trends in SPC over time were observed when the data for the mine operation period (i.e., 2015 to 2025) were examined independently from the baseline data (Appendix Table G.6). Therefore, the results of the temporal trend analyses suggest a mine-related influence on increasing SPC in SDLT1 over time. Additionally, SPC being above the reference normal ranges throughout 2025 and being higher relative to baseline in fall 2025 triggers a Low Risk Response under the TARP (Baffinland 2024).

4.1.1.2 Water Chemistry

At the SDLT1 water quality monitoring stations (D1-05 and D1-00), mean concentrations of water quality parameters were generally below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025 (Table 4.1; Appendix Figure B.7; Appendix Table B.11). Exceptions included dissolved copper in spring, nitrate in summer and fall, and total uranium in fall (Table 4.1; Appendix Table B.11). Dissolved copper and total uranium concentrations were also consistently above reference area normal ranges in spring, summer, and fall, whereas nitrate concentrations were only above the reference area normal range in fall (Table 4.1). Spring and summer baseline normal ranges could not be calculated for SDLT1 due to insufficient sample sizes; however, baseline normal ranges were calculated for fall (Appendix Table B.13). Evaluation of the fall water chemistry data relative to baseline normal ranges and visual examination of the plotted data (Appendix Figure B.7) suggest that dissolved copper concentrations in 2025 were comparable to, if not lower than, baseline. Therefore, a Low, rather than Moderate, Risk Response was triggered for dissolved copper, based on exceedance of the AEMP benchmark (Baffinland 2024). In absence of spring and summer baseline normal ranges for nitrate and total uranium, results of temporal comparisons (see below) were used to guide the effects assessment and suggested that concentrations of nitrate and uranium were higher relative to AEMP benchmarks, reference normal ranges, and baseline during at least one season in 2025, thereby triggering Moderate Risk Responses for these parameters (Baffinland 2024).

Aqueous concentrations of nitrate and total uranium, as well as chloride, sulphate, TDS, TKN, total and dissolved concentrations of barium, calcium, cadmium, cobalt, lithium, magnesium, manganese, molybdenum, potassium, selenium, sodium, and strontium; and dissolved concentrations of uranium, at SDLT1 were assessed for temporal trends in 2025, as part of a



special investigation triggered under the TARP in 2024 (Table 2.4; Minnow 2025). From baseline (2005 or 2008, depending on station) to 2025, nitrate, sulphate, total concentrations of molybdenum, uranium, barium, magnesium, potassium, strontium, and lithium, and dissolved concentrations of molybdenum, uranium, magnesium, potassium, strontium, and lithium increased significantly during all seasons (spring, summer, and fall) and at both stations (D1-05 and D1-00; Appendix Table G.5). Few similarities in temporal trends over time for these parameters were identified among the mine-exposed and reference areas; however, total and dissolved molybdenum concentrations showed an overall increase in concentrations over time at three of the four reference creeks (Appendix Table G.5). Additionally, increasing trends in summertime aqueous concentrations of total and dissolved calcium, magnesium, and strontium were relatively common (i.e., in at least two of the four areas) at the reference creeks (Appendix Table G.5). Of the remaining parameters, most exhibited increasing trends in concentrations over time during at least one season at each station, based on data collected between baseline and 2025. Exceptions were total cadmium and dissolved selenium (overall trend, but no seasonal trends) and total selenium (all <LRL; Appendix Table G.5). Finally, none of the parameter concentrations at mine-exposed or reference areas exhibited decreasing temporal trends over the period from baseline to 2025 (Appendix Table G.5).

Temporal trend analyses completed for chloride, nitrate, sulphate, TDS, TKN, and total and dissolved concentrations of barium, calcium, cadmium, cobalt, lithium, magnesium, manganese, molybdenum, potassium, selenium, sodium, strontium, and uranium at SDLT1 during the mine operation period only (i.e., 2015 to 2025) produced similar results to the trend analyses that included baseline data (Appendix Tables G.5 and G.6). Specifically, nitrate, total concentrations of molybdenum, potassium, strontium, and lithium, and dissolved concentrations of molybdenum, potassium, strontium, and lithium increased significantly during all seasons (spring, summer, and fall) and at both stations (D1-05 and D1-00; Appendix Table G.6). Aqueous concentrations of sulphate and total and dissolved barium, uranium, and magnesium still showed increasing trends during most seasons at both SDLT1 stations from 2015 to 2025, except for springtime at D1-00 (no significant increasing or decreasing trends; Appendix Table G.6). Similar to the longer-term temporal analyses, the remaining parameters exhibited temporal trends across multiple seasons and both stations, except total and dissolved selenium (<LRL) and total cadmium (overall trend, but no seasonal trend at D1-05 specifically (Appendix Table G.6). Few similarities in temporal trends over time for these parameters were identified among the mine-exposed and reference areas, based on data for the mine operation period, as most parameters did not exhibit consistent increasing trends in concentrations at reference areas (Appendix Table G.6). Based on the temporal trend analyses, it appears there may have been regional shifts in creek water quality early in the mine construction and operation periods



(approximately 2014 to 2025), but that water quality in SDLT1 is showing signs of ongoing mine-influence, based on increasing trends in concentrations of chloride, nitrate, sulphate, TDS, TKN, and total and dissolved barium, calcium, cadmium, cobalt, lithium, magnesium, manganese³⁷, molybdenum, potassium, sodium, strontium, and uranium over time.

Based on comparisons to seasonal reference (spring, summer, and fall) and baseline (fall) normal ranges for SDLT1, as well as the results of the temporal trend analyses and examination of the plotted data, Low Risk Responses were triggered for hardness, TDS, TOC, sulphate, TKN, total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, and strontium, and dissolved concentrations of manganese in 2025 (Table 4.1; Appendix Figure B.7; Baffinland 2024). Although increasing temporal trends suggestive of mine influence were identified for aqueous concentrations of cadmium and cobalt, total and dissolved concentrations were within reference normal ranges and were lower in 2025 relative to 2024 (Table 4.1; Appendix Figure B.7).

Baffinland committed to comparing aqueous total and dissolved concentrations of barium, calcium, cadmium, cobalt, lithium, magnesium, manganese, molybdenum, potassium, selenium, sodium, strontium, and uranium at SDLT1 in 2025 (Table 2.4). The objective of the comparisons was to provide insight into bioavailability of these parameters and determine potential for effects to aquatic biota. Notably, calcium, cobalt, magnesium, manganese, molybdenum, potassium, and selenium are considered essential metals in small amounts and their uptake is typically well-regulated by organisms. Results of the comparisons between total and dissolved concentrations of the listed parameters are summarized for each parameter, below.

Barium: Mean aqueous total barium concentrations were below WQG in 2025; however, total and dissolved concentrations were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall; increasing trends in concentrations over time were also identified (Table 4.1; Appendix Tables G.5 and G.6). Over the period of record at SDLT1, paired concentrations of total and dissolved barium followed similar patterns (i.e., RPDs between paired total and dissolved values were <16%; Appendix Figure G.3). Overall, dissolved barium represents a large fraction of the total barium in the water column at SDLT1. Barium is most bioavailable in its dissolved form, whereas the bioavailability of precipitates, like barium sulphate (barite) are much lower (e.g., Golding et al. 2018). In polar regions, barite formation in creeks occurs most often when there is abundant sulphate, usually associated with the breakdown of organic matter (Saelens et al. 2018). Although dissolved barium makes up a large proportion of the total aqueous barium concentrations in SDLT1, observed concentrations are still orders of

³⁷ Increasing trends for manganese appear to be driven primarily by the results for 2023 and 2024; see Appendix Figure G.3).



magnitude lower than those documented as causing toxicity to freshwater organisms in laboratory studies (WHO 1990). For example, Golding et al. (2018) predicted a chronic EC₁₀ of 1.7 mg/L for immobilization of *Ceriodaphnia dubia* (water flea) and Willems et al. (2025) reported an EC₁₀ of 8.87 mg/L for reproduction of *C. dubia* exposed to aqueous dissolved barium. Based on the total and dissolved barium concentrations observed in SDLT1, and data from relevant aquatic toxicity studies, the amount of bioavailable barium within SDLT1 is expected to be sufficiently low that toxic effects to aquatic biota are not anticipated (WHO 1990; Golding et al. 2018).

Calcium: Similar to barium, mean total and dissolved calcium concentrations were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall (there are no WQG or AEMP benchmarks for calcium specifically; Table 4.1). The higher seasonal aqueous calcium concentrations in fall are likely attributed to sampling being completed toward the end of the growing season (i.e., after the warmest months in the annual Arctic weather cycle) and deepening of the active layer, which promotes the release of ions, including calcium, from thawing permafrost (e.g., Szumińska et al. 2022). Additionally, the higher total and dissolved calcium concentrations in SDLT1 relative to reference are likely related to there being more ground disturbance within the SDLT1 catchment (i.e., as a result of mine-related activity) relative to the reference areas (Langer et al. 2023; TCC 2026a). Regardless, over the period of record from 2005 to 2025, total and dissolved calcium concentrations followed similar patterns of increase or decrease, and dissolved calcium represented at least 88% of the total calcium fraction (Appendix Figure G.3). Calcium is a key component of water hardness and, in 2025, mean hardness in SDLT1 was considered moderately soft (61 to 120 mg/L as calcium carbonate [CaCO₃]) in spring (113 mg/L CaCO₃) and very hard (>180 mg/L CaCO₃) in summer and fall (249 and 288 mg/L CaCO₃, respectively; Table 4.1; USGS 2018). Harder water with higher calcium concentrations can have a protective effect against metal toxicity (e.g., calcium ions may outcompete metal ions for binding sites or membrane transport, resulting in reduced uptake and toxicity; CCME 2014; Xu et al. 2023). Finally, total calcium concentrations in SDLT1 in 2025 were below levels identified as producing effects to survival and growth of freshwater organisms (e.g., Ketola et al. 1988).

Cadmium: Mean total and dissolved cadmium concentrations reported for SDLT1 in spring, summer, and fall 2025 were consistently below applicable AEMP benchmarks and WQG, respectively; the mean total concentration was also below the baseline normal range in fall



(Table 4.1).³⁸ Additionally, aqueous total and dissolved cadmium concentrations at SDLT1 were below 0.0001 mg/L throughout baseline, mine construction, and most of the mine operation period, except for higher values reported from 2022 to 2025 (Appendix Figure G.3). In instances where paired total and dissolved concentrations were both above LRLs, dissolved cadmium represented at least 60% of the total cadmium and, in some cases, reported dissolved values were higher than their corresponding total values (Appendix Figure G.3). On this basis, evaluating total cadmium concentrations, rather than dissolved, when assessing potential effects to aquatic biota is likely the most conservative and appropriate approach for SDLT1, even in recognition that uptake of cadmium by organisms, like fish, may be reduced as a result of competition with calcium and other ions in water (e.g., Xu et al. 2023).

Cobalt: Similar to cadmium, mean total and dissolved concentrations of cobalt were consistently below applicable AEMP benchmarks and WQG, respectively, in 2025 (Table 4.1). Over the period of record for SDLT1, aqueous total and dissolved cobalt concentrations have generally been below 0.0004 mg/L, except for some higher concentrations in fall 2018, summer 2023, and summer and fall 2024 and 2025 (Appendix Figure G.3). Similar to cadmium, the fraction of total cobalt that was in the form of dissolved cobalt varied widely over the period of record, ranging from approximately 46 to 109% of the corresponding cobalt concentrations.³⁹ Therefore, also similar to cadmium, the most conservative approach to evaluating the potential for biological effects from exposure to cobalt in the water column is expected to be based on consideration of total, rather than dissolved concentrations.

Lithium: Mean total and dissolved lithium concentrations were generally within reference and baseline normal ranges in SDLT1 in 2025, except for aqueous concentrations of total lithium that were above the baseline normal range in the fall (Table 4.1).⁴⁰ Between fall 2021 and spring 2022, there was a notable increase in total and dissolved lithium concentrations at SDLT1 (Appendix Figure G.3). Interestingly, slumping of thawed or thawing permafrost into waterbodies can result in increased concentrations of lithium and other ions in affected waterbodies, along with suppressed phytoplankton productivity (see Section 4.1.2; Houben et al. 2016). Therefore, changing permafrost conditions within the SDLT1 catchment could be contributing to the higher aqueous lithium concentrations observed in the creek after 2021. Regardless, mean total and

³⁸ For total and dissolved cadmium and lithium, only the baseline normal range could be calculated for total concentrations in fall; there were insufficient data to calculate normal or baseline normal ranges for the other seasons/fractions.

³⁹ The reported concentrations for the dissolved fractions being higher than the corresponding total fractions could be attributed to a variety of factors related to sample collection, handling, or instrumentation.

⁴⁰ For total and dissolved cadmium and lithium, only the baseline normal range could be calculated for total concentrations in fall; there were insufficient data to calculate normal or baseline normal ranges for the other seasons/fractions.



dissolved lithium concentrations in SDLT1 over the period of record between baseline and 2025 were consistent with naturally occurring concentrations in freshwater aquatic environments and below concentrations associated with potential toxicity (Emery et al. 1981). Because the dissolved lithium fraction in SDLT1 represented anywhere from 50 to over 100%⁴¹ of the corresponding total concentrations, it is considered more conservative or protective to evaluate potential effects to biota based on total, rather than dissolved, concentrations of lithium in SDLT1.

Magnesium: Similar to barium and calcium, mean total and dissolved magnesium concentrations at SDLT1 were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall (Table 4.1). Results of the temporal trend analyses indicated that concentrations increased over time in SDLT1; based on visual examination of the plotted data, it appears the total and dissolved concentrations are following the same general pattern (Appendix Tables G.5 and G.6; Appendix Figure G.3). Data for paired values reported over the period of record for SDLT1 indicate that dissolved magnesium comprises >84% of the total aqueous magnesium in the creek. Similar to calcium, magnesium is a key component of water hardness and has an ameliorating effect on bioavailability and toxicity of metals (USGS 2018). Toxic effects to organisms in SDLT1 from magnesium are not anticipated.

Manganese: Mean aqueous total and dissolved manganese concentrations at SDLT1 were above seasonal baseline normal ranges in spring and summer, and above the seasonal reference normal ranges in fall, but did not exceed the AEMP benchmark or WQG 2025 (Table 4.1). Interestingly, total and dissolved manganese concentrations at SDLT1 were <0.1 mg/L during baseline (2005, 2008, and 2011 to 2023), construction (2014), and all years of mine operations (after 2015), except in 2024, when concentrations >0.8 mg/L were observed (Appendix Figure G.3). The proportion of dissolved manganese contributing to the total manganese concentrations varied widely, from around 10 to 100%. The bioavailability of manganese depends on a variety of factors, including water hardness and pH; however, ionic manganese (Mn^{2+}) is recognized as the most bioavailable and toxic form to biota (CCME 2019). Under conditions of high dissolved oxygen, manganese ions may be removed from the water column via formation and precipitation of MnO_2 , and calcium and magnesium ions can compete with manganese for binding sites and uptake, thereby providing a protective effect against manganese toxicity (CCME 2019). Notably, mean total manganese concentrations in SDLT1 in 2025 were below the BC WQG (which is calculated based on water hardness) and mean dissolved manganese concentrations were below the AEMP benchmark (which is adopted from the CCME and is calculated based on water hardness and pH; Tables 2.3 and 4.1).

⁴¹ The reported concentrations for the dissolved fractions being higher than the corresponding total fractions could be attributed to a variety of factors related to sample collection, handling, or instrumentation.



Molybdenum: Similar to barium, calcium, and magnesium, mean total and dissolved molybdenum concentrations at SDLT1 were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall (Table 4.1). From baseline to 2025, the dissolved molybdenum fraction represented at least 69% of the total aqueous molybdenum concentrations reported for SDLT1.⁴² Because waters from SDLT1 have pH values >7, it is expected that the predominant form of molybdenum in the water column is molybdate (MoO_4^{2-}), which is the most bioavailable form of molybdenum (CCME 1999). However, multiple toxicity studies have demonstrated that aquatic organisms, including macrophytes, algae, invertebrates, and fish are tolerant of high molybdenum concentrations well beyond those reported for SDLT1 (BC MOE 2021), and mean concentrations were consistently (by two orders of magnitude) below the AEMP benchmark for total molybdenum over the period of record (Table 4.1; Appendix Figure G.3).

Potassium: Similar to barium, calcium, magnesium, and molybdenum, mean total and dissolved potassium concentrations at SDLT1 were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall; results of the temporal trend analyses also indicated concentrations are increasing over time (Table 4.1). Additionally, similar to the patterns for barium, cadmium, calcium, cobalt, and lithium, there appears to be an uptick in aqueous total and dissolved concentrations starting in 2022 (Appendix Figure G.3). Regardless, over the period of record at SDLT1, dissolved potassium has comprised at least 73% of the total potassium measured in paired samples (Appendix Figure G.3). Dissolved potassium is readily bioavailable; however, numerous acute and chronic toxicity studies of potassium-containing salts suggest that concentrations in SDLT1 are far below what would be required to result in adverse effects (e.g., lethality, reduced growth) to freshwater biota (e.g., as summarized in Health Canada 2022).

Selenium: Mean aqueous selenium concentrations reported for the spring, summer, and fall water quality monitoring events at SDLT1 were consistently below the AEMP benchmark for total selenium in 2025 (Table 4.1). Until 2022, aqueous total and dissolved concentrations reported for SDLT1 were frequently <LRLs, and LRLs shifted depending on year and sampling event (Appendix Figure G.3). In instances when the paired total and dissolved concentrations were both >LRL, dissolved selenium comprised at least 89% of the total selenium. However, understanding potential selenium-related risks to biota requires additional information beyond total and dissolved aqueous concentrations (BC MOE 2014; Janz et al. 2010). This is because organoselenium compounds are more bioavailable than selenate (the predominant form of

⁴² The total and dissolved molybdenum results for 2013 are considered suspicious, as dissolved concentrations were an order of magnitude higher than total concentrations. The 2013 data are included on Appendix Figure G.3, but were not included in the discussion of total and dissolved manganese concentrations, above.



selenium in freshwater) and dietary selenium is the main exposure route (rather than water; de Bruyn et al. 2022; Besser et al. 1993).

Sodium: Similar to barium, calcium, magnesium, molybdenum, and potassium, mean total and dissolved sodium concentrations at SDLT1 were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall (Table 4.1). From baseline to 2025, the dissolved sodium fraction in water samples from SDLT1 represented at least 66% of the paired total sodium concentrations and followed the same temporal patterns (Appendix Figure G.3). Similar to calcium and magnesium (above), sodium can compete with metals like copper for uptake by freshwater aquatic organisms, thereby reducing the potential for metal-induced toxicity (e.g., Giacomini et al. 2013). However, high concentrations, beyond those observed in SDLT1, can override self-regulation mechanisms and lead to toxicity (e.g., Vanâncio et al. 2023).

Strontium: Similar to barium, calcium, magnesium, molybdenum, potassium, and sodium, mean total and dissolved strontium concentrations at SDLT1 were above reference normal ranges in spring, summer, and fall, as well as the baseline normal range in fall (Table 4.1). Over the period of record, the dissolved fraction represented at least 71% of the total aqueous strontium fraction in SDLT1 and concentrations of both fractions underwent a notable increase from 2022 to 2024 (Appendix Figure G.3). However, the AEMP benchmark for strontium was more than 20 times higher than the observed concentrations in SDLT1, indicating that the strontium concentrations in the creek are well below those required to elicit toxic effects. Additionally, the higher aqueous concentrations of calcium in the creek are expected to have a protective effect against strontium uptake, via competition at binding sites (e.g., Klaczek et al. 2022).

Uranium: As noted above, mean aqueous total uranium concentrations at SDLT1 in 2025 were above reference area normal ranges throughout spring, summer, and fall 2025, and above the baseline normal range and AEMP benchmark in fall, thereby triggering a Moderate Risk Response (Baffinland 2024). As noted in Section 3.1.1.3.1, the free uranyl ion (UO_2^{2+}) and uranyl hydroxide ($\text{UO}_2(\text{OH})_2$) are the main bioavailable forms of uranium in freshwater systems; however, uranium speciation is often driven by a variety of site-specific factors, including pH, DOC, temperature, hardness, and alkalinity (CCME 2011; Markich 2002). Modelling uranium speciation and bioavailability is a complicated process, as it must account for interactions between uranium and the parameters listed above, as well as suspended particulates, humic materials, and other substances that may complex with uranium (Markich 2002). The simplest and most conservative approach to evaluating potential risks to aquatic biota is to therefore focus on total uranium concentrations, consistent with the approach taken by the CCME in developing the Canadian WQG for protection of freshwater aquatic life (CCME 2011; Markich 2002), and by Baffinland in adopting the CCME WQG as the AEMP benchmark. As noted in the 2024 CREMP



report, increasing uranium concentrations in surface water environments around the Mary River Mine are likely attributed to changing permafrost conditions resulting from both climate change and mine-related disturbance (Minnow 2025; see also Section 3.1.1.3.1).

As discussed in the 2024 CREMP report (Minnow 2025), the main potential mine-related influence upstream from the water quality monitoring stations on SDLT1 is likely the KM 105 Surface Water Management Pond (the KM 105 Pond; constructed in 2021 and 2022; Figure 2.2). The KM 105 Pond was designed and constructed to enhance water management at the mine site, including by addressing sedimentation issues resulting from Deposit 1 through settling of TSS. However, the KM 105 has not performed as expected and has experienced persistent seepage and water quality challenges since its commissioning in 2022 (Baffinland 2025). Despite multiple remediation efforts targeted at structural reinforcements (e.g., cut-off trench, bentonite plugs, and a grout curtain) seepage has continued from multiple locations within the KM 105 Pond's dam structure through 2024 (Baffinland 2025). Efforts to reduce seepage and improve downstream water quality have included chemical treatments, filtration systems, and the installation of silt curtains, sediment curtains, and check dams. Engineering assessments on the KM 105 Pond dam determined that previous remediation strategies, including the grout curtain, were ineffective due to the unforeseen permeability of the substrate (Baffinland 2025).

Water quality in the receiving environment downstream of seepage and treated effluent released from the KM 105 Pond have been monitored and reported relative to criteria as per the Project's Type 'A' Water License and the MDMER (Baffinland 2026). These water quality results have consistently met water license limits and applicable WQG, despite downstream water quality at SDLT1 reflecting mine-related influences based on the CREMP data assessment approach (see Section 2.2.3) and AEMP Data Assessment and Response Framework (see Section 2.7).

To address the ongoing challenges of managing water from the KM 105 Pond, and in turn mitigate mine-related influences in the receiving environment at SDLT1, efforts in 2025 shifted toward enhanced sediment control measures, incorporating chemical treatment, filtration, and improved settling structures. Additionally, a filter berm was installed upstream from the Type 'A' Water License Surveillance Network Program monitoring location Station MS-C-D to further mitigate for mine-related contributions of TSS to SDLT1.

4.1.2 Phytoplankton

In 2025, mean chlorophyll-a concentrations at the upper SDLT1 station (D1-05) were similar to those measured near the creek mouth (D1-00) during the spring, summer, and fall sampling events (Figure 4.1; Appendix Table D.1). Chlorophyll-a concentrations at SDLT1 were within the reference area normal ranges derived for the same seasons and remained consistently below the AEMP benchmark of 3.7 µg/L across all 2025 sampling events (Figure 4.1; Appendix



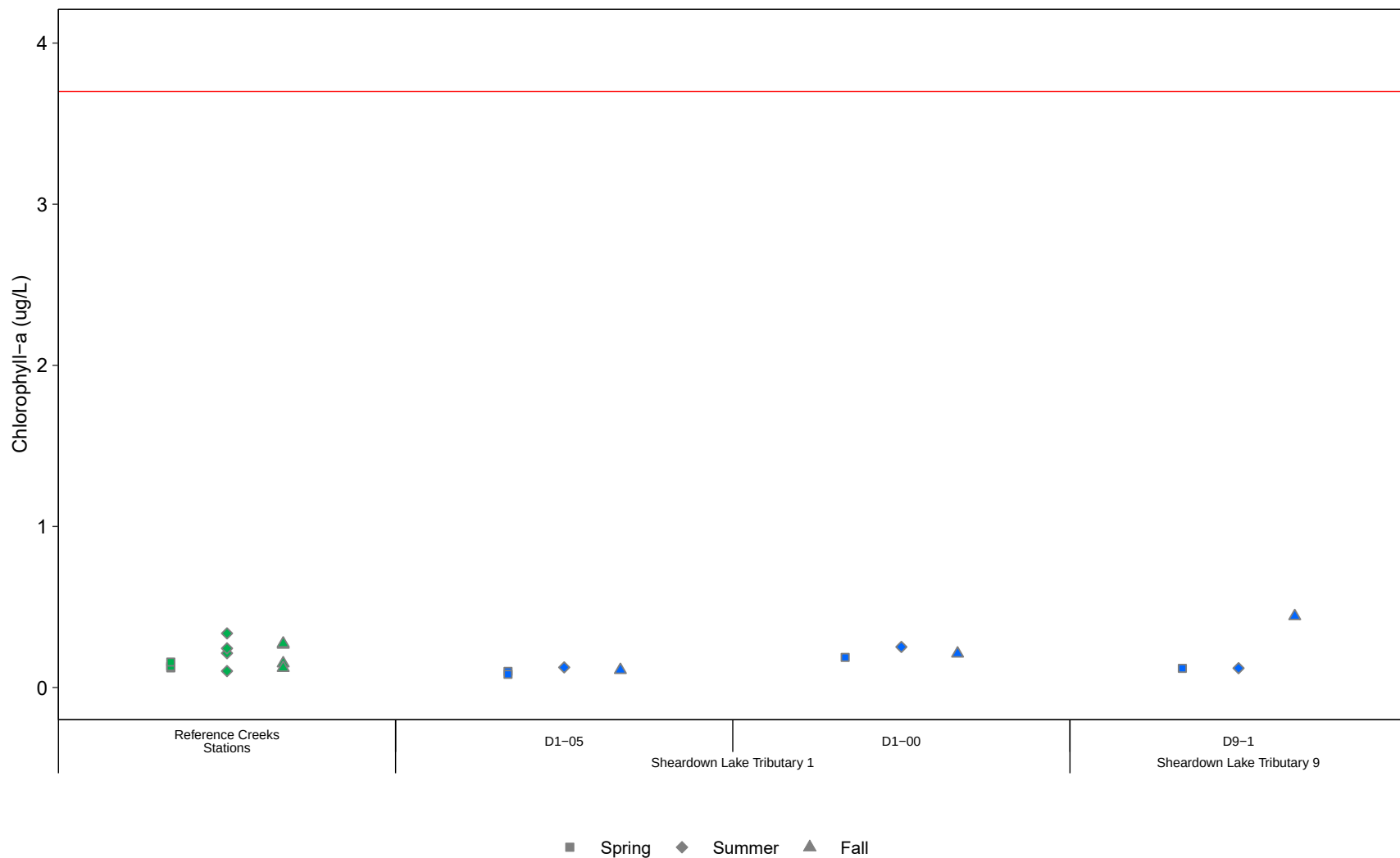


Figure 4.1: Chlorophyll-a Concentrations at Phytoplankton Monitoring Stations in Sheardown Lake Tributaries (SDLT1 and SDLT9), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations reported below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark.

Reference Creek Stations includes data from stations CLT-REF4, CLT-REF3, MRY-REF3, and MRY-REF2. Reference areas are shown in green and mine-exposed areas are shown in blue.

Table D.1). These low concentrations indicate limited phytoplankton productivity and are characteristic of oligotrophic conditions, based on chlorophyll-a thresholds from the literature (i.e., Dodds et al. 1998) and aqueous total phosphorus concentrations ($<10 \mu\text{g/L}$; CCME 2004; Table 4.1; Appendix Table B.11).

When visually comparing seasonal chlorophyll-a concentrations across years, concentrations at SDLT1 in 2025 were low relative to those observed during the 2005 to 2013 baseline period (Figure 4.2). However, the baseline period had relatively high LRLs compared to more recent years, and this may influence the observed patterns in the data (Figure 4.2). Regardless, chlorophyll-a concentrations in 2025 were among the lowest recorded during the mine operational period (i.e., 2015 to 2025; Figure 4.2). Chlorophyll-a concentrations in reference creeks were also low in 2025, suggesting patterns in phytoplankton productivity within SDLT1 likely reflect natural interannual variability, rather than mine-related influence. It is also possible the observed results are a product of changing permafrost conditions, including slumping, which can lead to suppression of phytoplankton productivity through changes in water (nutrient) chemistry and cycling in affected waterbodies (Houben 2016). However, across all operational years (2015 to 2025), chlorophyll-a concentrations at SDLT1 have consistently remained well below the AEMP benchmark of $3.7 \mu\text{g/L}$, indicating persistently low phytoplankton productivity.

Overall, patterns in aqueous chlorophyll-a concentrations at SDLT1 indicate persistently low phytoplankton productivity and oligotrophic conditions. Concentrations at both the upstream and downstream stations were not higher relative to reference in 2025 and remained well below the AEMP benchmark across all mine operational years and seasons. Taken together, these results indicate no evidence of mine-related effects on phytoplankton productivity at SDLT1 in 2025, and no action level responses were triggered under the TARP (Baffinland 2024).

4.1.3 Benthic Invertebrate Community

In 2025, most BIC endpoints at SDLT1 were comparable to those observed at Reference Creek (Station REF-CRK), except the relative proportions of *Nematoda*, *Ostracoda*, *Oligochaeta*, *Simuliidae*, collector-gatherers, filterers, and burrowers (Table 4.2; Appendix Figure E.7; Appendix Tables E.3, E.21, and E.22).⁴³ None of these differences were considered ecologically meaningful (i.e., all MODs were within the CES_{BIC} of $\pm 2 \text{SD}_{\text{REF}}$; Table 4.2; Appendix Figure E.7). However, despite the absence of ecologically meaningful endpoint-level differences, Bray–Curtis similarity analysis results were indicative of relatively large (i.e., $R^2 = 0.74$ and adjusted $R^2 = 0.57$ for the Mantel Test and dbRDA, respectively) difference in overall community structure between

⁴³ MODs could not be calculated for relative proportions of nematodes or oligochaetes because $\text{SD}_{\text{REF}} = 0$ (Table 4.2).



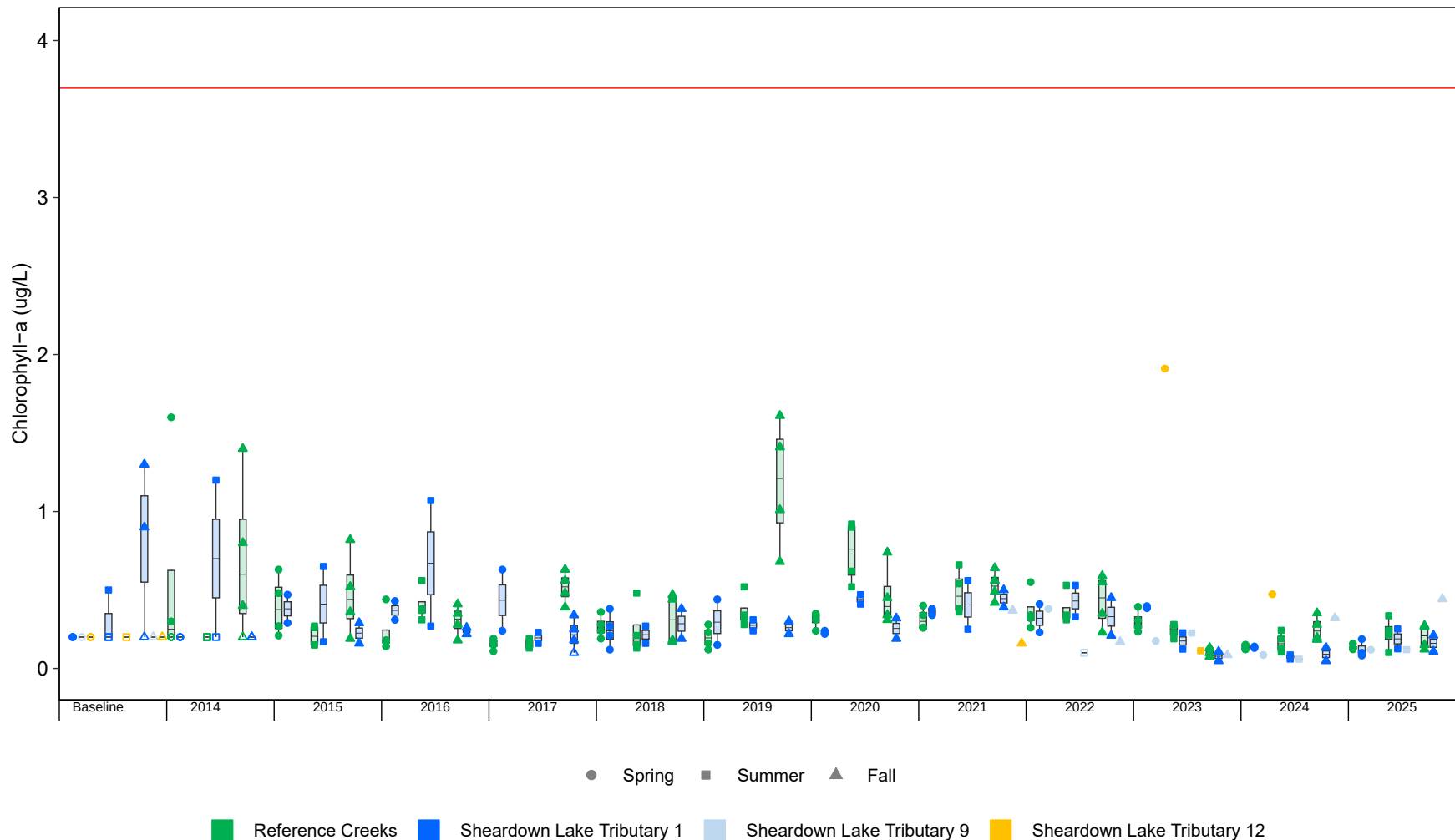


Figure 4.2: Temporal Comparison of Chlorophyll-a Concentrations at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project CREMP

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Program (AEMP) benchmark. Sheardown Lake Tributary 12 (SDLT12/D12-1) and Sheardown Lake Tributary 9 (SDLT9/D9-1) stations were added to the CREMP in fall 2021. Reference Creeks includes stations CLT-REF4, CLT-REF3, MRY-REF3, and MRY-REF2. Sheardown Lake Tributary 1 includes stations D1-05 and D1-00. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Table 4.2: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Sheardown Lake Tributaries (SDLT) and Unnamed Reference Creek (REF-CRK) Study Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Area Comparison			Area	MCT	Pair-wise, Post-hoc Comparisons	
	Statistical Test ^a	Data Transformation	Area P-value			Post-hoc P-value	MOD ^b
Density (org/m ²)	ANOVA	log ₁₀	0.005	REF-CRK	203	nc	nc
				SDLT1	1,084	0.513	ns
				SDLT12	495	0.513	ns
				SDLT9	1,863	0.005	3.9
Richness (No. of Taxa)	ANOVA	none	0.007	REF-CRK	14	nc	nc
				SDLT1	11	0.771	ns
				SDLT12	13	0.771	ns
				SDLT9	17	0.294	ns
Simpson's Evenness (Krebs)	ANOVA	none	0.001	REF-CRK	0.91	nc	nc
				SDLT1	0.76	0.992	ns
				SDLT12	0.92	0.992	ns
				SDLT9	0.85	0.349	ns
% Nematoda	K-W	rank	0.017	REF-CRK	0	nc	nc
				SDLT1	0.91	0.002	nm
				SDLT12	14	0.002	nm
				SDLT9	0.45	0.258	ns
% Hydracarina	ANOVA	log ₁₀ (x+1)	0.032	REF-CRK	4.3	nc	nc
				SDLT1	0.31	0.111	ns
				SDLT12	0	0.111	ns
				SDLT9	3.7	0.982	ns
% Ostracoda	K-W	rank	0.006	REF-CRK	10	nc	nc
				SDLT1	0	0.023	-0.89
				SDLT12	0	0.023	-0.89
				SDLT9	4.1	0.507	ns
% Oligochaeta	K-W	rank	0.010	REF-CRK	0	nc	nc
				SDLT1	1.8	0.001	nm
				SDLT12	15	0.001	nm
				SDLT9	0.31	0.255	ns
% Chironomidae	ANOVA	none	0.003	REF-CRK	56	nc	nc
				SDLT1	92	0.738	ns
				SDLT12	66	0.738	ns
				SDLT9	82	0.033	1.5
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	<0.001	REF-CRK	7.3	nc	nc
				SDLT1	29	0.933	ns
				SDLT12	4.2	0.933	ns
				SDLT9	3.6	0.833	ns
% Simuliidae	K-W	rank	0.005	REF-CRK	11	nc	nc
				SDLT1	1.5	<0.001	-1.6
				SDLT12	0	<0.001	-1.8
				SDLT9	0.63	0.014	-1.7
% Tipulidae	ANOVA	log ₁₀ (x+1)	0.138	REF-CRK	3.4	ns	ns
				SDLT1	1.7	ns	ns
				SDLT12	0.68	ns	ns
				SDLT9	3.1	ns	ns
% Collector Gatherers	ANOVA	log ₁₀	0.002	REF-CRK	64	nc	nc
				SDLT1	50	0.048	-1.4
				SDLT12	89	0.048	2.0
				SDLT9	61	0.984	ns
% Filterers	ANOVA	log ₁₀ (x+1)	<0.001	REF-CRK	13	nc	nc
				SDLT1	2.2	0.006	-1.7
				SDLT12	1.8	0.006	-1.8
				SDLT9	0.86	<0.001	-1.9
% Shredders	ANOVA	none	<0.001	REF-CRK	5.2	nc	nc
				SDLT1	46	0.802	ns
				SDLT12	9.2	0.802	ns
				SDLT9	34	<0.001	11
% Clingers	ANOVA	none	<0.001	REF-CRK	18	nc	nc
				SDLT1	47	0.530	ns
				SDLT12	10	0.530	ns
				SDLT9	34	0.020	2.3
% Sprawlers	ANOVA	none	0.050	REF-CRK	72	nc	nc
				SDLT1	48	0.423	ns
				SDLT12	56	0.423	ns
				SDLT9	51	0.108	ns
% Burrowers	K-W	rank	0.006	REF-CRK	10	nc	nc
				SDLT1	5.6	0.044	-1.8
				SDLT12	32	0.044	8.6
				SDLT9	11	0.374	ns

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a significant difference (p-value <0.1) outside the CES of ±2 SD_{REF} (i.e., a difference from reference that is considered ecologically meaningful).

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = number of organisms per square metre. ANOVA = Analysis of Variance. < = less than. ns = not significant. No. = number. nc = not calculated. % = percent. nm = MOD could not be calculated due to SD = 0. SD = standard deviation. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

^a Statistical tests include ANOVA followed by Dunnett post hoc tests, or Kruskal-Wallis H-test (K-W) followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{Exp} - MCT_{Ref})/SD_{Ref} where the MCT is reported as geometric means for log₁₀-transformed data, medians for rank-transformed data, and means for untransformed

SDLT1 and the reference area (Appendix Table E.23). These subtle compositional differences are likely attributable to natural variation in habitat conditions between areas, particularly the presence of bryophytes and algae at SDLT1 but not REF-CRK (Appendix Table E.24). As noted in Section 3.1.3.1, bryophytes and algal mats can create structurally complex microhabitats that favour certain taxa (e.g., chironomids) or FFG/HPG (e.g., collector-gatherers, filterers, and burrowers) by providing additional surfaces for periphyton growth, increased organic matter retention, and localized flow refugia (Habdija et al. 2004; Suren 1992; Averett et al. 2025). Therefore, the minor shifts in taxonomic and FFG/HPG composition at SDLT1 likely reflect habitat mediated differences rather than productivity-driven changes, especially given that chlorophyll-a concentrations at SDLT1 were within seasonal reference area normal ranges in 2025 (see Section 4.1.2). No action level responses were triggered for the 2025 spatial comparison between SDLT1 and the Reference Creek (Baffinland 2024).

Most BIC endpoints at SDLT1 differed significantly from at least one baseline year (2008 or 2013) during the mine operations period (2015 to 2025), except richness and relative proportions of metal-sensitive *Chironomidae* (Appendix Table E.25; Appendix Figure E.8). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$) were observed across multiple years for density (higher in 2016, 2017, 2019 relative to 2008 only), Simpson's Evenness (lower in 2022 and 2024 relative to both baseline years), and several taxonomic and functional endpoints (Appendix Table E.25). The most notable temporal patterns associated with ecologically meaningful differences included lower proportions of *Hydracarina* and generally higher proportions of *Chironomidae* from 2018 to 2025, relative to 2008; lower proportions of *Tipulidae* from 2013 onward, relative to 2008; and lower proportions of filterers from 2018 to 2025, relative to 2013 (Appendix Table E.25). The shift in community composition to include more *Chironomidae* and fewer *Hydracarina* after 2018 may be an indication of changing environmental conditions and/or mine-related effects. For example, *Chironomidae* are tolerant of a variety of conditions, and are often among the dominant taxa comprising Arctic BIC, due to their ability to withstand the harsh conditions (Füreder and Brittain 2025; Culp et al. 2019). *Hydracarina*, while also found in Arctic creeks, have a low tolerance to freezing temperatures, particularly under extended periods (Zawal et al. 2021). Therefore, conditions that could promote extended periods of freezing in SDLT1 (e.g., colder winters, lower water levels) could reduce the standing crop of *Hydracarina*, thereby contributing to the observed pattern for *Hydracarina* and *Chironomidae*.

In 2025 specifically, ecologically meaningful differences relative to baseline included lower relative proportions of *Hydracarina* (relative to 2008), *Oligochaeta* (relative to 2013), *Tipulidae* (relative to 2008), and filterers (relative to 2013), as well as higher relative proportions of *Chironomidae* (relative to 2008; Appendix Table E.25; Appendix Figure E.8). While several of



these patterns reflect sustained deviations from one baseline year, they are not uniformly expressed relative to both baseline years and do not collectively indicate progressive simplification of community structure. For the endpoints outlined in the TARP tables as having associated action level responses (i.e., density, Simpson's Evenness, and taxonomic richness; Baffinland 2024), no statistically significant differences relative to either baseline year were identified in 2025 (Appendix Table E.25). Accordingly, no action level responses were triggered for the 2025 baseline comparison.

Overall, SDLT1 exhibited evidence of long-term changes in BIC composition relative to baseline conditions, expressed through sustained shifts in select taxa, rather than changes in overall densities, richness, and evenness. No ecologically meaningful spatial differences were detected relative to reference, and the patterns observed are most consistent with localized, habitat-mediated restructuring rather than a persistent or escalating mine-related effect. Consistent with this interpretation, no TARP action level responses were triggered for BIC in SDLT1 in 2025.

4.1.4 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

4.1.4.1 Effects Assessment

At SDLT1 (Stations D1-05 and D1-00), concentrations of water quality parameters were generally below AEMP benchmarks in 2025, except for nitrate, total uranium, and dissolved copper. Additionally, concentrations of nitrate and total uranium were above reference area normal ranges in at least one season in 2025, and trend analyses and visual examination of the temporal plots indicated concentrations increased over time relative to baseline. Therefore, Moderate Risk Responses were triggered for nitrate and total uranium at SDLT1. The results for dissolved copper triggered a Low Risk Response, given the AEMP benchmark exceedance occurred in the absence of differences relative to baseline (Baffinland 2024).

Low Risk Responses were also triggered for SPC; hardness; TDS; TOC; sulphate; TKN; total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, and strontium; and dissolved manganese in 2025, based on concentrations that were elevated relative to reference normal ranges and baseline conditions in at least one season in 2025 (Baffinland 2024). The temporal trend analyses completed to address action level responses triggered during the 2024 CREMP also indicated a potential mine-influence on water quality in SDLT1, based on increasing trends in concentrations of chloride, nitrate, sulphate, TDS, TKN, and total and dissolved barium, calcium, cadmium, cobalt, lithium, magnesium, manganese⁴⁴, molybdenum, potassium, sodium, strontium, and uranium over time. However, although increasing temporal

⁴⁴ Increasing trends for manganese appear to be driven primarily by the results for 2023 and 2024; see Appendix Figure G.3).



trends suggestive of mine influence were identified for aqueous concentrations of cadmium and cobalt, total and dissolved concentrations were within reference normal ranges and were lower in 2025 relative to 2024.

Overall, the comparisons of aqueous total and dissolved concentrations of barium, calcium, cadmium, cobalt, lithium, magnesium, manganese, molybdenum, potassium, selenium, sodium, strontium, and uranium at SDLT1 in 2025 indicated minimal risks from these parameters to biota, based on concentrations in 2025. However, as noted above, total uranium concentrations were above the AEMP benchmark and baseline reference normal ranges in 2025, thereby triggering a Moderate Risk Response (Baffinland 2024). Concentrations of many of the parameters (e.g., lithium, strontium) included in the total: dissolved comparisons underwent a step-change increase in concentrations from 2021 to 2022, were highest in 2024, and then were lower again in 2025.

Sediment is collected from creek stations on a three-year cycle; the most recent creek sediment sampling for the CREMP was completed in 2023, and the next sampling event is planned for 2026. Consequently, there are no 2025 creek sediment quality data presented in this report.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in SDLT1 in 2025, and most BIC endpoints were comparable to reference and baseline, including those associated with action response thresholds (i.e., organism densities, Simpson's Evenness, and taxonomic richness; Baffinland 2024). Consequently, no action level responses were triggered for phytoplankton productivity or BIC in SDLT1 in 2025.

4.1.4.2 Recommendations

Low Risk Responses for SDLT1 were triggered for SPC; hardness; TDS; TOC; sulphate; TKN; total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, and strontium; and dissolved copper and manganese in 2025. Additionally, Moderate Risk Responses were triggered for aqueous concentrations of nitrate and total uranium. The following actions are therefore recommended for SDLT1:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of nitrate, total uranium, and dissolved copper concentrations above AEMP benchmarks using a weight-of-evidence approach.
- Complete temporal trend analyses for SPC; hardness; TDS; TOC; sulphate; TKN; total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, and strontium; and dissolved copper and manganese in water to investigate temporal patterns and confirm potential mine-related influences.



- Investigate potential sources of nitrate, uranium, and copper to better define mine-related influence.

4.1.4.3 Comparison to FEIS Predictions

A comparison of water quality at SDLT1 in the 2025 spring, summer, and fall seasons to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-7 (Camp Management) and SWSQ-9 (Airstrips and Airstrip Use) indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at SDLT1 conformed with predictions made in the FEIS (Baffinland 2012).

4.2 Sheardown Lake Tributary 12 (SDLT12)

4.2.1 Water Quality

4.2.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality at SDLT12 was measured by Baffinland environment department personnel in spring (June) and assessed concurrently with BIC sampling conducted by Minnow staff in August (Tables 2.2 and 2.5). No measurements of *in situ* water quality were completed by Baffinland environment department personnel during the summer or fall monitoring events because the creek channel was dry during those periods; however, sufficient water was present in August to allow BIC sampling to occur. During the June and August (BIC) sampling events, water at SDLT12 was moderately to well saturated (i.e., $\geq 85.2\%$; Appendix Tables B.11 and B.12). Similarly, DO concentrations measured at D12-1 in June and BIC stations in August were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L; Appendix Tables B.11 and B.12). pH values measured during the June and August 2025 sampling events were within the applicable WQG range (i.e., 6.5 to 9.0; Appendix Tables B.11 and B.12).

In spring, mean turbidity was higher at D12-1 relative to the reference normal range and values reported for SDLT1, whereas SPC at D12-1 was higher relative to the reference normal range but below concurrent values reported for SDLT1 (Table 4.1; Appendix Table B.11). Similarly, during the August BIC sampling, mean SPC was higher at SDLT1 (333 $\mu\text{S}/\text{cm}$) relative to the reference creek (109 $\mu\text{S}/\text{cm}$) but was within the range measured at SDLT1 and SDLT9 in 2025 (Appendix Table B.12).

A temporal trend analysis of SPC was triggered for SDLT12, based on the outcomes of the 2024 CREMP report (Minnow 2025). Because annual water quality sampling in SDLT12 was not initiated until 2021, and low water levels have precluded data collection in a number of years and seasons, the ability to complete temporal trend analyses was limited, relative to other monitoring



areas. Based on the combined (i.e., all seasons together) data available for SDLT12 over the period of record, no increasing or decreasing temporal trends in SPC were identified (Appendix Table G.7). Insufficient data were available to complete temporal trend analyses for SPC at SDLT12 over the mine operation period only (Appendix Table G.8). However, visual examination of the temporal plots suggests that SPC has not increased over time at SDLT12 from 2021 to 2025, based on the limited data available for that period (Appendix Table B.7). Overall, the results suggest that SPC has not increased in recent years of monitoring, despite measured values being higher relative to reference.

No action level responses were triggered for *in situ* water quality parameters at SDLT12 in 2025 (Baffinland 2024).

4.2.1.2 Water Chemistry

As noted in Section 4.2.1.1, low water levels during each of the spring, summer, and fall water quality monitoring events precluded collection of water chemistry samples from SDLT12 in 2025. However, to address outcomes of the 2024 monitoring (Minnow 2025), Baffinland committed to completing temporal trend analyses for alkalinity, hardness; TDS; chloride; and total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium (Table 2.4). Trend analyses were completed using data for LDFG-OUT/D12-1 that were collected during baseline sampling (2007 and 2008) and periodically throughout the mine operations period (i.e., 2017, and 2021 to 2024). Temporal trend analyses could only be completed using data for spring, due to insufficient data for summer and fall, consistent with the dry conditions in SDLT12 during the 2022 to 2025 field programs (Section 4.2.1.1).

Based on the data for spring only, significant increasing trends in concentrations of water quality parameters over the period from baseline (2007) to 2024 were identified for chloride, TDS, and total and dissolved concentrations of sodium, potassium, and strontium (Appendix Table G.7). Spring data for the reference areas did not exhibit similar increasing trends, suggesting a potential mine-related influence at SDLT12 (Appendix Table G.7). Interestingly, when the data for the mine operation period (i.e., 2015 to 2025) were assessed for trends in isolation from the baseline data, no significant increasing trends were identified for TDS or total and dissolved sodium and potassium (Appendix Table G.8).⁴⁵ This suggests there was a step-change increase in concentrations of these parameters between baseline and when sampling was repeated in 2017 and 2021 to present. Although there does not appear to be any meaningful upward trends in

⁴⁵ There was insufficient total and dissolved strontium data available for SDLT12 to complete trend analyses for the period of mine operations only (Appendix Table G.8).



parameter concentrations in SDLT12 that require management action at this time, ongoing monitoring at this location will continue to be important for understanding potential mine-related effects to the Sheardown Lakes system.

Baffinland also committed to completing a comparison between total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium, to support understanding of bioavailability and potential risks to biota (Table 2.4). As noted in Section 4.1.1.2, many of these parameters, like calcium, are considered essential for organisms and their concentrations in the body are well-regulated. Results of the comparisons between total and dissolved concentrations of each parameter are summarized below, and are based on the data available from 2007, 2008, 2017, and 2021 to 2024 sampling completed in SDLT12.

Barium: In 2021 and 2022, total and dissolved barium concentrations did not appear to follow similar patterns, but in 2023 and 2024, >98% of total barium was in the form of dissolved barium (Appendix Figure G.4). As noted in Section 4.1.1.2, barium is most bioavailable in its dissolved form (e.g., Golding et al. 2018). Although dissolved barium makes up a large proportion of the total barium concentrations in SDLT12, observed concentrations are still orders of magnitude lower than those documented as causing toxicity to freshwater organisms in laboratory studies (WHO 1990; Golding et al. 2018; Willems et al. 2025). The potential for toxic effects to aquatic biota in SDLT12 from exposure to waterborne barium is considered low.

Calcium: Based on the limited water quality dataset for SDLT12, total and dissolved calcium concentrations followed similar patterns of increase or decrease over time, and dissolved calcium represented at least 63% of the total calcium fraction (Appendix Figure G.4). Calcium is a key component of water hardness and harder water with higher calcium concentrations can have a protective effect against metal toxicity (e.g., calcium ions may outcompete metal ions for binding sites or membrane transport, resulting in reduced uptake and toxicity of metals (e.g., CCME 2014; Xu et al. 2023).

Magnesium: Based on visual examination of the plotted data, it appears that aqueous total and dissolved magnesium concentrations at SDLT12 follow the same general patterns (Appendix Figure G.3). Data for paired values reported over the period of record for SDLT1 indicates that dissolved magnesium comprises at least 65% of the total aqueous magnesium in the creek. Similar to calcium, magnesium is a key component of water hardness and has an ameliorating effect on metal toxicity, given it competes with a variety of metals for binding sites (USGS 2018). Dissolved magnesium represents the most bioavailable form of magnesium to freshwater organism, but toxic effects are not expected at the concentrations observed in SDLT12 (Van Dam et al. 2010).



Manganese: Similar to SDLT1 (Section 4.1.1.2), the proportion of dissolved manganese contributing to the aqueous total manganese concentrations in SDLT12 varied widely, from around 10 to 100% (Appendix Figure G.4). The bioavailability of manganese depends on a variety of factors, including water hardness, redox conditions, and pH; however, ionic manganese (Mn^{2+}) is recognized as the most bioavailable and toxic form to biota (CCME 2019). Regardless, the potential for toxic effects to aquatic biota in SDLT12 from exposure to waterborne manganese is considered low.

Molybdenum: From baseline to 2024, the dissolved molybdenum fraction represented at least 49% of the total aqueous molybdenum concentrations reported for SDLT12. Because waters from SDLT1 have pH values >7 , it is expected that the predominant form of molybdenum in the water column is molybdate (MoO_4^{2-}), which is the most bioavailable form of molybdenum (CCME 1999). However, multiple toxicity studies have demonstrated that aquatic organisms, including macrophytes, algae, invertebrates, and fish are tolerant of high molybdenum concentrations well beyond those reported for SDLT12 (BC MOE 2021), and mean concentrations were consistently (i.e., by two orders of magnitude) below the AEMP benchmark for total molybdenum over the period of record (Appendix Figure G.4).

Potassium: At SDLT12, dissolved potassium has comprised at least 73% of the total potassium measured in paired samples (Appendix Figure G.4). Dissolved potassium is readily bioavailable; however, numerous acute and chronic toxicity studies of potassium-containing salts suggest that concentrations in SDLT12 are far below what would be required to result in adverse effects (e.g., lethality, reduced growth) to freshwater biota (e.g., as summarized in Health Canada 2022).

Sodium: From 2021 to 2025,⁴⁶ the dissolved sodium fraction in water samples from SDLT12 represented at least 83% of the paired total sodium concentrations and followed the same temporal patterns (Appendix Figure G.4). Similar to calcium and magnesium (above), sodium can compete with metals like cadmium and copper for uptake by freshwater aquatic organisms, thereby reducing the potential for metal-induced toxicity (e.g., Giacomini et al. 2013). Freshwater organisms are able to self-regulate the uptake of sodium under most environmental conditions; however, high concentrations, beyond those observed in SDLT12, can override self-regulation mechanisms and lead to toxicity (e.g., Vanâncio et al. 2023).

Strontium: Over the period of record, the dissolved fraction represented at least 96% of the total aqueous strontium fraction in SDLT12 and concentrations of both fractions underwent a notable increase from 2021 to 2024 (Appendix Figure G.3). However, the AEMP benchmark for strontium

⁴⁶The total and dissolved sodium data from 2017 are considered suspicious, as the reported dissolved concentration is 1.5 times the concentration in the corresponding total sample (Appendix Figure G.4). The 2017 data are not considered in the discussion above.



was more than 20 times higher than the observed concentrations in SDLT1, and potential toxic effects of waterborne strontium are likely mitigated by the higher aqueous concentrations of calcium in the creek, as calcium competes with strontium for uptake (e.g., Klaczek et al. 2022).

Uranium: As noted in Section 3.1.1.3.1, the free uranyl ion (UO_2^{2+}) and uranyl hydroxide ($\text{UO}_2(\text{OH})_2$) are the main bioavailable forms of uranium in freshwater systems; however, uranium speciation and/or bioavailability is often driven by a variety of site-specific factors, including pH, DOC, temperature, hardness, and alkalinity (CCME 2011; Markich 2002). Modelling uranium speciation and bioavailability is a complicated process, as it must account for interactions between uranium and the parameters listed above, as well as suspended particulates, humic materials, and other substances that may complex with uranium (Markich 2002). The simplest and most conservative approach to evaluating potential risks to aquatic biota is to therefore focus on total uranium concentrations, consistent with the approach taken by the CCME in developing the Canadian WQG (CCME 2011; Markich 2002) and by Baffinland in adopting the CCME WQG as the AEMP benchmark. As noted in the 2024 CREMP report, increasing uranium concentrations in surface water environments around the Mary River Mine are likely attributed to changing permafrost conditions resulting from both climate change and mine-related disturbance (Minnow 2025; see also Section 3.1.1.3.1).

4.2.2 Benthic Invertebrate Community

In 2025, most BIC endpoints at SDLT12 were comparable to the Reference Creek (Station REF-CRK), except the relative proportions of *Nematoda*, *Oligochaeta*, *Ostracoda*, *Simuliidae*, collector-gatherers, filterers, and burrowers (Table 4.2; Appendix Figure E.7; Appendix Tables E.3, E.21, and E.26). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 \text{ SD}_{\text{REF}}$) were limited to relative proportions of collector-gatherers and burrowers, both of which were significantly higher at SDLT12 (MCT = 89% and 32%, respectively) compared to the reference area (MCT = 64% and 10%, respectively; Table 4.2; Appendix Figure E.7).⁴⁷ Bray-Curtis similarity analysis identified strong statistically significant differences in overall community structure between SDLT12 and the reference area (Appendix Table E.23); indicating near perfect dissimilarity in BIC composition between areas.

The higher proportions of collector-gatherers and burrowers at SDLT12 relative to reference reflect the more subtle taxonomic differences between areas and are consistent with localized habitat characteristics. For example, burrowing nematodes and oligochaetes were relatively abundant in the samples from SDLT12, but nearly absent from REF-CRK (Appendix Tables E.3, E.21, and E.26). Similarly, genera *Diplocladius* and *Eukiefferiella*, which represent collector-

⁴⁷ MODs could not be calculated for relative proportions of nematodes or oligochaetes because $\text{SD}_{\text{REF}} = 0$ (Table 4.2).



gatherers of the *Chironomidae* family, were relatively abundant in the SDLT1 samples, but absent from the reference area in 2025 (Appendix Tables E.3, E.21, and E.26; Mandaville 2002). Similar to CLT1 (Section 3.1.3), bryophytes were encountered at most BIC sampling stations in SDLT12 in 2025, whereas they were completely absent from the reference sampling stations; substrates at SDLT12 were also more embedded relative to reference (means = 44% and 28%, respectively; Appendix Table E.24). As discussed in Section 3.1.3, bryophytes can trap fine organic material and create complex microhabitats that can favour chironomids and other small collector-gatherers (Averett et al. 2025). Higher substrate embeddedness increases the availability of fine depositional spaces preferred by burrower taxa. Together, these features likely enhanced organic matter (i.e., food) retention and provided stable, low-flow microhabitats, explaining the higher relative abundance of collector-gatherer and burrower groups at SDLT12. These patterns reflect site specific habitat conditions rather than mine-related effects, as there was no evidence of reduced organism densities, richness, or evenness across the broader community. On this basis, no action level responses were triggered for the comparison between the BIC at SDLT12 and the reference area in 2025 (Baffinland 2024).

Most BIC endpoints at SDLT12 during the mine operations period (2015 to 2025)⁴⁸ differed significantly from the 2007 baseline year, except total organism densities and relative proportions of metal sensitive *Chironomidae*, filterers, and shredders (Appendix Table E.27; Appendix Figure E.8). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 \text{SD}_{\text{BASELINE}}$) were observed intermittently for taxonomic richness (2015, 2021, and 2025), Simpson's Evenness (2018 and 2019), the relative proportions of *Oligochaeta* (2015 to 2017, 2021, and 2025), *Chironomidae* (2016), and *Tipulidae* (2016; Appendix Table E.27; Appendix Figure E.8). Although several statistically significant, and at times ecologically meaningful, differences were identified throughout the operational period, these differences were not consistent (i.e., always higher or lower relative to baseline), suggesting interannual variability rather than a persistent mine-related increase or decrease in particular taxa or functional/preference groups.

In 2025, ecologically meaningful differences relative to the 2007 baseline were limited to lower taxonomic richness and a higher relative proportion of *Oligochaeta* (Appendix Table E.27; Appendix Figure E.8). Although richness was reduced relative to baseline, overall density did not show a concurrent ecologically meaningful decline, indicating that the lower richness likely reflects a shift in community composition (i.e., to a community where oligochaetes are more numerically dominant than before) rather than a broad loss of benthic productivity. The oligochaetes identified at SDLT12 were members of the *Enchytraeidae* family, which are a terrestrial type of worm that

⁴⁸ BIC samples were not collected at SDLT12 from 2022 to 2024, as the creek was dry during the scheduled sampling period (i.e., August of each year).



may also be found in Arctic freshwater environments like SDLT12 (Patricio Silva et al. 2016). Members of this family are known to tolerate periods of drying, freezing, and thawing by forming cocoons or moving deeper into the substrate (Patricio Silva et al. 2016). Their predominance within the community at SDLT12 may therefore be related to natural hydrological variability, particularly their ability to withstand the intermittent flow conditions observed at the BIC sampling stations in recent years (e.g., stations were dry in 2022 to 2024).

Of the BIC endpoints with corresponding action level responses (i.e., density, Simpson's Evenness, and taxonomic richness; Baffinland 2024), taxonomic richness was the only one that differed in 2025 relative to baseline (Appendix Table E.27). Accordingly, a Low Risk Response was triggered for the 2025 baseline comparison.

Overall, the 2025 results indicate that BIC at SDLT12 were largely comparable to reference conditions, with ecologically meaningful differences limited to relative proportions of collector-gatherers and burrowers. Long-term comparisons to the 2007 baseline showed that although statistically significant and occasionally ecologically meaningful differences have occurred during the operational period, these differences are most likely related to freeze-thaw and drying conditions within SDLT12. In 2025, the only ecologically meaningful differences relative to baseline were lower taxonomic richness and a higher relative proportion of *Oligochaeta*; however, the absence of concurrent reductions in density suggest a compositional adjustment rather than diminished benthic productivity. Regardless, the ecologically meaningful differences in taxonomic richness between 2025 and baseline trigger a Low Risk Response (Baffinland 2024).

4.2.3 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

4.2.3.1 Effects Assessment

At SDLT12 (Station LDFG-OUT/D12-1) in 2025, the assessment of potential mine-related effects to water quality was limited by low water levels during the spring, summer, and fall monitoring events completed by Baffinland. However, *in situ* water quality data were collected in spring and, based on comparisons to reference normal ranges and temporal assessments (i.e., trend analysis and visual examination of plotted data), no action level responses were triggered for *in situ* water quality parameters.

Temporal trend analyses and comparisons between total and dissolved concentrations of water quality parameters were completed to address action level responses triggered during the 2024 CREMP cycle. However, the datasets to support these assessments were limited, given the persistent pattern of low water levels in SDLT12 annually in summer and fall. Data for spring were sufficient to complete temporal trend analyses; the results indicated that TDS and concentrations of total and dissolved sodium, potassium, and strontium were higher during mine



operations relative to baseline but were stable over the mine operation period. Therefore, the results of the temporal trend analyses did not identify the need for additional management action related to these parameters at this time.

Sediment is collected from creek stations on a three-year cycle; the most recent creek sediment sampling for the CREMP was completed in 2023, and the next sampling event is planned for 2026. Consequently, there are no 2025 creek sediment quality data presented in this report.

Water samples for analysis of chlorophyll-a concentrations (as a measure of primary productivity) were not collected during the spring, summer, and fall sampling events in 2025 due to low water levels; therefore, the assessment of potential mine-related effects to biota in SDLT12 focused on the BIC. BIC endpoints associated with TARP action response thresholds (i.e., organism densities, Simpson's Evenness, and taxonomic richness; Baffinland 2024) were generally comparable to reference and baseline in 2025. The only exception was taxonomic richness, which was lower in SDLT12 in 2025 relative to baseline; this result triggered a Low Risk Response under the TARP (Baffinland 2024).

4.2.3.2 Recommendations

No action level responses for SDLT12 were identified based on water quality; however, a Low Risk Response was triggered for taxonomic richness within the BIC. The following actions are therefore recommended as part of the Low Risk Response for SDLT12:

- Continue monitoring water quality (as water levels allow) and the BIC in 2026 (and future CREMP studies) to better understand water chemistry and potential effects to biota in SDLT12.
- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to evaluate whether differences between mine-exposed and reference areas have changed over time.
- Continue to use data for indicator taxa, FFG, and HPG in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

4.2.3.3 Comparison to FEIS Predictions

No water chemistry samples were collected from SDLT12 in 2025, due to low water levels during the spring, summer, and fall water quality sampling events. Therefore, comparisons to FEIS predictions for water quality could not be completed for 2025 (Baffinland 2012).



4.3 Sheardown Lake Tributary 9 (SDLT9)

4.3.1 Water Quality

4.3.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at SDLT9 concurrent and co-located with water quality sampling completed by Baffinland environment department personnel in spring, summer, and fall and BIC sampling led by Minnow staff in August (Tables 2.2 and 2.8). During the spring, summer, and fall water quality monitoring events, mean DO saturation at SDLT9 was below full saturation (i.e., values were 80.7, 60.0, and 83.1%, respectively) and within seasonal reference normal ranges (Table 4.3; Appendix Figure B.6; Appendix Table B.14; reference normal ranges are in Appendix Table B.4; baseline normal ranges could not be calculated due to only $n = 1$ or 2 samples being collected per season during baseline sampling). Similar patterns in DO saturation were also observed in 2024 (Minnow 2025). The mean DO concentration for summer, as well as the DO reading from BIC sampling area SDLT-9-DS-B1, which was sampled in August 2025, were below the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L), whereas mean concentrations associated with the spring and fall water quality monitoring programs were above the CCME WQG (Table 4.3; Appendix Figure B.6; Appendix Tables B.12 and B.14). Mean DO concentrations were also consistently below reference normal ranges during the 2025 monitoring events, despite concentrations being generally comparable at this location in 2022, 2023, and 2025 (no data were collected in 2024; Table 4.3; Appendix Figure B.7). The relatively low DO concentrations at SDLT9 may be related to local geomorphic and hydrological characteristics, as the station is situated in a low valley with a low channel gradient. These conditions may promote slower flow and reduced turbulence, limiting atmospheric reaeration and resulting in consistently lower DO saturation at this location.

In 2025, mean field pH values measured by Baffinland environment department personnel in spring, summer, and fall and by Minnow staff during the August BIC program were consistently within the CCME WQG (i.e., within 6.5 to 9; Table 4.3; Appendix Table B.12). pH values for spring and summer, but not fall, were outside the reference area normal range in 2025 (Table 4.3).

Mean field turbidity values reported for SDLT9 were low, relative to the reference normal range, throughout the spring, summer, and fall water quality monitoring programs, and were indicative of clear conditions (Table 4.3).⁴⁹

⁴⁹ The mean field turbidity value reported for 2025 was negative. Negative readings can result from instrument drift, sensor malfunctions, improper calibration/blanks, or the turbidity in the water sample being so low that the sensor cannot detect enough back-scattered light to provide an accurate reading (McDermid 2016).



Table 4.3: Mean Water Chemistry at Sheardown Lake Tributary 9 (SDLT9) Monitoring Stations in Spring, Summer, and Fall, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Creeks (n=4)			Sheardown Lake Tributary 9 (n = 1)		
				Spring	Summer	Fall	Spring	Summer	Fall
Conventionals	Conductivity (lab)	µS/cm	-	40.4	97.0	134	218	273	263
	Specific Conductance (field)	µS/cm	-	34.5	100	135	153	267	272
	pH (lab)	pH	-	6.90	7.78	7.79	7.10	7.55	7.77
	pH (field)	pH	6.5 - 9.0	7.50	7.85	7.76	7.79	7.50	7.75
	Temperature, Field	mg/L	-	4.46	8.70	1.90	3.98	8.30	2.02
	Hardness (as CaCO ₃) -Total	mg/L	-	18.7	50.4	68	116	130	134
	Total Suspended Solids (TSS)	mg/L	-	1.82	<1	1.82	<1	<1	<1.1
	Total Dissolved Solids (TDS)	mg/L	-	29.8	55.0	64.0	110	162	147
	Dissolved Oxygen	mg/L	-	12.3	10.9	13.2	10.7	7.06	11.5
	Dissolved Oxygen	%	-	95.2	93.2	95	80.7	60.0	83.1
	Turbidity (lab)	NTU	-	2.73	8.69	5.68	<0.1	0.160	0.180
	Turbidity (field)	NTU	-	2.35	8.02	4.14	1.44	0.0600	-0.0940
	Alkalinity (as CaCO ₃)	mg/L	-	19.8	46.3	59.6	104	20.0	109
Nutrients and Organics	Total Ammonia ^c	mg/L	0.282 - 3.98	0.00532	0.00580	0.00785	<0.005	0.174	0.371
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	0.0215	1.59	7.55	5.85
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	0.0620	0.0510
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.0750	0.106	0.0842	0.170	0.539	0.721
	Dissolved Organic Carbon	mg/L	-	1.41	1.74	1.71	2.30	2.79	3.13
	Total Organic Carbon	mg/L	-	1.64	2.32	2.13	3.29	3.42	4.02
	Total Phosphorus	mg/L	-	0.00365	0.00632	0.00518	<0.002	0.00280	0.00210
	Phenols	mg/L	0.00400	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^c	mg/L	120	0.668	1.12	3.18	0.830	0.880	0.870
	Sulphate (SO ₄) ^c	mg/L	309	0.568	1.59	3.91	2.46	4.23	3.17
Total Metals	Aluminum (Al) ^c	mg/L	0.350	0.0740	0.313	0.117	0.00300	0.00400	0.00420
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	0.000122	0.000110	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00276	0.00760	0.00826	0.0121	0.0150	0.0147
	Beryllium (Be)	mg/L	0.000130	<0.00002	0.0000272	0.0000202	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^c	mg/L	0.000182 - 0.000212	<0.000005	0.00000502	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.83	9.80	13.7	23.1	25.7	25.4
	Cesium (Cs)	mg/L	-	0.0000175	0.0000495	0.0000260	<0.00001	0.0000160	<0.00001
	Chromium (Cr)	mg/L	0.00500	0.000540	0.000902	0.000620	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^c	mg/L	0.00109 - 0.00118	0.000102	0.000165	0.000125	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00273 - 0.00319	0.000662	0.00133	0.00101	0.00121	0.00155	0.00113
	Iron (Fe) ^c	mg/L	0.543	0.0825	0.304	0.145	<0.01	<0.01	0.0150
	Lead (Pb)	mg/L	0.00395 - 0.00496	0.000100	0.000261	0.000167	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	0.00100	<0.001	<0.001	0.00170	0.00140
	Magnesium (Mg)	mg/L	-	2.22	6.29	8.18	14.1	16.0	17.2
	Manganese (Mn)	mg/L	1.13 - 1.23	0.00114	0.00326	0.00198	0.000150	0.00234	0.00107
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000150	0.000345	0.000408	0.000712	0.000859	0.000975
	Nickel (Ni) ^c	mg/L	0.109 - 0.125	0.000505	0.000770	0.000922	0.00125	0.00158	0.00124
	Potassium (K)	mg/L	-	0.358	0.807	0.870	1.51	1.88	1.69
	Rubidium (Rb)	mg/L	-	0.000910	0.00268	0.00195	0.00252	0.00428	0.00295
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.605	1.34	1.10	1.16	1.18	1.09
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.491	1.45	2.22	1.13	1.49	1.49
	Strontium (Sr)	mg/L	-	0.00341	0.00961	0.0138	0.0130	0.0164	0.0149
	Sulphur (S)	mg/L	-	<0.5	0.625	1.42	0.780	1.49	1.28
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	0.0000128	0.0000105	<0.00001	0.0000160	<0.00001
	Thorium (Th)	mg/L	-	0.000145	0.000458	0.000268	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.00412	0.0149	0.00758	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000268	0.00161	0.00372	0.000976	0.000826	0.000898
	Vanadium (V) ^c	mg/L	-	<0.0005	0.000850	0.000612	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	0.000230	0.000488	0.000332	<0.0002	<0.0002	<0.0002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field)

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 4.3: Mean Water Chemistry at Sheardown Lake Tributary 9 (SDLT9) Monitoring Stations in Spring, Summer, and Fall, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Creeks (n=4)			Sheardown Lake Tributary 9 (n = 1)		
				Spring	Summer	Fall	Spring	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	<u>0.0192</u>	<u>0.0478</u>	<u>0.0219</u>	0.00160	0.00300	0.00140
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00241	0.00631	0.00782	0.0128	0.0160	0.0145
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.000240 - 0.000274	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.86	9.68	13.6	23.2	29.1	25.2
	Cesium (Cs)	mg/L	-	0.0000102	0.0000140	0.0000132	<0.00001	0.0000140	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000547 - 0.000589	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^c	mg/L	0.00169 - 0.00230	0.000485	0.000908	0.000782	0.00114	0.00149	0.00111
	Iron (Fe) ^c	mg/L	-	0.0150	0.0335	0.0152	<0.01	<0.01	<0.01
	Lead (Pb) ^c	mg/L	0.00659 - 0.00790	<0.00005	0.0000610	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	<0.001	0.00130	0.00220	0.00140
	Magnesium (Mg)	mg/L	-	2.46	5.59	7.48	14.7	16.8	16.8
	Manganese (Mn) ^c	mg/L	0.260 - 0.530	0.000288	0.000545	0.000422	0.000120	0.00227	0.000580
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000142	0.000382	0.000428	0.000704	0.000826	0.000895
	Nickel (Ni)	mg/L	0.00230 - 0.00260	<0.0005	0.000528	0.000512	0.00133	0.00158	0.00116
	Potassium (K)	mg/L	-	0.356	0.706	0.815	1.53	1.83	1.66
	Rubidium (Rb)	mg/L	-	0.000685	0.00173	0.00163	0.00238	0.00427	0.00310
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.509	0.934	0.913	1.24	1.13	1.04
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.512	1.32	2.00	1.19	1.51	1.41
	Strontium (Sr) ^c	mg/L	2.50	0.00342	0.00880	0.0139	0.0132	0.0167	0.0149
	Sulphur (S)	mg/L	-	<0.5	0.678	1.31	0.900	1.64	1.11
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	0.0000160	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000650	0.00180	0.000752	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000228	0.00154	0.00386	0.00100	0.000806	0.000890
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^c	mg/L	-	<0.001	<0.001	<0.001	<0.001	0.00240	<0.001
	Zirconium (Zr)	mg/L	-	<0.0003	0.000312	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field)

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Mean SPC measurements at SDLT9 water quality monitoring stations in spring, summer, and fall 2025 were consistently within the seasonal reference area normal ranges, and appear to have remained fairly stable since 2022, when annual monitoring began (Table 4.3; Appendix Figure B.7). However, consistent with seasonal patterns observed in 2024, mean SPC within SDLT9 was lowest in the spring and highest in the fall (Table 4.3; Minnow 2025). Similar to CLT2 and SDLT1, this pattern likely reflects seasonal hydrology associated with the spring freshet, whereby dilute snowmelt reduces ion concentrations in spring, whereas increasing groundwater influence later in the season results in higher dissolved ion concentrations (Allan et al. 2021).

Overall, no action level responses were triggered for *in situ* water quality parameters in SDLT9 in 2025.

4.3.1.2 Water Chemistry

At the SDLT9 water quality monitoring station (D1-9/MS-C-G), mean concentrations of water quality parameters were generally below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025 (Table 4.3; Appendix Figure B.7; Appendix Table B.14). Exceptions were mean concentrations of nitrite in summer, nitrate in summer and fall, and total ammonia in fall (Table 4.3; Appendix Table B.14). However, despite the total ammonia concentration in fall 2025 being above the AEMP benchmark, concentrations observed in spring, summer, and fall were lower than those observed during 2022 to 2024 (Appendix Figure B.7). Regardless, based on the results of the 2025 comparison to AEMP benchmarks, a Low Risk Response was triggered for total ammonia, nitrate, and nitrite at SDLT9 (Baffinland 2024).

Comparisons of mean values reported for water quality parameters measured in spring, summer, and fall 2025 did not identify any parameters with mean concentrations above applicable reference normal ranges (Table 4.3; reference normal ranges are in Appendix Table B.4; too few baseline data were available to calculate baseline normal ranges). Based on the limited temporal dataset, water quality appears to have remained consistent over time at SDLT9 since 2021, when annual sampling at this location was first integrated into the CREMP (Appendix Figure B.7). Therefore, no action level responses were triggered for SDLT9 in 2025, based on comparisons to reference normal ranges and baseline conditions (Baffinland 2024).

An activity audit concerning the transportation, storage, and handling of ammonium nitrate at the Dyno facility was implemented in 2025, along with additional water and seepage sampling during the open water season (August), to help identify point source(s) of aqueous nitrogen compounds. An activity audit was also completed to identify areas where blasting products could be exposed to the environment. Monitoring of ash bin cleanup is ongoing, and Baffinland is planning to



relocate the burn bin used by the Dyno facility, to reduce the potential for ammonium products to enter adjacent waterbodies.

Upgrades to the Dyno plant were completed in November and December 2025. Existing mechanical gaskets were replaced and upgraded to reduce the likelihood of leaks or failures, thereby lowering the risk of ammonium nitrate releases to the environment. The existing single-wall tanks were also replaced with double-walled International Organization for Standardization (ISO) tanks to provide necessary secondary containment, thereby significantly reducing the risk of an ammonium nitrate release in the event of a primary tank failure. These tanks are where the mixing of ammonium products occurs. To reduce the risk of structural failure, Baffinland also replaced the auger chute at the Dyno facility, which had thinned over time. A new insulated “doghouse” was installed at the point where the auger enters the ISO tanks to protect against freezing conditions and to prevent ammonium nitrate from becoming airborne or spilling onto the ground during transfer operations. This is an external chute that is located outside the building. Finally, Baffinland installed a new chain hoist with trolley and four-point sack lifter beam where the sacks of ammonium prill (porous ammonium nitrate pellets) are handled and lifted before being cut.

4.3.2 Phytoplankton

In 2025, chlorophyll-a concentrations at Station D9-1 (previously Station MS-C-G) on SDLT9 were within the reference area normal ranges derived for spring, summer, and fall, and were consistently below the AEMP benchmark of 3.7 µg/L (Figure 4.1; Appendix Table D.1). The observed concentrations indicate limited phytoplankton productivity and are characteristic of oligotrophic conditions, based on chlorophyll-a thresholds from the literature (i.e., Dodds et al. 1998) and aqueous total phosphorus concentrations (<10 µg/L; CCME 2004; Table 4.3; Appendix Table B.14). Additionally, chlorophyll-a concentrations at SDLT9 have generally followed the same temporal patterns as the reference area and were lower relative to 2021 and 2022, based on visual examination of the data (Figure 4.2). Overall, the data for Station D9-1 are not indicative of adverse mine-related effects to phytoplankton productivity within SDLT9, and no action level responses were triggered under the TARP (Baffinland 2024).

4.3.3 Benthic Invertebrate Community

In 2025, most BIC endpoints at SDLT9 were comparable to those observed at Reference Creek (Station REF-CRK), except organism density and relative proportions of *Chironomidae*, *Simuliidae*, filterers, shredders, and clingers (Table 4.2; Appendix Figure E.7; Appendix Tables E.3, E.21, and E.28). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{REF}$) were limited to density and relative proportions of shredders and clingers, all of which



were significantly higher at SDLT9 (MCT = 1,863 individuals/m², 34%, and 34%, respectively) compared to reference (MCT = 203 individuals/m², 5.2%, and 18%, respectively; Table 4.2; Appendix Figure E.7). Bray–Curtis similarity analysis also identified a statistically significant difference in overall community structure between SDLT9 and the reference area (Appendix Table E.23).

The higher organism densities and proportions of shredders and clingers at SDLT9 relative to reference are consistent with localized habitat characteristics, as well as inputs of nitrate to the creek over the long-term (Section 4.3.1.2). First, bryophytes and algae were observed at SDLT9 but not at REF-CRK (Appendix Table E.24). Bryophytes and algae can co-occur in oligotrophic creeks, like SDLT9, where bryophytes provide in-stream structure and velocity refugia that allow algae to grow without being swept downstream, unlike phytoplankton, the abundance or densities of which may be limited in the water column due to cold water temperatures and flushing by the current (e.g., Thellman et al. 2025; Zeng et al. 2023). The bryophytes and algae in SDLT9 are expected to provide additional attachment surfaces, stabilize substrate, and trap coarse organic material, thereby creating conditions that are favourable for clinger and shredder invertebrate taxa (e.g., Averett et al. 2025). These features also enhance small-scale refugia and microhabitats that support higher overall organism densities. Additionally, aqueous total ammonia concentrations have historically (since 2021) been elevated relative to the AEMP benchmark at SDLT9 (Appendix Figure B.7), and high total ammonia concentrations are known to adversely affect reproduction, survival, and growth of benthic invertebrates (e.g., Zhang et al. 2023). Therefore, it is possible that the lower total ammonia concentrations at SDLT9 in 2025 (relative to the AEMP benchmark in summer and to previous years of data/reference normal ranges in summer and fall) may also be contributing to the higher invertebrate densities observed at SDLT9 in 2025 relative to reference. It has also been shown that long-term nitrate addition to creeks can lead to increased invertebrate abundances via enhanced microbial breakdown of organic matter and increased fungal growth, which subsequently increase in food availability for invertebrates (Cross et al. 2005). Therefore, the observed differences are best explained by site-specific habitat structure and retention of organic matter (i.e., food resources) and nutrient availability, the latter of which appears to be mediated by mine-related influences on water quality in SDLT9. Overall organism density was the only BIC endpoint to trigger a Low Risk Response in 2025, based on higher densities at SDLT9 relative to reference (Baffinland 2024).

Most BIC endpoints at SDLT9 during the mine operations period (2015 to 2025) differed significantly from at least one baseline year (i.e., 2007 or 2013), except relative abundances of *Chironomidae*, collector-gatherers, and shredders (Appendix Table E.29; Appendix Figure E.8). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$) were observed relatively infrequently for richness and relative proportions of *Hydracarina*, *Tipulidae*,



and filterers over the mine operation period (Appendix Table E.29). Higher organism densities relative to both baseline years were more common (e.g., in 2015 to 2017, 2021 to 2023, and 2025 relative to 2007 and in 2017, 2022, and 2023 relative to 2013), as were lower evenness and higher proportions of metal-sensitive *Chironomidae* relative to 2013; Appendix Table E.29; Appendix Figure E.8). The inclusion of more metal-sensitive chironomid taxa in the BIC in 2015, 2021, 2023, and 2024 relative to the 2013 baseline suggests that factors other than mine-influence are the primary drivers of the observed interannual variability. For example, since 2020, in-stream vegetation has been more abundant at SDLT9 compared to the reference creek (Appendix Table E.24; Minnow 2021b, 2022, 2023, 2024a). As noted above, the habitat complexity provided by the bryophytes in SDLT9 can promote retention of algae and other organic matter that is eventually broken down by microbial and fungal communities within the creek, aided by nutrient addition (in the form of nitrogen-containing compounds; see Section 4.3.1.2). These conditions enhance habitat complexity (e.g., attachment surfaces, refugia) and food availability for a variety of benthic invertebrate taxa, thereby supporting higher organism densities. Additionally, consistently higher DOC concentrations at SDLT9 relative to reference areas since 2020 (Table 4.3; Minnow 2021, 2022, 2023, 2024a) further indicate higher organic matter input, potentially via mobilization of terrestrial organic matter into the creek during high flow events (e.g., as a result of precipitation events later in the growing season) and food availability for BIC in SDLT9 (Heffernan et al. 2024).

In 2025 specifically, an ecologically meaningful increase in density relative to the 2007 baseline year was observed; no statistically significant difference was identified for the comparison between 2025 and 2013 (Appendix Table E.29; Appendix Figure E.8). The results of the comparison between 2025 and 2007 triggers a Low Risk Response under the TARP (Baffinland 2024).

Overall, patterns at SDLT9 in 2025 and throughout the operational period indicate that the BIC is shaped primarily by localized habitat conditions, along with mine-related inputs of nitrogen-containing compounds. Although some BIC endpoints have shown statistically or ecologically meaningful differences relative to reference or baseline at various times, these have generally been intermittent or inconsistent over time. Since 2020, increases in in-stream vegetation and higher DOC concentrations at SDLT9 have created habitat conditions that support higher invertebrate densities and higher proportions of specific taxa/groups (e.g., chironomids, shredders). The higher invertebrate densities noted at SDLT9 in 2025, relative to reference and baseline, will be investigated further as part of Low Risk Responses under the TARP (Baffinland 2024).



4.3.4 Effects Assessment, Recommendations, and Comparison to FEIS Predictions

4.3.4.1 Effects Assessment

At SDLT9 (Station D9-1/MS-C-G), exceedances of AEMP benchmarks in 2025 were limited to mean concentrations of nitrite in summer, nitrate in summer and fall, and total ammonia in fall. These benchmark exceedances triggered Low Risk Responses (Baffinland 2024). No other action level responses were triggered for SDLT9 in 2025, based on water quality.

Sediment is collected from creek stations on a three-year cycle; the most recent creek sediment sampling for the CREMP was completed in 2023, and the next sampling event is planned for 2026. Consequently, there are no 2025 creek sediment quality data presented in this report.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in SDLT9 in 2025, and most BIC endpoints were comparable to reference and baseline in 2025. The only exception was total invertebrate density, which was higher at SDLT9 relative to both reference and baseline in 2025. Both of these differences were large enough to be considered ecologically meaningful and triggered Low Risk Responses under the TARP (Baffinland 2024). Observed differences in invertebrate densities between areas in 2025 appear to be driven by differences in habitat, in addition to mine-related influences on concentrations of nitrogen-containing compounds in SDLT9.

4.3.4.2 Recommendations

Low Risk Responses for the SDLT9 were triggered for total ammonia, nitrate, and nitrite concentrations in water, as well as total benthic invertebrate densities. The following actions are recommended as part of the Low Risk Responses for SDLT9:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of total ammonia, nitrate, and nitrite concentrations above AEMP benchmarks using a weight-of-evidence approach.
- Complete temporal trend analyses for aqueous concentrations of total ammonia, nitrate, and nitrite to investigate temporal patterns and confirm potential mine-related influences.
- Continue to analyze aqueous concentrations of total ammonia, nitrate, and nitrite to evaluate the effectiveness of removing the burn bin and making Dyno facility upgrades in reducing concentrations of nitrogen-containing parameters in SDLT9, recognizing there was already an improvement in total ammonia concentrations from 2024 to 2025.



- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to evaluate whether differences between mine-exposed and reference areas have changed over time.
- Continue to use data for indicator taxa, FFG, and HPG in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

4.3.4.3 Comparisons to FEIS Predictions

Water quality data collected from SDLT9 in spring, summer, and fall 2025 were compared to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-4 (Explosives), SWSQ-7 (Camp Management), and SWSQ-9 (Airstrips and Airstrip Use). All water quality parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the waterbody during mine operations. Therefore, water quality at SDLT9 was in conformance with predictions made in the FEIS (Baffinland 2012).

4.4 Sheardown Lake Northwest (DL0-01)

4.4.1 Water Quality

4.4.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at Sheardown Lake NW concurrent with water quality sampling conducted by Baffinland environment department personnel during the winter, summer, and fall, as well as BIC sampling completed by Minnow staff in August (Tables 2.2 and 2.5). Winter 2025 water quality profiles (mean values) indicated a slight increase in temperature from surface to bottom (approximately 0.9°C), consistent with patterns observed in winter 2024 (Appendix Figure B.8; Appendix Table B.15; Minnow 2025). During the summer monitoring event, water temperatures decreased from surface to bottom by approximately 1.4 to 4.5°C, with relatively large temperature changes (>0.5°C per 1 m interval) occurring between the surface and approximately 7 m depth (Appendix Figure B.8; Appendix Table B.16). The summer temperature profile at Sheardown Lake NW showed slightly cooler surface and bottom temperatures compared to Reference Lake 3; however, overall temperatures were considered comparable between lakes (Appendix Figure B.8). Similar to 2024, water temperatures were relatively uniform throughout the water column during the fall 2025 monitoring event, indicating fall lake turnover (Appendix Figure B.8; Appendix Table B.17; Minnow 2025). Temperatures at the profile station



in Sheardown Lake NW were also slightly cooler than those observed at the reference lake across the entire water column during fall sampling (Appendix Figure B.8).

During winter, summer, and fall, individual measurements of DO saturation at water quality and BIC monitoring stations in Sheardown Lake NW were indicative of moderately to nearly saturated conditions (i.e., minimum reported values for winter, summer, and fall were 80.4, 94.0, and 94.2%, respectively (Appendix Figure B.8; Appendix Tables B.15 to B.17). Additionally, mean DO saturation was within baseline and reference normal ranges in 2025 (Table 4.4; baseline and reference normal ranges are in Appendix Tables B.9 and B.18, respectively). Similarly, DO concentrations measured at water chemistry and BIC sampling stations were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L) across all depths and seasons, further indicating well-oxygenated conditions throughout the lake (Table 4.4; Appendix Figure B.8; Appendix Tables B.15 to B.17). Mean DO concentrations were also within baseline and reference normal ranges during the spring and fall 2025 monitoring events (no values were reported for the summer water quality sampling event; Table 4.4; Appendix Figure B.8; Appendix Tables B.15 to B.17).

In 2025, individual field pH values measured by Baffinland environment department personnel during the winter and fall monitoring events (no values were recorded in summer), as well as during BIC sampling conducted in August 2025, were within the CCME WQG range of 6.5 to 9 (Appendix Figure B.8; Appendix Tables B.15 to B.17). Mean field pH values were also within corresponding baseline and reference normal ranges during the 2025 monitoring events (Table 4.4).

Mean SPC at Sheardown Lake NW water quality monitoring stations during the spring and fall 2025 monitoring events were within reference normal ranges, but the values for summer and fall were above the baseline normal ranges (Table 4.4). Although mean SPC values at Sheardown Lake NW in summer and fall 2025 were higher than those observed during baseline, they were consistent with values measured at Sheardown Lake NW in 2024 (Minnow 2025). SPC values ranging from 200 to 250 $\mu\text{S}/\text{cm}$ indicate moderately mineralized waters and reflect the presence of dissolved ions in the lake. Concentrations within this range are not uncommon in northern lakes (e.g., Wetzel 2001) and, in the absence of consistent increases relative to both baseline and reference conditions, generally reflect natural geochemical inputs rather than a predominantly mine-related influence.



Table 4.4: Mean Water Chemistry at Sheardown Lake NW (DL0-01) and Reference Lake 3 (REF-03) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Lake (n = 3)		Sheardown Lake NW Stations (n = 5)		
				Summer	Fall	Winter	Summer	Fall
Conventionals	Conductivity (lab)	µS/cm	-	75.7	81.8	<u>253</u>	203	227
	Specific Conductance (field)	µS/cm	-	73.7	72.8	252	<u>198</u>	<u>208</u>
	pH (lab)	pH	-	7.80	7.79	7.53	7.94	7.90
	pH (field)	pH	6.5 - 9.0	7.74	7.54	7.66	8.01	8.01
	Temperature, Field	mg/L	-	<u>11.1</u>	6.90	0.838	8.49	7.70
	Hardness (as CaCO ₃) -Total	mg/L	-	35.6	35.4	<u>112</u>	95.3	94.5
	Total Suspended Solids (TSS)	mg/L	-	<1	<1	<1	1.17	<1
	Total Dissolved Solids (TDS)	mg/L	-	53.0	42.7	<u>152</u>	113	104
	Dissolved Oxygen	mg/L	> 9.5	11.0	11.5	13.4	11.6	11.5
	Dissolved Oxygen	%	-	99.8	94.5	93.5	99.1	97.2
	Turbidity (lab)	NTU	-	0.323	0.303	0.418	2.46	0.937
	Turbidity (field)	NTU	-	118	0.410	-0.122	2.80	1.72
	Alkalinity (as CaCO ₃)	mg/L	-	<u>32.8</u>	<u>32.5</u>	70.4	59	58.4
Nutrients and Organics	Total Ammonia ^c	mg/L	0.282 - 6.02	0.00587	0.00853	0.00765	0.0172	0.0135
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	1.60	0.997	1.08
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.177	0.174	0.169	0.306	0.273
	Dissolved Organic Carbon	mg/L	-	<u>3.26</u>	<u>2.92</u>	2.51	1.88	<u>2.18</u>
	Total Organic Carbon	mg/L	-	<u>3.91</u>	<u>3.42</u>	1.93	<u>2.43</u>	<u>2.20</u>
	Total Phosphorus	mg/L	-	0.00280	0.00207	0.00209	0.00463	0.00217
	Phenols	mg/L	0.00400	0.00120	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	0.129	<0.1	<0.1
	Chloride (Cl) ^c	mg/L	120	1.22	1.21	<u>8.54</u>	6.36	6.51
	Sulphate (SO ₄) ^c	mg/L	218 - 309	2.87	2.75	<u>35.8</u>	27.7	29.3
Total Metals	Aluminum (Al) ^c	mg/L	0.173	0.00737	0.00523	0.00731	0.0351	0.0154
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	<0.0001	0.000101	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	<u>0.00628</u>	<u>0.00640</u>	0.0120	0.00999	0.0103
	Beryllium (Be)	mg/L	0.000130	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	0.0177	0.0213	0.0140
	Cadmium (Cd) ^c	mg/L	0.0000675 - 0.000181	<0.000005	<0.000005	0.00000989	0.0000118	0.00000767
	Calcium (Ca)	mg/L	-	6.89	7.07	<u>20.5</u>	17.6	17.4
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^c	mg/L	0.000778 - 0.00109	<0.0001	<0.0001	0.000118	0.000130	0.000110
	Copper (Cu)	mg/L	0.00200 - 0.00272	0.000977	0.000850	0.00109	0.00137	0.000930
	Iron (Fe) ^c	mg/L	0.300	0.0167	0.0120	<0.01	0.0383	0.0150
	Lead (Pb)	mg/L	0.00100 - 0.00391	<0.00005	<0.00005	<0.00005	0.0000653	<0.00005
	Lithium (Li)	mg/L	-	<u><0.001</u>	<0.001	<u>0.00226</u>	0.00237	0.00190
	Magnesium (Mg)	mg/L	-	4.47	4.32	<u>14.7</u>	12.5	12.4
	Manganese (Mn)	mg/L	0.768 - 1.12	0.000787	0.000660	0.000482	0.0115	0.00204
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000163	0.000159	<u>0.00226</u>	0.00199	0.00208
	Nickel (Ni) ^c	mg/L	0.0250 - 0.108	<0.0005	<0.0005	0.000744	<u>0.000940</u>	0.000623
	Potassium (K)	mg/L	-	0.887	0.869	<u>2.50</u>	2.17	2.33
	Rubidium (Rb)	mg/L	-	0.000960	0.000957	0.00458	0.00358	0.00372
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	0.000145	0.000118	0.000108
	Silicon (Si)	mg/L	-	0.463	0.423	0.805	0.690	0.607
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.934	0.882	<u>2.84</u>	2.33	2.43
	Strontium (Sr)	mg/L	-	0.00825	0.00830	<u>0.0322</u>	0.0256	0.0276
	Sulphur (S)	mg/L	-	1.01	1.01	12.3	9.50	10.0
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000343	<0.0003	<0.0003	0.00171	<0.0006
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000318	0.000308	<u>0.00314</u>	0.00240	0.00269
	Vanadium (V) ^c	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<u>0.00313</u>	<0.003
	Zirconium (Zr)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 4.4: Mean Water Chemistry at Sheardown Lake NW (DL0-01) and Reference Lake 3 (REF-03) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Lake (n = 3)		Sheardown Lake NW Stations (n = 5)		
				Summer	Fall	Winter	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	0.00300	0.00147	0.00422	0.00687	0.00533
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00633	0.00678	0.0121	0.00966	0.0108
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	0.0177	0.0267	0.0140
	Cadmium (Cd)	mg/L	0.0000992 - 0.000238	<0.000005	<0.000005	0.0000104	0.0000110	0.00000603
	Calcium (Ca)	mg/L	-	6.98	7.34	<u>20.4</u>	16.2	18.4
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000545	<0.0001	<0.0001	0.000113	0.000103	<0.0001
	Copper (Cu) ^c	mg/L	0.000705 - 0.00336	0.000920	0.000710	0.000937	0.00268	0.000730
	Iron (Fe) ^c	mg/L	-	0.0103	<0.01	<0.01	<0.01	<0.01
	Lead (Pb) ^c	mg/L	0.00506 - 0.00715	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	0.00264	0.00270	<u>0.00227</u>
	Magnesium (Mg)	mg/L	-	4.47	4.82	<u>14.8</u>	11.8	13.5
	Manganese (Mn) ^c	mg/L	0.240 - 0.530	0.000317	0.000233	0.000105	0.00689	0.000203
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000157	0.000140	<u>0.00224</u>	0.00197	0.00190
	Nickel (Ni)	mg/L	0.00100 - 0.00240	<0.0005	<0.0005	0.000723	0.000620	0.000507
	Potassium (K)	mg/L	-	0.913	0.881	<u>2.49</u>	2.15	2.21
	Rubidium (Rb)	mg/L	-	0.000953	0.000937	0.00439	0.00345	0.00364
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	0.000164	0.000118	0.000119
	Silicon (Si)	mg/L	-	0.444	0.428	0.786	0.649	0.607
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.957	0.920	<u>2.89</u>	2.25	2.45
	Strontium (Sr) ^c	mg/L	2.50	0.00837	0.00830	<u>0.0320</u>	0.0259	0.0271
	Sulphur (S)	mg/L	-	1.08	0.993	12.5	9.19	10.2
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	0.000122	0.000180	<0.0001
	Titanium (Ti)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000300	0.000273	<u>0.00311</u>	0.00243	0.00240
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^c	mg/L	-	0.00117	<0.001	0.00101	<u>0.00317</u>	0.00100
	Zirconium (Zr)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLDIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underlineIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Mean field turbidity measurements reported for the winter, summer, and fall water quality monitoring events were indicative of clear water quality conditions in 2025; concentrations reported in summer and fall were within seasonal reference normal ranges (Table 4.4).⁵⁰

Overall, no action level responses were triggered for *in situ* water quality parameters at Sheardown Lake NW in 2025 based on comparisons with reference and baseline conditions.

4.4.1.2 Water Chemistry

At the water quality monitoring stations in Sheardown Lake NW (Table 2.2), mean concentrations of water quality parameters were below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025; dissolved copper was the only exception (Table 4.4; Appendix Table B.19; Appendix Figure B.9). Specifically, the mean concentration of dissolved copper at Sheardown Lake NW in summer was above the AEMP benchmark, as well as the seasonal reference and baseline normal ranges (Table 4.4). This higher mean concentration was driven primarily by the concentration reported for Station DL0-01-2, which is the station nearest to the SDLT9 inflow (Table 4.4; Figure 2.2; Appendix Table B.19). However, the mean dissolved copper concentrations in SDLT9 were not above the AEMP benchmark in 2025 and were comparable to previous years of monitoring (Table 4.4; Appendix Figure B.7). Regardless, a Moderate Risk Response was triggered for aqueous dissolved copper concentrations in Sheardown Lake NW in 2025, based on mean concentrations in summer being above the benchmark, reference, and baseline (Baffinland 2024).

In addition to dissolved copper, mean hardness, TDS, chloride, sulphate, dissolved silicon, and total and dissolved concentrations of barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium were above both the reference area and baseline normal ranges in at least one season in 2025 (Table 4.4). Consequently, Low Risk Responses were triggered for concentrations of these water quality parameters at Sheardown Lake NW (Baffinland 2024).

Aqueous concentrations of chloride, nitrate, sulphate, and total and dissolved concentrations of molybdenum, strontium, and uranium were assessed for temporal trends in 2025 as part of a special investigation triggered under the TARP in 2024 (Table 2.4; Minnow 2025). Significant increasing trends in concentrations of these parameters were identified for all seasons (individually and combined) and stations within Sheardown Lake NW, based on data collected from baseline to 2025 (Appendix Table G.9). When data for the period of mine operation (i.e.,

⁵⁰ The mean field turbidity value reported for winter 2025 was negative. Negative readings can result from instrument drift, sensor malfunctions, improper calibration/blanks, or the turbidity in the water sample being so low that the sensor cannot detect enough back-scattered light to provide an accurate reading (McDermid 2016).



2015 to 2025) were assessed for temporal trends in isolation from the baseline data, the same patterns of increasing concentrations over time were observed for all parameters and all stations within Sheardown Lake NW (Appendix Table G.10). Temporal trend analyses for the corresponding reference stations were largely indicative of stable concentrations over time, except for increases in total molybdenum concentrations that were generally associated with fall and stations REF3-01 and REF3-03, as well as significant decreasing trends in sulphate concentrations at all reference stations (Appendix Tables G.9 and G.10). Therefore, except for molybdenum, there does not appear to be a regional influence on aqueous concentrations of the studied parameters in Sheardown Lake NW and the reference lake. However, it is important to note that mean concentrations of nitrate were within reference area and baseline normal ranges in summer and fall 2025 (Table 4.4). Additionally, despite the observations of increasing trends in concentrations over time and higher concentrations relative to reference and baseline for all but nitrate in 2025, none of the parameters subjected to temporal trend analyses had concentrations above applicable AEMP benchmarks or WQG in 2025 (Table 4.4; see Section 3.1.1.3.1 for information the newly adopted AEMP benchmark for uranium).

4.4.2 Sediment Quality

Surficial sediments (i.e., the top 2 cm) collected from coring stations in Sheardown Lake NW in 2025 were primarily composed of silt or silt-sand (Figures 3.4 and 3.5) and were described as reddish/brown silt and sand with some algae/organics, depending on station (Appendix Table C.11). The littoral sediments had proportions of sand, silt and clay that were comparable to reference in 2025, whereas profundal sediments from Sheardown Lake NW had higher proportions of silt and lower proportions of sand relative to Reference Lake 3 (Figures 3.4 and 3.5). Overall, the profundal stations of Sheardown Lake NW had significantly finer substrate compared to profundal stations of Reference Lake 3 (Figures 3.4 and 3.5). Additionally, littoral and profundal sediments in Sheardown Lake NW had significantly lower TOC content compared to Reference Lake 3 (Figures 3.4 and 3.5; Appendix Tables C.1 and C.2). Relative to baseline, both littoral and profundal sediments collected from Sheardown Lake NW in 2025 had significantly less sand and more silt (Appendix Tables C.7 and C.8; Appendix Figures C.1 and C.2), suggesting a shift toward finer-grained sediment deposition relative to baseline conditions.

Some spatial patterns in sediment chemistry were identified in Sheardown Lake NW in 2025, based on concentrations of metals in sediment located nearest to the inflows from SDLT1 and SDLT12 (i.e., littoral Stations DD-HAB-9-STN2 and DL0-01-9, respectively) compared to the station located near the Sheardown Lake NW outflow (i.e., littoral Station DL0-01-10; Appendix Table C.12). For example, phosphorus, arsenic, barium, cadmium, iron, manganese, mercury, molybdenum, and uranium concentrations were much higher (RPDs between



concurrent samples were >100%) at DD-HAB-9STN2 than the outflow at Station DL0-01-10 in 2025 (Appendix Table C.12). At Station DL0-01-9 in 2025, sediment concentrations of arsenic, manganese, and molybdenum were higher relative to Station DL0-01-10, near the lake outflow (again, based on RPDs >100% between concurrent measures; Appendix Table D.12). Overall, the high observed concentrations of most metals in sediment were near the SDLT12 inflow in 2025 (i.e., at DL0-01-9), where the highest proportions of TOC were also observed (Appendix Table D.12). Iron was among the exceptions; concentrations of iron, arsenic, barium, manganese, and molybdenum were notably higher at DD-HAB-9STN2 (near SDLT1) than DL0-01-9 (near SDLT12) in 2025 (Appendix Table D.12). Overall, the spatial distribution of concentrations of metals and TOC in Sheardown Lake NW suggests possible localized influences of tributaries and association of metals with TOC.

In littoral sediments collected from Sheardown Lake NW in 2025, mean concentrations of iron were above the AEMP benchmark; no other parameters measured in littoral or profundal sediments had mean concentrations above AEMP benchmarks or SQG in 2025 (Table 4.5, Appendix Table D.12). Similar to Camp Lake (Section 3.3.2), higher iron concentrations (relative to AEMP benchmarks) in sediments from Sheardown Lake NW are influenced by the regional geology, which makes this area attractive for iron mining. This conclusion is supported by similarly high mean iron concentrations in Reference Lake 3 sediments in 2025 (Figure 4.3, Table 4.5). However, the spatial patterns within Sheardown Lake NW, as noted above, indicate some tributary influences (e.g., from SDLT1) on sediment iron concentrations within the lake. Iron concentrations within sediments of Sheardown Lake NW will be investigated further during the next annual cycle for the CREMP, as part of a Low Risk Response (Baffinland 2024).

All individual littoral and profundal samples with iron concentrations that were higher than the AEMP benchmark in 2025 (i.e., littoral stations DD-HAB-9-STN2, DL0-01-8, and DL0-01-9 and profundal station DL0-01-5) also had higher concentrations of other metals, likely due to sorption characteristics of the sediment (Appendix Table C.12). For example, iron and manganese (oxy)hydroxides are known to sorb metal cations (e.g., nickel, cadmium) and anions (Bendell Young et al. 1992), and there was significantly more nickel and cadmium in littoral and profundal sediments, respectively, in 2025 relative to the reference lake (Figures 3.7 and 3.8; Tables 3.7 and 3.8). Profundal sediments in Sheardown Lake NW also had significantly higher proportions of fine-grained silt relative to the reference lake and baseline, and fine sediment particles are often associated with higher concentrations of metals due to their larger surface area and greater binding affinity compared to larger particles like sand (Figures 3.4 and 3.5; Appendix Tables C.1 and C.2; Horowitz 1985). However, despite the differences between lakes noted above for particle sizes, concentrations of arsenic, chromium, iron, lead, manganese, mercury, phosphorus, and zinc were comparable between littoral habitats of Sheardown Lake NW and



Table 4.5: Total Organic Carbon (TOC) Content and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Sheardown Lake Northwest (NW; DL0-01) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	SQG ^a		AEMP Benchmark ^b	Littoral Stations						Profundal Stations					
						Reference Lake (n = 5)			Sheardown Lake NW (n = 5)			Reference Lake (n = 3)			Sheardown Lake NW (n = 3)		
			Lower	Upper		Mean	SD	SE	Mean	SD	SE	Mean	SD	SE	Mean	SD	SE
Total Organic Carbon (TOC)		%	1	10	-	4.83	2.13	0.953	2.35	1.29	0.577	4.45	0.114	0.0658	1.12	0.428	0.247
Phosphorus (P)		mg/kg	-	-	2,302	1,334	930	416	964	422	189	1,167	11.5	6.64	915	144	83.1
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	17,420	4,164	1,862	19,098	6,201	2,773	26,400	557	322	24,267	1,193	689
	Antimony (Sb)	mg/kg	-	-	-	<0.1	-	-	0.106	-	-	<0.1	-	-	0.110	-	-
	Arsenic (As)	mg/kg	-	-	11.5	4.62	2.58	1.15	6.00	4.80	2.15	5.53	0.196	0.113	4.61	0.457	0.264
	Barium (Ba)	mg/kg	-	-	-	121	43.2	19.3	115	78.9	35.3	141	7.77	4.49	102	18.9	10.9
	Beryllium (Be)	mg/kg	-	-	-	0.672	0.166	0.0742	0.856	0.253	0.113	0.930	0.0100	0.00577	1.10	0.0586	0.0338
	Bismuth (Bi)	mg/kg	-	-	-	<0.2	-	-	0.300	0.0672	0.0301	<0.2	-	-	0.320	0.0917	0.0529
	Boron (B)	mg/kg	-	-	-	15.4	3.58	1.60	27.6	8.95	4.00	20.2	0.351	0.203	35.5	1.97	1.14
	Cadmium (Cd)	mg/kg	-	-	2.1	0.175	0.0883	0.0395	0.254	0.119	0.0532	0.174	0.00950	0.00548	0.290	0.0399	0.0230
	Calcium (Ca)	mg/kg	-	-	-	4,698	1,000	447	4,432	1,165	521	5,597	25.2	14.5	4,360	399	230
	Chromium (Cr)	mg/kg	-	-	94	55.4	14.4	6.44	66.3	16.5	7.38	81.0	1.92	1.11	82.5	3.97	2.29
	Cobalt (Co)	mg/kg	-	-	-	12.3	4.04	1.81	14.7	4.78	2.14	17.9	0.611	0.353	18.2	1.57	0.906
	Copper (Cu)	mg/kg	-	-	89	70.0	26.1	11.7	42.7	16.5	7.38	102	4.46	2.57	49.0	4.20	2.42
	Iron (Fe)	mg/kg	-	-	71,736	56,100	45,144	20,189	74,000	39,654	17,734	53,067	1,747	1,009	63,967	20,192	11,658
	Lead (Pb)	mg/kg	-	-	63	14.1	3.12	1.40	17.3	5.08	2.27	19.1	0.723	0.417	21.9	2.04	1.18
	Lithium (Li)	mg/kg	-	-	-	25.9	6.04	2.70	26.8	8.16	3.65	35.8	0.404	0.233	35.3	1.03	0.595
	Magnesium (Mg)	mg/kg	-	-	-	11,596	2,689	1,203	13,450	3,622	1,620	16,967	289	167	15,767	1,845	1,065
	Manganese (Mn)	mg/kg	-	-	4,754	1,057	926	414	1,559	1,655	740	1,277	81.4	47.0	1,540	408	236
	Mercury (Hg)	mg/kg	-	-	0.33	0.0447	0.0287	0.0128	0.0336	0.0148	0.00662	0.0752	0.0100	0.00577	0.0384	0.0143	0.00826
	Molybdenum (Mo)	mg/kg	25	23,000	-	5.92	5.26	2.35	6.72	5.37	2.40	2.72	0.191	0.110	3.42	1.19	0.687
	Nickel (Ni)	mg/kg	-	-	82	41.1	11.4	5.10	65.3	17.8	7.96	55.2	1.76	1.02	74.6	6.41	3.70
	Potassium (K)	mg/kg	-	-	-	4,320	1,078	482	4,780	1,558	697	6,303	233	135	6,130	282	163
	Selenium (Se)	mg/kg	-	-	-	0.736	0.404	0.181	0.450	0.113	0.0505	0.837	0.00577	0.00333	0.410	0.165	0.0953
	Silver (Ag)	mg/kg	0.5	-	-	0.152	0.0675	0.0302	0.138	0.0257	0.0115	0.253	0.0208	0.0120	0.163	0.0306	0.0177
	Sodium (Na)	mg/kg	-	-	-	329	88.7	39.7	247	71.8	32.1	489	8.14	4.70	325	31.5	18.2
	Strontium (Sr)	mg/kg	-	-	-	11.5	2.05	0.917	11.1	2.36	1.06	14.5	0.200	0.115	12.8	0.231	0.133
	Sulphur (S)	mg/kg	-	-	-	1,420	332	148	1,200	113	50.5	1,300	100	57.7	<1,000	0	0
	Thallium (Tl)	mg/kg	-	-	-	0.407	0.169	0.0756	0.414	0.139	0.0622	0.721	0.0201	0.0116	0.520	0.0186	0.0107
	Tin (Sn)	mg/kg	-	-	-	<2	-	-	<2	-	-	<2	-	-	<2	-	-
	Titanium (Ti)	mg/kg	-	-	-	1,127	205	91.7	1,150	277	124	1,440	50.0	28.9	1,410	52.9	30.5
	Uranium (U)	mg/kg	-	-	-	15.1	6.28	2.81	7.94	3.28	1.47	25.2	0.493	0.285	8.23	1.23	0.710
	Vanadium (V)	mg/kg	-	-	-	52.1	10.9	4.87	48.2	13.8	6.17	73.2	1.16	0.670	62.0	1.97	1.14
	Zinc (Zn)	mg/kg	-	-	219	71.3	15.5	6.93	61.9	19.2	8.59	97.3	1.80	1.04	74.5	8.61	4.97
	Zirconium (Zr)	mg/kg	-	-	-	3.90	1.38	0.617	10.4	5.70	2.55	3.77	0.115	0.0664	8.37	1.68	0.970

- Indicates a concentration above the lower SQG.
- Indicates a concentration above the lower and upper SQG.
- BOLD**

 Indicates a concentration above the AEMP Benchmark.

Notes: SQG = sediment quality guideline. AEMP = Aquatic Effects Monitoring Plan. n = number of samples. SD = standard deviation. SE = standard error. % = percent. - = no value/not applicable. mg/kg = milligrams per kilogram dry weight.

^a For mine-exposed lakes, comparisons to generic SQG derived for other jurisdictions were only completed for parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Sheardown Lake NW.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

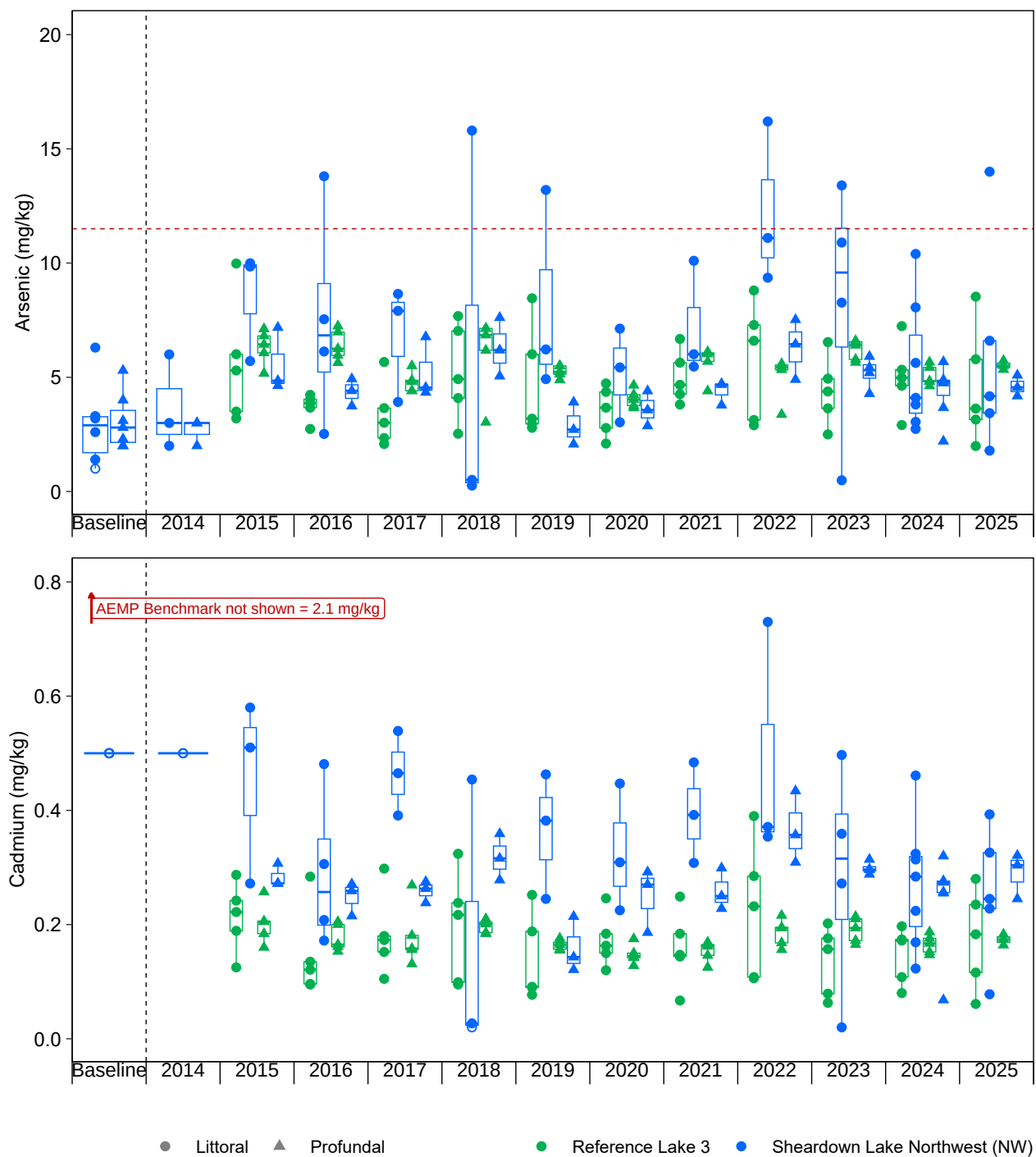


Figure 4.3: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Sheardown Lake Northwest (NW) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicate upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

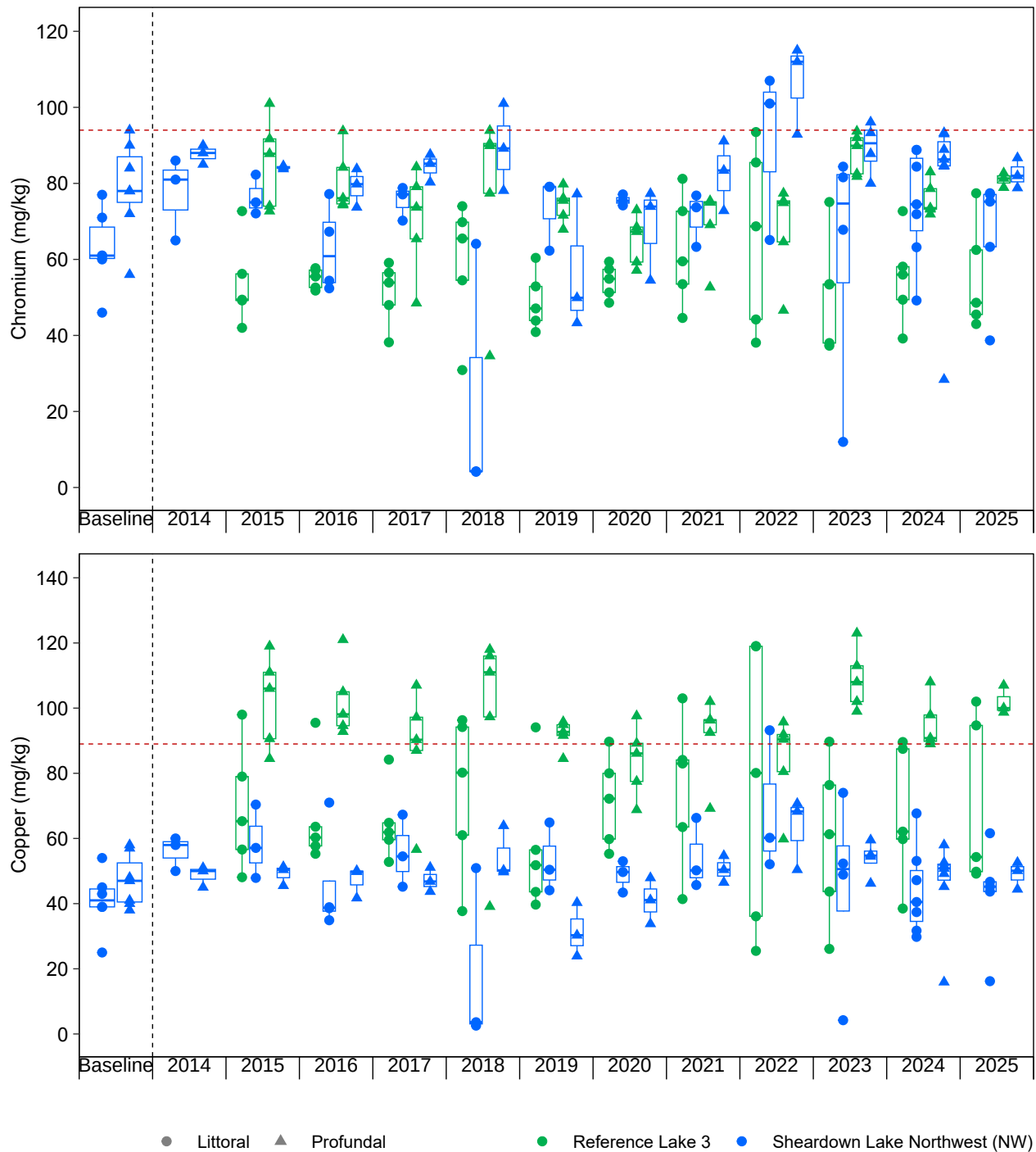


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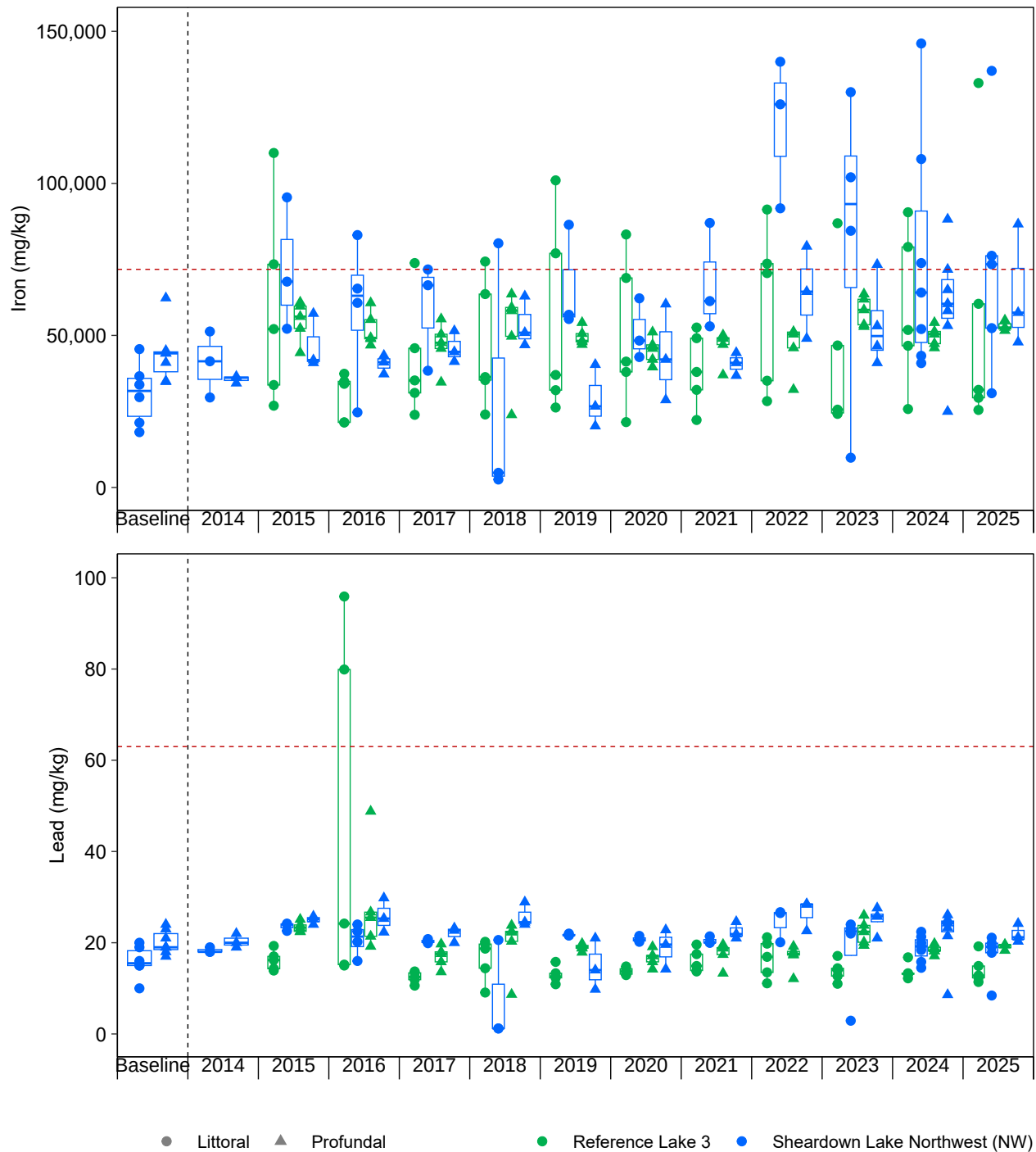


Figure 4.3: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Sheardown Lake Northwest (NW) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicate upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).



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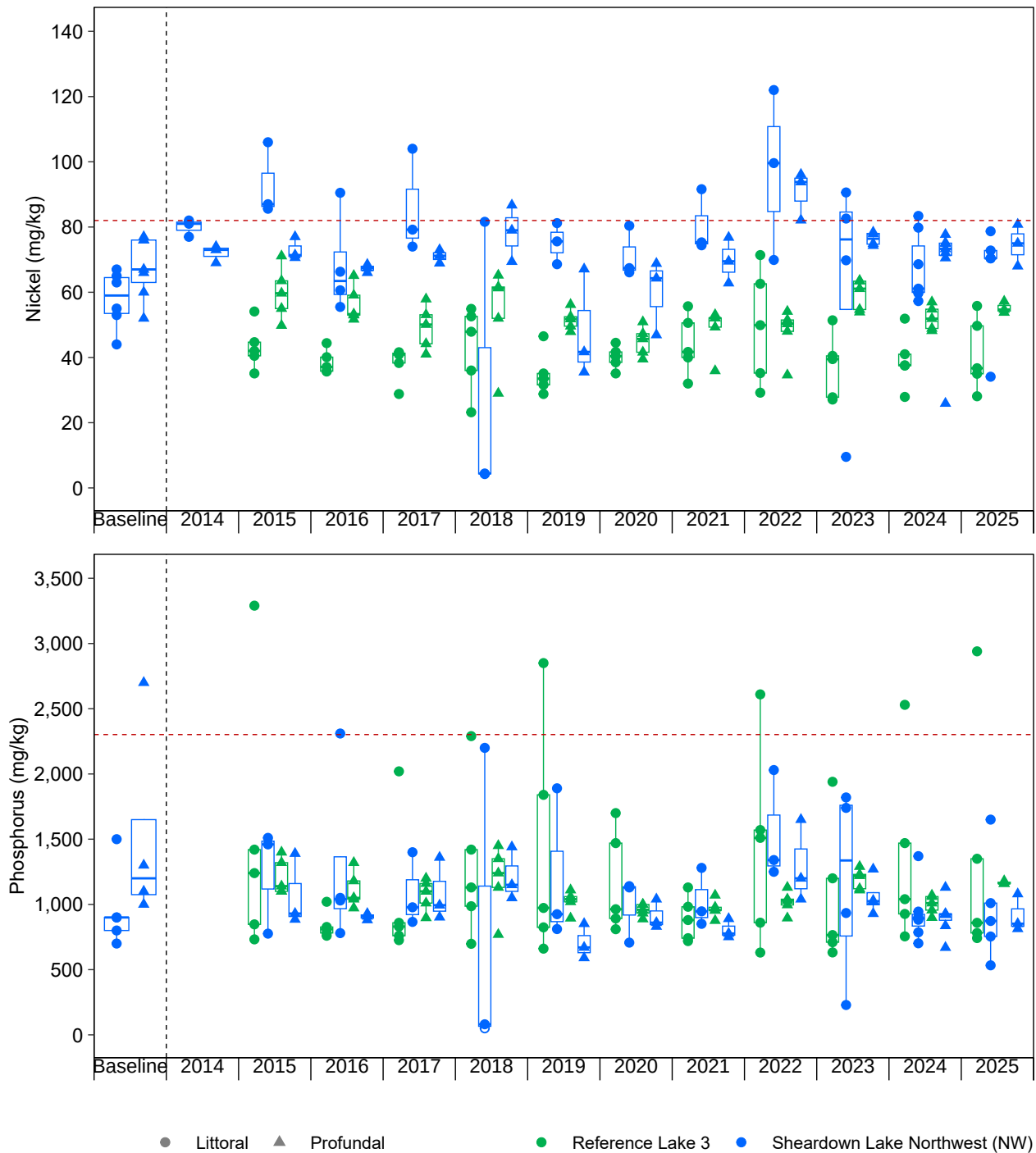


Figure 4.3: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Sheardown Lake Northwest (NW) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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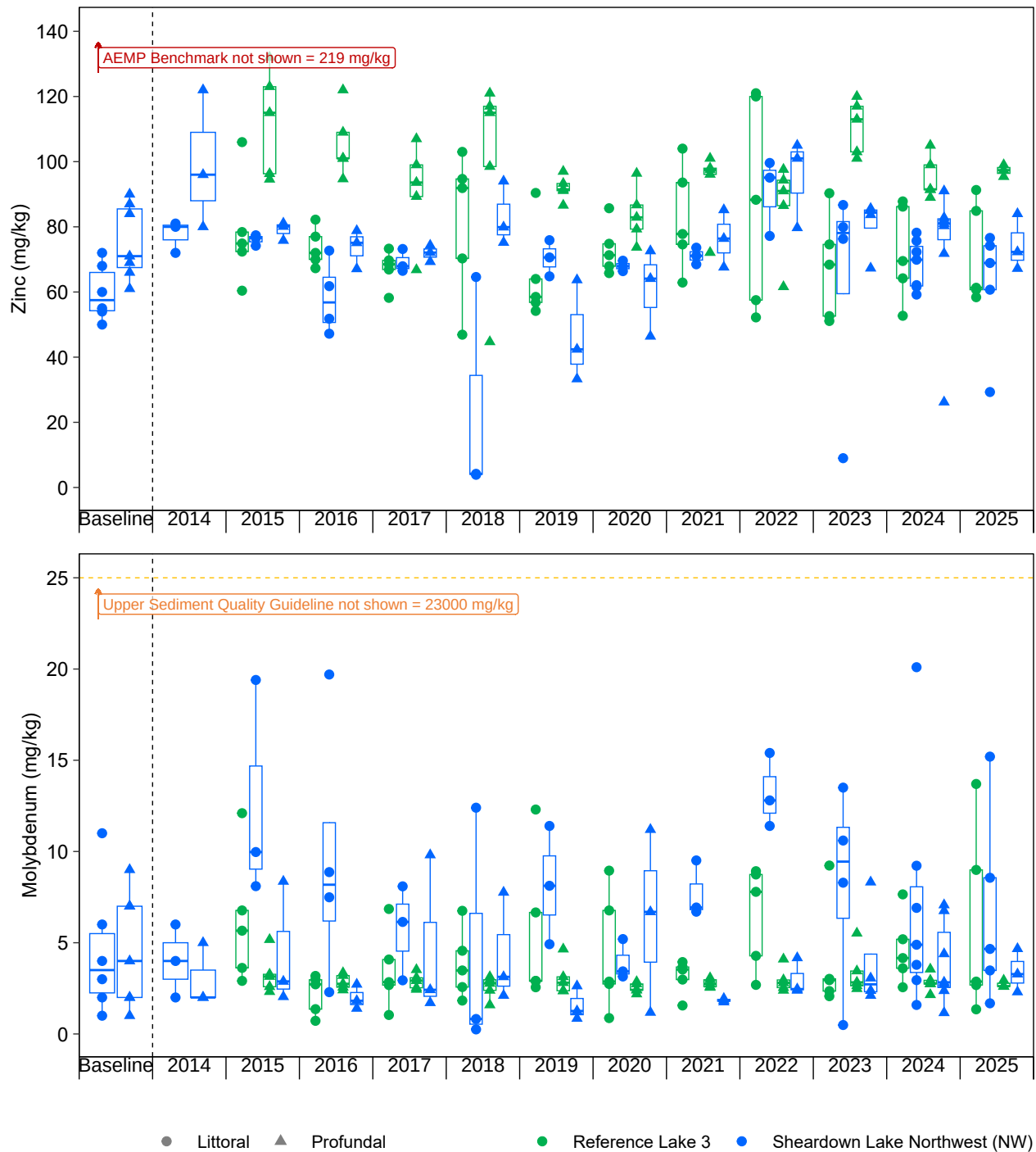


Figure 4.3: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Sheardown Lake Northwest (NW) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicate upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

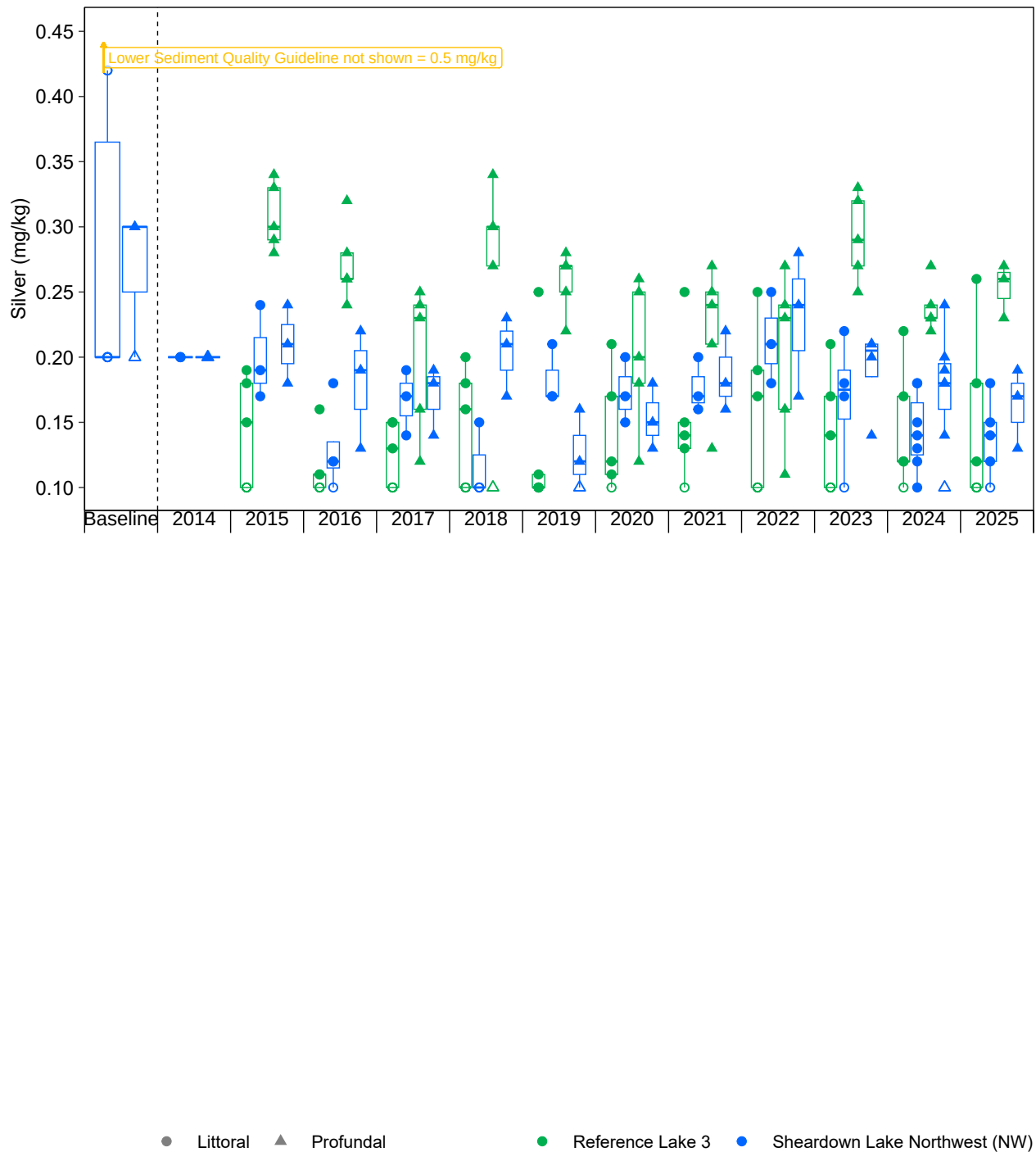


Figure 4.3: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Sheardown Lake Northwest (NW) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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Reference Lake 3 (Figure 3.7). Additionally, copper concentrations in littoral and profundal habitats of Sheardown Lake NW were lower relative to reference in 2025 (Figures 3.7 and 3.8; Tables 3.7 and 3.8). In fact, cadmium and nickel were the only metals with higher concentrations in profundal sediments at Sheardown Lake NW relative to Reference Lake 3 in 2025 (Figure 3.8). Overall, the spatial assessment of sediment chemistry results for within Sheardown Lake NW and relative to reference is suggestive of tributary influences, as well as geological enrichment that appears to have a regional influence on sediment chemistry.

Relative to baseline conditions, the only significant difference in sediment chemistry conditions in littoral and profundal habitats of Sheardown Lake NW was higher sediment iron concentrations in littoral sediments only in 2025 (Appendix Figures C.3 and C.4; Appendix Tables C.9 and C.10). This pattern may reflect enhanced mobilization of iron as a result of mining and associated disturbance of iron rich ore at the site. However, again, it is important to note that iron concentrations in littoral and profundal sediments from Camp Lake did not differ significantly relative to reference in 2025 (Tables 3.7 and 3.8).

Iron concentrations in sediments from Sheardown Lake NW were assessed for temporal trends in 2025, as part of a special investigation triggered under the TARP in 2024 (Table 2.7; Minnow 2025). Similar to the trend analyses conducted for Sheardown Lake NW in 2024, the trend analyses completed for 2025 identified significant increasing trends in mean iron concentrations in sediments since baseline (2007 to 2025) and over the mine operation period (2015 to 2025; Appendix Tables G.11 and G.12). Similar temporal trends were not observed for iron concentrations at Reference Lake 3, where data were only available for the period of mine operation (2015 to 2024; Appendix Tables G.11 and G.12). Based on trend analyses completed for individual sediment monitoring stations within Sheardown Lake NW, it appears that the overall trends in increasing concentrations over time are driven primarily by increasing trends at littoral stations DD-HAB9-STN2 and DL0-01-9 and profundal station DL0-01-5 (Appendix Tables G.13 and G.14). For DL0-01-9, there was a step-change increase in iron concentrations from baseline to early mine operations (circa 2015), but iron concentrations in sediments were relatively consistent thereafter (Appendix Tables G.13 and G.14). The increasing concentrations over time at littoral station DD-HAB9-STN2 is likely related to tributary influence, given its proximity to the SDLT1 inflow; however, it is unclear what is driving the temporal trends observed at littoral station DL0-01-5 (Figure 2.4).

Overall, spatial and temporal patterns in sediment iron concentrations suggest a mine-related influence on sediment quality in Sheardown Lake NW; however, there is no apparent mine-related influence on sediment concentrations of other metals. Because iron concentrations in littoral



sediments exceeded the AEMP benchmark and were also higher than baseline conditions, a Low Risk Response was triggered under the TARP in 2025 (Baffinland 2024).

Sediment accumulation thickness estimates reported in the LSMP for the 2024/2025 ice cover period were two to three times lower than the lowest threshold that would trigger additional studies, data analysis, or corrective action (TCC 2026c). In the FEIS (Baffinland 2012), sediment accumulation thickness estimates at or below 1 mm/year were predicted to have a negligible effect on the direct mortality of arctic charr and arctic charr eggs. Sediment accumulation thickness estimates during the combined 2024/2025 ice cover and 2025 open water periods were well below (approximately five to ten times less than) the 1 mm/year prediction in the FEIS at all littoral and profundal monitoring areas in Sheardown Lake NW. These findings indicated that sedimentation during egg incubation and the period when newly hatched arctic charr are still in the substrate is not expected to negatively affect arctic charr reproductive success in Sheardown Lake NW.

To address comments received on the Mary River Project Annual Report for 2024, Baffinland committed to completing a literature review of the influence of lake sedimentation on arctic charr egg survival. Few recent papers featuring arctic charr specifically were identified; however, Mari et al. (2021) studied the combined effects of sedimentation and global warming (i.e., higher water temperatures) on survival and growth of embryo-larval stages of arctic charr. Interestingly, they did not detect any sedimentation-induced changes in survival at the water temperature of 5°C but found that the higher test temperature (8.5°C) exacerbated sedimentation-related effects on embryo survival and embryo size. Fortunately, waters near the bottom of Sheardown Lake NW in winter were quite cold (i.e., between approximately 0.7 and 1.6°C, depending on location within the lake), so it is considered unlikely that temperature is compounding potential sedimentation effects (Appendix Table B.15). However, the results of the temporal comparisons (above) indicate a shift over time toward deposition of finer-grained sediments (i.e., silt versus sand) in littoral and profundal areas of Sheardown Lake NW (Appendix Tables C.7 and C.8). Additionally, the particle sizes for the bulk density samples collected from the area representing favourable spawning habitat (SHAL-2) were predominantly fine sand (approximately 49%) and silt/clay (approximately 44%; TCC 2026c). Studies with Atlantic salmon (*Salmo salar*) have found that the sizes of the particles deposited is a key determinant in whether there are adverse effects to embryo-larval mortality; deposition of fine particles early on in embryo development and coarser particles during hatching and until emergence can result in adverse effects (Julien and Bergeron 2006; Kemp et al. 2011). This is because deposition of predominantly fine sediments can smother salmonid eggs by settling into the interstitial spaces between the coarser substrates, thereby reducing substrate permeability and hindering oxygenation and removal of wastes; eggs may also become covered in a thin film of silt and clay



particles that block micropores on the egg surface (e.g., Levasseur et al. 2005; Kemp et al. 2011). Coarser particles can form a layer over the coarser substrates, making it more difficult for larval fish to leave the substrates during emergence. Other impacts from sediment deposition to health of salmonid embryos and larvae can include reduced enlarged yolk sacs, which may affect swimming behaviour, as well as reduced lengths and weights (Kemp et al. 2011). Therefore, monitoring of sediment deposition, accumulation, and particle sizes in Sheardown Lake NW, along with fish health endpoints, will continue to be important for understanding potential risks to arctic charr.

4.4.3 Phytoplankton

In 2025, mean chlorophyll-a concentrations at the surface of Sheardown Lake NW were similar across seasons, consistently below the AEMP benchmark, and characteristic of oligotrophic conditions (Wetzel 2001; Figure 3.9; Appendix Table D.3). Chlorophyll-a concentrations measured near the bottom of the water column in winter⁵¹ 2025 were lower relative to concurrent and co-located surface samples (Figure 3.9; Appendix Table D.3; Appendix Figure D.1). Additionally, chlorophyll-a concentrations at the surface of Sheardown Lake NW were below the upper limit of the reference normal range in summer and fall (Figure 3.9; Appendix Table D.3). Overall, the results for chlorophyll-a concentrations are supported by mean aqueous total phosphorus concentrations being <10 µg/L throughout 2025 (Table 4.4), consistent with oligotrophic conditions under the CCME (2004) Phosphorus Guidance Framework.

Although chlorophyll-a concentrations at Sheardown Lake NW have varied seasonally and annually throughout mine construction (2014) and operation (2015 to 2025), no consistent temporal patterns were observed (Figure 4.4). However, 2025 represented the first year over the period of record during which chlorophyll-a concentrations in summer and fall were within their respective reference area normal ranges (Figure 4.4; Appendix Table D.3). For all other years since mining began (i.e., in 2025), chlorophyll-a concentrations in Sheardown Lake NW have been higher than those in Reference Lake 3 during at least one season per year (Minnow 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024a, 2025; Figure 4.4; Appendix Table D.3). The magnitude of these differences has consistently been <1.5 µg/L. Further, both Sheardown Lake NW and Reference Lake 3 fall within the same trophic class, and the small differences between lakes are more likely explained by natural factors, such as lake morphology, mixing potential, and light availability, than by mine-related influences. Due to the absence of chlorophyll-a data from the baseline period (2005 to 2013), comparisons to pre-mining conditions were not possible.

⁵¹ No bottom water samples for analysis of chlorophyll-a concentrations were collected in summer and fall 2025.



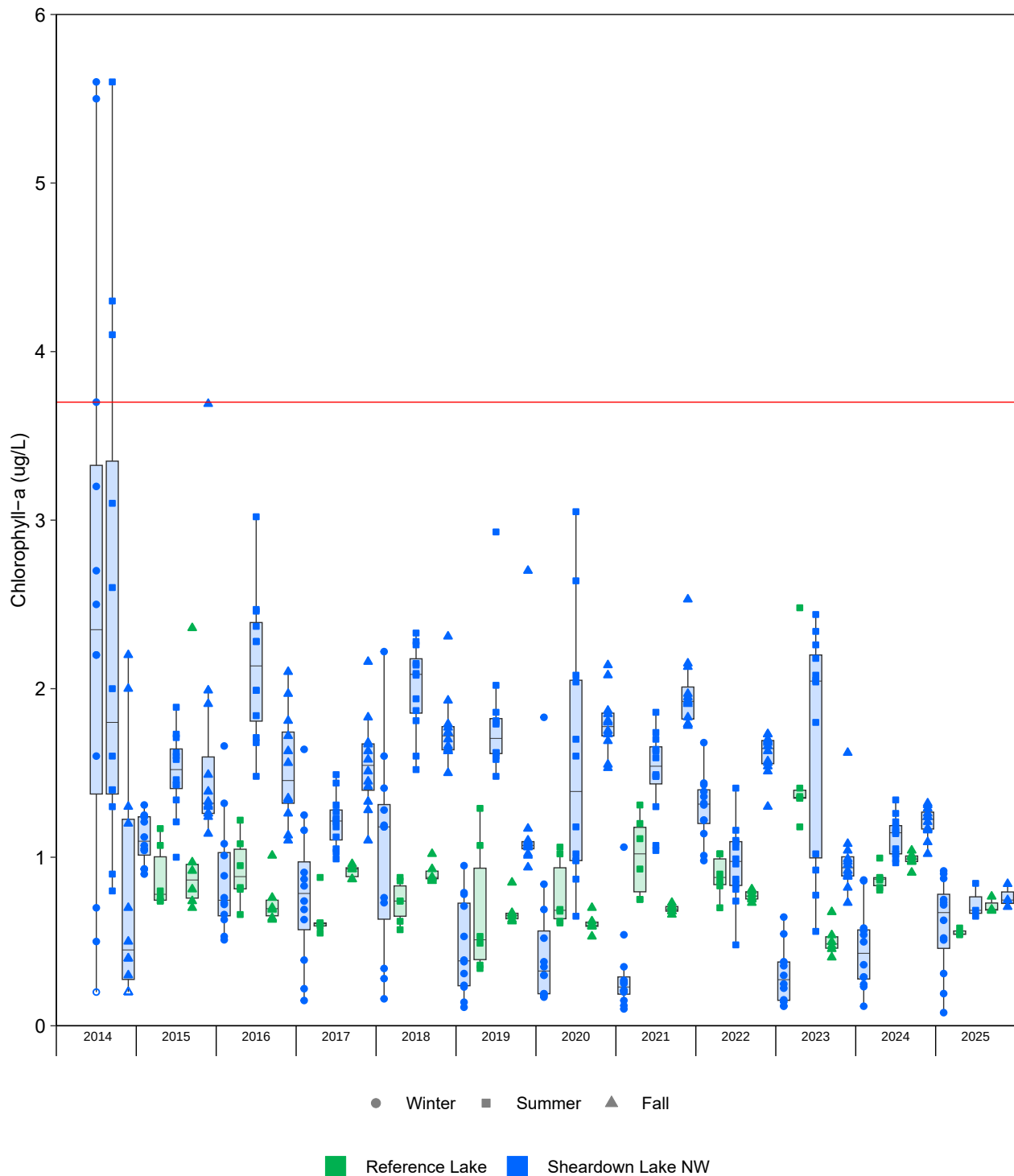


Figure 4.4: Temporal Comparison of Chlorophyll-a Concentrations in Sheardown Lake Northwest (NW) and Reference Lake 3 Based on Data for the Mine Construction (2014) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Overall, chlorophyll-a concentrations in Sheardown Lake NW show no consistent increasing or decreasing temporal patterns and were well below the AEMP benchmark from 2016 through 2025 (Figure 4.4). Overall, the results of the chlorophyll-a analysis indicate no adverse mine-related effects on phytoplankton productivity at Sheardown Lake NW in 2025, and no action level responses were triggered under the TARP (Baffinland 2024).

4.4.4 Benthic Invertebrate Community

In 2025, most BIC endpoints from the littoral habitats of Sheardown Lake NW were comparable to those observed at Reference Lake 3, except for lower relative proportions of filterers and clingers and higher relative proportions of burrowers relative to reference (Table 3.9; Appendix Figure E.5; Appendix Tables E.14, E.16, and E.30). Of these, only the difference in burrowers was considered ecologically meaningful (i.e., MOD outside the CES_{BIC} of $\pm 2 SD_{REF}$; Table 3.9; Appendix Figure E.5). Bray–Curtis similarity analysis also identified a statistically significant difference in overall community structure between Sheardown Lake NW and Reference Lake 3 (Appendix Table E.17). The higher proportion of burrowers at Sheardown Lake NW suggests a greater influence of fine sediments and may also be a reflection of more organic material relative to the reference lake. Specifically, burrower taxa like *Lumbriculus* and *Stictochironomus* were found at the greatest densities at the sampling stations within Sheardown Lake NW that had the most macrophyte/algal growth and softer/organic substrates (Stations DL0-01-9 and DL0-01-3, respectively; Appendix Tables E.30 and E.31; Johnson et al. 2007). Overall, burrowing taxa tend thrive under stable, softer substrate conditions where organic material accumulates.

Despite the differences between lakes noted above, the general similarity across most BIC endpoints indicates that community integrity (as evidenced by total organism densities, richness, and evenness) in Sheardown Lake NW remains largely comparable to reference conditions. No action level responses were triggered for the 2025 spatial comparison between Sheardown Lake NW and Reference Lake 3 (Baffinland 2024).

Most BIC endpoints in the littoral habitat of Sheardown Lake NW were comparable to all three baseline years (i.e., 2007, 2008, and 2013) over the course of the mine operation period (2015 to 2025), except richness (different in 2024 relative to 2013 only) and relative proportions of *Ostracoda*, *Chironomidae*, collector-gatherers, and filterers (Appendix Table E.32; Appendix Figure E.6). Most significant differences relative to a given baseline year were ecologically meaningful (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$; Appendix Table E.29; Appendix Figure E.6). However, it is noteworthy that for some endpoints, there was a moderate degree of variability among baseline years (e.g., relative proportion of *Ostracoda* and *Chironomidae* in 2013 were on the higher and lower end, respectively, of values reported for 2007



and 2008; Appendix Table E.29), and this variability is likely contributing to the significant differences observed in later years relative to baseline.

Results of the 2024/2025 LSMP suggest the higher relative proportions of *Ostracoda* and lower proportions of *Chironomidae* observed in Sheardown Lake NW since approximately 2022 may be attributed to higher sedimentation rates and accumulation thickness estimates for BIC stations co-located with sediment trap monitoring stations in 2024 and 2025 relative to baseline (2015 for sedimentation; TCC 2026c). Specifically, relative proportions of *Chironomidae* were strongly and negatively correlated with sedimentation rate and accumulation thickness estimates for the open water season, and relative proportions of *Ostracoda* were shown to be strongly and positively correlated with sediment accumulation thickness estimates at the littoral BIC stations co-located with the sediment trap monitoring stations (TCC 2026c). Although this potential mine-related influence of sedimentation on BIC was detected through the LSMP (TCC 2026c), metal-sensitive *Chironomidae*, key bioindicators of contaminant stress, did not exhibit any significant differences relative to baseline over the mine operation period (although relative abundances were significantly higher in 2022 relative to 2024 and 2025, the differences were not ecologically meaningful; Appendix Table E.32). This suggests that while sedimentation may be influencing BIC structure in certain areas of the lake, there is currently no evidence to suggest widespread adverse effects to the littoral BIC of Sheardown Lake NW.

For the endpoints outlined in the TARP that would trigger action level responses (i.e., density, Simpson's Evenness, and taxonomic richness; Baffinland 2024), no statistically significant differences were identified for 2025 relative to any of the three baseline years (2007, 2008, and 2013; Appendix Table E.32). Therefore, no action level responses were triggered for the 2025 baseline comparison.

Overall, the littoral BIC results for Sheardown Lake NW in 2025 indicate a community that has shown little variability in key endpoints (i.e., densities, richness, and evenness) relative to both the reference lake and pre-operational baseline years. Additionally, the observed differences in other endpoints, relative to reference, appear to be best explained by differences in habitat features rather than mine-related effects. Recent shifts in community composition that coincided with increased sedimentation at select littoral stations appear to reflect localized depositional processes rather than broad community disruption, particularly given the absence of ecologically meaningful differences in metal-sensitive taxa and overall organism densities. No action level responses were triggered in 2025.



4.4.5 Fish Population

4.4.5.1 Fish Community

Arctic charr was the only fish species captured at Sheardown Lake NW in 2025 (Table 4.6; Appendix Tables F.1 and F.12). Ninespine stickleback have been captured in some years during nearshore electrofishing at very low densities (CPUE 0.04 to 0.23 fish per electrofishing minute; Minnow 2020, 2021, 2022, 2024a); however, none were captured in 2025, consistent with results from 2015 to 2018, 2022, and 2024 (Minnow 2016, 2017, 2018, 2019, 2023, 2025). The inconsistent detection of ninespine stickleback in Sheardown Lake NW across CREMP monitoring years suggests natural annual variability in habitat use and/or sampling conditions, rather than changes in fish community richness over time.

Electrofishing CPUE at Sheardown Lake NW in 2025 was higher relative to Reference Lake 3 (Figure 4.5; Table 4.6; Appendix Table F.1), consistent with previous years of monitoring⁵² and the long-standing pattern of higher fish catchability in Sheardown Lake NW relative to the reference lake. These results may reflect greater primary productivity (i.e., food availability) within Sheardown Lake NW, including higher summer chlorophyll-a concentrations (Section 4.4.3). Throughout baseline (2006 to 2013), construction (2014), and mine operations (2015 to 2025), electrofishing CPUE for Sheardown Lake NW showed moderate interannual variability, with periods of low (e.g., 2008, 2021 to 2023), intermediate (e.g., 2015 to 2018, 2020), and a higher (e.g., 2013, 2019) CPUE (Figure 4.5). The 2025 electrofishing CPUE falls within the established range of variability and represents a moderate catch rate, relative to other years. Overall, the electrofishing CPUE for 2025 suggests that catchability of arctic charr in littoral areas of Sheardown Lake NW is consistent with previous years of monitoring and likely reflective of natural interannual variability, rather than mine-influence.

Similar to 2015 through 2024, gill net CPUE at Sheardown NW in 2025 was higher relative to Reference Lake 3, reinforcing the pattern of higher fish catchability (i.e., as noted for electrofishing, above) in Sheardown Lake NW relative to the reference area (Figure 4.5; Table 4.6; Appendix Tables F.3 and F.12). Throughout baseline (2006 to 2013), construction (2014) and mine operations (2015 to 2025), gill netting CPUEs for Sheardown Lake NW were highly variable, with periods of lower catches (e.g., 2006, 2014 to 2019), followed by several years of moderate (e.g., 2020, 2023), and high (e.g., 2021 and 2022) CPUE years (Figure 4.5; Table 4.6; Appendix Table F.12). Interestingly, CPUE exhibited similar temporal patterns in Sheardown

⁵² No electrofishing or gill netting was completed in Reference Lake 3 during the baseline period (i.e., 2006 to 2013).



Table 4.6: Fish Catch and Community Summary from Backpack Electrofishing and Gill Netting Conducted at Sheardown Lake Northwest (NW; DL0-01), Sheardown Lake Southeast (SE; DL0-02), and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Lake	Method ^a		Number of Fish Caught and CPUE by Method			Total Number of Species
			Arctic Charr	Ninespine Stickleback	Total by Method	
Reference Lake 3	Electrofishing	Number Caught	101	6	107	2
		CPUE	1.21	0.0720	1.28	
	Gill netting	Number Caught	54	0	54	
		CPUE	1.53	0	1.53	
Sheardown Lake Northwest	Electrofishing	Number Caught	100	0	100	1
		CPUE	3.25	0	3.25	
	Gill netting	Number Caught	103	0	103	
		CPUE	5.07	0	5.07	
Sheardown Lake Southeast	Electrofishing	Number Caught	100	4	104	2
		CPUE	3.45	0.138	3.59	
	Gill netting	Number Caught	102	0	102	
		CPUE	10.3	0	10.3	

^a Catch-per-unit-effort (CPUE) for electrofishing represents the number of fish captured per electrofishing minute and for gill netting represents the number of fish captured per 100 metre-hours of net deployed.

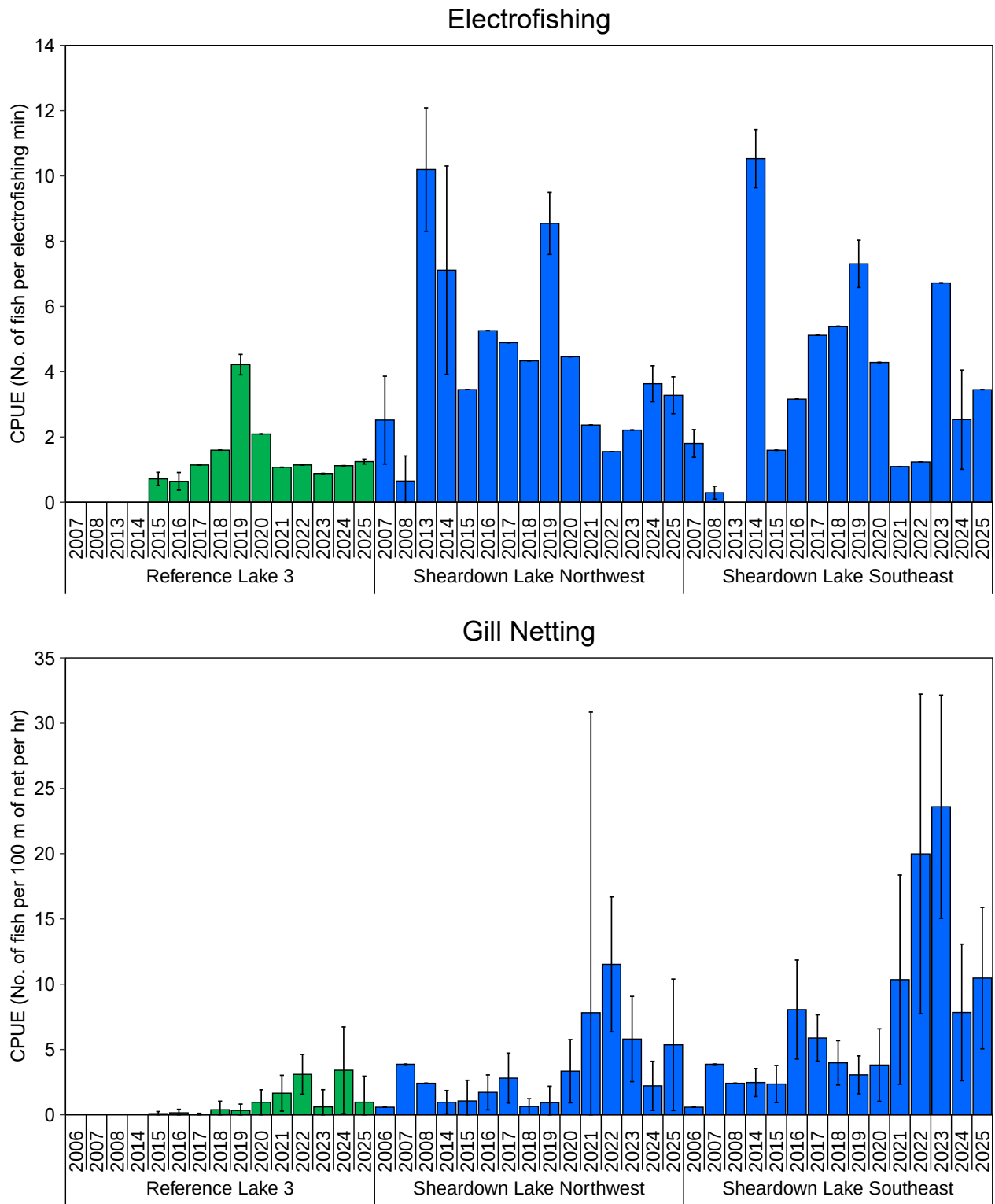


Figure 4.5: Catch-per-unit-effort (CPUE; mean $\pm$ standard deviation) of Arctic Charr Captured by Backpack Electrofishing and Gill Netting at Sheardown Lake Northwest (NW; DL0-01), Sheardown Lake Southeast (SE; DL0-02), and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Notes: Data presented for fish sampling conducted in fall during baseline (2006, 2007, 2008, 2013), construction (2014) and operational (2015 to 2025) mine phases. Lake basins (i.e., NW or SE) were not differentiated for baseline gill netting catches. Reference areas are shown in green and mine-exposed areas are shown in blue.

Lakes NW and SE in most years (i.e., relatively low catches in 2006, 2014, and 2019; moderate catches in 2020, and high in 2021 and 2022 (Figure 4.5).

The 2025 CPUE for Sheardown Lake NW falls within the established range of interannual variability, appears to represent moderate to high fish catchability in Sheardown Lake NW, and is not suggestive of potential mine-related effects. Additionally, there are no consistent temporal patterns in chlorophyll-a concentrations (i.e., phytoplankton productivity) or BIC endpoints that would suggest the observed patterns in CPUE in Sheardown Lake NW are attributed to interannual variability in primary and secondary productivity (Sections 4.4.3 and 4.4.4).

Overall, the 2025 electrofishing and gill netting results demonstrate that arctic charr catchability in Sheardown Lake NW remains well within the range of long-term variability and consistently higher relative to Reference Lake 3. The absence of ninespine stickleback in the 2025 catch is consistent with their intermittent detection across previous years and reflects natural annual variability rather than a change in fish community structure. Taken together, the 2025 CPUE data, supported by generally higher primary productivity in Sheardown Lake NW relative to the reference lake, provide no evidence of adverse mine-related effects to the fish community in Sheardown Lake NW.

4.4.5.2 Fish Health Assessment

4.4.5.2.1 Nearshore Arctic Charr

In August 2025, a total of 100 and 101 arctic charr from the nearshore habitats of Sheardown Lake NW and Reference Lake 3, respectively, were assessed for fish health endpoints (Appendix Tables F.5 and F.13). YOY arctic charr were distinguished from older age classes (non-YOY) based on LFDs and supporting measurements of individual fish lengths, weights, and ages (Figure 3.12). This produced length thresholds of 4.5 cm for Sheardown Lake NW and 4.0 cm for Reference Lake 3, to separate smaller, younger fish from older, larger fish (Appendix Tables F.5 and F.13). Because fewer than ten YOY arctic charr were captured in Sheardown Lake NW in 2025 (Appendix Table F.13), statistical comparisons of fish health endpoints were restricted to the non-YOY age classes, except for LFD comparisons relative to Reference Lake 3, which were conducted for the distribution of all nearshore arctic charr fish lengths, regardless of age class (Figures 3.12 and 3.13, Table 4.7, Appendix Figures F.1 and F.2, Appendix Tables F.5 and F.13).

For both age classes combined, as well as the non-YOY grouping, LFDs at Sheardown Lake NW in 2025 were significantly different from those in Reference Lake 3 (maximum MODs = +35% and +34%, respectively; Appendix Table F.6). These differences were driven by Sheardown Lake NW supporting a broader and generally larger size distribution of arctic charr, whereas fish in Reference Lake 3 had predominantly smaller fork lengths (i.e., primarily in the 5 to 6.5 cm range;



Figures 3.12 and 3.13; Appendix Table F.6). This pattern suggests greater size variability and a higher proportion of mid-sized to larger individuals at Sheardown Lake NW relative to the reference lake. The comparison of LFDs between Sheardown Lake NW and Reference Lake 3 also revealed that, in 2025, the relative abundance of YOY fish did not differ between lakes (i.e., including the YOY in the LFDs did not change the interpretation of the significance of the difference between lakes; Environment Canada 2012).

The conclusions drawn based on the 2025 LFD data for nearshore arctic charr are further supported by non-YOY arctic charr captured from Sheardown Lake NW being significantly longer (MOD = +23%) and heavier (MOD = +127%) relative to Reference Lake 3 (Appendix Figure F.3; Appendix Table F.6). Despite these size differences, weight-at-length relationships indicated overall body condition for nearshore fish was comparable (i.e., not statistically significantly different) between lakes, and no action level responses were triggered for the comparison of condition among areas in 2025 (Appendix Figure F.3; Appendix Table F.6; Baffinland 2024).

Longer-term comparisons between Sheardown Lake NW and Reference Lake 3 show that LFD and body size (fork length and body weight) for non-YOY arctic charr have been almost consistently significantly different throughout mine operations (2015 to 2025; Table 4.7). These differences have generally reflected larger and heavier fish in Sheardown Lake NW relative to reference. From 2015 to 2025, fish condition was either comparable between the two lakes, or differences were not large enough to be considered ecologically meaningful (Tables 2.9 and 4.7). Therefore, overall, the comparisons of fish health endpoints between Sheardown Lake NW and Reference Lake 3 are not considered suggestive of adverse mine-related effects in 2025.

Relative to the baseline period, LFD for nearshore fish from Sheardown Lake NW have shown consistent significant differences across all operational years, and fish condition was significantly lower throughout the mine-operational period relative to baseline, except in 2023 (Table 4.7). In 2025 specifically, LFDs for nearshore fish differed significantly relative to baseline but the maximum MOD (i.e., -18%) was not large enough to be considered ecologically meaningful (i.e., based on a CES of $\pm 25\%$; Baffinland 2024; Table 2.9; Appendix Figures F.8 and F.9; Appendix Table F.7). Fish captured in 2025 showed a narrower size distribution dominated by smaller individuals (5 to 9 cm), whereas the baseline distribution encompassed a much broader range, extending into larger size classes (Appendix Figure F.8; Appendix Tables F.5 and F.13). These differences between years were reflected in the statistical comparisons of body size (fork length and body weight); fish captured from nearshore areas of Sheardown Lake NW in 2025 were shorter (MOD = -11%) and lighter (MOD = -32%) relative to baseline (Appendix Figure F.9, Appendix Table F.7). Fish condition in 2025 was also lower relative to baseline, and the difference was sufficiently large (MOD = -15%) to be considered ecologically meaningful (see Table 2.9 and



Table 4.7: Summary of Statistical Results for Arctic Charr Population Comparisons between Sheardown Lake Northwest (NW; DL0-01) and Reference Lake 3 (REF-03), and between Mine Operational and Baseline Period Data for Sheardown Lake NW, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Data Set by Sampling Method	Response Category	Endpoint	Statistically Significant Differences Observed? ^a																						
			versus Reference Lake 3											versus Sheardown Lake NW baseline period data ^b											
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Nearshore Electrofishing	Survival ^c	Length-Frequency Distribution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		Age	No	No	No	-	-	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	-	-	
	Energy Use (non-YOY)	Size (mean fork length)	Yes (+29%)	Yes (+17%)	Yes (+20%)	Yes (+24%)	Yes (-10%)	Yes (+22%)	Yes (+48%)	Yes (+34%)	No	Yes (+86%)	Yes (+23%)	No	No	No	Yes (-12%)	No	Yes (+13%)	No	No	Yes (-20%)	Yes (+19%)	Yes (-11%)	
		Size (mean weight)	Yes (+121%)	Yes (+60%)	No	Yes (+83%)	Yes (-24%)	Yes (+99%)	Yes (+234%)	Yes (+115%)	No	Yes (+660%)	Yes (+127%)	No	Yes (-29%)	No	Yes (-50%)	No	No	No	Yes (-28%)	Yes (-49%)	No	Yes (-32%)	
		Growth (weight-at-age)	Yes (+156%)	Yes (+66%)	-	-	-	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	-	-	-
		Growth (fork length-at-age)	Yes (+38%)	Yes (+24%)	-	-	-	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	-	-	-
	Energy Storage (non-YOY)	Condition (body weight-at-fork length)	Yes (+3%)	No	Yes (+7%)	Yes (-5%)	Yes (+4%)	Yes (+10%)	Yes (+4.6%)	Yes (+5.2%)	No	Yes (+8.4%)	No	Yes (-13%)	Yes (-12%)	Yes (-9%)	Yes (-10%)	Yes (-13%)	Yes (-9%)	Yes (-7.5%)	Yes (-12%)	No	Yes (-16%)	Yes (-15%)	
	Energy Use (YOY)	Size (mean fork length)	-	-	-	-	-	No	Yes (+20%)	Yes (+8.3%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Size (mean weight)	-	-	-	-	-	Yes (+44%)	Yes (+81%)	Yes (+24%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Energy Storage (YOY)	Condition (body weight-at-fork length)	-	-	-	-	-	Yes (+7.2%/+9.0)	No	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Littoral/Profundal Gill Netting ^d	Survival	Length Frequency Distribution	-	-	-	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	
		Age	-	-	-	-	-	-	-	-	-	-	-	-	Yes (-35%)	Yes (-28%)	Yes (-26%)	-	-	-	-	-	-	-	
	Energy Use	Size (mean fork length)	-	-	-	No	Yes (+22%)	Yes (+18%)	Yes (+13%)	Yes (+18%)	No	Yes (+18%)	Yes (+10%)	Yes (-21%)	Yes (-14%)	Yes (-6%)	No	No	No	Yes (-7.7%)	No	Yes (-3.8%)	Yes (-7%)	Yes (-7.7%)	
		Size (mean weight)	-	-	-	No	Yes (+92%)	Yes (+94%)	Yes (+68%)	Yes (+115%)	No	Yes (+80%)	Yes (+48%)	Yes (-47%)	Yes (-31%)	Yes (-9%)	No	No	No	Yes (-20%)	No	Yes (-12%)	Yes (-14%)	Yes (-17%)	
		Growth (fork length-at-age)	-	-	-	-	-	-	-	-	-	-	-	-	No	No	No	-	-	-	-	-	-	-	
		Growth (weight-at-age)	-	-	-	-	-	-	-	-	-	-	-	-	No	No	Yes (+24%)	-	-	-	-	-	-	-	
	Energy Storage	Condition (body weight-at-fork length)	-	-	-	Yes (+4%)	No	Yes (+11%)	Yes (+20%)	Yes (+20%)	Yes (-14%)	Yes (+18%)	Yes (+12%)	Yes (+8%)	Yes (+11%)	Yes (+6%)	No	No	No	Yes (+6.0%)	Yes (+5.5%)	No	Yes (+5.3%)	Yes (+4.5%)	

BOLD Indicates a statistically significant difference.

Notes: - = insufficient data for comparison. % = percent. nc = not calculable. YOY = young-of-the-year.

^a Values in parentheses indicate direction and magnitude of any significant differences.

^b Baseline data included 2002, 2005, 2006, 2008, and 2013 nearshore electrofishing data and 2006, 2008 and 2013 littoral/profundal gill netting data.

^c The length-frequency distribution comparisons to Reference Lake 3 include all fish, whereas for comparisons to baseline conditions, only non-YOY fish are included.

^d Due to low catches of arctic charr in gill nets at Reference Lake 3 in 2015, 2016, and 2017, no comparisons of fish health were conducted for gill netted fish in those years.

Baffinland 2024). Collectively, these results suggest that size class structure and weight-at-length relationships for nearshore fish may be responding to subtle environmental changes; however, there does not appear to be a clear linkage between the changes over time and mine influence. Regardless, the significantly lower fish condition relative to baseline in 2024 and 2025, accompanied by MODS outside the CES of $\pm 10\%$, triggers a Moderate Risk Response under the TARP (Baffinland 2024).

Overall, the 2025 assessment of health endpoints for arctic charr captured from nearshore areas of Sheardown Lake NW shows clear differences in size structure relative to both Reference Lake 3 and the mine baseline period, but these differences were not accompanied by meaningful changes in overall fish health. Taken together, the 2025 results do not provide evidence of adverse mine-related effects on nearshore arctic charr health at Sheardown Lake NW. However, continued monitoring and implementation of the Moderate Risk Response for changes in condition relative to baseline will be important for determining whether the size-structure shifts observed over time reflect natural variability or an emerging long-term pattern.

4.4.5.2.2 Littoral/Profundal Arctic Charr

In August 2025, a total of 100 and 54 gill netted arctic charr from littoral and profundal habitats of Sheardown Lake NW and Reference Lake 3, respectively, were assessed for fish health (Appendix Tables F.3 and F.12). The LFD differed significantly between the two lakes (MOD = +36%), and this was driven by Sheardown Lake NW exhibiting a greater frequency of individuals with fork lengths >35 cm (Figures 3.14 and 3.15; Appendix Tables F.9, F.10, and F.14). Overall, the LFD comparisons suggest that Sheardown Lake NW supports a larger-bodied and more size-diverse population relative to the reference lake (Figure 3.15). Additionally, gill netted fish from Sheardown Lake NW were significantly fatter (MOD = +48%) and in better condition (MOD = +12%) relative to reference in 2025 (Figure 3.16; Tables F.3, F.10, and F.14). The significantly higher fish condition at Sheardown Lake NW, relative to reference, in 2024 and 2025, along with MODs outside the CES of $\pm 10\%$ trigger a Moderate Risk Response under the TARP (Baffinland 2024).

In 2025, LFD and body size (fork length and body weight) for gill netted fish from Sheardown Lake NW were significantly lower relative to the mine baseline period (Appendix Table F.11). Conversely, condition was significantly higher relative to baseline (MOD = +4.5% with outliers removed) but was within the expected range of natural variability, based on a CES of $\pm 10\%$ (Appendix Table F.11; Baffinland 2024; Environment Canada 2012). The differences in LFD and fish size were characterized by fish from 2025 exhibiting a narrower size distribution centered around mid-sized individuals, whereas the baseline dataset had a higher incidence of relatively large individuals (Appendix Figures F.10 and F.11). This pattern is reflected by the steeper CRFD



curve in 2025 (Appendix Figure F.10). Ultimately, the results of the comparisons relative to baseline trigger a Low Risk Response for condition, given the results for 2025 and 2024 differed significantly relative to baseline but were within the CES of $\pm 10\%$ (Baffinland 2024).

Longer-term comparisons between gill netted fish from Sheardown Lake NW and Reference Lake 3 indicate that LFD, body size (fork length and body weight), and condition have generally shown consistent (i.e., exposed higher than reference) significant differences from 2018 to 2025 (Table 4.7). Exceptions included 2018 and 2023, when LFD and body sizes were statistically comparable between lakes, and 2019, when condition was also statistically comparable among lakes, rather than these endpoints being higher (or occasionally lower, for condition) relative to reference (Table 4.7). Throughout mine operations, body size endpoints for gill netted fish from Sheardown Lake NW have been comparable to or lower than baseline, whereas condition has typically been comparable to baseline or, if significant differences were identified, generally within the range of expected natural variation (i.e., within $\pm 10\%$ of the reference mean (Table 4.7; Baffinland 2024; Environment Canada 2012).

Overall, results from the 2025 littoral and profundal gill netting program at Sheardown Lake NW indicate that the observed differences relative to both Reference Lake 3 and the mine baseline period were driven primarily by differences in LFD and size structure, rather than clear changes in overall fish health. Although arctic charr were generally shorter and lighter in 2025 relative to baseline, weight-at-length relationships showed that body condition remained broadly comparable across lakes and years, with only minor temporal differences in condition that were within or only slightly beyond ecological relevance thresholds. Taken together, these findings do not indicate adverse mine-related effects on arctic charr health in Sheardown Lake NW; however, continued monitoring and implementation of the identified action level responses remains important to evaluate whether the observed differences reflect natural variability or emerging longer-term patterns.

4.4.6 Effects Assessment and Recommendations

4.4.6.1 Effects Assessment

At Sheardown Lake NW, DO concentrations measured at water chemistry and BIC sampling stations were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L) across all depths and seasons, indicating well-oxygenated conditions throughout the lake, even in winter. Additionally, mean concentrations of water chemistry parameters, except for dissolved copper, were below their respective AEMP benchmarks throughout 2025. Aqueous dissolved copper concentrations were also above baseline and reference normal ranges



for Sheardown Lake NW. Therefore, a Moderate Risk Response was triggered for dissolved copper (Baffinland 2024).

Mean hardness; TDS, and aqueous concentrations of chloride; sulphate; dissolved silicon; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium were above both the reference area and baseline normal ranges in at least one season in 2025. Consequently, Low Risk Responses were triggered for these parameters in Sheardown Lake NW (Baffinland 2024).

Aqueous concentrations of chloride, nitrate, sulphate, and total and dissolved molybdenum, strontium, and uranium in Sheardown Lake NW were assessed for temporal trends in 2025. Results of the temporal trend analysis identified significant increasing trends in concentrations of all parameters relative to baseline and over the mine operation period. There does not appear to be a regional influence on aqueous concentrations of the studied parameters (except molybdenum) in Sheardown Lake NW and the reference lake, suggesting mine-related influence in Sheardown Lake NW. As noted above, concentrations of these parameters were below applicable AEMP benchmarks in 2025, despite the noted increases in concentrations over time.

Sediment is collected annually from littoral and profundal stations in Sheardown Lake NW. In 2025, mean and individual metal concentrations in sediments were generally below AEMP benchmarks, except iron in littoral sediments; exceedance of the AEMP benchmark for iron triggered a Low Risk Response (Baffinland 2024). Elevated iron concentrations relative to the benchmark likely reflect, at least in part, naturally high background levels associated with regional geology, as concentrations were statistically comparable to the reference lake, although higher than baseline in 2025. However, the results of the spatial assessment and temporal trend analysis within the lake are also indicative of tributary influences (e.g., from SDLT1). No action level responses were triggered for sediment metals, based on comparisons to AEMP benchmarks, reference, and baseline.

No adverse mine-related effects on chlorophyll-a concentrations (as a measure of primary productivity) were observed in Sheardown Lake NW in 2025 and observed differences in BIC endpoints relative to the reference lake appear to be related primarily to habitat characteristics, including finer sediments and localized accumulation of organic material in Sheardown Lake NW. Although recent changes in community composition at some littoral stations coincided with higher sedimentation rates, these shifts appear localized and did not correspond with changes in key BIC endpoints (i.e., density, richness, or evenness) or in relative proportions of metal-sensitive taxa. No action level responses were triggered for phytoplankton productivity or BIC endpoints in Sheardown Lake NW in 2025 (Baffinland 2024).



The assessment of arctic charr health at Sheardown Lake NW focused on endpoints related to survival (fish community composition and catch rates), energy use (size structure and growth), and energy storage (condition). Results from the 2025 monitoring program indicate that the fish community continues to be dominated by arctic charr; catch rates from both electrofishing and gill netting fell within the long-term range of natural variability and remaining consistently higher than those observed at Reference Lake 3. Differences in size structure between Sheardown Lake NW and the reference lake were primarily driven by a broader and generally larger size distribution of fish in Sheardown Lake NW, whereas overall body condition remained comparable between lakes and did not indicate adverse mine-related effects. Comparisons with baseline conditions showed some shifts in size structure and body condition for nearshore fish over the operational period, including lower condition relative to baseline in recent years. These results triggered a Moderate Risk Response for nearshore fish condition under the TARP (Baffinland 2024). Although the sample size for YOY fish was too small to support statistical analyses for this age class specifically, their inclusion/exclusion in the LFDs along with other nearshore fish did not change the significance of the LFD comparisons and there was little change in the MOD, thereby suggesting relative abundance of YOY did not differ between areas. For gill netted fish, differences in size structure and condition relative to the reference lake triggered a Moderate Risk Response, and differences in fish condition relative to baseline in 2025 triggered a Low Risk Response (Baffinland 2024).

Overall, although some statistical differences in fish health endpoints were identified, the observed patterns appear to reflect natural variability and differences in population structure rather than adverse mine-related effects on arctic charr health in Sheardown Lake NW. Continued monitoring and implementation of the identified TARP responses will help determine whether the observed patterns represent natural fluctuations or longer-term patterns.

4.4.6.2 Recommendations

Low Risk Responses for Sheardown Lake NW were triggered for hardness; TDS, chloride; sulphate; dissolved silicon; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium, as well as for concentrations of iron in sediments. Low Risk Responses were also triggered for condition of littoral/profundal fish relative to baseline. Moderate Risk Responses were triggered for dissolved copper concentrations and fish health, specifically LFDs and condition (nearshore relative to baseline and littoral/profundal relative to reference). The following actions are recommended as part of the Low and Moderate Risk Responses for Sheardown Lake NW:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of aqueous dissolved copper concentrations



and sediment iron concentrations above AEMP benchmarks using a weight-of-evidence approach.

- Complete temporal trend analyses for aqueous dissolved copper; hardness; TDS, chloride; sulphate; dissolved silicon; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium, to investigate temporal patterns and confirm potential mine-related influences.
- Continue to evaluate temporal trends in sediment iron concentrations for individual areas (i.e., littoral and profundal) and stations for Sheardown Lake NW, to confirm potential sources (e.g., inputs via SDLT1).
- Investigate potential sources or factors influencing dissolved copper; hardness; TDS, chloride; sulphate; dissolved silicon and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium in Sheardown Lake NW to better define mine-related influence.
- Consider completing a BACI-style analysis of fish health endpoints (e.g., for condition) using data collected from mine-exposed and reference areas over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time.

4.4.6.3 Comparison to FEIS Predictions

A comparison of water quality at Sheardown Lake NW in spring, summer, and fall 2025 relative to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-7 (Camp Management), and SWSQ-9 (Airstrips and Airstrip Use) was completed. Results of the comparison indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at Sheardown Lake NW conformed with predictions made in the FEIS (Baffinland 2012).

Comparisons of sediment quality data collected from Sheardown Lake NW in 2025 to FEIS predictions related to Airborne Emission sources (i.e., fugitive dust; FEIS Issue SWSQ-17-3) indicated that all mean parameter concentrations were within the applicable significance rating magnitudes expected for lake sediments during mine operations. Therefore, sediment quality at Sheardown Lake NW conformed with predictions made in the FEIS (Baffinland 2012).

Because water and sediment quality parameter concentrations were within applicable FEIS significance rating magnitude predictions in 2025, it is generally expected that effects predictions for arctic charr health would also be met. Although significant differences in arctic charr length



frequency distributions and condition relative to reference and baseline were identified in 2025, the long-term datasets indicate that spatial and temporal differences have existed throughout the mine operation period, yet the arctic charr population in Sheardown Lake NW has persisted throughout mine operations, and catchability has been higher relative to baseline and reference. Similar to the case for Camp Lake, the weight-of-evidence for Sheardown Lake NW suggests differences in fish endpoints between areas and over time within the lake are most likely driven by natural spatial and interannual variability in conditions of habitat, weather, etc. However, outcomes of the Low and Moderate Risk Responses triggered for fish in 2025 will promote understanding of whether FEIS predictions for arctic charr are being met (Baffinland 2012).

4.5 Sheardown Lake Southeast (DL0-02)

4.5.1 Water Quality

4.5.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at Sheardown Lake SE concurrent with water quality sampling conducted by Baffinland environment department personnel during the winter, summer, and fall monitoring events, as well as BIC sampling completed by Minnow staff in August (Tables 2.2 and 2.5). Winter 2025 water quality profiles (mean values) indicated a slight increase in temperature from surface to bottom (approximately 0.8°C), consistent with patterns observed in winter 2024 (Appendix Figure B.10; Appendix Table B.20; Minnow 2025). During the summer monitoring event, water temperatures decreased from surface to bottom by approximately 3.0 to 7.4°C, with relatively large temperature changes (>0.5°C per 1 m interval) occurring between the surface and approximately 4 m depth (Appendix Figure B.10; Appendix Table B.21). The summer temperature profile at Sheardown Lake SE showed cooler surface temperatures compared to Reference Lake 3; however, overall temperatures were similar between (Appendix Figure B.10). Similar to 2024, water temperatures were relatively uniform throughout the water column during the fall 2025 monitoring event, indicating fall lake turnover (Appendix Figure B.10; Appendix Table B.22; Minnow 2025). Temperatures at the profile station in Sheardown Lake SE were also slightly cooler than those observed at the reference lake across the entire water column during fall sampling (Appendix Figure B.10).

The water column at Sheardown Lake SE was moderately to fully saturated with DO in summer (≥84.2%) and fall (≥93.2%) 2025, as well as during BIC sampling in August, but was lower during winter monitoring (Table 4.8; Appendix Figure B.10; Appendix Tables B.20 to B.22). During winter, DO saturation declined progressively with depth, decreasing from approximately 85 to 94% in the upper water column to about 45% at the deepest measurement (near 13 m), primarily at Station DL0-02-3 (Appendix Table B.20; Appendix Figure B.10). The most



Table 4.8: Mean Water Chemistry at Sheardown Lake SE (DL0-02) and Reference Lake 3 (REF-03) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Lake (n = 3)		Sheardown Lake SE Stations (n = 5)		
				Summer	Fall	Winter	Summer	Fall
Conventional	Conductivity (lab)	µS/cm	-	75.7	81.8	<u>235</u>	158	170
	Specific Conductance (field)	µS/cm	-	73.7	72.8	237	<u>132</u>	<u>152</u>
	pH (lab)	pH	-	7.80	7.79	7.27	7.94	7.77
	pH (field)	pH	6.5 - 9.0	7.74	7.54	7.37	7.90	7.91
	Temperature, Field	mg/L	-	<u>11.1</u>	6.90	1.12	10.6	7.65
	Hardness (as CaCO ₃) -Total	mg/L	-	35.6	35.4	<u>109</u>	72.5	73.8
	Total Suspended Solids (TSS)	mg/L	-	<1	<1	1.50	<u>3.47</u>	<u>2.57</u>
	Total Dissolved Solids (TDS)	mg/L	-	53.0	42.7	<u>120</u>	112	76.3
	Dissolved Oxygen	mg/L	> 9.5	11.0	11.5	11.6	10.7	11.2
	Dissolved Oxygen	%	-	99.8	94.5	81.8	95.9	95.3
	Turbidity (lab)	NTU	-	0.323	0.303	0.413	12.1	8.10
	Turbidity (field)	NTU	-	118	0.410	-0.155	12.4	6.97
	Alkalinity (as CaCO ₃)	mg/L	-	<u>32.8</u>	<u>32.5</u>	78.5	51.4	50.9
Nutrients and Organics	Total Ammonia ^c	mg/L	0.197 - 6.02	0.00587	0.00853	0.0105	0.00640	0.0172
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	<u>0.789</u>	0.580	0.546
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.177	0.174	0.179	0.174	0.169
	Dissolved Organic Carbon	mg/L	-	<u>3.26</u>	<u>2.92</u>	2.40	<u>2.79</u>	1.83
	Total Organic Carbon	mg/L	-	<u>3.91</u>	<u>3.42</u>	2.04	<u>2.70</u>	<u>2.52</u>
	Total Phosphorus	mg/L	-	0.00280	0.00207	0.00335	0.0125	0.00530
	Phenols	mg/L	0.00400	0.00120	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	0.101	<0.1	<0.1
	Chloride (Cl) ^c	mg/L	120	1.22	1.21	<u>7.25</u>	4.27	4.05
	Sulphate (SO ₄) ^c	mg/L	218 - 309	2.87	2.75	<u>25.6</u>	17.2	16.0
Total Metals	Aluminum (Al) ^c	mg/L	0.173	0.00737	0.00523	0.00755	0.178	0.168
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	<0.0001	<0.0001	0.000100	0.000100
	Barium (Ba)	mg/L	1.00	<u>0.00628</u>	<u>0.00640</u>	<u>0.0122</u>	0.00962	0.00985
	Beryllium (Be)	mg/L	0.000130	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<u>0.0177</u>	0.0123	0.0103
	Cadmium (Cd) ^c	mg/L	0.0000675 - 0.000175	<0.000005	<0.000005	0.00000530	0.00000527	<0.000005
	Calcium (Ca)	mg/L	-	6.89	7.07	<u>20.7</u>	13.4	14.0
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	0.0000290	0.0000260
	Chromium (Cr)	mg/L	0.00500	<0.0005	<0.0005	<0.0005	0.000533	0.000590
	Cobalt (Co) ^c	mg/L	0.000778 - 0.00107	<0.0001	<0.0001	<0.0001	0.000147	0.000123
	Copper (Cu)	mg/L	0.00200 - 0.00261	0.000977	0.000850	0.00110	0.00120	0.00110
	Iron (Fe) ^c	mg/L	0.300	0.0167	0.0120	0.0183	0.175	0.164
	Lead (Pb)	mg/L	0.00100 - 0.00369	<0.00005	<0.00005	0.0000502	<u>0.000239</u>	0.000166
	Lithium (Li)	mg/L	-	<u><0.001</u>	<0.001	<u>0.00224</u>	0.00203	0.00150
	Magnesium (Mg)	mg/L	-	4.47	4.32	<u>13.9</u>	9.47	9.42
	Manganese (Mn)	mg/L	0.768 - 1.10	0.000787	0.000660	0.00255	0.00644	0.00569
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000163	0.000159	<u>0.00160</u>	0.00118	0.00117
	Nickel (Ni) ^c	mg/L	0.0250 - 0.104	<0.0005	<0.0005	0.000854	<u>0.00101</u>	0.000880
	Potassium (K)	mg/L	-	0.887	0.869	<u>2.20</u>	1.68	1.60
	Rubidium (Rb)	mg/L	-	0.000960	0.000957	0.00414	0.00316	0.00314
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	0.0000795	0.0000730	0.0000640
	Silicon (Si)	mg/L	-	0.463	0.423	1.04	0.940	0.947
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.934	0.882	<u>2.75</u>	1.76	1.84
	Strontium (Sr)	mg/L	-	0.00825	0.00830	<u>0.0276</u>	0.0191	0.0186
	Sulphur (S)	mg/L	-	1.01	1.01	9.01	5.92	5.46
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	<0.00001	<0.00001	0.0000103	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	0.000190	0.000147
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000343	<0.0003	<0.0003	0.00885	0.00811
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000318	0.000308	<u>0.00246</u>	0.00180	0.00171
	Vanadium (V) ^c	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	<0.0002	<0.0002	<0.0002	0.000440	0.000350

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 4.8: Mean Water Chemistry at Sheardown Lake SE (DL0-02) and Reference Lake 3 (REF-03) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Lake (n = 3)		Sheardown Lake SE Stations (n = 5)		
				Summer	Fall	Winter	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	0.00300	0.00147	0.00313	0.0277	0.0429
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00633	0.00678	0.0123	0.00865	0.00923
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	0.0171	0.0127	0.0103
	Cadmium (Cd)	mg/L	0.0000992 - 0.000230	<0.000005	<0.000005	0.00000522	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	6.98	7.34	19.9	13.7	14.4
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000535	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^c	mg/L	0.000705 - 0.00421	0.000920	0.000710	0.000908	0.000910	0.000770
	Iron (Fe) ^c	mg/L	-	0.0103	<0.01	<0.01	0.0173	0.0187
	Lead (Pb) ^c	mg/L	0.00521 - 0.00703	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	0.00217	0.00120	<u>0.00147</u>
	Magnesium (Mg)	mg/L	-	4.47	4.82	13.9	9.32	10.0
	Manganese (Mn) ^c	mg/L	0.220 - 0.610	0.000317	0.000233	0.000545	0.000763	0.000793
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000157	0.000140	<u>0.00156</u>	0.00127	0.00113
	Nickel (Ni)	mg/L	0.00100 - 0.00200	<0.0005	<0.0005	0.000797	<u>0.000670</u>	0.000523
	Potassium (K)	mg/L	-	0.913	0.881	2.21	1.71	1.53
	Rubidium (Rb)	mg/L	-	0.000953	0.000937	0.00400	0.00291	0.00262
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	0.0000933	0.0000913	0.0000653
	Silicon (Si)	mg/L	-	0.444	0.428	0.997	0.658	0.740
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	0.0000103
	Sodium (Na)	mg/L	-	0.957	0.920	<u>2.72</u>	1.79	1.83
	Strontium (Sr) ^c	mg/L	2.50	0.00837	0.00830	<u>0.0277</u>	0.0190	0.0185
	Sulphur (S)	mg/L	-	1.08	0.993	8.90	6.25	5.58
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	<0.0003	<0.0003	<0.0003	0.000907	0.000915
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000300	0.000273	<u>0.00237</u>	0.00174	0.00152
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^c	mg/L	-	0.00117	<0.001	<0.001	0.00113	<0.001
	Zirconium (Zr)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

pronounced decline occurred below approximately 10 to 11 m, indicating localized oxygen depletion in the deepest portion of the lake (Appendix Table B.20; Appendix Figure B.10). Overall, mean DO saturation were within baseline normal ranges in 2025, despite mean DO saturation being below the reference normal range in summer (Table 4.8; baseline and reference normal ranges are summarized in Appendix Tables B.9 and B.18).⁵³

DO concentrations measured during water chemistry and BIC sampling events were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L) across most depths and seasons, further demonstrating generally well-oxygenated conditions throughout the lake (Table 4.8; Appendix Figure B.10; Appendix Tables B.20 to B.22). Concentrations fell below WQG only at Station DL0-02-3 during winter, and at depths greater than approximately 12 m (Appendix Table B.20; Appendix Figure B.10). The localized winter oxygen depletion observed near the lake bottom is likely a result of natural seasonal processes, lake depth, and productivity rather than mine-related influences (e.g., Leppi et al. 2016; Zhang et al. 2024). Under ice cover, atmospheric exchange and wind-driven mixing are limited while microbial respiration and decomposition of organic matter continue to consume oxygen in deeper waters (Wetzel 2001). In relatively shallow and cold lakes such as Sheardown Lake SE (maximum depth of approximately 13 m), these processes can often result in temporary winter oxygen depletion, by as much as 50%, near the lake bottom (Zhang et al. 2024). Additionally, longer periods of ice cover (e.g., during an early-onset winter) can also exacerbate low DO concentrations (Leppi et al. 2016); therefore, because under-ice DO measurements at Sheardown Lake SE are taken near the end of the ice-cover period, they likely represent a worst-case scenario of under-ice DO concentrations.

As discussed in Section 3.3.1.1, arctic charr are a highly adaptable fish species and have been shown to shift their patterns of habitat use in response to low winter DO concentrations. Therefore, it is possible that arctic charr in Sheardown Lake SE respond to low DO concentrations by moving to better-oxygenated areas within the lake, or into adjacent Sheardown Lake NW (Figure 2.2). Additionally, arctic charr may reduce their activity and feeding levels in winter, as a method of reducing metabolic activity and oxygen demand (Ducros et al. 2024; Christopher 2023). Given that under-ice DO concentrations in Sheardown Lake SE in 2025 were characteristic of shallow Arctic lakes and arctic charr are well adapted to low DO conditions during winter, there is no evidence of DO-mediated mine-related effects to arctic charr in Sheardown Lake SE.

In 2025, mean field pH values measured during the winter and fall monitoring events, as well as during BIC sampling conducted in August 2025, were within the CCME WQG range of 6.5 to 9

⁵³ Note there are no reference normal ranges for winter, because Reference Lake 3 is not sampled during winter.



(Table 4.8; Appendix Figure B.10; Appendix Tables B.20 to B.22). Mean SPC in Sheardown Lake SE was lower in summer and fall relative to winter 2025, but reported values were within seasonal reference normal ranges (Table 4.8).

Mean field turbidity reported for Sheardown Lake SE in winter 2025 was negative⁵⁴, and the value reported in summer was below the reference normal range (Table 4.8). Conversely, the mean turbidity value reported for the fall water quality monitoring event (6.97 Nephelometric Turbidity Units [NTU]) was above the seasonal reference normal range (Table 4.8).

4.5.1.2 Water Chemistry

At the water quality monitoring stations in Sheardown Lake SE (Table 2.2), individual and mean concentrations of water quality parameters were below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025; total aluminum was the only exception (Table 4.8; Appendix Table B.23; Appendix Figure B.11). Specifically, the total aluminum concentration measured near the surface at station DL0-02-3 during the summer and fall 2025 water quality monitoring program were above the AEMP benchmark (Appendix Table B.23; Appendix Figure B.11). However, when seasonal lake-wide means were considered, only the value for summer was above the AEMP benchmark (Table 4.8). Station DL0-02-3 is the closest station to the Sheardown Lake SE outflow to the Mary River, where backflow effects from Mary River into Sheardown Lake SE occur during high discharge events (e.g., following intense rainfall; Figure 2.2; Section 4.5.1.1; TCC 2026c). Therefore, the higher total aluminum concentrations could be attributed to backflow of sediment-laden water (and associated metals) from the Mary River into Sheardown Lake SE (mean laboratory turbidity in summer, concurrent with the AEMP benchmark exceedance for total aluminum, was higher relative to reference and baseline; Table 4.8). Total aluminum concentrations in Sheardown Lake SE will be evaluated further in the next CREMP reporting cycle as part of a Moderate Risk Response, based on mean concentrations in summer being above the AEMP benchmark, in addition to the reference and baseline normal ranges (Table 4.8; Baffinland 2024).

Mean hardness, TDS, and concentrations of chloride; sulphate; total barium, boron, calcium, lithium, magnesium, molybdenum, potassium, sodium, strontium, and uranium; and dissolved calcium, magnesium, molybdenum, sodium, strontium, and uranium were above baseline normal ranges⁵⁵ in winter 2025 (Table 4.8). Parameters with mean concentrations above both the baseline and reference normal ranges in at least one season (summer and/or fall) included

⁵⁴ The mean field turbidity value reported for winter 2025 was negative. Negative readings can result from instrument drift, sensor malfunctions, improper calibration/blanks, or the turbidity in the water sample being so low that the sensor cannot detect enough back-scattered light to provide an accurate reading (McDermid 2016).

⁵⁵ Reference Lake 3 is not monitored in winter; therefore, there are no winter reference area normal ranges for lakes.



hardness, TDS, laboratory-measured turbidity, chloride, sulphate; total manganese; total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, silicon, strontium and uranium; and dissolved concentrations of aluminum (Table 4.8). Low Risk Responses were triggered for these parameters under the TARP in 2025 (Baffinland 2024).

As part of a special investigation triggered under the TARP in 2024 (Table 2.4; Minnow 2025), nitrate concentrations within Sheardown Lake SE in 2025 were evaluated to identify potential spatial patterns and promote understanding of potential influences from the Dyno facility (via SDLT9) into Sheardown Lake SE. Due to small sample sizes (i.e., typically $n = 1$ sample per station per season), no statistical comparisons (e.g., ANOVA) were completed. Based on visual examination of the plotted data, nitrate concentrations at all stations within Sheardown Lake SE were highest in winter and lowest in fall 2025; concentrations in winter were also consistently higher near the lake surface, relative to the lake bottom (Appendix Figure G.5). Nitrate concentrations in surface samples collected from DL0-02-4, which is the station closest to the SDLT9 inflow, were comparable to concentrations at station DL0-02-3, which is a mid-lake station closer to the Sheardown Lake SE outflow to Mary River, throughout winter, summer, and fall 2025 (i.e., RPDs between concentrations reported for winter, summer, and fall were $<2\%$; Figure 2.2; Appendix Figure G.5). Additionally, throughout 2025, nitrate concentrations at DL0-02-6, which is the station closest to the inflow from Sheardown Lake NW, were slightly higher than DL0-02-4; however, differences (RPDs) were within 6% (Appendix Figure G.5). Overall, the nitrate results for 2025 indicate seasonal differences in concentrations, but that concentrations were generally uniform throughout the lake within a given season. Therefore, there was no discernable influence of the Dyno plant and SDLT9 on spatial patterns of aqueous nitrate concentrations within Sheardown Lake SE in 2025.

Aqueous concentrations of nitrate, sulphate, total and dissolved molybdenum and uranium were assessed for temporal trends in 2025, as part of a special investigation triggered under the TARP in 2024 (Table 2.4; Minnow 2025). Significant increasing trends in concentrations of these parameters were identified for all seasons (individually and combined) and stations within Sheardown Lake SE, based on data collected from baseline to 2025 (Appendix Table G.15). When data for the period of mine operation (i.e., 2015 to 2025) were assessed for temporal trends in isolation from the baseline data, the same patterns of increasing concentrations over time were observed for all parameters and all stations within Sheardown Lake SE (Appendix Table G.16). Temporal trend analyses for the corresponding reference stations were largely indicative of stable concentrations over time, except for increases in total molybdenum concentrations that were generally associated with fall and stations REF3-01 and REF3-03, as well as significant decreasing trends in sulphate concentrations at all reference stations (Appendix Tables G.15 and G.16). Therefore, except for molybdenum, there does not appear to be a regional influence



on aqueous concentrations of the studied parameters in Sheardown Lake SE and the reference lake. Further, mean concentrations of sulphate, and of total and dissolved molybdenum and uranium were above their respective reference normal ranges in summer and fall 2025; nitrate concentrations, however, were consistently within reference and baseline normal ranges (Table 4.8). Despite the observations of increasing trends in concentrations over time and higher concentrations relative to reference in 2025, none of these parameters had concentrations above applicable AEMP benchmarks or WQG in 2025 (Table 4.3; see Section 3.1.1.3.1 for information on the newly adopted AEMP benchmark for uranium).

4.5.2 Sediment Quality

Surficial sediments (i.e., top 2 cm) collected from littoral sediment coring stations at Sheardown Lake SE in 2025 were primarily composed of reddish/brown silt (Figure 3.4, Appendix Table C.11).⁵⁶ Overall, the sediment sampling stations in Sheardown Lake SE had significantly more silt and less sand relative to Reference Lake 3 (Figures 3.7; Appendix Table C.1). The relatively high proportion of fines (i.e., silt) in the substrate of Sheardown Lake SE is potentially due to the receipt of Mary River backflow during high flow periods, which is expected to result in the deposition of naturally suspended, fine-grained material. The TOC content of littoral sediments in Sheardown Lake SE was significantly lower than in sediment at Reference Lake 3 (Figure 3.7; Appendix Table C.1). Similar to patterns observed in Sheardown Lake NW, littoral sediments in Sheardown Lake SE had significantly lower sand content and significantly higher silt content in 2025 compared with baseline conditions (Appendix Figures C.1 and C.2; Appendix Tables C.7 and C.8), suggesting a shift toward finer-grained sediment deposition relative to baseline.

Metal concentrations in sediment at Sheardown Lake SE showed no clear spatial patterns with progression towards the lake outlet in 2025 (Appendix Table C.14).⁵⁷ However, the sediment sample with the highest concentrations (relative to AEMP benchmarks) of iron and manganese (i.e., DL0-02-13) also had concentrations of nickel and chromium above AEMP benchmarks, likely due to sorption characteristics of the sediment (Appendix Table C.14). Specifically, iron and manganese (oxy)hydroxides are known to sorb metal cations (e.g., nickel) and anions (e.g., chromium; Bendell-Young et al. 1992). Despite metal concentrations occasionally being above AEMP benchmarks at individual sediment coring stations

⁵⁶ As noted in Table 2.5 and the Revision 2 AEMP study design (Baffinland 2024), all sediment coring stations in Sheardown Lake SE were reclassified as littoral, due to the shallow depth (i.e., less than approximately 12 m) of the lake. Therefore, in 2025, none of the sediment sampling stations in Sheardown Lake were treated as profundal stations.

⁵⁷ The sediment core station closest to where Sheardown Lake NW flows into Sheardown Lake SE is DL0-02-1, the station closest to the mouth of SDLT9 is DL0-02-11, and the station located closest to the lake outlet is DL0-02-3 (Figure 2.4).



(Appendix Table C.14), mean concentrations in Sheardown Lake SE were below AEMP benchmarks in 2025 (Table 4.9; Figure 4.6). Therefore, no action level responses were triggered for sediment in Sheardown Lake SE in 2025, based on the comparisons to AEMP benchmarks (Baffinland 2024).

Concentrations of chromium and nickel in littoral sediments were significantly higher relative to Reference Lake 3 in 2025; however, concentrations of the remaining metals were comparable to or lower than in the reference lake (Tables 3.7 and 4.9; Figure 3.7; Appendix Table C.14). Additionally, chromium and nickel concentrations in Sheardown Lake SE sediments in 2025 were not higher relative to baseline (Appendix Figure C.3; Appendix Table C.9). Therefore, action level responses were not triggered for sediment chromium and nickel in 2025. Arsenic and iron concentrations in littoral sediments of Sheardown Lake SE were significantly higher relative to baseline in 2025, but not reference, in 2025; therefore, action level responses were not triggered for these parameters (Appendix Figure C.3; Appendix Table C.9; Baffinland 2024).

Overall, the 2025 results indicate that no clear mine-related changes in sediment chemistry have occurred in littoral or profundal habitats at Sheardown Lake SE following the commencement of mine operations in 2015. In general, sediment chemistry conditions within the lake are likely controlled by natural/geogenic processes, potentially including backflow-related influences from the Mary River.

4.5.3 Phytoplankton

In 2025, mean chlorophyll-a concentrations at the surface of Sheardown Lake SE were highest in summer, relative to fall and winter; the higher phytoplankton productivity in summer corresponded with aqueous total phosphorus concentrations that were elevated relative to reference and the CCME (2024) Phosphorus Guidance Framework criterion ($<10 \mu\text{g/L}$) for oligotrophic conditions (Figure 3.9; Appendix Table D.4; Appendix Figure D.1).⁵⁸ Chlorophyll-a concentrations at the surface of Sheardown Lake SE were above the upper limits of the reference area normal ranges in summer and fall 2025, signalling higher phytoplankton productivity at Sheardown Lake SE relative to reference conditions. However, chlorophyll-a concentrations in Sheardown Lake SE remained well below the AEMP benchmark of $3.7 \mu\text{g/L}$ and the chlorophyll-a based criterion ($<4.5 \mu\text{g/L}$) from Wetzel (2001) for oligotrophic conditions throughout 2025 (Figure 3.9; Appendix Table D.4).

Chlorophyll-a concentrations at Sheardown Lake SE have shown substantial seasonal and inter-annual variability throughout mine construction (2014) and operations (2015 to 2025), with no

⁵⁸ I.e., aqueous total phosphorus concentrations in Sheardown Lake SE were indicative of mesotrophic conditions in summer 2025 (Table 4.8).



Table 4.9: Total Organic Carbon (TOC) Content and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Sheardown Lake Southeast (SE; DL0-02) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	SQG ^a		AEMP Benchmark ^b	Littoral Stations					
						Reference Lake (n = 5)			Sheardown Lake SE (n = 5)		
			Lower	Upper		Mean	SD	SE	Mean	SD	SE
Total Organic Carbon (TOC)		%	1	10	-	4.83	2.13	0.953	1.07	0.139	0.0622
Phosphorus (P)		mg/kg	-	-	1,861	1,334	930	416	1,098	142	63.7
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	17,420	4,164	1,862	21,163	1,708	764
	Antimony (Sb)	mg/kg	-	-	-	<0.1	-	-	<0.1	-	-
	Arsenic (As)	mg/kg	-	-	11.5	4.62	2.58	1.15	4.60	1.15	0.516
	Barium (Ba)	mg/kg	-	-	-	121	43.2	19.3	101	21.3	9.54
	Beryllium (Be)	mg/kg	-	-	-	0.672	0.166	0.0742	0.867	0.101	0.0450
	Bismuth (Bi)	mg/kg	-	-	-	<0.2	-	-	0.237	0.0192	0.00860
	Boron (B)	mg/kg	-	-	-	15.4	3.58	1.60	26.3	4.93	2.20
	Cadmium (Cd)	mg/kg	-	-	2.1	0.175	0.0883	0.0395	0.126	0.00630	0.00282
	Calcium (Ca)	mg/kg	-	-	-	4,698	1,000	447	6,318	1,740	778
	Chromium (Cr)	mg/kg	-	-	86	55.4	14.4	6.44	83.1	6.25	2.79
	Cobalt (Co)	mg/kg	-	-	-	12.3	4.04	1.81	16.0	1.64	0.732
	Copper (Cu)	mg/kg	-	-	87	70.0	26.1	11.7	31.2	2.42	1.08
	Iron (Fe)	mg/kg	-	-	61,247	56,100	45,144	20,189	55,657	5,691	2,545
	Lead (Pb)	mg/kg	-	-	63	14.1	3.12	1.40	17.1	1.55	0.695
	Lithium (Li)	mg/kg	-	-	-	25.9	6.04	2.70	30.7	3.00	1.34
	Magnesium (Mg)	mg/kg	-	-	-	11,596	2,689	1,203	16,584	1,232	551
	Manganese (Mn)	mg/kg	-	-	2,089	1,057	926	414	1,582	1,108	496
	Mercury (Hg)	mg/kg	-	-	0.33	0.0447	0.0287	0.0128	0.0224	0.00370	0.00165
	Molybdenum (Mo)	mg/kg	25	23,000	-	5.92	5.26	2.35	2.41	0.707	0.316
	Nickel (Ni)	mg/kg	-	-	66	41.1	11.4	5.10	64.6	5.35	2.39
	Potassium (K)	mg/kg	-	-	-	4,320	1,078	482	5,028	627	281
	Selenium (Se)	mg/kg	-	-	-	0.736	0.404	0.181	0.264	0.0457	0.0205
	Silver (Ag)	mg/kg	0.5	-	-	0.152	0.0675	0.0302	0.110	0.00816	0.00365
	Sodium (Na)	mg/kg	-	-	-	329	88.7	39.7	303	38.6	17.3
	Strontium (Sr)	mg/kg	-	-	-	11.5	2.05	0.917	12.6	1.64	0.733
	Sulphur (S)	mg/kg	-	-	-	1,420	332	148	<1,000	-	-
	Thallium (Tl)	mg/kg	-	-	-	0.407	0.169	0.0756	0.396	0.0446	0.0200
	Tin (Sn)	mg/kg	-	-	-	<2	-	-	<2	-	-
	Titanium (Ti)	mg/kg	-	-	-	1,127	205	91.7	1,480	123	55.0
	Uranium (U)	mg/kg	-	-	-	15.1	6.28	2.81	5.74	0.704	0.315
	Vanadium (V)	mg/kg	-	-	-	52.1	10.9	4.87	55.1	4.54	2.03
	Zinc (Zn)	mg/kg	-	-	219	71.3	15.5	6.93	62.2	4.66	2.08
	Zirconium (Zr)	mg/kg	-	-	-	3.90	1.38	0.617	17.0	0.971	0.434

	Indicates a concentration above the lower SQG.
	Indicates a concentration above the lower and upper SQG.
BOLD	Indicates a concentration above the AEMP Benchmark.

Notes: SQG = sediment quality guideline. AEMP = Aquatic Effects Monitoring Plan. n = number of samples. SD = standard deviation. SE = standard error. % = percent. - = no value/not applicable. mg/kg = milligrams per kilogram dry weight.

^a For mine-exposed lakes, comparisons to generic SQG derived for other jurisdictions were only completed for parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Sheardown Lake SE.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

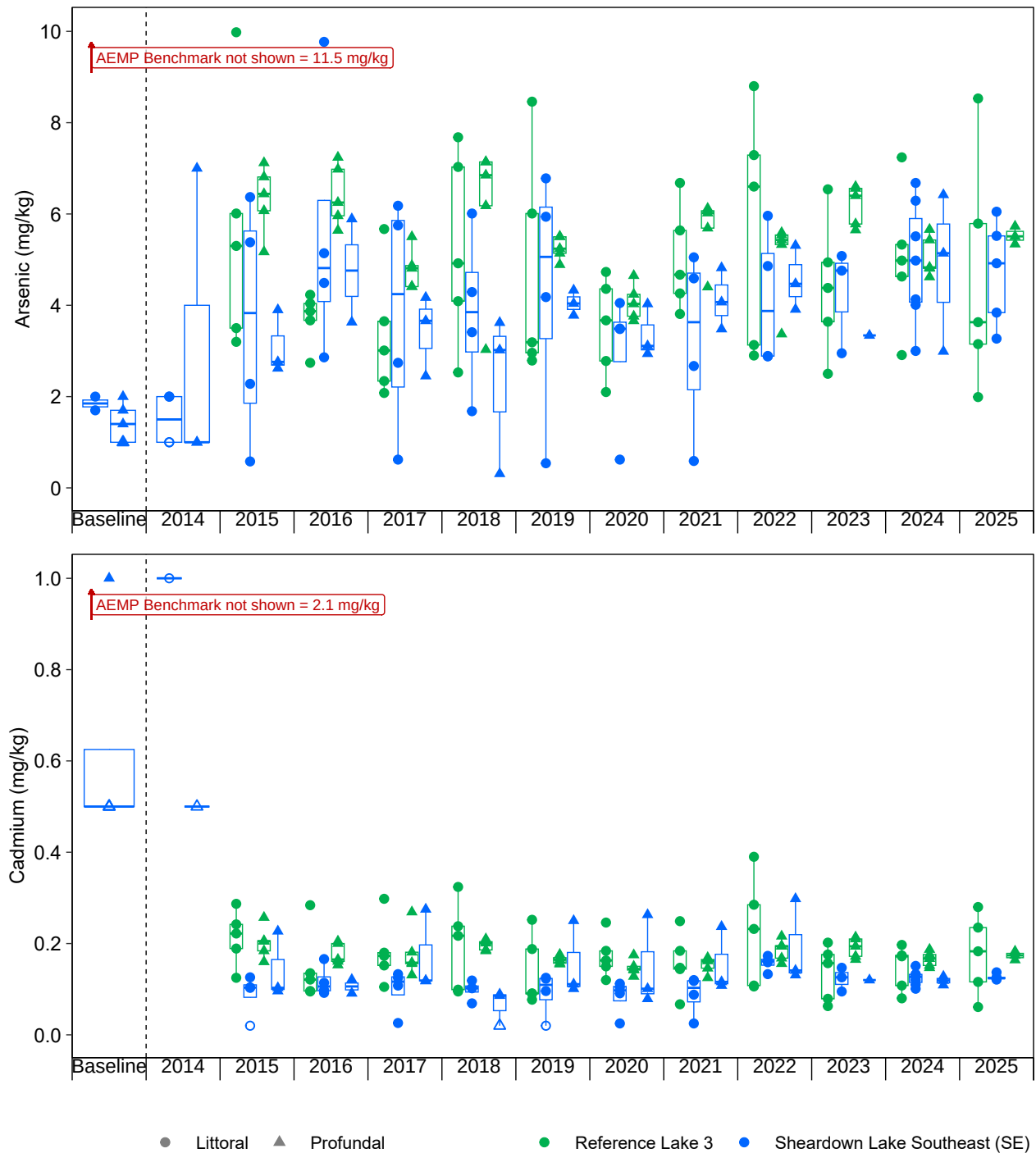


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers). Prior to 2025, a subset of sediment monitoring stations in Sheardown Lake SE were treated as profundal stations. These were reclassified as littoral stations as of 2025 (Baffinland 2024).

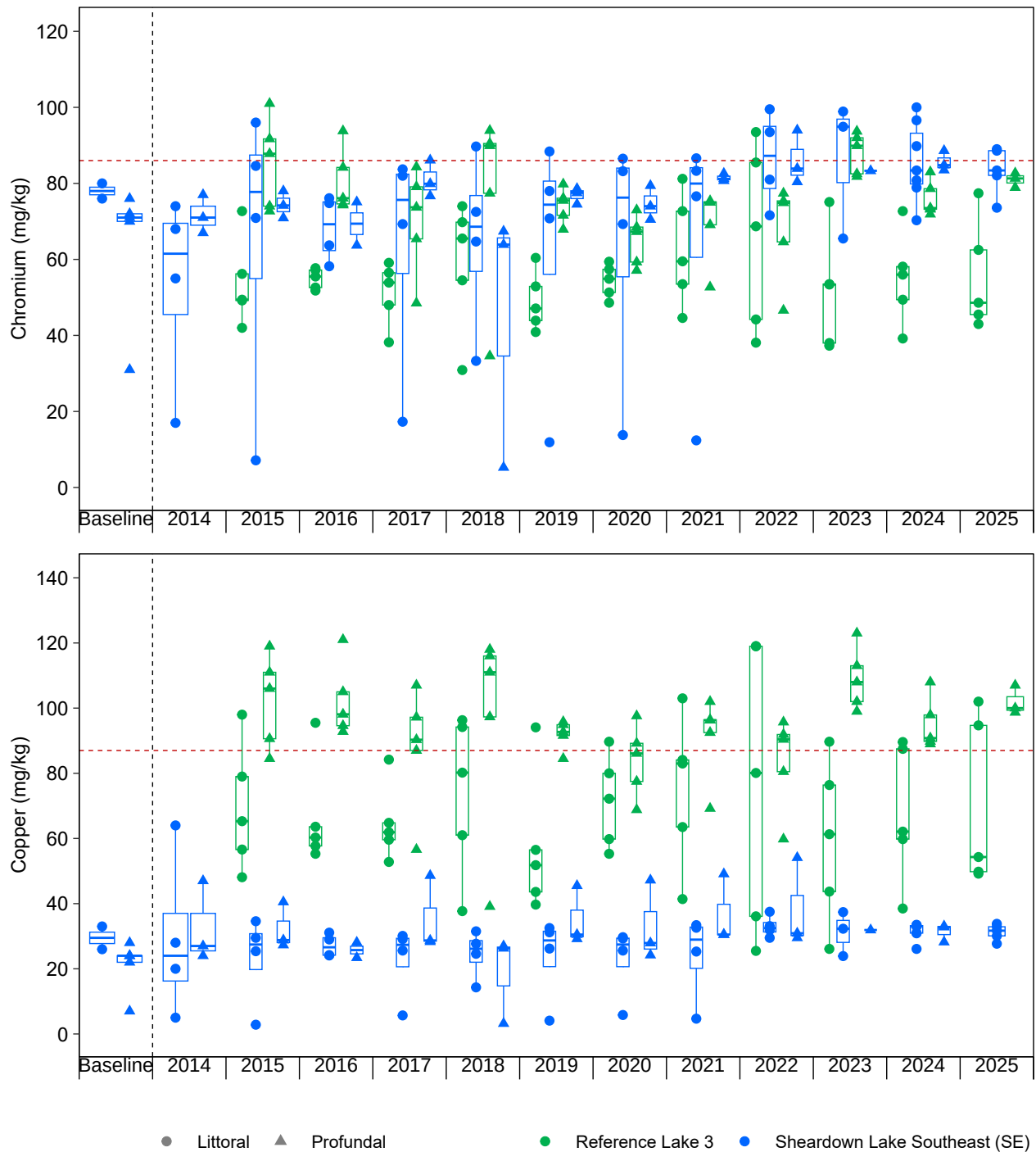


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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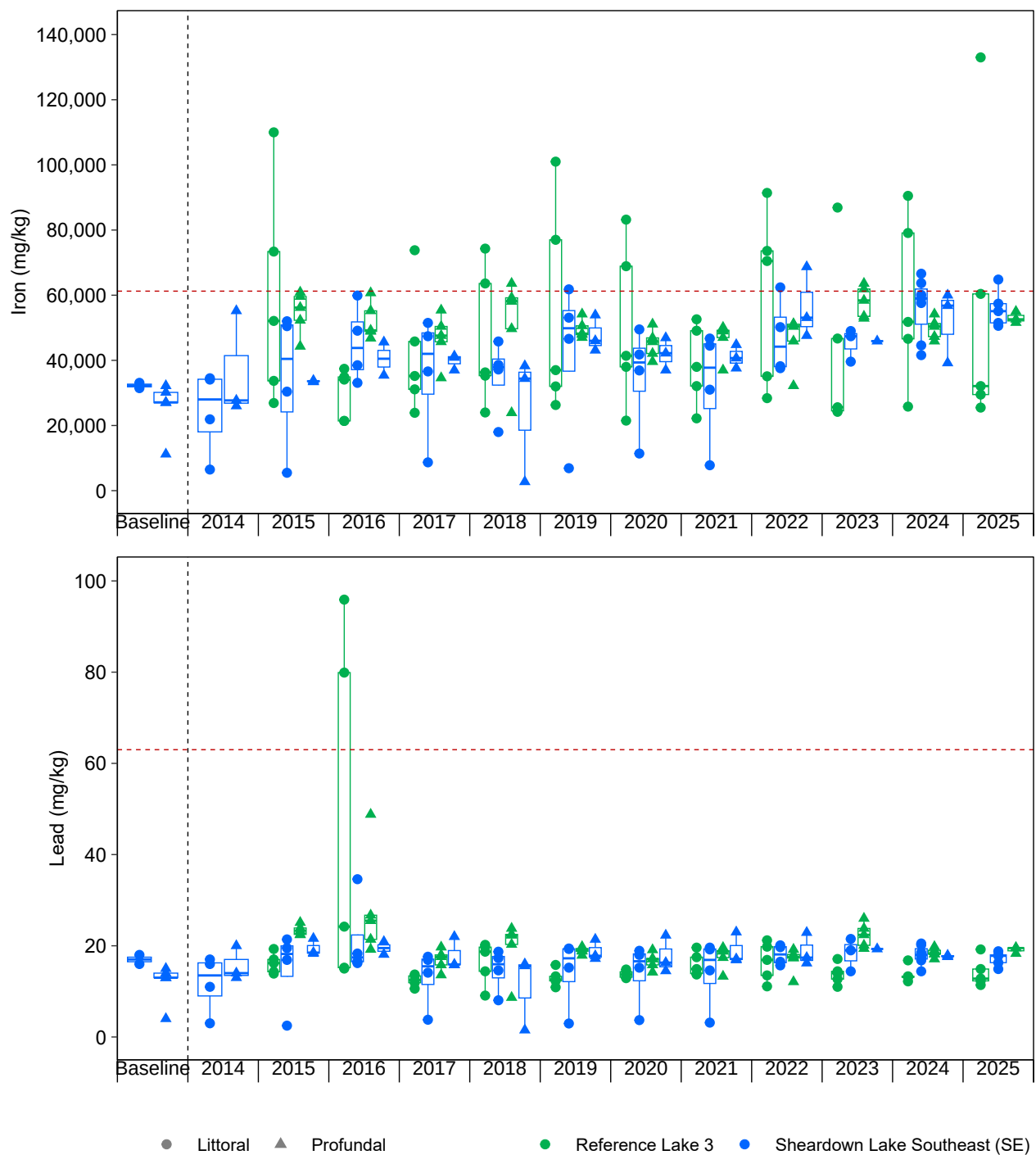


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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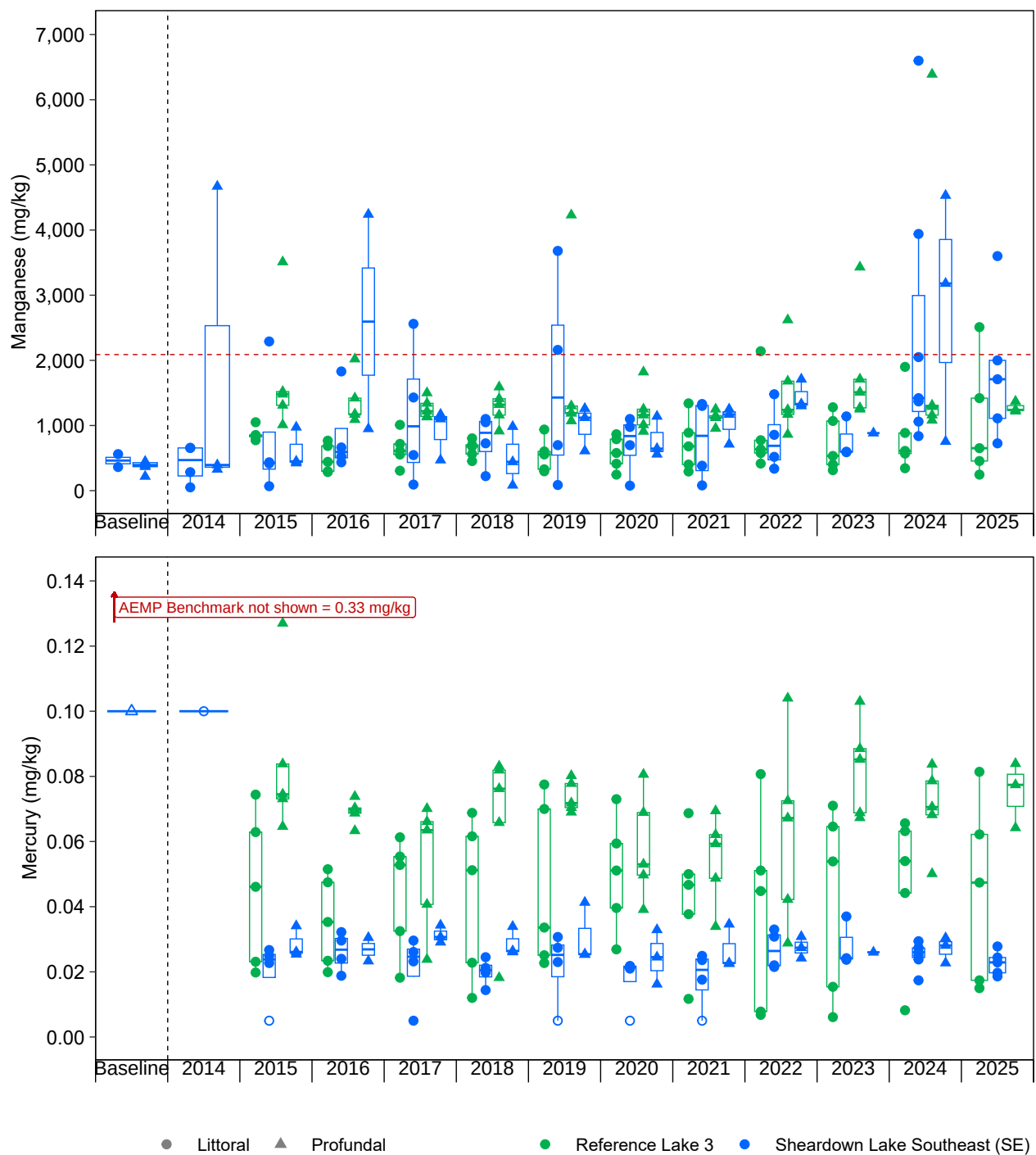


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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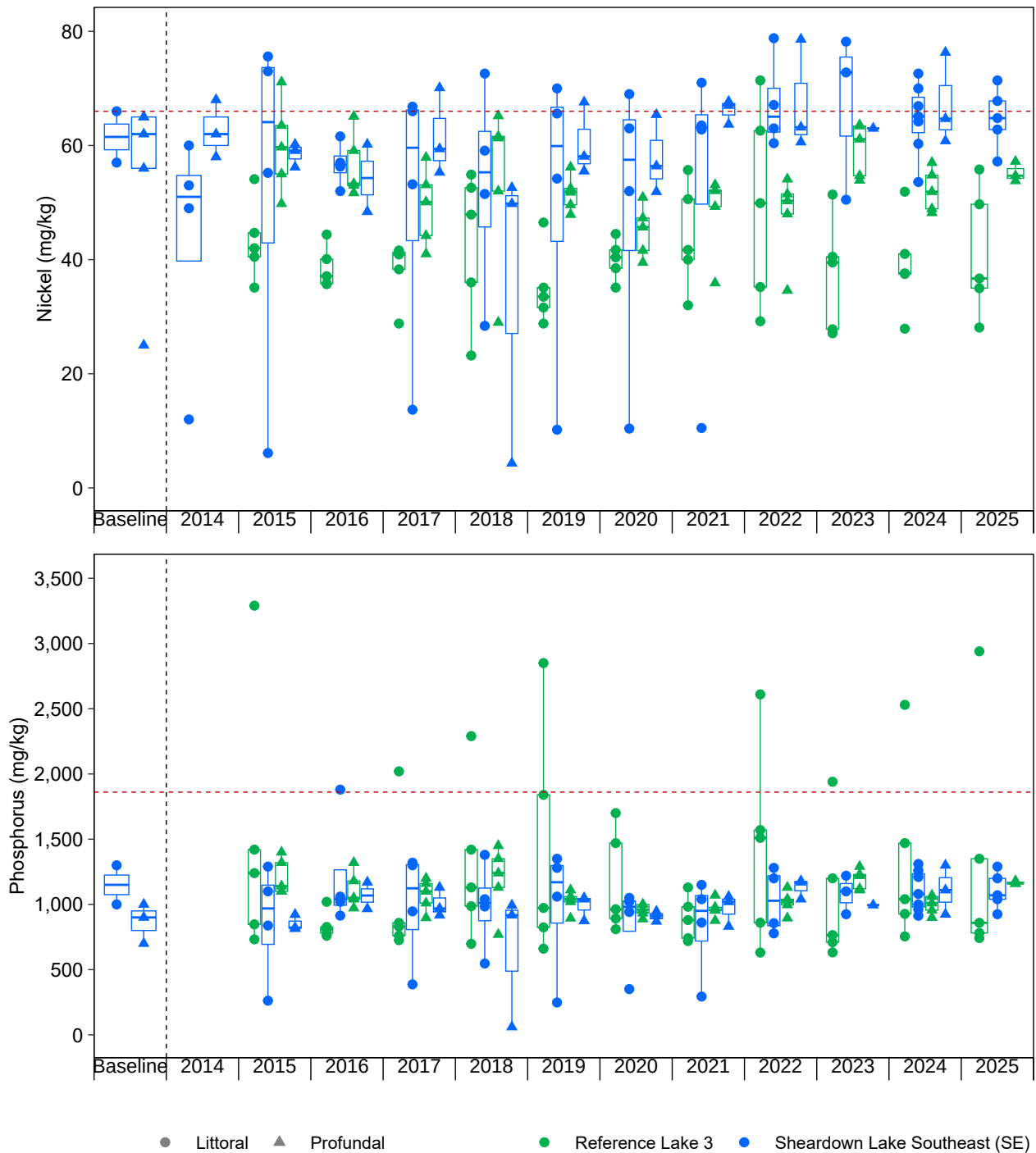


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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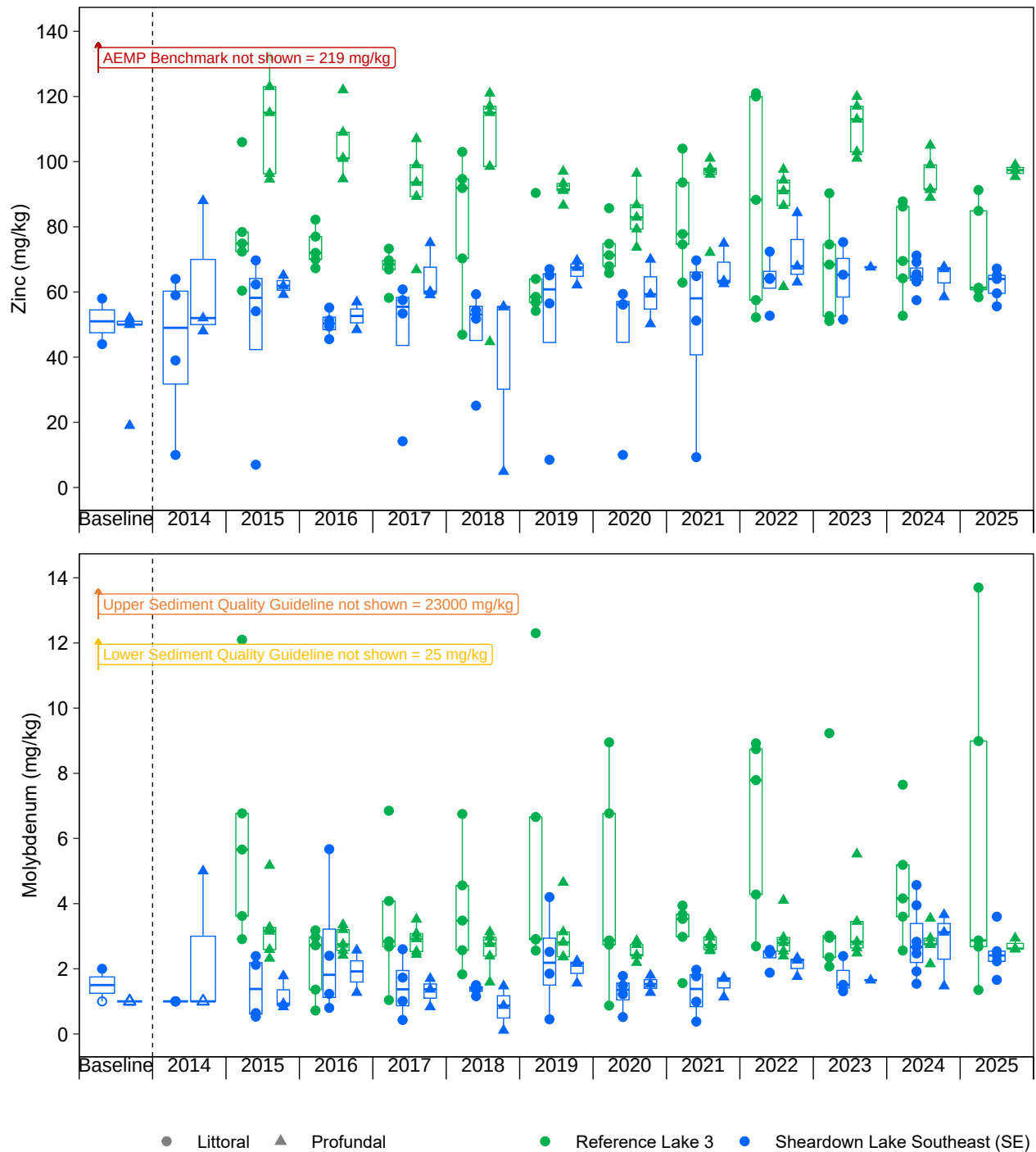


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers). Prior to 2025, a subset of sediment monitoring stations in Sheardown Lake SE were treated as profundal stations. These were reclassified as littoral stations as of 2025 (Baffinland 2024).

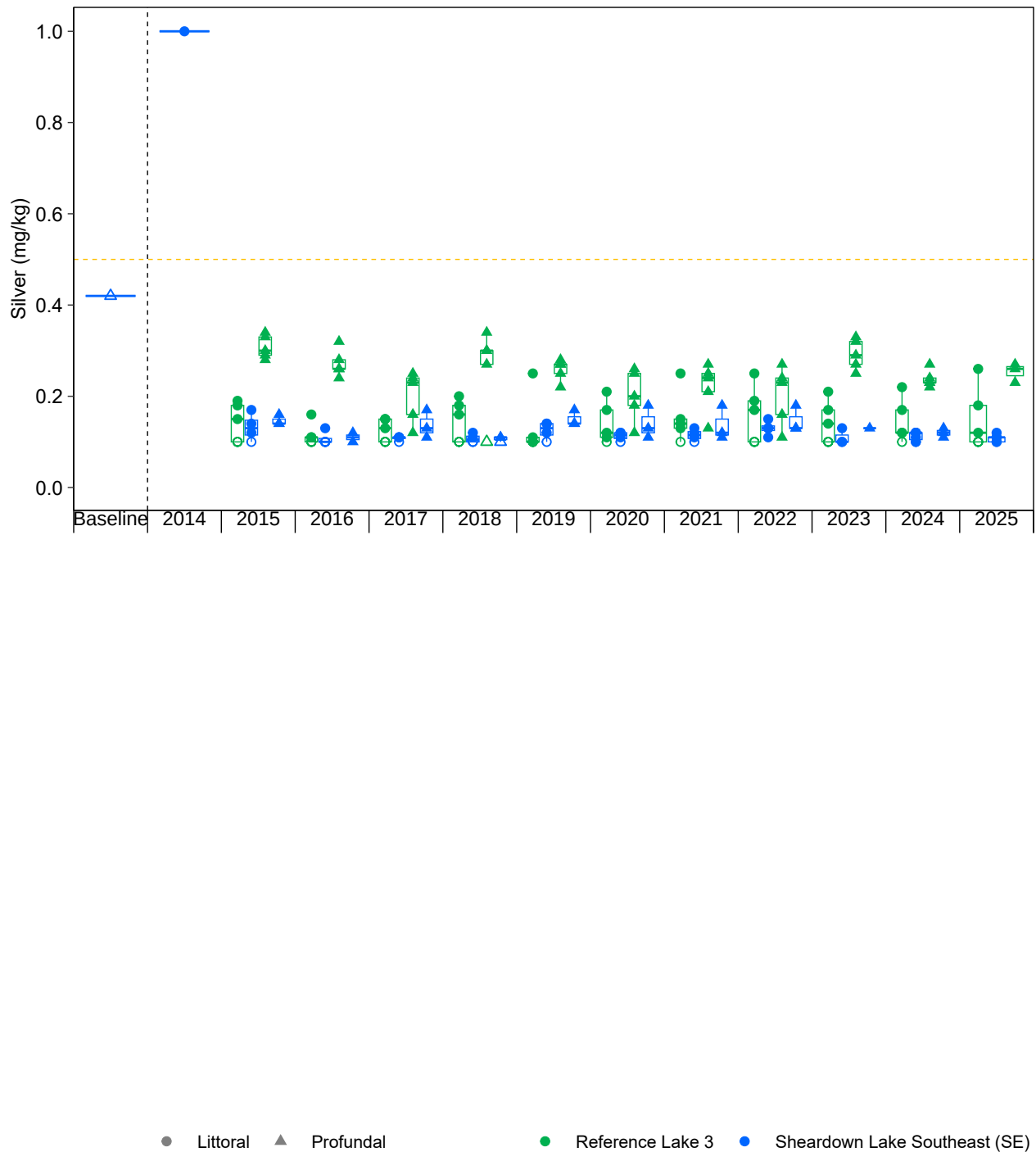


Figure 4.6: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations in Sheardown Lake Southeast (SE) and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicates Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicates upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplot whiskers showing the minimum and maximum (excluding potential outliers). Prior to 2025, a subset of sediment monitoring stations in Sheardown Lake SE were treated as profundal stations. These were reclassified as littoral stations as of 2025 (Baffinland 2024).

consistent temporal patterns observed across winter, summer, or fall (Figure 4.7). The 2025 concentrations fell within the full range of seasonal concentrations observed from 2014 to 2024 (Figure 4.7). Similar to Sheardown Lake NW, chlorophyll-a concentrations in Sheardown Lake SE have been higher than those at Reference Lake 3 during at least one season each year since mining began (Minnow 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024a, 2025); however, the differences have consistently been small ($<1.5 \mu\text{g/L}$) and are more likely attributed to natural lake-specific factors, such as morphology, mixing potential, and light availability, than to mine-related influences. As with Sheardown Lake NW, the absence of baseline chlorophyll-a data (2005 to 2013) prevents comparison to pre-mining conditions of phytoplankton productivity.

Overall, chlorophyll-a concentrations in Sheardown Lake SE exhibit no consistent increasing or decreasing temporal patterns and were well below the AEMP benchmark in 2025. These results indicate no adverse mine-related effects on phytoplankton productivity at Sheardown Lake SE in 2025, and no action level responses were triggered under the TARP (Baffinland 2024).

4.5.4 Benthic Invertebrate Community

In 2025, most BIC endpoints from the littoral habitats of Sheardown Lake SE were comparable to those observed at Reference Lake 3, except for higher densities and relative proportions of *Chironomidae* and burrowers, as well as lower relative proportions of *Ostracoda* at Sheardown Lake SE (Table 3.9; Appendix Figure E.5; Appendix Tables E.14, E.16, and E.33). Of these differences between areas, only the higher relative abundance of burrowers at Sheardown Lake SE was ecologically meaningful (i.e., MOD outside the CES_{BIC} of $\pm 2 \text{ SD}_{\text{REF}}$; $\text{MCT} = 24\%$ at Sheardown Lake SE and 3.7% at the reference lake; Table 3.9; Appendix Figure E.5). Bray-Curtis similarity analysis also identified a statistically significant difference in overall community structure between Sheardown Lake SE and Reference Lake 3 (Appendix Table E.17). Of the statistically significant differences between areas, the higher invertebrate densities at Sheardown Lake SE relative to reference was the only one to trigger a Low Risk Response under the TARP (Baffinland 2024). Because no differences in organism densities between lakes were identified in 2024 (Minnow 2025), escalation to a Moderate Risk Response is not required.

The lower relative proportions of *Ostracoda* at Sheardown Lake SE relative to reference appear to result from habitat-related differences among lakes (Appendix Tables E.16 and E.34). Specifically, high densities (relative to Sheardown Lake SE and the other reference area stations) of *Ostracoda* ($1,963 \text{ organisms/m}^2$) were recovered from REF-03-3, which was identified as having a hard clay bottom, whereas other sampling stations in both lakes were muddy/sandy and had much lower densities of *Ostracoda* (Appendix Tables E.16, E.19, E.33, and E.34). The higher relative abundance of burrowers at Sheardown Lake SE appears to be related to Sheardown



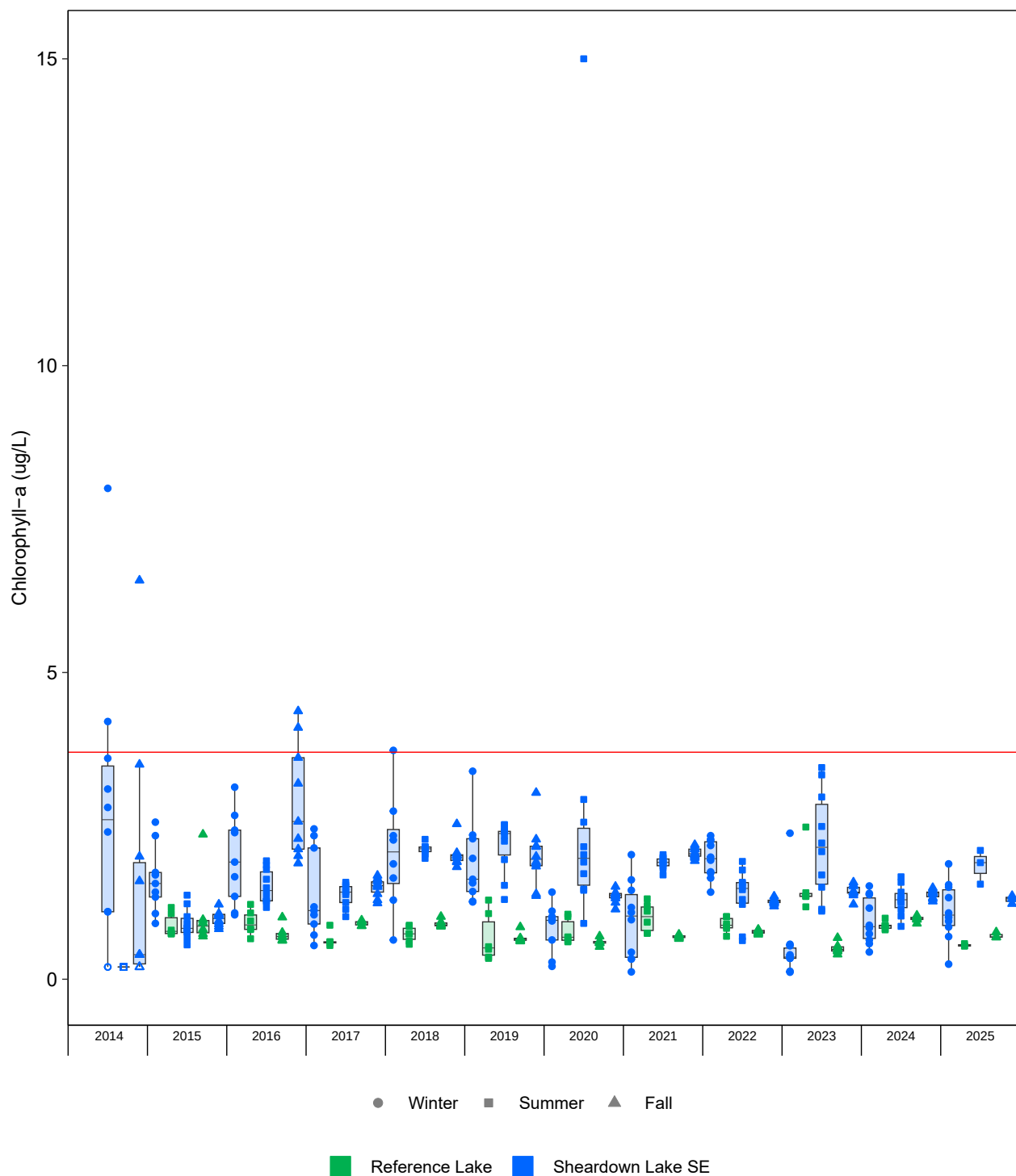


Figure 4.7: Temporal Comparison of Chlorophyll-a Concentrations Among Seasons between Sheardown Lake SE and Reference Lake 3 for Construction (2014) and Operational (2015 to 2025) Periods, Mary River Project CREMP

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates AEMP Benchmark. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Lake SE having lower proportions of ostracods and a chironomid-dominated littoral BIC (Appendix Table E.14) with more burrowing taxa like *Stictochironomus* (Johnson et al. 2007).

Most BIC endpoints in the littoral habitat of Sheardown Lake SE differed significantly from the 2013 baseline year during the mine operations period (2015 to 2025), except Simpson's Evenness and the relative proportions of *Nematoda* and *Chironomidae* (Appendix Table E.35; Appendix Figure E.6). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$) were limited to lower total organism density and higher relative proportions of collector-gatherers in 2023 relative to 2013 (Appendix Table E.35; Appendix Figure E.6). No ecologically meaningful differences in any BIC endpoints were observed at Sheardown Lake SE in 2025 relative to baseline. Collectively, the results of the temporal comparison are suggestive of sporadic, short-lived, and low magnitude (i.e., within the expected range of natural variability based on the CES_{BIC} of $\pm 2 SD_{BASELINE}$) deviations from baseline conditions in Sheardown Lake SE over the period of mine operation. However, for density, Simpson's Evenness, and taxonomic richness, significant differences relative to baseline can trigger a Low Risk Response, if the differences are not beyond the CES_{BIC} of $\pm 2 SD_{BASELINE}$ (Baffinland 2024). On this basis, a Low Risk Response was triggered for benthic invertebrate densities and richness in Sheardown Lake SE in 2025, based on the comparison to baseline.

Overall, littoral BIC results from Sheardown Lake SE indicate a community that is largely comparable to both reference and baseline conditions; observed differences between areas and over time appear to be best explained by localized habitat characteristics rather than mine-related effects. The differences in BIC composition between Sheardown Lake SE and Reference Lake 3 appear to be driven by habitat differences at the station-level scale in some cases, as well as the presence of more organic matter and penetrable substrates for burrowers (including *Chironomidae*) at Sheardown Lake SE. Over the 2015 to 2025 mine operational period, ecologically meaningful differences relative to baseline occurred infrequently, reflecting natural interannual variability rather than directional (e.g., long-term decreases over time) change. However, Low Risk Responses were triggered based on significant (albeit not ecologically meaningful) differences relative to reference (density) and baseline (density and richness), based on the 2025 assessment.

4.5.5 Fish Population

4.5.5.1 Fish Community

Arctic charr and ninespine stickleback were the only fish species captured at Sheardown Lake SE in 2025 (Table 4.6; Appendix Tables F.1 and F.15). Electrofishing CPUE was higher at Sheardown Lake SE relative to Reference Lake 3 in 2025, consistent with previous years of



monitoring⁵⁹, except 2021, when CPUE was similar between the two lakes (Figure 4.5; Table 4.6; Appendix Table F.1). Therefore, the 2025 results for electrofishing CPUE are consistent with the long-standing pattern of higher fish catchability in mine-exposed lakes relative to the reference lake (see Sections 3.3.5 and 4.4.5). Similar to Sheardown Lake NW, the higher CPUE for Sheardown Lake SE were supported by higher chlorophyll-a concentrations in the summer and fall (indicating greater phytoplankton productivity; Section 4.5.3) and higher benthic invertebrate density (Section 4.5.4) compared to Reference Lake 3, suggesting greater food availability for arctic charr in Sheardown Lake SE. Throughout the baseline (i.e., 2006 to 2013) and mine operation (2015 to 2025) periods, CPUE for electrofishing in Sheardown Lake SE exhibited moderate to high interannual variability, with years of lower (e.g., 2015, 2021, 2022), intermediate (e.g., 2016 to 2018, 2020), and higher (2014, 2019, 2023) CPUE (Figure 4.5). In 2025, the electrofishing CPUE in Sheardown Lake SE fell within the established range of interannual variability and was higher relative to baseline in 2007 and 2008. Overall, the 2025 results indicate that catchability of arctic charr in littoral areas of Sheardown Lake SE remains consistent with long-term patterns and is likely reflective of natural interannual variability, rather than mine-influence.

Gill net CPUE at Sheardown Lake SE in 2025 was much higher relative to Reference Lake 3, reinforcing the pattern of higher fish catchability (i.e., as noted for electrofishing, above) in Sheardown Lake SE relative to the reference area (Figure 4.5; Table 4.6; Appendix Tables F.3 and F.15). Additionally, throughout the baseline (i.e., 2006 to 2013) and mine operational (i.e., 2015 to 2025) periods, gill netting CPUE in Sheardown Lake SE has exhibited interannual variability, with lower catch rates during baseline and early operational years (2006 to 2015 and 2017 to 2020), followed by a relatively high CPUEs from 2021 to 2023 (Figure 4.5). The gill netting CPUE for 2025 was elevated relative to baseline and earlier operational years, but lower than the peak values recorded in 2022 and 2023 and is considered consistent with long-term natural variability in arctic charr spatial distribution, aggregation behaviour, and responses to annual environmental conditions. No consistent temporal patterns in chlorophyll-a concentrations (i.e., phytoplankton productivity) or ecologically meaningful differences in BIC endpoints have been observed in Sheardown Lake SE that would explain the observed interannual variability in fish catch (Sections 4.5.3 and 4.5.4). As noted in Section 3.3.5.1, passive gear catch rates can be strongly affected by seasonal timing, thermal conditions, and natural variation in fish movement and spatial distribution. Regardless, the 2025 gill net CPUE indicates that arctic charr catchability in Sheardown Lake SE remained high relative to reference and within the range of recent values, with no evidence of adverse mine-related influence.

⁵⁹ No electrofishing or gill netting was completed at Reference Lake 3 during the baseline period (i.e., 2006 to 2013).



Overall, because the 2025 electrofishing and gill netting CPUE results fall within the range of variability observed during long-term monitoring, remain comparable to or higher than catches recorded during baseline sampling at Sheardown Lake SE, and continue to exceed those of Reference Lake 3, there is no evidence to suggest mine-related effects on arctic charr catchability in Sheardown Lake SE.

4.5.5.2 Fish Health Assessment

4.5.5.2.1 Nearshore Arctic Charr

In August 2025, a total of 100 and 101 electrofished arctic charr from Sheardown Lake SE and Reference Lake 3, respectively, were assessed for fish health endpoints (Appendix Tables F.5 and F.16). The YOY arctic charr were distinguished from older age classes (non-YOY) based on fork length, as determined from LFD and supporting measurements of individual fish lengths, weights, and ages (Figure 3.12). This resulted in fish from Sheardown Lake SE with fork lengths <4.5 cm and fish from Reference Lake 3 with fork lengths <4.0 cm being classified as YOY (Appendix Tables F.5 and F.16). Because more than ten YOY arctic charr were captured at Sheardown Lake SE in 2025⁶⁰, statistical comparisons of fish health endpoints, including LFD, were completed for both YOY and non-YOY age classes (i.e., separately, and combined for LFD; Figures 3.12 and 3.13, Appendix Figures F.1, F.2, and F.12, Appendix Tables F.5 and F.16).

Of all the lakes electrofished as part of the CREMP in 2025, the catch from Sheardown Lake SE had the largest proportion of YOY (i.e., 44% of measured fish; Appendix Table F.16). Although including the YOY arctic charr in the LFD along with non-YOYs did not change the significance of the difference between areas, there was a shift in the MOD associated with the maximum difference in CRFDs (i.e., from MOD = -24% without YOY to -39% with YOY; Appendix Table F.6). Collectively, the body size comparisons between lakes indicate YOY fish were larger in Sheardown Lake SE, and the effects of this were evident in the LFD comparisons, whereas older fish from nearshore areas of Sheardown Lake SE and Reference Lake 3 were of similar size (Figure 3.12; Figures F.1, F.3, F.12, and F.13; Appendix Table F.6). Despite YOY fish from Sheardown Lake SE being significantly larger relative to reference, condition of YOY and non-YOY arctic charr was comparable between the two lakes in 2025 (Appendix Figures F.3 and F.13; Appendix Table F.6).

Longer-term comparisons between Sheardown Lake SE and Reference Lake 3 show that LFD, body size (fork length and body weight), and condition for non-YOY arctic charr have differed significantly between lakes in most mine operational years (Table 4.10). However, it is notable

⁶⁰ Sheardown Lake SE was the only mine-exposed lake where more than 10 YOY arctic charr were captured in 2025.



Table 4.10: Summary of Statistical Results for Arctic Charr Population Comparisons between Sheardown Lake Southeast (SE; DL0-02) and Reference Lake 3 (REF-03), and between Mine Operational and Baseline Period Data for Sheardown Lake SE, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Data Set by Sampling Method	Response Category	Endpoint	Statistically Significant Differences Observed? ^a																						
			Sheardown Lake SE vs Reference Lake 3											Sheardown Lake SE Mine Operational Year vs Baseline Period ^b											
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Nearshore Electrofishing	Survival ^c	Length-Frequency Distribution	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	
		Age	No	No	No	-	-	-	-	-	-	-	-	-	Yes (+273%)	-	-	-	-	-	-	-	-	-	
	Energy Use (non-YOY)	Size (mean fork length)	No	No	Yes (+12%)	Yes (+21%)	Yes (-28%)	Yes (+7%)	Yes (+26%)	Yes (-20%)	No	Yes (+23%)	No	Yes (+7%)	Yes (-15%)	Yes (+19%)	Yes (-47%)	No	Yes (+30%)	Yes (+11%)	No	Yes (+4.8%)	No	No	
		Size (mean weight)	No	No	Yes (+55%)	Yes (+59%)	Yes (-59%)	Yes (+53%)	Yes (+124%)	Yes (-62%)	Yes (-32%)	Yes (+127%)	No	No	Yes (-43%)	Yes (+54%)	No	No	Yes (+117%)	Yes (+32%)	No	No	No	No	
		Growth (weight-at-age)	Yes (+85%)	Yes (+120%)	-	-	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	-	-	-	
		Growth (fork length-at-age)	Yes (+21%)	Yes (+34%)	-	-	-	-	-	-	-	-	-	No	-	-	-	-	-	-	-	-	-	-	
	Energy Storage (non-YOY)	Condition (body weight-at-fork length)	Yes (+4%)	No	Yes (+9%)	Yes (-13%)	Yes (+4%)	Yes (+14%)	Yes (+10%)	Yes (-8.9%)	Yes (-16%)	Yes (+21%)	No	Yes (-14%)	Yes (-16%)	No	Yes (-15%)	Yes (-13%)	No	No	Yes (-17%)	Yes (+14%/-27%)	Yes (+26%/-20%)	Yes (-8.8%)	
	Energy Use (YOY)	Size (mean fork length)	-	-	-	-	-	-	-	-	Yes (+20%)	Yes (+23%)	Yes (+24%)	-	-	-	-	-	-	-	-	-	-	-	
		Size (mean weight)	-	-	-	-	-	-	-	-	No	Yes (+89%)	Yes (+80%)	-	-	-	-	-	-	-	-	-	-	-	
	Energy Storage (YOY)	Condition (body weight-at-fork length)	-	-	-	-	-	-	-	-	Yes (-34%/-21%)	Yes (+42%)	No	-	-	-	-	-	-	-	-	-	-	-	
Littoral/Profundal Gill Netting ^d	Survival	Length Frequency Distribution	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	
		Age	-	-	-	-	-	-	-	-	-	-	-	-	Yes (-13%)	No	No	-	-	-	-	-	-	-	
	Energy Use	Size (mean fork length)	-	-	-	No	Yes (+23%)	Yes (+21%)	Yes (+27%)	Yes (+20%)	No	Yes (+29%)	Yes (+12%)	Yes (-9%)	Yes (-7%)	Yes (-5%)	Yes (-4%)	Yes (-2%)	No	No	Yes (-2.3%)	No	No	Yes (-9.9%)	
		Size (mean weight)	-	-	-	No	Yes (+102%)	Yes (+107%)	Yes (+158%)	Yes (+122%)	No	Yes (+139%)	Yes (+49%)	Yes (-26%)	Yes (-20%)	Yes (-16%)	Yes (-16%)	Yes (-11%)	Yes (-7.0%)	No	Yes (-9.0%)	Yes (-9.0%)	Yes (-9.0%)	Yes (-33%)	
		Growth (fork length-at-age)	-	-	-	-	-	-	-	-	-	-	-	-	No	No	No	-	-	-	-	-	-	-	
		Growth (weight-at-age)	-	-	-	-	-	-	-	-	-	-	-	-	Yes (+18%)	Yes (+24%)	No	-	-	-	-	-	-	-	
	Energy Storage	Condition (body weight-at-fork length)	-	-	-	Yes (+7%)	No	Yes (+14%)	Yes (+24%)	Yes (+33%)	Yes (-12%)	Yes (+19%)	Yes (+7.5%)	No	No	Yes (-6%)	Yes (-7%)	Yes (-6%)	Yes (-5.0%)	Yes (-3.6%)	No	Yes (-11%)	Yes (-5.7%)	Yes (-11%)	

BOLD Indicates a statistically significant difference.

Notes: - = insufficient data for comparison. % = percent. nc = not calculable. YOY = young-of-the-year.

^a Values in parentheses indicate direction and magnitude of any significant differences.

^b Baseline data included 2002, 2005, 2006, 2008, and 2013 nearshore electrofishing data and 2006, 2008 and 2013 littoral/profundal gill netting data.

^c The length-frequency distribution comparisons to Reference Lake 3 include all fish, whereas for comparisons to baseline conditions, only non-YOY fish are included.

^d Due to low catches of arctic charr in gill nets at Reference Lake 3 in 2015, 2016, and 2017, no comparisons of fish health were conducted for gill netted fish in those years.

that, in 2015, LFDs were statistically similar between the two lakes; body sizes were also similar between areas in 2015, 2016, and 2025, and condition was similar between Sheardown Lake SE and the reference lake in 2016 and 2025 (Table 4.10). When significant differences did exist between lakes, they typically reflected longer and heavier fish at Sheardown Lake SE relative to reference. In the years with sufficient sample sizes to conduct statistical tests (i.e., 2023 to 2025) for YOY arctic charr, YOY from Sheardown Lake SE were typically longer (2023 to 2025) and heavier (2024 and 2025) relative to YOY fish from Reference Lake 3 (Table 4.10).

In 2025, body size (fork length and body weight) endpoints for nearshore arctic charr were not significantly different relative to the mine baseline period, but condition was significantly lower in 2025. Although the difference relative to baseline was not large enough to be considered ecologically meaningful (i.e., MOD = -8.8% after removal of outliers; Table 2.9; Appendix Figures F.14 and F.15; Appendix Table F.7), a Low Risk Response was triggered (Baffinland 2024). LFDs were similar between 2025 and baseline and fish size distributions were similarly centered on mid-sized individuals (Appendix Figure F.14). Longer-term comparisons among fish health endpoints for mine-operational years and baseline data for Sheardown Lake SE did not reveal any consistent patterns (Table 4.10).

Overall, the 2025 health assessment results for arctic charr captured from nearshore areas of Sheardown Lake SE show clear differences in size class structure relative to Reference Lake 3, but there was no evidence of lower fish health relative to reference. Taken together, the 2025 results suggest that observed patterns largely reflect natural variability in size class structure and the higher proportion of YOY fish in Sheardown Lake in 2025, rather than adverse mine-related effects. However, continued monitoring and implementation of a Low Risk Response for the difference in fish condition in 2025 relative to baseline will be important for understanding potential longer-term patterns.

4.5.5.2.2 Littoral/Profundal Arctic Charr

In August 2025, a total of 100 and 54 gill netted arctic charr from littoral and profundal habitats of Sheardown Lake SE and Reference Lake 3, respectively, were assessed for fish health (Table 4.6; Appendix Tables F.3 and F.15). The LFD differed significantly between the two lakes, driven by arctic charr at Sheardown Lake SE being generally larger yet exhibiting a broader size distribution than in Reference Lake 3 (Figure 3.15, Appendix Tables F.9, F.10, and F.17). Fork length (MOD = +12%), body weight (MOD = +49%), and condition (MOD = +7.5% with outliers removed) were also significantly higher at Sheardown Lake SE, relative to reference, in 2025 (Figure 3.16; Appendix Table F.10). Although the difference in fish condition between areas was not large enough to be considered ecologically meaningful, based on a CES of $\pm 10\%$,



the statistical significance of the difference was sufficient to trigger a Low Risk Response (Table 2.9; Baffinland 2024; Environment Canada 2012).

In 2025, body size (fork length and body weight) and condition for gill netted fish from Sheardown Lake SE were significantly lower compared to the mine baseline period (Appendix Table F.11). The 2025 LFD was much broader relative to baseline, with a greater representation of small- and mid-sized fish and a more gradual CRFD curve (Appendix Figure F.16), and this was reflected in the lower fish lengths and weights observed in 2025 relative to baseline (Appendix Figure F.17; Appendix Table F.11). For condition, although the MOD was +11% and therefore outside the CES of 10% (i.e., an ecologically meaningful difference), the baseline and 2025 fish followed nearly identical weight-at-length relationships, indicating similar body condition for a given size despite differences in size class structure (Appendix Figure F.17; Appendix Table F.11). Regardless, the significant and ecologically meaningful difference in fish condition relative to baseline triggered a Low Risk Response under the TARP (Baffinland 2024).

Longer-term comparisons between gill netted fish from Sheardown Lake SE and Reference Lake 3 indicate that, from 2019 to 2025, Sheardown Lake SE fish were generally longer, heavier, and in better condition relative to reference, aside from a few years when no differences between lakes were detected (i.e., in 2018 and 2023 for body size and 2019 for condition), or when condition was lower at Sheardown Lake SE in 2023, specifically, relative to reference (Table 4.10). In contrast, comparisons of annual results to the baseline period indicate that arctic charr gill netted from Sheardown Lake SE between 2015 and 2025 either had comparable, or lower, fork lengths, body weights, and condition relative to baseline (Table 4.10). As discussed above, the 2025 results for Sheardown Lake SE were consistent with the pattern of fish being shorter, lighter, and in lower condition relative to baseline (Table 4.10).

Overall, results from the 2025 littoral and profundal gill netting program at Sheardown Lake SE indicate that the observed differences relative to both Reference Lake 3 and the mine baseline period were driven primarily by shifts in size structure, rather than clear changes in overall fish health. Arctic charr at Sheardown Lake SE were generally larger than those at the reference lake, yet smaller and lighter relative to baseline, reflecting broad variability in LFD and body size rather than consistent unidirectional patterns. Taken together, the 2025 findings do not indicate adverse mine-related effects on littoral or profundal arctic charr health at Sheardown Lake SE; however, continued monitoring and implementation of the Low Risk Responses for fish condition will be important in identifying potential longer-term patterns.



4.5.6 Effects Assessment and Recommendations

4.5.6.1 Effects Assessment

At Sheardown Lake SE, mean concentrations of water quality parameters were generally below AEMP benchmarks throughout 2025; the mean total aluminum concentration in summer was the only exception. Because the mean concentration in summer was above the AEMP benchmark and reference and baseline normal ranges, a Moderate Risk Response was triggered for aqueous total aluminum concentration in Sheardown Lake SE in 2025 (Baffinland 2024). Low winter DO concentrations were measured near the lake bottom during winter (April) 2025. However, no adverse effects to arctic charr from low wintertime DO concentrations near the lake bottom are anticipated, based on the availability of suitably oxygenated areas within the lake and Sheardown Lake NW, as well as the ability of arctic charr to adjust their behaviour, and therefore oxygen demand, in winter.

Low Risk Responses were triggered for mean hardness; TDS; laboratory-measured turbidity; chloride; sulphate; total manganese; total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium; and dissolved aluminum, based on aqueous concentrations that were elevated in Sheardown Lake SE relative to both the reference and baseline normal ranges in at least one season in 2025 (Baffinland 2024).

Results of the special investigations completed in 2025 suggest that nitrate concentrations are higher near the lake's surface, relative to the bottom, during winter, and that wintertime concentrations were higher in 2025, relative to summer and fall. Despite the noted seasonal differences in nitrate concentrations in Sheardown Lake SE, concentrations were generally uniform throughout the lake in 2025 (i.e., there was no detectable influence from the Dyno plant via SDLT9). Notably, despite increasing trends in nitrate concentrations in Sheardown Lake SE over time relative to baseline and over the mine operations period, concentrations in 2025 were below the AEMP benchmark and within reference and baseline normal ranges.

Aqueous concentrations of sulphate and total and dissolved molybdenum and uranium exhibited significant increasing trends over time in Sheardown Lake SE relative to baseline and over the period of mine operations (i.e., 2015 to 2025). However, none of these parameters had concentrations above applicable AEMP benchmarks or WQG in 2025.

Sediment is collected annually from Sheardown Lake SE. In 2025, all sediment sampling stations in the lake were reclassified as littoral due to the shallow nature of the lake (i.e., maximum depth is approximately 12 m). In 2025, mean metal concentrations in sediments were below AEMP benchmarks. Additionally, there were no instances of mean metal concentrations in littoral or profundal sediments being significantly higher relative to both reference and baseline in 2025.



Based on the results of the sediment quality assessment for 2025, no action level responses were triggered for Sheardown Lake SE (Baffinland 2024).

No adverse mine-related effects on aqueous chlorophyll-a concentrations (as an indicator of primary productivity) were observed at Sheardown Lake SE in 2025; because concentrations were consistently below the AEMP benchmark, no action level responses were triggered (Baffinland 2024).

Littoral BIC endpoints for Sheardown Lake SE were largely comparable to reference and baseline conditions in 2025; observed differences were primarily attributed to habitat-related variability (e.g., substrate composition) rather than mine-related effects. Low Risk Responses were triggered based on higher BIC densities relative to reference conditions and significantly lower (but not ecologically meaningful) densities and richness relative to baseline (Baffinland 2024). No other action level responses were triggered for the BIC in Sheardown Lake SE.

The assessment of arctic charr health at Sheardown Lake SE, consistent with Camp Lake and Sheardown Lake NW, focused on endpoints related to survival, energy use, and energy storage (i.e., condition) across all life stages. Long-term patterns in CPUE, body size, and condition between Sheardown Lake SE and Reference Lake 3 are considered indicative of natural variability between lakes rather than adverse mine-related effects. In 2025, electrofishing and gill netting CPUE remained higher at Sheardown Lake SE relative to the reference lake and within the range of historical variability, likely reflecting greater food availability and natural differences in productivity rather than mine influence.

For fish captured by electrofishing, differences in LFDs between lakes were primarily driven by a higher proportion, and larger body sizes, of YOY fish at Sheardown Lake SE relative to reference. However, the significant differences in LFDs between areas in 2024 and 2025 triggered a Moderate Risk Response (Baffinland 2024). Inclusion/exclusion of YOY fish in the LFDs along with other nearshore fish did not change the significance of the LFD comparisons, thereby suggesting relative abundance of YOY did not differ between areas. Additionally, condition of non-YOY and YOY fish was comparable between Sheardown Lake SE and the reference lake in 2025. Although no action level responses were triggered for the comparisons of condition between lakes, condition of nearshore fish from Sheardown Lake SE was lower in 2025 relative to baseline, thereby triggering a Low Risk Response under the TARP (Baffinland 2024). However, it is noteworthy that the MOD calculated for the difference relative to baseline was too small to be considered ecologically meaningful.

Gill netted arctic charr from Sheardown Lake SE were larger and heavier than those from the reference lake in 2025, but were generally smaller and lighter relative to baseline, reflecting variability in size structure rather than reduced fish health. Differences in condition relative to



both reference and baseline triggered Low Risk Responses, including an ecologically meaningful difference relative to baseline (Baffinland 2024). Results for LFDs in 2024 and 2025 triggered Moderate Risk Responses.

Overall, the 2025 results indicate that observed differences in fish health endpoints at Sheardown Lake SE are primarily driven by natural variability in size structure, recruitment (YOY fish), and environmental conditions rather than mine-related effects, and there is no evidence of consistent or directional changes indicative of adverse mine-related impacts on arctic charr health.

4.5.6.2 Recommendations

Low Risk Responses for Sheardown Lake SE were triggered for hardness; TDS; laboratory-measured turbidity; and aqueous concentrations of chloride; sulphate; total manganese; dissolved aluminum; and total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium. Low Risk Responses were also triggered based on comparisons of BIC densities relative to reference conditions, invertebrate density and richness relative to baseline, and arctic charr condition (nearshore relative to baseline and littoral/profundal relative to both reference and baseline). Moderate Risk Responses were triggered for aqueous concentrations of total aluminum and LFDs for both electrofished and gill netted fish. The following actions are recommended in response to the Low and Moderate Risk Responses triggered for Sheardown Lake SE:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of total aluminum concentrations above AEMP benchmarks using a weight-of-evidence approach.
- Adopt the variable FEQG as the AEMP benchmark for aqueous total aluminum.
- Complete temporal trend analyses for hardness; TDS; laboratory-measured turbidity; and aqueous concentrations of chloride; sulphate; total manganese; and total and dissolved aluminum, barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources or factors influencing hardness; TDS; laboratory-measured turbidity; and aqueous concentrations of chloride; sulphate; total manganese; and total and dissolved aluminum, barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium in Sheardown Lake SE to better define mine-related influence.
- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time (i.e.,



have the BIC always differed between the mine-exposed and reference areas, and has that difference remained constant or changed over time?).

- Continue to use data for indicator taxa, FFGs, and HPGs in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.
- Consider completing a BACI-style analysis of fish health endpoints (e.g., for condition) using data collected from mine-exposed and reference areas over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time.

4.5.6.3 Comparison to FEIS Predictions

A comparison of water quality at Sheardown Lake SE in spring, summer, and fall 2025 relative to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-4 (Explosives), SWSQ-7 (Camp Management), and SWSQ-9 (Airstrips and Airstrip Use) was completed. Results of the comparison indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during mine operations. Therefore, water quality at Sheardown Lake SE conformed with predictions made in the FEIS (Baffinland 2012).

Comparisons of sediment quality data collected from Sheardown Lake SE in 2025 to FEIS predictions related to Airborne Emission sources (i.e., fugitive dust; FEIS Issue SWSQ-17-3) indicated that all mean parameter concentrations were within the applicable significance rating magnitudes expected for lake sediments during mine operations. Therefore, sediment quality at Sheardown Lake NW conformed with predictions made in FEIS (Baffinland 2012).

Because water and sediment quality parameter concentrations were within applicable FEIS significance rating magnitude predictions in 2025, it is generally expected that effects predictions for arctic charr health would also be met. Although significant differences in arctic charr length frequency distributions and condition relative to reference and baseline were identified in 2025, the long-term datasets indicate that spatial and temporal differences have existed throughout the mine operation period, yet the arctic charr population in Sheardown Lake SE has persisted throughout mine operations, and catchability has been higher relative to baseline and reference. Overall, similar to Camp Lake and Sheardown Lake NW, it appears that, based on the weight-of-evidence, the differences in fish endpoints between areas and over time are likely driven by natural spatial and temporal variability in conditions (e.g., productivity, weather, water levels). However, outcomes of the Low and Moderate Risk Responses triggered for fish in 2025 will be



important for understanding whether FEIS predictions for arctic charr are being met (Baffinland 2012).



5 MARY RIVER AND MARY LAKE SYSTEM

5.1 Tom River

5.1.1 Water Quality

5.1.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at Tom River (Stations I0-01 and I0-02), which flows into the north basin of Mary Lake, concurrent and co-located with water quality sampling completed by Baffinland environment department personnel in spring, summer, and fall monitoring events (Table 2.2; Figure 2.2). DO was consistently near full saturation across all seasons (i.e., all concentrations were $\geq 96.5\%$) and concentrations were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L) and within baseline and reference normal ranges throughout 2025 (Table 5.1; Appendix Figure B.12; Appendix Table B.24). Measured pH values were consistently within the CCME WQG range (6.5 to 9.0), although slightly elevated relative to the reference normal range during spring and summer (Table 5.1; Appendix Figure B.12; Appendix Table B.24). Mean SPC was lowest during spring and increased through summer and fall; values in all seasons were above the reference normal range (Table 5.1; Appendix Figure B.12; Appendix Table B.24). This seasonal pattern likely reflects dilution during the spring freshet, followed by increasing influence of groundwater and subsurface flow later in the season, resulting in elevated dissolved ion concentrations (Allan et al., 2021). Mean turbidity remained low (<1.5 NTU) across all sampling events, indicating consistently clear water column conditions (Table 5.1; Appendix Table B.24). Overall, no action level responses were triggered for *in situ* water quality parameters in Tom River in 2025.

5.1.1.2 Water Chemistry

At the Tom River water quality monitoring stations (Stations I0-01 and I0-02), mean concentrations of all parameters were below their respective AEMP benchmarks or, where benchmarks were not available, applicable WQG, throughout 2025 (Table 5.1; Appendix Table B.24; Appendix Figure B.13). Accordingly, no Risk Responses were triggered based on comparisons to AEMP benchmarks (Baffinland 2024).

Comparisons of seasonal mean concentrations (spring, summer, and fall 2025) indicated that hardness, TDS, alkalinity, TOC, chloride, and total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, rubidium, sodium, strontium, and uranium exceeded reference area normal ranges in at least one season, despite being below applicable benchmarks and WQG (Table 5.1). However, all parameters remained within baseline normal



Table 5.1: Mean Water Chemistry at Tom River Monitoring Stations During Spring, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Creeks (n = 3)			Tom River (n = 2)		
				Spring	Summer	Fall	Spring	Summer	Fall
Conventionals	Conductivity (lab)	µS/cm	-	40.4	97.0	134	91.5	162	202
	Specific Conductance (field)	µS/cm	-	34.5	100	135	89.9	167	211
	pH (lab)	pH	-	6.90	7.78	7.79	7.24	8.11	8.06
	pH (field)	pH	6.5 - 9.0	7.50	7.85	7.76	7.85	8.14	8.11
	Temperature, Field	mg/L	-	4.46	8.70	1.90	4.60	8.30	1.20
	Hardness (as CaCO ₃) -Total	mg/L	-	18.7	50.4	68	44.6	81.7	102
	Total Suspended Solids (TSS)	mg/L	-	1.82	<1	1.82	1.20	<1	<1.1
	Total Dissolved Solids (TDS)	mg/L	-	29.8	55.0	64.0	46.0	85.5	118
	Dissolved Oxygen	mg/L	> 9.5	12.3	10.9	13.2	12.6	11.3	13.8
	Dissolved Oxygen	%	-	95.2	93.2	95	97.2	96.5	97.6
	Turbidity (lab)	NTU	-	<u>2.73</u>	<u>8.69</u>	<u>5.68</u>	0.950	0.555	0.670
	Turbidity (field)	NTU	-	2.35	8.02	4.14	1.08	0.150	1.12
	Alkalinity (as CaCO ₃)	mg/L	-	19.8	46.3	59.6	42.6	77.8	93.3
Nutrients and Organics	Total Ammonia ^c	mg/L	0.282 - 3.98	0.00532	0.00580	0.00785	0.0122	0.00715	<0.005
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	0.0215	0.0210	<0.02	<0.02
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.0750	0.106	0.0842	0.0720	0.117	0.0950
	Dissolved Organic Carbon	mg/L	-	1.41	1.74	1.71	1.61	1.76	1.87
	Total Organic Carbon	mg/L	-	1.64	2.32	2.13	1.76	2.38	2.57
	Total Phosphorus	mg/L	-	0.00365	0.00632	0.00518	0.00305	<0.002	<0.002
	Phenols	mg/L	0.00400	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^c	mg/L	120	0.668	1.12	3.18	2.02	2.24	5.66
	Sulphate (SO ₄) ^c	mg/L	128 - 309	0.568	1.59	3.91	1.85	0.950	1.75
Total Metals	Aluminum (Al) ^c	mg/L	0.179	0.0740	0.313	0.117	0.0302	0.0162	0.0114
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	0.000100	<0.0001
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	0.000122	0.000110	<0.0001	0.000105	<0.0001
	Barium (Ba)	mg/L	1.00	0.00276	0.00760	0.00826	0.00482	0.00792	0.00916
	Beryllium (Be)	mg/L	0.000130	<0.00002	0.0000272	0.0000202	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^c	mg/L	0.0000400 - 0.000162	<0.000005	0.00000502	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.83	9.80	13.7	8.86	16.3	19.3
	Cesium (Cs)	mg/L	-	0.0000175	0.0000495	0.0000260	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	0.000540	<u>0.000902</u>	0.000620	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^c	mg/L	0.000778 - 0.00103	0.000102	0.000165	0.000125	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00242	0.000662	0.00133	0.00101	0.000675	0.000980	0.000870
	Iron (Fe) ^c	mg/L	0.326	0.0825	<u>0.304</u>	0.145	0.0325	0.0155	0.0130
	Lead (Pb)	mg/L	0.00100 - 0.00329	0.000100	0.000261	0.000167	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	0.00100	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	2.22	6.29	8.18	5.46	9.96	13.2
	Manganese (Mn)	mg/L	0.768 - 1.06	0.00114	0.00326	0.00198	0.00131	0.000480	0.000690
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000150	0.000345	0.000408	0.000247	0.000264	0.000277
	Nickel (Ni) ^c	mg/L	0.0250 - 0.0974	0.000505	0.000770	0.000922	0.000575	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.358	0.807	0.870	0.766	0.924	0.998
	Rubidium (Rb)	mg/L	-	0.000910	0.00268	0.00195	0.00152	0.00148	0.00123
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	<0.00005	<0.00005	0.0000625	<0.00005
	Silicon (Si)	mg/L	-	0.605	<u>1.34</u>	1.10	0.495	0.805	0.990
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.491	1.45	2.22	1.14	2.34	3.56
	Strontium (Sr)	mg/L	-	0.00341	0.00961	0.0138	0.00662	0.0112	0.0140
	Sulphur (S)	mg/L	-	<0.5	0.625	1.42	0.785	<0.5	0.845
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	0.0000128	0.0000105	<0.00001	0.0000140	<0.00001
	Thorium (Th)	mg/L	-	0.000145	0.000458	0.000268	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.00412	0.0149	0.00758	0.00124	0.000710	0.000385
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000268	0.00161	0.00372	0.000688	0.00184	0.00256
	Vanadium (V) ^c	mg/L	-	<0.0005	0.000850	0.000612	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	0.000230	0.000488	0.000332	<0.0002	<0.0002	<0.0002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 5.1: Mean Water Chemistry at Tom River Monitoring Stations During Spring, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Creeks (n = 3)			Tom River (n = 2)		
				Spring	Summer	Fall	Spring	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	<u>0.0192</u>	<u>0.0478</u>	<u>0.0219</u>	0.00900	0.00575	0.00415
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00241	0.00631	0.00782	0.00460	0.00824	0.00946
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000215	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.86	9.68	13.6	8.86	14.8	19.3
	Cesium (Cs)	mg/L	-	0.0000102	0.0000140	0.0000132	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000515	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^c	mg/L	0.000568 - 0.00277	0.000485	0.000908	0.000782	0.000610	0.000935	0.000840
	Iron (Fe) ^c	mg/L	-	0.0150	0.0335	0.0152	<0.01	<0.01	<0.01
	Lead (Pb) ^c	mg/L	0.00294 - 0.00591	<0.00005	0.0000610	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	<0.001	<0.001	0.00105	0.00105
	Magnesium (Mg)	mg/L	-	2.46	5.59	7.48	5.85	9.56	13.2
	Manganese (Mn) ^c	mg/L	0.200 - 0.350	0.000288	0.000545	0.000422	0.000615	0.000265	0.000555
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000142	0.000382	0.000428	0.000246	0.000264	0.000282
	Nickel (Ni)	mg/L	0.000600 - 0.00220	<0.0005	0.000528	0.000512	0.000535	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.356	0.706	0.815	0.794	0.952	1.01
	Rubidium (Rb)	mg/L	-	0.000685	0.00173	0.00163	0.00156	0.00142	0.00122
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.509	0.934	0.913	0.468	0.782	0.952
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.512	1.32	2.00	1.19	2.31	3.55
	Strontium (Sr) ^c	mg/L	2.50	0.00342	0.00880	0.0139	0.00646	0.0112	0.0141
	Sulphur (S)	mg/L	-	<0.5	0.678	1.31	0.825	<0.5	0.815
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000650	0.00180	0.000752	0.000320	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000228	0.00154	0.00386	0.000692	0.00183	0.00252
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^c	mg/L	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	<0.0003	0.000312	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

ranges; therefore, no Risk Response was triggered based on comparisons to reference and baseline conditions in 2025 (Table 5.1; Baffinland 2024).

5.1.2 Phytoplankton

Chlorophyll-a concentrations for Tom River (Stations I0-01 and I0-02) were generally comparable to concentrations at reference creek stations in spring, summer, and fall 2025, and were consistently below seasonal reference area normal ranges (Figure 5.1; Appendix Table D.5). Chlorophyll-a concentrations were also consistently below the AEMP benchmark of 3.7 µg/L and upper limits of baseline normal ranges, regardless of season or location within Tom River (Figure 5.1; Appendix Table D.5). The chlorophyll-a and aqueous total phosphorus concentrations measured at Tom River in 2025 indicate limited phytoplankton productivity and are consistent with oligotrophic conditions, based on criteria from Dodds et al. (1998) and the CCME (2004) Phosphorus Guidance Framework, respectively (Table 5.1, Appendix Table B.24; see Section 3.1.3 for additional trophic status classification details). No action level responses were triggered for phytoplankton productivity in Tom River in 2025 (Baffinland 2024).

5.1.3 Effects Assessment and Recommendations

5.1.3.1 Effects Assessment

No action level responses for Tom River were identified based on water quality.

Sediment and BIC sampling are not required within Tom River under the AEMP (Baffinland 2024). Therefore, no sediment or BIC samples were collected from Tom River in 2025.

No adverse mine-related effects on chlorophyll-a concentrations (as an indicator of primary productivity) were observed at the Tom River in 2025 and no action responses were triggered under the TARP (Baffinland 2024).

5.1.3.2 Recommendations

No water quality parameters or chlorophyll-a concentrations triggered action level responses under the TARP (Baffinland 2024); therefore, there are no recommendations for the Tom River, based on the outcomes of the 2025 data evaluation.

5.1.3.3 Comparison to FEIS Predictions

A comparison of water quality in Tom River in spring, summer, and fall 2025 was completed relative to FEIS predictions for Aqueous Non-point Source Emissions effects related to SWSQ-2 (Site Water Management), SWSQ-7 (Camp Management), and SWSQ-9 (Airstrips and Airstrip Use). The results of the comparison indicated all parameter concentrations were within the Level II significance rating for magnitude (or Level I for SWSQ-7) expected for the watercourse during



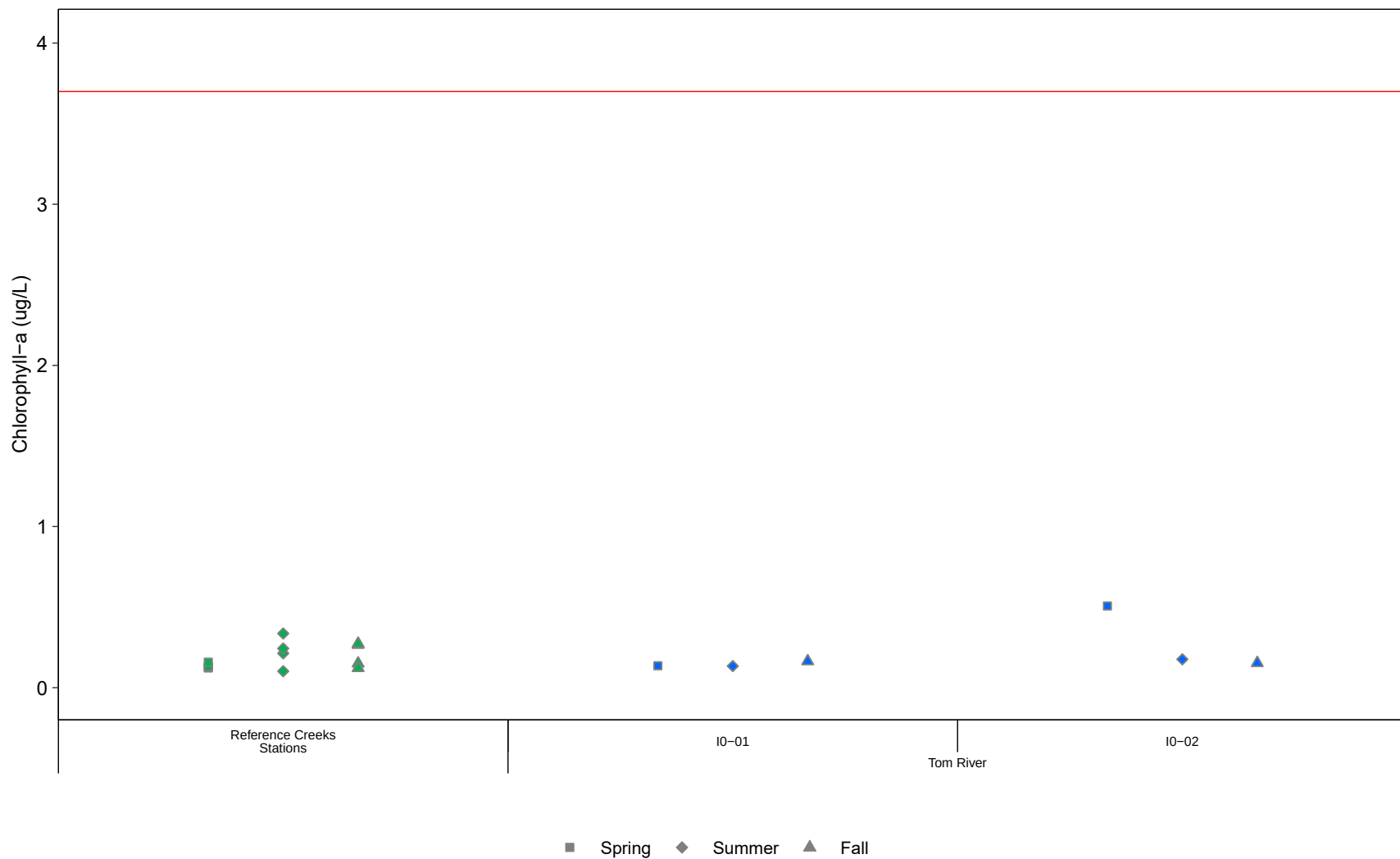


Figure 5.1: Chlorophyll-a Concentrations at Phytoplankton Monitoring Stations in Tom River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations reported below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. "Reference Creeks Stations" includes data from stations CLT-REF4, CLT-REF3, MRY-REF3, and MRY-REF2. Reference areas are shown in green and mine-exposed areas are shown in blue.

mine operations. Therefore, water quality at Tom River was in conformance with predictions made in the FEIS (Baffinland 2012).

5.2 Mary River Tributary-F (MRTF)

5.2.1 Water Quality

5.2.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality at MRTF was assessed concurrently with water quality sampling completed by Baffinland environment department personnel during spring, summer, and fall monitoring events (Table 2.2). DO saturation at MRTF was consistently near full saturation (i.e., all concentrations were $\geq 94.3\%$) during each sampling event (Table 5.2; Appendix Figure B.12; Appendix Table B.25). Similarly, DO concentrations measured at water quality stations were above the CCME WQG for protection of early life stages of cold-water biota (i.e., 9.5 mg/L) and within reference and baseline normal ranges during the 2025 monitoring events (Table 5.2; Appendix Figure B.12; Appendix Table B.25; baseline and reference area normal ranges are summarized in Appendix Tables B.26 and B.27, respectively). Additionally, field pH values measured during the spring, summer, and fall were within the CCME WQG range (i.e., 6.5 to 9; Table 5.2).

Mean SPC values measured at MRTF during the spring, summer, and fall of 2025 were consistently above the upper limits of the seasonal reference area normal ranges (Table 5.2). Mean SPC in summer and fall were also above baseline normal ranges, thereby triggering a Low Risk Response under the TARP (Baffinland 2024). Consistent with spatial patterns observed in 2024, mean SPC values in MRTF were lowest in the spring and increased through summer and fall (Table 5.2; Minnow 2025), likely reflecting seasonal hydrology associated with the spring freshet, whereby dilute snowmelt reduces ion concentrations in spring and increasing groundwater influence later in the season results in higher dissolved ion concentrations (Allan et al., 2021).

Mean field turbidity values reported for MRTF in spring, summer, and fall 2025 were <1 NTU⁶¹ and therefore indicative of clear conditions in the water column (Table 5.2).

5.2.1.2 Water Chemistry

At the water quality monitoring station on MRTF (i.e., F0-01), concentrations of water quality parameters were consistently below their respective AEMP benchmarks or, for parameters

⁶¹ The mean field turbidity value reported for summer 2025 was negative. Negative readings can result from instrument drift, sensor malfunctions, improper calibration/blanks, or the turbidity in the water sample being so low that the sensor cannot detect enough back-scattered light to provide an accurate reading (McDermid 2016).



Table 5.2: Mean Water Chemistry at Mary River Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	G0-09 Reference (n = 3)			G0 Upstream (n = 2)			Mary River Tributary F			E0 Adjacent (n = 4)			C0 Downstream (n = 3)		
				Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Conventionals	Conductivity (lab)	µS/cm	-	39.6	122	150	35.2	120	148	75.4	279	306	35.8	130	161	47.0	135	168
	Specific Conductance (field)	µS/cm	-	31.9	126	158	34.4	123	156	73.5	209	323	35.5	134	169	45.8	119	173
	pH (lab)	pH	-	7.08	8.05	7.96	7.07	8.01	7.94	7.29	8.17	8.10	6.92	8.07	8.00	7.07	8.11	7.93
	pH (field)	pH	6.5 - 9.0	7.38	8.04	8.09	7.50	8.10	8.13	7.64	8.24	8.32	7.52	8.16	8.16	8.10	8.24	8.07
	Temperature, Field	mg/L	-	7.23	6.13	3.00	6.30	7.15	2.25	6.10	8.10	3.20	5.42	9.29	3.05	4.43	9.65	2.60
	Hardness (as CaCO ₃) -Total	mg/L	-	18.9	59.4	72.4	16.7	59	73.6	38.0	145	163	16.8	65.3	79.9	21.0	65.8	82.9
	Total Suspended Solids (TSS)	mg/L	-	2.53	1.80	2.50	1.70	1.15	2.25	<1	<1	<1	2.12	1.71	2.60	1.80	1.03	1.07
	Total Dissolved Solids (TDS)	mg/L	-	28.3	78.7	79.7	25.0	74.0	82.0	40.0	153	170	20.2	74.7	87.2	32.0	80.7	83.7
	Dissolved Oxygen	mg/L	> 9.5	11.4	11.7	13.0	11.9	11.5	13.3	12.0	11.1	13.0	12.3	11.1	13.3	12.4	11.3	13.1
	Dissolved Oxygen	%	-	94.4	94.2	96.5	96.7	95.4	97.0	96.2	94.3	97.5	97.6	96.5	98.7	95.5	99.1	96.2
	Turbidity (lab)	NTU	-	5.85	18.9	10.7	4.95	15.1	9.44	0.500	0.140	0.620	4.92	18.3	8.36	5.05	11.5	4.88
	Turbidity (field)	NTU	-	4.79	16.7	9.77	4.49	12.7	8.24	0.930	-0.130	0.270	4.85	16.1	7.11	4.81	9.39	4.44
	Alkalinity (as CaCO ₃)	mg/L	-	19.6	57	112	16.2	56.9	76.3	36.1	91.6	114	17.2	59.3	95.8	21.3	60.1	72.1
Nutrients and Organics	Total Ammonia ^c	mg/L	0.282 - 3.98	0.00690	0.0125	0.00533	0.00700	0.0129	<0.005	<0.005	0.00520	0.00690	0.0124	0.00726	0.00818	<0.005	0.00680	0.0143
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.104	2.02	1.78	<0.02	0.0971	0.0928	0.0460	0.100	0.153
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.0737	0.116	0.0877	0.0730	0.0900	0.0760	0.0700	0.281	0.195	0.0932	0.102	0.0860	0.0750	0.105	0.105
	Dissolved Organic Carbon	mg/L	-	1.57	1.17	1.61	1.14	6.08	1.72	0.880	1.35	1.46	1.31	1.48	3.74	2.70	1.64	1.54
	Total Organic Carbon	mg/L	-	1.81	1.71	1.93	1.79	1.76	1.88	2.02	2.09	1.87	1.53	2.01	2.06	1.73	2.07	1.82
	Total Phosphorus	mg/L	-	0.0102	0.0107	0.00587	0.00405	0.00690	0.00475	0.00220	<0.002	<0.002	0.00448	0.0101	0.00325	0.00467	0.00647	0.00290
	Phenols	mg/L	0.00400	<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
Anions	Bromide (Br)	mg/L	-	<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
	Chloride (Cl) ^c	mg/L	120	<0.5	2.08	4.48	<0.5	1.69	3.82	<0.5	2.54	2.69	<0.5	1.73	3.62	0.853	1.82	3.83
	Sulphate (SO ₄) ^c	mg/L	128 - 309	<0.3	1.60	2.46	<0.3	1.38	2.26	2.01	37.2	45.8	0.342	3.27	4.94	1.71	3.55	6.10

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 5.2: Mean Water Chemistry at Mary River Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	G0-09 Reference (n = 3)			G0 Upstream (n = 2)			Mary River Tributary F			E0 Adjacent (n = 4)			C0 Downstream (n = 3)		
				Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Total Metals	Aluminum (Al) ^c	mg/L	0.966	0.122	0.522	0.223	0.122	0.373	0.182	0.0186	0.00880	0.0120	0.118	0.465	0.164	0.155	0.179	0.0913
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	0.000113	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000131	<0.0001	<0.0001	0.000100	<0.0001
	Barium (Ba)	mg/L	1.00	0.00342	0.0107	0.0102	0.00321	0.00988	0.0101	0.00301	0.0128	0.0113	0.00310	0.0110	0.0102	0.00393	0.00963	0.0103
	Beryllium (Be)	mg/L	0.000130	<0.00002	0.0000257	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0000237	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^c	mg/L	0.0000370 - 0.000225	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00000571	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.83	12.3	14.7	3.44	12.1	15.0	6.92	24.4	25.7	3.42	12.8	15.7	4.13	13.1	15.6
	Cesium (Cs)	mg/L	-	0.0000203	0.0000647	0.0000330	0.0000170	0.0000475	0.0000270	<0.00001	0.0000200	0.0000100	0.0000165	0.0000684	0.0000258	0.0000210	0.0000310	0.0000143
	Chromium (Cr)	mg/L	0.00500	0.000650	0.00102	0.000587	0.000500	0.000870	0.000555	<0.0005	<0.0005	<0.0005	0.000525	0.00107	0.000500	<0.0005	0.000523	<0.0005
	Cobalt (Co) ^c	mg/L	0.000778 - 0.00122	0.000107	0.000187	0.000117	<0.0001	0.000130	0.000100	<0.0001	0.000140	0.000160	<0.0001	0.000204	<0.0001	<0.0001	0.000103	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00340	0.000663	0.00150	0.00124	0.000620	0.00130	0.00110	<0.0005	0.000750	0.000610	0.000605	0.00153	0.00106	0.000597	0.00125	0.000990
	Iron (Fe) ^c	mg/L	0.874	0.130	0.431	0.249	0.109	0.312	0.190	0.0220	<0.01	0.0140	0.111	0.460	0.161	0.128	0.175	0.0843
	Lead (Pb)	mg/L	0.00100 - 0.00546	0.000130	0.000362	0.000207	0.000104	0.000268	0.000172	<0.00005	<0.00005	<0.00005	0.000110	0.000356	0.000150	0.000116	0.000200	0.0000833
	Lithium (Li)	mg/L	-	<0.001	0.00123	<0.001	<0.001	0.00100	<0.001	<0.001	0.00180	0.00110	<0.001	0.00107	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	2.28	6.99	8.64	1.98	6.99	8.78	5.02	20.4	23.9	2.02	8.07	9.86	2.59	8.02	10.7
	Manganese (Mn)	mg/L	0.768 - 1.28	0.00208	0.00485	0.00308	0.00156	0.00348	0.00232	0.000730	0.000190	0.00125	0.00170	0.00575	0.00218	0.00224	0.00304	0.00177
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.0000783	0.000407	0.000403	0.0000835	0.000358	0.000350	0.000127	0.0000572	0.000338	0.0000760	0.000416	0.000396	0.000161	0.000446	0.000451
	Nickel (Ni) ^c	mg/L	0.0250 - 0.132	0.000813	0.000690	0.000513	<0.0005	0.000655	0.000525	<0.0005	<0.0005	<0.0005	0.000565	0.00112	0.000518	<0.0005	0.000870	0.000670
	Potassium (K)	mg/L	-	0.412	1.22	1.23	0.398	1.12	1.14	0.442	1.51	1.39	0.378	1.24	1.16	0.496	1.14	1.14
	Rubidium (Rb)	mg/L	-	0.000997	0.00293	0.00211	0.000965	0.00254	0.00192	0.000750	0.00258	0.00182	0.000922	0.00332	0.00192	0.00113	0.00237	0.00187
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000433	0.000377	<0.00005	0.0000516	0.0000505	<0.00005	<0.00005	0.0000503
	Silicon (Si)	mg/L	-	0.640	1.75	1.24	0.645	1.50	1.22	0.450	0.990	0.810	0.610	1.60	1.16	0.703	1.05	1.05
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.442	2.40	3.35	0.471	2.04	2.83	0.311	2.00	1.81	0.422	2.13	2.78	0.547	2.11	2.78
	Strontium (Sr)	mg/L	-	0.00349	0.0143	0.0169	0.00342	0.0128	0.0158	0.00439	0.0192	0.0197	0.00313	0.0133	0.0158	0.00444	0.0128	0.0158
	Sulphur (S)	mg/L	-	<0.5	0.553	0.870	<0.5	<0.5	0.870	0.680	13.1	16.2	<0.5	1.12	1.81	0.587	1.23	2.30
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	0.0000130	<0.00001	<0.00001	0.0000105	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0000134	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	0.000130	0.000557	0.000283	0.000100	0.000405	0.000225	<0.0001	<0.0001	<0.0001	0.000105	0.000544	0.000182	0.000120	0.000237	0.000103
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.00675	0.0240	0.0134	0.00612	0.0169	0.0106	0.000890	<0.0003	0.000900	0.00590	0.0234	0.00889	0.00710	0.00816	0.00403
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000187	0.00279	0.00373	0.000180	0.00215	0.00314	0.000228	0.00225	0.00298	0.000159	0.00199	0.00307	0.000253	0.00190	0.00271
	Vanadium (V) ^c	mg/L	-	<0.0005	0.000997	0.000617	<0.0005	0.000745	0.000535	<0.0005	<0.0005	<0.0005	<0.0005	0.000980	<0.0005	<0.0005	0.000523	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	0.000220	0.000773	0.000483	0.000200	0.000610	0.000425	<0.0002	<0.0002	<0.0002	0.000218	0.000631	0.000378	0.000263	0.000453	0.000260

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 5.2: Mean Water Chemistry at Mary River Monitoring Stations During Spring, Summer, and Fall, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	G0-09 Reference (n = 3)			G0 Upstream (n = 2)			Mary River Tributary F			E0 Adjacent (n = 4)			C0 Downstream (n = 3)		
				Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0322	0.0271	0.0186	0.0368	0.0341	0.0262	0.00450	0.00320	0.00220	0.0258	0.0521	0.0213	0.0438	0.0288	0.0115
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00260	0.00749	0.00917	0.00255	0.00768	0.00921	0.00293	0.0128	0.0118	0.00242	0.00876	0.00975	0.00309	0.00858	0.00976
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000483 - 0.000289	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	3.76	11.0	14.8	3.34	10.8	14.8	6.96	<u>21.5</u>	25.6	3.38	12.2	15.7	4.19	11.7	15.5
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0000190	<0.00001	<0.00001	0.0000121	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000608	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000140	0.000120	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^c	mg/L	0.000568 - 0.0147	0.000440	0.000853	0.000810	0.000450	0.000880	0.000780	0.000260	0.000710	0.000560	0.000415	0.000923	0.000795	0.000470	0.000927	0.000847
	Iron (Fe) ^c	mg/L	-	0.0210	0.0120	<0.01	0.0235	0.0135	0.0110	<0.01	<0.01	<0.01	0.0175	0.0349	0.0105	0.0280	0.0143	0.0107
	Lead (Pb) ^c	mg/L	0.00296 - 0.0128	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0000661	0.0000572	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00200	0.00160	<0.001	0.00101	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	2.30	6.58	8.02	1.94	6.50	8.01	5.30	<u>19.0</u>	<u>21.6</u>	2.05	7.42	9.12	2.67	7.50	9.51
	Manganese (Mn) ^c	mg/L	0.160 - 0.350	0.000460	0.000203	0.000253	0.000350	0.000210	0.000220	0.000130	<0.0001	0.000920	0.000368	0.00118	0.000335	0.000763	0.000900	0.000723
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.0000730	<u>0.000460</u>	0.000465	0.0000800	<u>0.000397</u>	0.000395	0.000124	<u>0.000582</u>	0.000345	0.0000752	<u>0.000476</u>	0.000431	0.000162	0.000504	0.000479
	Nickel (Ni)	mg/L	0.000600 - 0.00520	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000541	<0.0005	<0.0005	0.000583	0.000517
	Potassium (K)	mg/L	-	0.387	1.08	1.13	0.372	1.02	1.04	0.462	<u>1.55</u>	1.33	0.355	1.10	1.08	0.458	1.12	1.08
	Rubidium (Rb)	mg/L	-	0.000593	0.00143	0.00138	0.000585	0.00154	0.00137	0.000700	0.00246	0.00197	0.000525	0.00187	0.00149	0.000800	0.00188	0.00156
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000543	0.000392	<0.00005	0.0000511	0.0000528	<0.00005	<0.00005	0.0000520
	Silicon (Si)	mg/L	-	0.484	0.821	0.858	0.462	0.874	0.908	0.428	0.988	0.765	0.434	0.901	0.895	0.503	0.811	0.839
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.458	<u>2.37</u>	3.05	0.468	1.98	2.54	0.333	1.92	1.59	0.441	2.02	2.52	0.572	2.05	2.68
	Strontium (Sr) ^c	mg/L	2.50	0.00332	0.0134	0.0171	0.00322	0.0120	0.0158	0.00436	0.0185	0.0200	0.00298	0.0126	0.0159	0.00406	0.0124	0.0156
	Sulphur (S)	mg/L	-	<0.5	0.597	0.860	<0.5	0.500	0.730	0.820	13.2	15.4	<0.5	1.24	1.73	0.630	1.35	2.22
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000114	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.00105	0.000710	0.000493	0.00126	0.000815	0.000650	<0.0003	<0.0003	<0.0003	0.000808	0.00197	0.000572	0.00139	0.000613	0.000357
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000149	0.00267	0.00389	0.000139	0.00201	0.00324	0.000211	0.00220	0.00313	0.000126	0.00191	0.00319	0.000224	0.00181	0.00284
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^c	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
	Zirconium (Zr)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000326	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

without benchmarks, applicable WQG, in spring, summer, and fall 2025 (Table 5.2; Appendix Table B.25). Therefore, no action level responses were triggered in 2025, based on the AEMP benchmark comparisons for MRTF.

Low Risk Responses were triggered for hardness, TDS, alkalinity, TKN, sulphate; total and dissolved concentrations of calcium, magnesium, and molybdenum, and dissolved concentrations of potassium based on concentrations that were elevated relative to both the reference and baseline normal ranges in at least one season in 2025 (Table 5.2; Baffinland 2024). In most cases (i.e., for TDS, TKN, total and dissolved calcium and molybdenum, and dissolved potassium), instances of reported parameter concentrations above both baseline and reference normal ranges were isolated to the summer sampling event (Table 5.2).

Two special investigations were triggered for MRTF, based on the outcomes of the 2024 CREMP report; the first of these was an analysis of temporal trends in nitrate and sulphate concentrations at water quality station F0-01 (Table 2.4; Minnow 2025). Results of the temporal trend analyses indicated that concentrations of both nitrate and sulphate in individual seasons (i.e., spring, summer, and fall) and the combined MRTF dataset increased over time from baseline to 2025 (Appendix Table G.17). When data for the mine operation period (i.e., 2015 to 2025) were analyzed separately, concentrations of nitrate at MRTF increased across all seasons (individually and combined), whereas no significant increasing or decreasing temporal trend were identified for sulphate (Appendix Table G.18). No significant increasing or decreasing trends were observed for the reference area over the same period (i.e., 2015 to 2025; Appendix Table G.18). Collectively, the results of the temporal trend analyses indicate that nitrate concentrations in MRTF increased relative to baseline and over the mine operation period, whereas sulphate concentrations underwent a step-change increase from baseline to early operations, but that concentrations were relatively stable (i.e., no statistically significant increasing or decreasing temporal trends) thereafter.

The second water quality special investigation triggered for MRTF, based on the findings of the 2024 CREMP report, was an evaluation of effluent chemistry and receiving environment water quality data routinely collected to address MDMER requirements for the MS-08 FDP (Table 2.4; Minnow 2025). The purpose of this investigation was to assess whether the MS-08 FDP is a source of nitrate and sulphate to MRTF. Data collected between 2023 and 2025 and compiled for development of the Phase 4 EEM Study Design were evaluated, along with the 2025 CREMP water quality data collected from Station F0-01 in MRTF in 2025 (Table 5.2; TCC 2026b).

Under Schedule 5, Part 1, Section 4(1) of the MDMER, Baffinland is required to analyze and report on nitrate and sulphate concentrations as part of effluent characterization (Government of Canada 2025). However, nitrate and sulphate do not have Maximum Authorized Concentrations



in effluent under Schedule 4 of the MDMER (i.e., although they are routinely monitored in effluent, they do not have set limits; Government of Canada 2025). Mean concentrations of nitrate in effluent were 7.89 mg/L in 2023 (July to September), 7.71 mg/L in 2024 (June to September), and 22.7 mg/L in 2025 (June to September), and mean concentrations of sulphate were 584 mg/L in 2023 (July to September), 217 mg/L (June to September), and 330 mg/L (June to September; TCC 2026b).

As noted above and in the Phase 4 EEM Study Design for the Project, concentrations of nitrate and sulphate at F0-01 in MRTF (2025) and in the Mary River downstream from MRTF (2023 to 2025), respectively, were consistently below (often by an order of magnitude) AEMP benchmarks, as well as WQG applied in the Phase 4 EEM Study Design (Table 5.2; TCC 2026b). Sulphate concentrations at F0-01 on MRTF were consistently above seasonal reference and baseline normal ranges in 2025 and nitrate concentrations were above the reference normal range in fall⁶² (Table 5.2). However, consistent with the data presented for MS-08-DS in the Phase 4 EEM Study Design, nitrate and sulphate concentrations at station E0-10 on the Mary River, downstream from MRTF, were below AEMP benchmarks and within baseline (sulphate, all seasons) and reference (sulphate, all seasons; fall only for nitrate) normal ranges in 2025 (Appendix Table B.25). Therefore, although the MS-08 FDP is a source of nitrate and sulphate to MRTF, the effluent is substantially diluted by the time it reaches water quality monitoring stations on the Mary River (i.e., MS-08-DS and E0-10) that observed concentrations are typically an order of magnitude below applicable AEMP benchmarks (TCC 2026b).

5.2.2 Phytoplankton

Chlorophyll-a concentrations at MRTF (Station F0-01) in 2025 were generally comparable to concentrations at reference stations in spring, summer, and fall, based on visual comparisons and comparisons to reference area normal ranges (Figure 5.2; Appendix Table D.6). Consistent with all other years of phytoplankton productivity data for MRTF (i.e., from baseline to 2024), chlorophyll-a concentrations were consistently below the AEMP benchmark of 3.7 µg/L in 2025 (Figure 5.2; Appendix Table D.6). Concentrations were also well below the upper limits of baseline normal ranges for spring, summer, and fall in 2025 (Appendix Table D.6). The chlorophyll-a and aqueous total phosphorus concentrations measured at MRTF in 2025 indicate limited phytoplankton productivity and are consistent with oligotrophic conditions, based on criteria from Dodds et al. (1998) and the CCME (2004) Phosphorus Guidance Framework, respectively (Table 5.2; see Section 3.1.3 for additional trophic status classification details).

⁶² Due to insufficient sample sizes >LRL, baseline normal ranges could not be calculated for nitrate concentrations in the Mary River system; similarly, reference area normal ranges for nitrate could not be calculated for spring or summer (Appendix Tables B.26 and B.27).



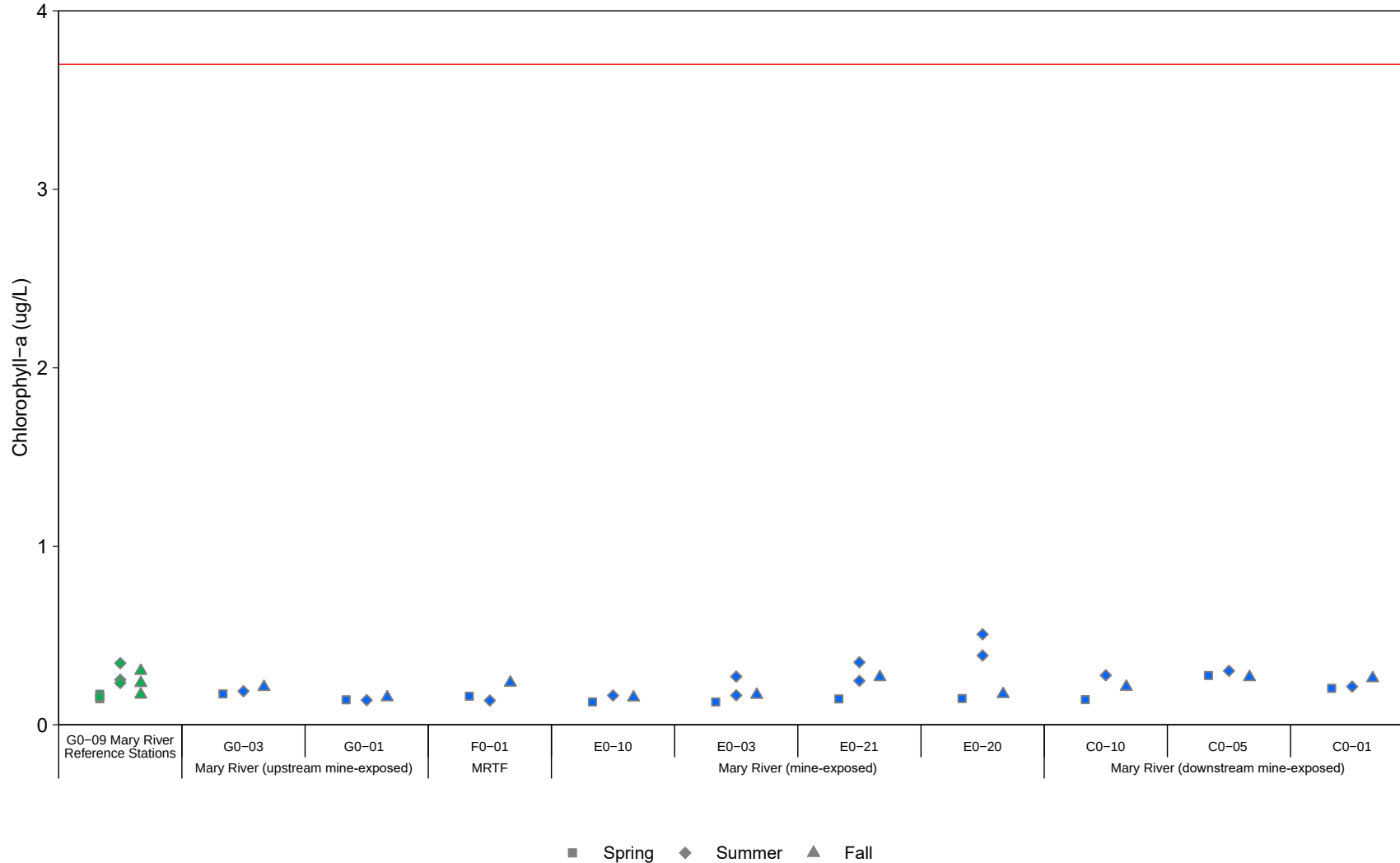


Figure 5.2: Chlorophyll-a Concentrations at Phytoplankton Monitoring Stations in Mary River Tributary-F (MRTF) and Mary River Upstream and Downstream from the Mine, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations reported below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. "G0-09 Mary River Reference Stations" includes data from stations G0-09, G0-09-A, and G0-09-B. Reference areas are shown in green and mine-exposed areas are shown in blue.

No action level responses were triggered for phytoplankton productivity in MRTF in 2025 (Baffinland 2024).

5.2.3 Effects Assessment and Recommendations

5.2.3.1 Effects Assessment

All water quality parameters measured at F0-01 on MRTF in spring, summer, and fall 2025 had concentrations that were consistently within AEMP benchmarks. However, mean SPC was above reference and baseline normal ranges in summer and fall, thereby triggering a Low Risk Response under the TARP (Baffinland 2024). Low Risk Responses were also triggered for hardness; TDS; alkalinity; and aqueous concentrations of TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium, based on concentrations that were elevated relative to both the reference and baseline normal ranges in at least one season in 2025 (Baffinland 2024).

Nitrate and sulphate concentrations in MRTF were evaluated in detail in 2025, as part of special investigations triggered in 2024 (Minnow 2025). It was concluded that effluent from the MS-08 FDP is a source of nitrate and sulphate to MRTF. Nitrate and sulphate concentrations in the MRTF receiving environment were generally elevated relative to baseline and reference in 2025 and have increased over time since baseline. However, concentrations of both parameters in MRTF and further downstream in the Mary River were well below AEMP benchmarks from 2023 to 2025.

No sediment sampling is required in MRTF as part of the CREMP or triennial EEM monitoring (Baffinland 2024; TCC 2026b). Therefore, no sediment samples were collected from MRTF in 2025.

No adverse mine-related effects on chlorophyll-a concentrations (as an indicator of primary productivity) were observed at MRTF in 2025, and no action level responses were triggered (Baffinland 2024).

BIC sampling in MRTF is not completed as part of the CREMP but is a component of triennial sampling completed to address EEM requirements (next scheduled for 2026; TCC 2026b). As such, no BIC data are available for the MRTF in 2025; however, data collected in 2026 will be interpreted as part of the Phase 4 EEM (TCC 2026b) and summarized in the 2026 CREMP report.

5.2.3.2 Recommendations

Low Risk Responses were triggered for SPC; hardness; TDS; alkalinity; and aqueous concentrations of TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium in MRTF in 2025. The following actions are recommended for MRTF:



- Complete temporal trend analyses for SPC; hardness; TDS; alkalinity; and aqueous concentrations of TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources (including effluent discharge from MS-08) or factors influencing SPC; hardness; TDS; alkalinity; and aqueous concentrations of TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium in MRTF to better define mine-related influence.

5.2.3.3 Comparison to FEIS Predictions

Comparisons of water quality data collected from MRTF (Station F0-01) during spring, summer, and fall 2025 to FEIS predictions for Aqueous Non-point Source Emissions effects related to applicable SWSQ-2 (Site Water Management) indicated all parameter concentrations were within the Level II significance rating for magnitude expected during mine operations. Therefore, MRTF water quality conformed with predictions made in the FEIS (Baffinland 2012).

5.3 Mary River

5.3.1 Water Quality

5.3.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality at Mary River mine-exposed stations (G0, E0, and C0 series stations) was assessed concurrently with water quality sampling conducted by Baffinland environment department personnel during spring, summer, and fall monitoring events, and with BIC sampling completed by Minnow staff in August (Tables 2.2 and 2.8). During the spring, summer, and fall water quality monitoring events, DO saturation at Mary River mine-exposed stations was consistently near full saturation (i.e., all concentrations were $\geq 93.0\%$; Table 5.2; Appendix Figure B.12; Appendix Tables B.25 and B.28). Similarly, DO concentrations measured at both water quality and BIC sampling stations were consistently above the CCME WQG for protection of early life stages of cold-water biota (i.e., 9.5 mg/L; Table 5.2; Appendix Figure B.12; Appendix Tables B.25 and B.28). Mean DO concentrations were also within reference and baseline normal ranges during the 2025 water quality monitoring events (Table 5.2; baseline and reference normal ranges are summarized in Appendix Tables B.26 and B.27, respectively).



Mean field pH values measured at mine-exposed water quality monitoring stations during the spring, summer, and fall sampling events, and during the August BIC sampling, were consistently within the CCME WQG range in 2025 (i.e., 6.5 to 9; Table 5.2; Appendix Table B.28).⁶³

Mean SPC measured at mine-exposed and reference areas on the Mary River during the spring, summer, and fall monitoring events in 2025 were within baseline and reference normal ranges (Table 5.2). Therefore, no action level responses were triggered for SPC in Mary River under the TARP (Baffinland 2024).

At each of the mine-exposed and reference water quality monitoring stations on the Mary River, mean turbidity values were consistently higher in summer relative to spring and fall (Table 5.2). Additionally, within each season, mean turbidity was comparable among the mine-exposed and reference areas; the only potential spatial pattern was that of lower turbidity at the C0 downstream stations in summer and fall, relative to upstream (Table 5.2).

5.3.1.2 Water Chemistry

None of the water quality parameters monitored in the Mary River in 2025 had mean concentrations above applicable AEMP benchmarks or, for parameters without benchmarks, applicable WQG (Table 5.2; Appendix Table B.25; Appendix Figure B.13). Therefore, no action levels responses were triggered for water quality, based on the comparison to AEMP benchmarks (Baffinland 2024).

Concentrations of water quality parameters monitored in the Mary River during spring, summer, and fall 2025 were rarely above baseline and/or reference area normal ranges (Table 5.2; Appendix Table B.25). In fact, DOC was the only water quality parameter with mean concentrations above both reference area and baseline normal ranges in 2025. Specifically, DOC concentrations were above normal ranges at the G0 series stations (upstream from MRTF) in summer and at the E0 series stations (downstream from MRTF but upstream from Sheardown Lake SE) in fall 2025 (Figure 2.2; Table 5.2; Appendix Table B.25). Based on these results, a Low Risk Response was triggered for DOC in 2025 (Baffinland 2024).

5.3.2 Phytoplankton

Chlorophyll-a concentrations at mine-exposed locations along the Mary River were generally comparable with concentrations observed at the Mary River reference stations (G0-09A, G0-09, and G0-09B) during the spring, summer, and fall 2025 sampling events, based on qualitative comparisons and comparisons to reference area normal ranges (Figure 5.2; Appendix Table D.6).

⁶³ Sample sizes were insufficient to calculate baseline and reference normal ranges for pH in the Mary River (Appendix Tables B.26 and B.27).



Chlorophyll-a concentrations at all Mary River stations were also well below the AEMP benchmark of 3.7 µg/L throughout 2025 (Figure 5.2; Appendix Table D.6). These results indicate limited phytoplankton productivity and are characteristic of oligotrophic conditions, based on chlorophyll-a thresholds (<8 µg/L; Dodds et al. 1998; Appendix Table D.6) and mean aqueous total phosphorus concentrations that rarely exceeded 10 µg/L in 2025 (CCME 2004; Table 5.2; Appendix Table B.25; see Section 3.1.3 for additional trophic status classification details).

Chlorophyll-a concentrations at the Mary River mine-exposed stations in 2025 were comparable to, or lower than, baseline values across all seasons, based on qualitative comparisons (Figure 5.3) and comparisons to baseline normal ranges for spring, summer, and fall (Appendix Table D.6). Concentrations during the baseline and construction periods were more variable than those observed during the operational period, and the baseline period included relatively high LRLs, which may partially account for the apparent differences between baseline and 2025 concentrations (Figure 5.3). Over the mine operational period (i.e., 2015 to 2025), chlorophyll-a concentrations at the mine-exposed and reference areas have followed similar patterns of increase or decrease over time, suggesting that phytoplankton productivity at the Mary River stations reflects natural interannual variability rather than mine-related effects. Chlorophyll-a concentrations at mine-exposed and reference areas on Mary River have also remained well below the AEMP benchmark throughout the mine operation period.

Overall, patterns in chlorophyll-a concentrations along the Mary River in 2025 indicate consistently low phytoplankton productivity and oligotrophic conditions. Concentrations at mine-exposed stations were comparable to, or lower than, those at the reference station across all seasons and remained well below the AEMP benchmark. Although 2025 concentrations were lower than those observed during the baseline period, this difference is partially influenced by higher LRLs in baseline years. Collectively, the chlorophyll-a results provide no evidence of mine-related effects on phytoplankton productivity in the Mary River in 2025, and no action level responses were triggered for phytoplankton productivity, based on the 2025 results (Baffinland 2024).

5.3.3 Benthic Invertebrate Community

In 2025, most BIC endpoints at the Mary River mine-exposed areas (G0-03, E0-01, E0-20 and C0-05) were comparable to those observed at the Mary River reference area (G0-09), except for density (E0-01 and C0-05), taxonomic richness (C0-05), Simpson's Evenness (E0-01), and the relative proportions of metal-sensitive *Chironomidae* (C0-05), *Simuliidae* (E0-01), filterers (E0-01 and C0-05)⁶⁴, and sprawlers (E0-20; Table 5.3; Appendix Figure E.9; Appendix Tables E.36

⁶⁴ MODs could not be calculated for significant differences in the relative proportions of filterers (Table 5.3).



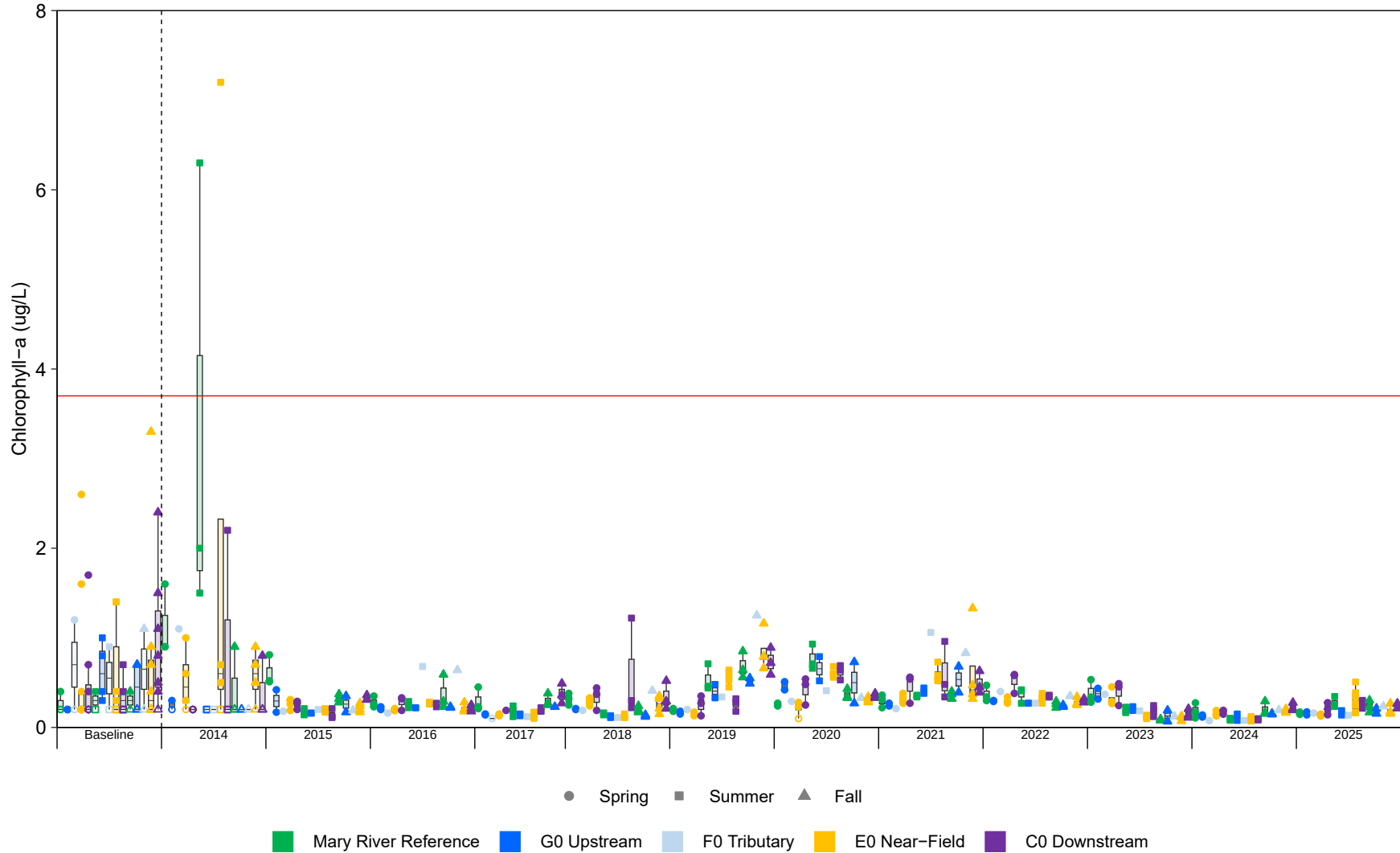


Figure 5.3: Temporal Comparison of Chlorophyll-a Concentrations at Mary River Stations Based on Data for the Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. "Mary River Reference" includes data from stations G0-09, G0-09-A, and G0-09-B. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

Table 5.3: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Mine-exposed (G0, E0, and C0 stations) and Reference (G0-09 stations) Areas on the Mary River, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), August 2025

Endpoints	Overall Area Comparison			Area	MCT	Pair-wise, Post-hoc Comparisons	
	Statistical Test ^a	Data Transformation	Area P-value			Post-hoc P-value	MOD ^b
Density (org/m²)	ANOVA	log ₁₀	<0.001	G0-09	109	nc	nc
				G0-03	37	0.415	ns
				E0-01	22	0.070	-1.6
				E0-20	88	0.996	ns
				C0-05	604	0.063	1.7
Richness (No. of Taxa)	ANOVA	none	<0.001	G0-09	7.2	nc	nc
				G0-03	6.8	0.999	ns
				E0-01	4.5	0.435	ns
				E0-20	9.2	0.740	ns
				C0-05	15	<0.001	3.8
Simpson's Evenness (Krebs)	K-W	rank	0.031	G0-09	0.91	nc	nc
				G0-03	0.96	0.292	ns
				E0-01	0.99	0.090	1.5
				E0-20	0.92	0.932	ns
				C0-05	0.62	0.183	ns
% Nematoda	K-W	rank	0.203	G0-09	0	ns	ns
				G0-03	0	ns	ns
				E0-01	0	ns	ns
				E0-20	0.98	ns	ns
				C0-05	0.57	ns	ns
% Hydracarina	K-W	rank	0.622	G0-09	0	ns	ns
				G0-03	0	ns	ns
				E0-01	0	ns	ns
				E0-20	1.7	ns	ns
				C0-05	0	ns	ns
% Chironomidae	ANOVA	log ₁₀	0.152	G0-09	73	ns	ns
				G0-03	61	ns	ns
				E0-01	78	ns	ns
				E0-20	66	ns	ns
				C0-05	86	ns	ns
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	0.012	G0-09	31	nc	nc
				G0-03	28	0.998	ns
				E0-01	24	0.953	ns
				E0-20	26	0.980	ns
				C0-05	59	0.081	2.0
% Simuliidae	ANOVA	log ₁₀ (x+1)	0.030	G0-09	22	nc	nc
				G0-03	21	1.000	ns
				E0-01	4.3	0.098	-3.4
				E0-20	15	0.897	ns
				C0-05	4.8	0.142	ns
% Tipulidae	K-W	rank	0.231	G0-09	0	ns	ns
				G0-03	0	ns	ns
				E0-01	0	ns	ns
				E0-20	0	ns	ns
				C0-05	1.1	ns	ns
% Collector Gatherers	ANOVA	none	0.099	G0-09	71	nc	nc
				G0-03	54	0.677	ns
				E0-01	57	0.783	ns
				E0-20	50	0.466	ns
				C0-05	82	0.930	ns
% Filterers	K-W	rank	0.033	G0-09	25	nc	nc
				G0-03	25	0.589	ns
				E0-01	0	0.008	nm
				E0-20	12	0.394	ns
				C0-05	3.6	0.023	nm
% Shredders	ANOVA	none	0.211	G0-09	6.4	ns	ns
				G0-03	13	ns	ns
				E0-01	11	ns	ns
				E0-20	22	ns	ns
				C0-05	8.9	ns	ns
% Clingers	ANOVA	none	0.003	G0-09	28	nc	nc
				G0-03	36	0.894	ns
				E0-01	16	0.526	ns
				E0-20	45	0.269	ns
				C0-05	14	0.408	ns
% Sprawlers	K-W	rank	0.030	G0-09	67	nc	nc
				G0-03	50	0.166	ns
				E0-01	60	0.604	ns
				E0-20	42	0.041	-3.9
				C0-05	82	0.363	ns
% Burrowers	K-W	rank	0.751	G0-09	1.3	ns	ns
				G0-03	18	ns	ns
				E0-01	8.3	ns	ns
				E0-20	12	ns	ns
				C0-05	3.4	ns	ns

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a significant difference (p-value <0.1) outside the CES of ±2 SD_{REF} (i.e., a difference from reference that is considered ecologically meaningful).

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = number of organisms per square metre. ANOVA = Analysis of Variance. < = less than. ns = not significant. No. = number. nc = not calculated. % = percent. nm = MOD could not be calculated due to SD = 0. SD = standard deviation. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

^a Statistical tests include ANOVA followed by Dunnett post hoc tests, or Kruskal-Wallis H-test (K-W) followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{Exp} - MCT_{Ref})/SD_{Ref} where the MCT is reported as geometric means for log₁₀-transformed data, medians for rank-transformed data, and means for untransformed data.

to E.41). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{REF}$) were limited to significantly higher taxonomic richness and relative proportions of metal-sensitive *Chironomidae* at C0-05, and significantly lower relative proportions of *Simuliidae* at E0-01 and sprawlers at E0-20, relative to reference (Table 5.3; Appendix Figure E.9). Bray–Curtis similarity analysis also identified statistically significant differences in overall community structure between mine-exposed and reference areas (Appendix Table E.42). However, for the G0-03, E0-01, and E0-20 mine-exposed areas, the variations in overall community structure relative to reference were only slightly more than what would be considered as random noise in the model.

Overall, the spatial comparisons indicate that BIC composition in mine-exposed areas of Mary River remained broadly comparable to reference, with only a small number of endpoints showing ecologically meaningful differences. Where meaningful differences were identified in 2025, they could be explained by differences in habitat characteristics, rather than a clear, consistent mine-related influence. First, the lower relative proportions of *Simuliidae* and sprawlers at E0-01 relative to G0-09 are likely attributed to the presence of algae at G0-09, but not at E0-01, in 2025 (Appendix Table E.43). Members of the genus *Gymnopais*, which comprised the *Simuliidae* at both areas in 2025, are specialist feeders that scrape algae and associated materials from rocks (Appendix Tables E.37 and E.39; Currie 1997). Therefore, there would have been more food for *Gymnopais* species at the upstream reference area. Similarly, *Diamesa*, which are classified as sprawlers, were found at lower densities at E0-01 in 2025, relative to G0-09, likely due to the presence of more algae and other associated food items (e.g., diatoms, bacteria) being present at G0-09 (Appendix Table E.43; Lencioni et al. 2025). The higher species richness at C0-05 relative to reference (G0-09) in 2025 is attributed to the BIC samples from C0-05 containing a greater variety of chironomid species, including relatively high densities of metal-sensitive taxa (e.g., *Tvetnia* and *Thienemanniella* species; Appendix Tables E.37 and E.41). A number of these species prefer lotic habitat with in-stream vegetation, which was more abundant at C0-05 than G0-09 in 2025 (Appendix Table E.43; e.g., Słomczyński et al. 2024; Vinke et al. 2015). Additionally, although some mine-related water quality parameters were higher relative to reference and baseline within MRTF in 2025, available data show a dilution effect with distance down the Mary River main stem.

Collectively, the 2025 results are consistent with natural habitat-driven variability rather than a mine-related impact on the BIC in Mary River. However, because significant differences in benthic invertebrate density (E0-01 and C0-05) and Simpson’s Evenness (E0-01) were identified in 2025 relative to reference, Low Risk Responses were triggered for these endpoints (Baffinland 2024). Additionally, significant differences relative to reference for taxonomic richness at C0-05 in 2024 and 2025 trigger a Moderate Risk Response (Minnow 2025; Baffinland 2024).



Most BIC endpoints at the mine-exposed areas (G0-03, E0-01, E0-20, and C0-05) on the Mary River differed significantly from at least one baseline year (i.e., 2007, 2011, or 2013, depending on the area) during the mine operations period (2015 to 2025; Appendix Tables E.44 to E.47; Appendix Figure E.10). Ecologically meaningful differences (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$) between years of mine operation and baseline were often intermittent (e.g., occurring in non-consecutive years or persisting for no more than two consecutive years [e.g., richness at G0-03; Appendix Table E.44]). However, more consistent patterns in ecologically meaningful differences over time included:

- higher Simpson's Evenness at E0-01 (downstream from MRTF) in all mine operation years (2015 to 2025) and lower relative proportions of *Chironomidae* from 2021 to 2023, relative to baseline (2007; Appendix Table E.45);
- higher Simpson's Evenness at E0-20 (further downstream from E0-01) throughout 2017 to 2025 and higher relative proportions of collector-gatherers from 2015 to 2024, relative to baseline (2011; Appendix Table E.46); and
- higher taxonomic richness at C0-05 (downstream from the Sheardown Lake System) from 2016 to 2018 and higher relative proportions of collector-gatherers from 2018 to 2025, relative to 2007 (Appendix Table E.47).

Changes in BIC endpoints over time also occurred at the upstream reference area (G0-09) on Mary River (Appendix Table E.48). Much like the mine-exposed areas, ecologically meaningful differences relative to baseline (i.e., MODs outside the CES_{BIC} of $\pm 2 SD_{BASELINE}$) were often intermittent. However, more persistent patterns over time included higher richness in 2020 to 2022 relative to 2006; higher Simpson's Evenness in most mine-operational years (i.e., except 2017, 2019, and 2023) relative to both 2006 and 2007; and lower relative proportions of collector-gatherers from 2023 to 2025, relative to both 2006 and 2007 (Appendix Table E.48).

In 2025 specifically, ecologically meaningful differences relative to baseline were observed for the following mine-exposed areas and endpoints (Appendix Tables E.44 to E.47; Appendix Figure E.10):

- lower relative proportions of *Chironomidae* and collector-gatherers at G0-03 (relative to 2007);
- higher Simpson's Evenness at E0-01 (relative to 2007);
- lower invertebrate densities and relative proportions of *Chironomidae* and higher Simpson's Evenness at E0-20 (relative to 2011); and



- higher relative proportions of metal-sensitive *Chironomidae* (relative to 2011) and collector-gatherers (relative to 2007) at C0-05.

As noted above, ecologically meaningful differences relative to baseline were also observed at the upstream reference area (G0-09) on the Mary River in 2025, signaling the existence of natural regional controls (e.g., weather) on BIC in the Mary River. Organism densities and taxonomic richness at G0-03 were lower in 2025 relative to the 2007 baseline, whereas Simpson's Evenness was higher and relative proportions of collector-gatherers were lower in 2025 relative to both baseline years (i.e., 2006 and 2007; Appendix Table E.48).

Across the mine-exposed areas on the Mary River, only a subset of results for endpoints associated with Risk Response Thresholds (i.e., density, Simpson's Evenness, and taxonomic richness) triggered action level responses under the TARP, based on comparisons to baseline in 2025 (Baffinland 2024). These included significantly higher Simpson's Evenness at G0-03 in 2025 and 2024, relative to baseline (Moderate Risk Response); significantly lower organism densities and richness (Low Risk Responses) and significantly (ecologically meaningful) higher Simpson's Evenness at E0-01 in 2025 and 2024 (Moderate Risk Response), relative to baseline; significantly (ecologically meaningful) lower organism densities at E0-20 in 2025 (Low Risk Response); and significantly (ecologically meaningful) higher Simpson's Evenness at E0-20 in 2025 and 2024 (Moderate Risk Response; Minnow 2025; Baffinland 2024).

The temporal comparisons indicate that although overall BIC composition in the mine-exposed and reference areas of Mary River has changed relative to baseline years, the magnitude and therefore ecological significance of these changes continue to vary by area, habitat type (e.g., presence or absence of algae/vegetation), and taxonomic group. Several of the long-term deviations from baseline observed since 2015, such as higher Simpson's Evenness at E0-01 and E0-20, or persistent shifts in collector-gatherers and *Chironomidae* at downstream mine-exposed areas, suggest localized structural adjustments that reflect ongoing habitat changes rather than uniform mine-related effects. Similar to patterns noted in earlier years, baseline comparisons in 2025 also show changes at the upstream G0-09 station, indicating that broader regional drivers (e.g., interannual fluctuations in temperature, flow, or organic matter transport) are influencing BIC structure across the system, not solely downstream from mine infrastructure.

Overall, the 2025 results indicate that BIC conditions in mine-exposed reaches of Mary River remain broadly comparable to reference, with only a few isolated ecologically meaningful differences, consistent with localized habitat variation rather than mine-related stress. Temporal comparisons show that although several endpoints have differed intermittently relative to baseline across mine-exposed areas, data for the upstream reference area are indicative of changes in BIC endpoints over time, suggesting broader regional drivers (e.g., flow, temperature, organic



matter dynamics) rather than mine-specific effects. However, evaluation of the 2025 BIC data against thresholds from the TARP tables (Baffinland 2024) indicated that, based on comparisons to reference, Low Risk Responses were triggered for benthic invertebrate density (E0-01 and C0-05) and Simpson's Evenness (E0-01). Additionally, Moderate Risk Responses were triggered for taxonomic richness (C0-05), based on comparisons to reference. Temporal comparisons also triggered Low Risk Responses for density at E0-20 and E0-01 and richness at E0-01, as well as Moderate Risk Responses for Simpson's Evenness (G0-03, E0-01, and E0-20).

5.3.4 Effects Assessment and Recommendations

5.3.4.1 Effects Assessment

Overall, water quality conditions in the Mary River in spring, summer, and fall 2025 were generally consistent with baseline and reference normal ranges, and none of the mean concentrations for water quality parameters were above AEMP benchmarks. However, a Low Risk Response was triggered for DOC, based on mean concentrations at the G0 and C0 series of stations (i.e., upstream from MRTF and between MRTF Sheardown Lake SE, respectively) being above both reference and baseline in summer and fall, respectively (Baffinland 2024).

Sediment is collected from creek and river stations on a three-year cycle; the most recent sampling for the CREMP was completed in 2023, and the next sampling event is scheduled for 2026. Therefore, no sediment quality data were available for inclusion in this 2025 CREMP report.

No adverse mine-related effects on chlorophyll-a concentrations (as an indicator of primary productivity) were observed in the Mary River in 2025. Additionally, BIC endpoints at the Mary River mine-exposed areas remained broadly comparable to the reference area in 2025. Ecologically meaningful differences were limited and are attributed to localized habitat characteristics (e.g., algae presence, substrate, and vegetation) rather than mine-related effects. However, based on evaluation against TARP thresholds from the Revision 2 AEMP (Baffinland 2024), Low Risk Responses were triggered for density (Stations E0-01 and C0-05) and Simpson's Evenness (Station E0-01) relative to reference, and for density at Stations E0-20 and E0-01 and richness at E0-01 relative to baseline. Moderate Risk Responses were triggered for taxonomic richness (Station C0-05) relative to reference, and for Simpson's Evenness at Stations G0-03, E0-01, and E0-20 relative to baseline.

5.3.4.2 Recommendations

Low Risk Responses for Mary River mine-exposed areas were triggered for aqueous concentrations of DOC, as well as BIC endpoints of density, richness, and Simpson's Evenness. Additionally, Moderate Risk Responses were triggered for BIC endpoints of taxonomic richness



and Simpson's Evenness, depending on location. The following actions are recommended in response to these Low and Moderate Risk Responses being triggered for Mary River:

- Complete temporal trend analyses for DOC concentrations to investigate temporal patterns and confirm potential regional and mine-related influences.
- Investigate potential sources or factors influencing DOC concentrations in the Mary River to better define mine-related influence.
- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time (i.e., have the BIC always differed between the mine-exposed and reference areas, and has that difference remained constant or changed over time?).
- Continue to use data for indicator taxa, FFGs, and HPGs in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

5.3.4.3 Comparison to FEIS Predictions

Comparisons of water quality at Mary River (G0, E0, and C0 series stations) based on data collected in spring, summer, and fall 2025 to FEIS predictions for Aqueous Non-point Source Emissions effects related to applicable SWSQ-2 (Site Water Management) indicated all parameter concentrations were within the Level II significance rating for magnitude expected for the watercourse during mine operations. Therefore, Mary River water quality confirmed with predictions made in the FEIS for the Project (Baffinland 2012).

Because water quality at Mary River in 2025 was within applicable FEIS significance rating magnitude predictions, consistent with the approach for the 2024 CREMP (Minnow 2025), it was also assumed that FEIS predictions for (absence of) effects on arctic charr health and condition were also met. Therefore, arctic charr health and condition at Mary River in 2025 conformed with predictions made in the FEIS (Baffinland 2012).

5.4 Mary Lake (BL0)

5.4.1 Water Quality

5.4.1.1 *In Situ* Water Quality

In 2025, *in situ* water quality was assessed at Mary Lake north and south basins concurrent with water quality sampling conducted by Baffinland environment department personnel during the



winter, summer, and fall monitoring events, as well as BIC sampling completed by Minnow staff in August (Tables 2.2 and 2.5). The winter 2025 water quality profiles (mean measures) indicated a slight increase in temperature from surface to bottom in the winter (i.e., by about 1°C, on average), consistent with the results for winter 2024 (Appendix Figures B.14 to B.16; Appendix Table B.29; Minnow 2025). In summer, water temperatures decreased from surface to bottom by as much as 8.2°C (Appendix Figures B.15 and B.16; Appendix Table B.30). Changes with increasing depth (i.e., per 1 m interval) were relatively large between the surface and 6 m deep (i.e., >0.5°C); however, the biggest changes per m occurred between the surface and 3 m deep. Similar to 2024, water temperature was consistent from surface to bottom in Mary Lake during the fall 2025 sampling event, which captured the period of fall lake turnover (Appendix Figures B.15 and B.16; Appendix Table B.31; Minnow 2025).

The water column at Mary Lake was moderately to fully saturated with DO in summer ($\geq 87.5\%$) and fall ($\geq 89.9\%$) 2025, as well as during BIC sampling in August, but was lower during winter monitoring (Appendix Figures B.15 and B.16; Appendix Tables B.29 to B.31). During winter, DO saturation declined progressively with depth, decreasing from near full saturation in the upper water column to <20% at depths >13 m in the north basin <75% at depths >27 m in the south basin (Appendix Table B.29). The most pronounced decline occurred at depths greater than approximately 8 m in the north basin (Appendix Table B.29; Appendix Figures B.15 and B.16). Overall, mean DO saturation was within reference normal ranges in summer and fall 2025 (Table 5.4; baseline and reference normal ranges are summarized in Appendix Tables B.9 and B.32, respectively).⁶⁵

DO concentrations measured during water chemistry and BIC sampling events were above the CCME WQG for the protection of early life stages of cold-water biota (9.5 mg/L) across most depths and seasons, further demonstrating generally well-oxygenated conditions throughout the lake (Table 5.4; Appendix Figure B.10; Appendix Tables B.29 to B.31). Concentrations fell below WQG only at Station BL0-01-A, which is located in the north basin, during winter, and at depths greater than approximately 10 m (Appendix Table B.29; Appendix Figure B.10). The localized winter oxygen depletion observed near the lake bottom is likely a result of natural seasonal processes, lake depth, and productivity rather than mine-related influences (e.g., Leppi et al. 2016; Zhang et al. 2024). Under ice cover, atmospheric exchange and wind-driven mixing are limited while microbial respiration and decomposition of organic matter continue to consume oxygen in deeper waters (Wetzel 2001). Additionally, longer periods of ice cover can also

⁶⁵ Note there are no reference normal ranges for winter, because Reference Lake 3 is not sampled during winter (Appendix Table B.9). Additionally, baseline normal ranges could not be calculated for winter at Mary Lake due to insufficient sample sizes and too few values >LRL (Appendix Table B.32).



Table 5.4: Mean Water Chemistry at Mary Lake North Basin (BL0-01) and South Basin (BL0) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Lake (n = 3)		Mary Lake North Basin Stations (n = 3)			Mary Lake South Basin Stations (n = 7)		
				Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall
Conventionals	Conductivity (lab)	µS/cm	-	75.7	81.8	211	82.0	175	108	80.4	87.8
	Specific Conductivity	µS/cm	-	73.7	72.8	216	116	160	109	80.8	80.2
	pH (lab)	pH	-	7.80	7.79	7.51	8.02	8.02	7.38	7.82	7.65
	pH (field)	pH	6.5 - 9.0	7.74	7.54	7.54	8.00	8.10	7.59	7.70	7.62
	Temperature, Field	mg/L	-	<u>11.1</u>	6.90	0.648	<u>11.1</u>	6.60	0.635	9.56	7.00
	Hardness (as CaCO ₃) -Total	mg/L	-	35.6	35.4	111	41.6	78.5	52.1	38.7	38.4
	Total Suspended Solids (TSS)	mg/L	-	<1	<1	1.35	<1	<1	1.24	1.63	1.10
	Total Dissolved Solids (TDS)	mg/L	-	53.0	42.7	103	75.0	67.3	64.3	60.3	44.0
	Dissolved Oxygen	mg/L	> 9.5	11.0	11.5	11.6	10.7	11.8	13.5	11.2	11.3
	Dissolved Oxygen	%	-	99.8	94.5	80.7	97.0	97.2	93.6	97.7	93.8
	Turbidity (lab)	NTU	-	0.323	0.303	1.68	2.26	1.70	0.662	7.00	<u>4.11</u>
	Turbidity (field)	NTU	-	118	0.410	0.702	3.65	1.46	2.87	69	4.46
	Alkalinity (as CaCO ₃)	mg/L	-	<u>32.8</u>	<u>32.5</u>	101	41.0	75.9	50.3	37.4	36.5
Nutrients and Organics	Total Ammonia ^c	mg/L	0.282 - 3.98	0.00587	0.00853	0.0150	<0.005	0.00557	0.00550	0.00517	0.0200
	Nitrate ^c	mg/L	3.00	<0.02	<0.02	0.0608	<0.02	<0.02	0.0591	0.0553	0.0400
	Nitrite ^c	mg/L	0.0600	<0.01	<0.01	<0.01	<0.01	<u><0.01</u>	<0.01	<0.01	<u><0.01</u>
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.177	0.174	0.166	0.126	0.143	0.114	0.118	0.0947
	Dissolved Organic Carbon	mg/L	-	<u>3.26</u>	<u>2.92</u>	3.28	<u>2.09</u>	1.83	2.65	<u>2.84</u>	1.79
	Total Organic Carbon	mg/L	-	<u>3.91</u>	<u>3.42</u>	3.03	2.20	2.29	2.38	2.45	2.04
	Total Phosphorus	mg/L	-	0.00280	0.00207	0.00470	0.00570	0.00207	0.00230	0.00747	0.00370
	Phenols	mg/L	0.00400	0.00120	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^c	mg/L	120	1.22	1.21	4.68	1.26	3.18	2.14	1.12	1.44
	Sulphate (SO ₄) ^c	mg/L	128 - 309	2.87	2.75	2.65	0.753	1.44	2.00	1.75	1.64
Total Metals	Aluminum (Al) ^c	mg/L	0.966	0.00737	0.00523	0.0133	0.0415	0.0417	0.0227	0.171	0.107
	Antimony (Sb)	mg/L	0.0740	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^c	mg/L	0.00500	<0.0001	<0.0001	0.000122	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	<u>0.00628</u>	<u>0.00640</u>	0.00932	0.00450	0.00801	0.00586	0.00573	0.00537
	Beryllium (Be)	mg/L	0.000130	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^c	mg/L	0.0000370 - 0.000225	<0.000005	<0.000005	0.00000517	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	6.89	7.07	21.6	8.32	15.6	10.6	7.68	7.67
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0000247	0.0000143
	Chromium (Cr)	mg/L	0.00500	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000504	0.000510	<0.0005
	Cobalt (Co) ^c	mg/L	0.000778 - 0.00122	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000100	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00340	0.000977	0.000850	0.00136	0.000947	0.000960	0.000814	0.00105	0.000823
	Iron (Fe) ^c	mg/L	0.874	0.0167	0.0120	0.0843	0.0417	0.0443	0.0194	0.155	0.0940
	Lead (Pb)	mg/L	0.00100 - 0.00546	<0.00005	<0.00005	0.000210	0.0000563	<0.00005	<0.00005	<u>0.000168</u>	0.0000943
	Lithium (Li)	mg/L	-	<u><0.001</u>	<0.001	0.00123	<0.001	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	4.47	4.32	13.9	5.06	9.59	6.24	4.75	4.67
	Manganese (Mn)	mg/L	0.768 - 1.28	0.000787	0.000660	0.0147	0.00187	0.00379	0.000545	0.00341	0.00186
	Mercury (Hg)	mg/L	0.0000260	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000163	0.000159	0.000392	<u>0.000166</u>	0.000275	0.000221	<u>0.000185</u>	0.000192
	Nickel (Ni) ^c	mg/L	0.0250 - 0.132	<0.0005	<0.0005	0.000788	<u>0.000680</u>	<0.0005	0.000521	<u>0.000843</u>	0.000520
	Potassium (K)	mg/L	-	0.887	0.869	1.27	0.610	<u>0.930</u>	0.741	0.721	0.651
	Rubidium (Rb)	mg/L	-	0.000960	0.000957	0.00203	0.00118	0.00149	0.00128	0.00154	0.00128
	Selenium (Se)	mg/L	0.00200	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.463	0.423	1.50	0.570	0.843	0.739	<u>0.960</u>	0.757
	Silver (Ag) ^c	mg/L	0.000100	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.934	0.882	3.68	1.04	2.23	1.51	1.07	1.13
	Strontium (Sr)	mg/L	-	0.00825	0.00830	0.0150	0.00583	0.0119	0.00848	0.00696	0.00686
	Sulphur (S)	mg/L	-	1.01	1.01	0.853	0.517	0.577	0.694	0.690	0.570
	Thallium (Tl) ^c	mg/L	0.000800	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000157	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.000343	<0.0003	0.000407	0.00149	0.00133	0.000616	0.00774	0.00443
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000318	0.000308	0.00222	0.000660	0.00197	0.00100	0.000619	0.000706
	Vanadium (V) ^c	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	<0.003	<0.003	<0.003	<u><0.003</u>	<0.003	<0.003	<u><0.003</u>	<0.003
	Zirconium (Zr)	mg/L	-	<0.0002	<0.0002	<0.0002	0.000213	0.000217	<0.0002	0.000357	0.000223

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table 5.4: Mean Water Chemistry at Mary Lake North Basin (BL0-01) and South Basin (BL0) Monitoring Stations During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters ^{a,b}		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Reference Lake (n = 3)		Mary Lake North Basin Stations (n = 3)			Mary Lake South Basin Stations (n = 7)		
				Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall
Dissolved Metals	Aluminum (Al)	mg/L	-	0.00300	0.00147	0.00597	0.00843	0.00930	0.00804	0.0322	0.0299
	Antimony (Sb)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	<0.0001	<0.0001	0.000112	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00633	0.00678	0.0102	0.00424	0.00838	0.00587	0.00525	0.00507
	Beryllium (Be)	mg/L	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000483 - 0.000289	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	6.98	7.34	20.9	7.58	16.6	9.96	7.76	8.03
	Cesium (Cs)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000608	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^c	mg/L	0.000568 - 0.0147	0.000920	0.000710	0.00116	0.000733	0.000777	0.000730	0.000867	0.000597
	Iron (Fe) ^c	mg/L	-	0.0103	<0.01	0.0290	0.0123	0.0123	0.0100	0.0217	0.0167
	Lead (Pb) ^c	mg/L	0.00296 - 0.0128	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	<0.001	<0.001	0.00103	<0.001	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	4.47	4.82	12.2	4.65	10.5	6.28	4.66	5.11
	Manganese (Mn) ^c	mg/L	0.160 - 0.350	0.000317	0.000233	0.00147	0.00103	0.00245	0.000187	0.000900	0.000280
	Mercury (Hg)	mg/L	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000157	0.000140	0.000397	0.000174	0.000254	0.000214	0.000219	0.000176
	Nickel (Ni)	mg/L	0.000600 - 0.00520	<0.0005	<0.0005	0.000732	<0.0005	<0.0005	<0.0005	0.000520	<0.0005
	Potassium (K)	mg/L	-	0.913	0.881	1.18	0.600	<u>0.924</u>	0.737	0.693	0.619
	Rubidium (Rb)	mg/L	-	0.000953	0.000937	0.00191	0.00108	0.00141	0.00116	0.00115	0.00106
	Selenium (Se)	mg/L	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.444	0.428	1.49	0.483	0.804	0.686	0.692	0.623
	Silver (Ag)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.957	0.920	3.25	1.02	2.30	1.59	1.06	1.15
	Strontium (Sr) ^c	mg/L	2.50	0.00837	0.00830	0.0153	0.00597	0.0119	0.00870	0.00697	0.00624
	Sulphur (S)	mg/L	-	1.08	0.993	0.895	<0.5	0.533	0.633	0.740	0.517
	Tellurium (Te)	mg/L	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	<0.0003	<0.0003	<0.0003	0.000317	0.000313	0.000301	0.000930	0.000677
	Tungsten (W)	mg/L	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	0.000300	0.000273	0.00222	0.000657	0.00174	0.000974	0.000598	0.000605
	Vanadium (V)	mg/L	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^c	mg/L	-	0.00117	<0.001	0.00100	<0.001	<0.001	<0.001	0.00100	<0.001
	Zirconium (Zr)	mg/L	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^b Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^c WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^d Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

exacerbate low DO concentrations (Leppi et al. 2016). Therefore, because under-ice DO measurements at Mary Lake are taken near the end of the ice-cover period, they likely represent a worst-case scenario of under-ice DO concentrations.

As discussed in Section 3.3.1.1, arctic charr are a highly adaptable fish species and have been shown to shift their patterns of habitat use in response to low winter DO concentrations. Therefore, it is possible that arctic charr in Mary Lake respond to low DO concentrations by moving to better-oxygenated areas within the lake (e.g., areas throughout the south basin; Figure 2.2; see also Appendix Table B.29). Additionally, arctic charr may reduce their activity and feeding levels in winter, as a method of reducing metabolic activity and oxygen demand (Ducros et al. 2024; Christopher 2023). Given that under-ice DO concentrations in Mary Lake in 2025 were characteristic of Arctic lakes and arctic charr are well adapted to low DO conditions during winter, there is no evidence of DO-mediated mine-related effects to arctic charr in Mary Lake.

In 2025, mean field pH values measured during the winter, summer, and fall monitoring events, as well as during BIC sampling conducted in August 2025, were within the CCME WQG range of 6.5 to 9 (Table 5.4; Appendix Figure B.10; Appendix Tables B.29 to B.31). Mean SPC in Mary Lake was lower in fall relative to winter 2025, but reported values were within seasonal reference and baseline normal ranges (Table 5.4).

Mean field turbidity reported for Mary Lake in winter 2025 was indicative of clear conditions (i.e., <1 NTU), whereas turbidity was highest in summer (but within the normal range; Table 5.4). The mean turbidity value reported for the fall water quality monitoring event (6.97 NTU) was lower relative to summer, but above the seasonal reference normal range (Table 5.4).

5.4.1.2 Water Chemistry

In the north and south basins of Mary Lake (Table 2.2; Figure 2.2), mean concentrations of water quality parameters were below their respective AEMP benchmarks or, for parameters without benchmarks, applicable WQG throughout 2025; total aluminum was the only exception (Table 5.4; Appendix Tables B.33 and B.34; Appendix Figure B.17). Specifically, the mean concentration of total aluminum in the south basin of Mary Lake in summer was above the AEMP benchmark, as well as the seasonal reference and baseline normal ranges (Table 5.4). Within the south basin of the lake, aqueous total aluminum concentrations reported for individual samples in summer 2025 ($n = 7$) were consistently above the AEMP benchmark; however, the highest concentration was observed near the Mary River inflow (BL0-05) and the lowest concentration was observed near the lake outflow (i.e., at BL0-06; Figure 2.2; Appendix Table B.34). Based on the comparison of water chemistry data to AEMP benchmarks in 2025, a Moderate Risk Response was triggered for aqueous total aluminum concentrations in the south basin of Mary Lake (Baffinland 2024).



In 2025, water chemistry parameters with concentrations above both the corresponding seasonal reference and baseline normal ranges in the north basin of Mary Lake were limited to total and dissolved molybdenum (Table 5.4). Mean laboratory turbidity and aqueous concentrations of total and dissolved molybdenum, total silicon, and dissolved aluminum in the south basin of Mary Lake were also above both the reference area and baseline normal ranges in at least one season in 2025 (Table 5.4). Consequently, Low Risk Responses were triggered for concentrations of these water quality parameters in the north and south basins of Mary Lake (Baffinland 2024).

5.4.2 Sediment Quality

Most surficial sediments (i.e., top 2 cm) collected at the Mary Lake coring stations in 2025 were primarily composed of reddish brown to brown silt and minor amounts of sand (Figures 3.4 and 3.5; Appendix Table C.15). Field crews also noted the presence of a gray clay layer in some of the cores collected from Mary Lake (BL0-01 and BL0-08) which was not observed in the Reference Lake cores (Table C.15). Overall, littoral and profundal sediments from Mary Lake had significantly less sand relative to Reference Lake 3 (Appendix Tables C.1 and C.2). Profundal sediments at Mary Lake were also significantly siltier relative to profundal sediments from the reference lake (Appendix Table C.2). Additionally, mean TOC content at the littoral and profundal areas of Mary Lake was significantly lower relative to Reference Lake 3, and below the lower ON PSQG (Figures 3.4 and 3.5; Appendix Tables C.1 and C.2).

In 2025, the characteristics of littoral sediments (i.e., particle sizes and TOC content) in Mary Lake were comparable to baseline, whereas profundal sediments were characterized by lower sand content and higher clay content in 2025 relative to reference (Appendix Figures C.1 and C.2; Appendix Tables C.7 and C.8). This suggests a temporal shift toward finer-grained sediment deposition in deeper areas of the lake.

None of the metals analyzed in sediment samples collected from littoral and profundal habitats in Mary Lake in 2025 had mean concentrations above AEMP benchmarks or, in the case of molybdenum and silver, SQG, in 2025 (Table 5.5; Figure 5.4). Therefore, the comparison to AEMP benchmarks for sediment quality did not trigger any action level responses for Mary Lake in 2025 (Baffinland 2024).

Mean metal concentrations in sediments from Mary Lake were statistically similar to Reference Lake 3 in 2025, except for lower concentrations of copper in both littoral and profundal sediments from Mary Lake, as well as lower total phosphorus concentrations in profundal sediments from Mary Lake (Figures 3.7 and 3.8; Tables 3.7 and 3.8).

On average, metal concentrations in sediment from Mary Lake in 2025 were within the range of those observed during mine operations from 2015 to 2024, and there was no evidence of



Table 5.5: Total Organic Carbon (TOC) Content and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Mary Lake (BL0) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	SQG ^a		AEMP Benchmark ^b	Littoral Stations						Profundal Stations					
						Reference Lake (n = 5)			Mary Lake (n = 6)			Reference Lake (n = 3)			Mary Lake (n = 3)		
			Lower	Upper		Mean	SD	SE	Mean	SD	SE	Mean	SD	SE	Mean	SD	SE
Total Organic Carbon (TOC)		%	1	10	-	4.83	2.13	0.953	0.795	0.330	0.135	4.45	0.114	0.0658	0.727	0.100	0.0577
Phosphorus (P)		mg/kg	-	-	2,010	1,334	930	416	812	169	69.0	1,167	11.5	6.64	843	108	62.4
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	17,420	4,164	1,862	20,627	9,783	3,994	26,400	557	322	26,267	5,948	3,434
	Antimony (Sb)	mg/kg	-	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-	<0.1	-	-
	Arsenic (As)	mg/kg	-	-	11.5	4.62	2.58	1.15	2.91	1.27	0.518	5.53	0.196	0.113	3.44	0.875	0.505
	Barium (Ba)	mg/kg	-	-	-	121	43.2	19.3	77.2	30.8	12.6	141	7.77	4.49	93.5	19.2	11.1
	Beryllium (Be)	mg/kg	-	-	-	0.672	0.166	0.0742	0.887	0.424	0.173	0.930	0.0100	0.00577	1.07	0.238	0.137
	Bismuth (Bi)	mg/kg	-	-	-	<0.2	-	-	0.623	1.02	0.416	<0.2	-	-	0.243	0.00667	0.00385
	Boron (B)	mg/kg	-	-	-	15.4	3.58	1.60	28.6	13.8	5.63	20.2	0.351	0.203	34.8	6.39	3.69
	Cadmium (Cd)	mg/kg	-	-	2.1	0.175	0.0883	0.0395	0.0998	0.0455	0.0186	0.174	0.00950	0.00548	0.148	0.0302	0.0174
	Calcium (Ca)	mg/kg	-	-	-	4,698	1,000	447	6,625	3,203	1,308	5,597	25.2	14.5	4,547	439	253
	Chromium (Cr)	mg/kg	-	-	99	55.4	14.4	6.44	71.8	26.6	10.9	81.0	1.92	1.11	90.9	16.6	9.58
	Cobalt (Co)	mg/kg	-	-	-	12.3	4.04	1.81	14.0	5.23	2.14	17.9	0.611	0.353	17.5	3.59	2.07
	Copper (Cu)	mg/kg	-	-	79	70.0	26.1	11.7	27.3	11.1	4.53	102	4.46	2.57	33.9	7.74	4.47
	Iron (Fe)	mg/kg	-	-	68,967	56,100	45,144	20,189	36,200	12,519	5,111	53,067	1,747	1,009	41,833	6,665	3,848
	Lead (Pb)	mg/kg	-	-	63	14.1	3.12	1.40	16.8	7.77	3.17	19.1	0.723	0.417	21.6	5.44	3.14
	Lithium (Li)	mg/kg	-	-	-	25.9	6.04	2.70	32.7	15.9	6.49	35.8	0.404	0.233	39.1	8.92	5.15
	Magnesium (Mg)	mg/kg	-	-	-	11,596	2,689	1,203	15,647	4,750	1,939	16,967	289	167	17,333	3,323	1,919
	Manganese (Mn)	mg/kg	-	-	4,486	1,057	926	414	692	350	143	1,277	81.4	47.0	2,379	2,175	1,256
	Mercury (Hg)	mg/kg	-	-	0.33	0.0447	0.0287	0.0128	0.0253	0.0131	0.00535	0.0752	0.0100	0.00577	0.0471	0.0169	0.00976
	Molybdenum (Mo)	mg/kg	25	23,000	-	5.92	5.26	2.35	0.688	0.311	0.127	2.72	0.191	0.110	1.21	0.452	0.261
	Nickel (Ni)	mg/kg	-	-	69	41.1	11.4	5.10	50.7	15.9	6.49	55.2	1.76	1.02	63.7	11.4	6.58
	Potassium (K)	mg/kg	-	-	-	4,320	1,078	482	5,072	2,580	1,053	6,303	233	135	6,457	1,576	910
	Selenium (Se)	mg/kg	-	-	-	0.736	0.404	0.181	0.222	0.0264	0.0108	0.837	0.00577	0.00333	0.240	0.0267	0.0154
	Silver (Ag)	mg/kg	0.5	-	-	0.152	0.0675	0.0302	0.110	0.00935	0.00382	0.253	0.0208	0.0120	0.127	-	-
	Sodium (Na)	mg/kg	-	-	-	329	88.7	39.7	312	155	63.3	489	8.14	4.70	399	99.1	57.2
	Strontium (Sr)	mg/kg	-	-	-	11.5	2.05	0.917	12.5	4.13	1.69	14.5	0.200	0.115	13.9	2.74	1.58
	Sulphur (S)	mg/kg	-	-	-	1,420	332	148	<1,000	-	-	1,300	100	57.7	<1,000	-	-
	Thallium (Tl)	mg/kg	-	-	-	0.407	0.169	0.0756	0.401	0.196	0.0800	0.721	0.0201	0.0116	0.507	0.127	0.0733
	Tin (Sn)	mg/kg	-	-	-	<2	-	-	<2	-	-	<2	-	-	<2	-	-
	Titanium (Ti)	mg/kg	-	-	-	1,127	205	91.7	1,440	550	225	1,440	50.0	28.9	1,730	288	166
	Uranium (U)	mg/kg	-	-	-	15.1	6.28	2.81	5.56	3.17	1.29	25.2	0.493	0.285	8.32	2.01	1.16
	Vanadium (V)	mg/kg	-	-	-	52.1	10.9	4.87	55.4	22.5	9.19	73.2	1.16	0.670	67.2	14.6	8.43
	Zinc (Zn)	mg/kg	-	-	219	71.3	15.5	6.93	60.1	26.3	10.7	97.3	1.80	1.04	75.3	16.5	9.53
	Zirconium (Zr)	mg/kg	-	-	-	3.90	1.38	0.617	18.2	9.46	3.86	3.77	0.115	0.0664	23.2	6.03	3.48

Indicates a concentration above the lower SQG.

Indicates a concentration above the lower and upper SQG.

BOLD

Indicates a concentration above the AEMP Benchmark.

Notes: SQG = sediment quality guideline. AEMP = Aquatic Effects Monitoring Plan. n = number of samples. SD = standard deviation. SE = standard error. % = percent. - = no value/not applicable. mg/kg = milligrams per kilogram dry weight.

^a For mine-exposed lakes, comparisons to generic SQG derived for other jurisdictions were only completed for parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Mary Lake.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

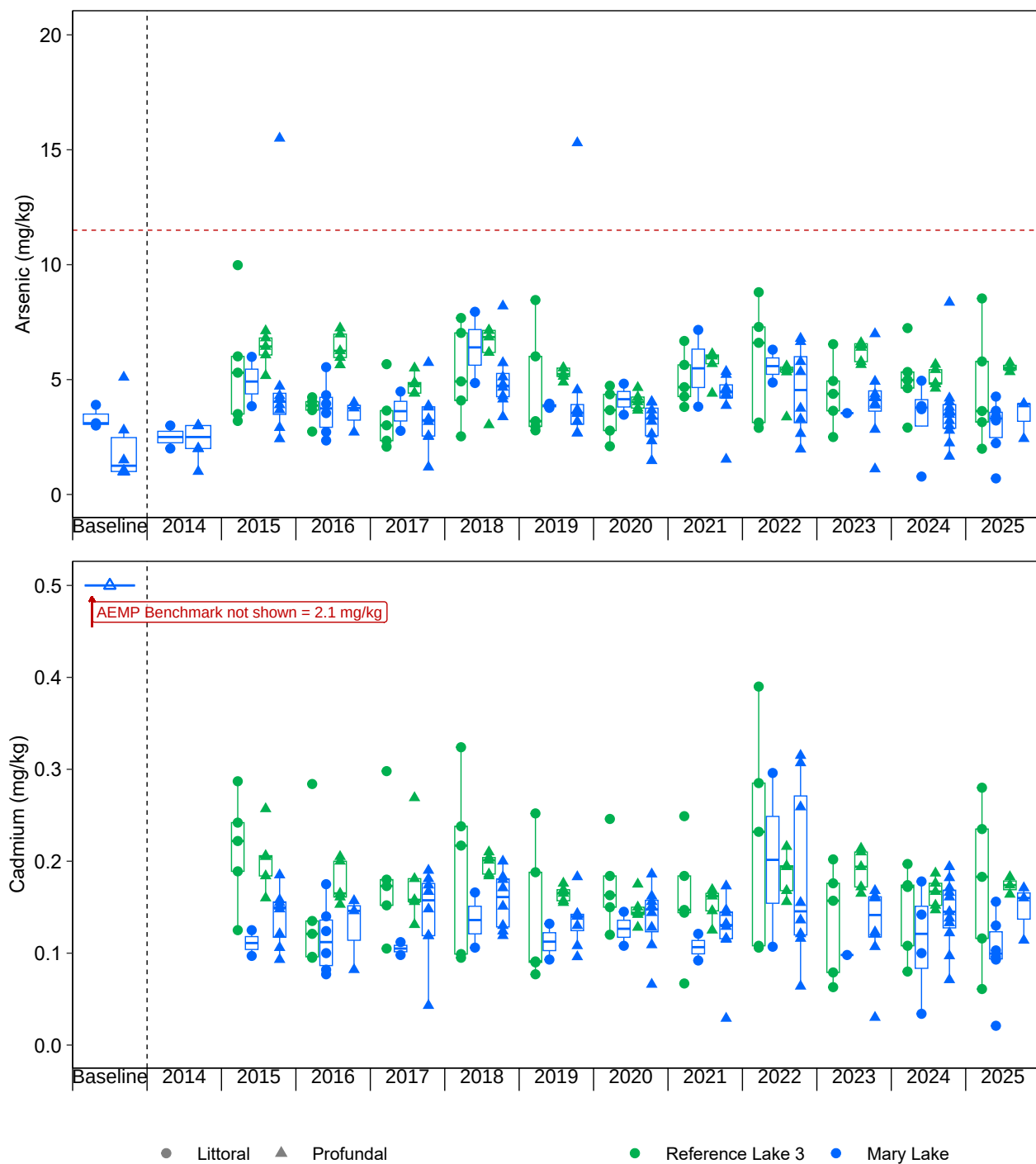


Figure 5.4: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Mary Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicate upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

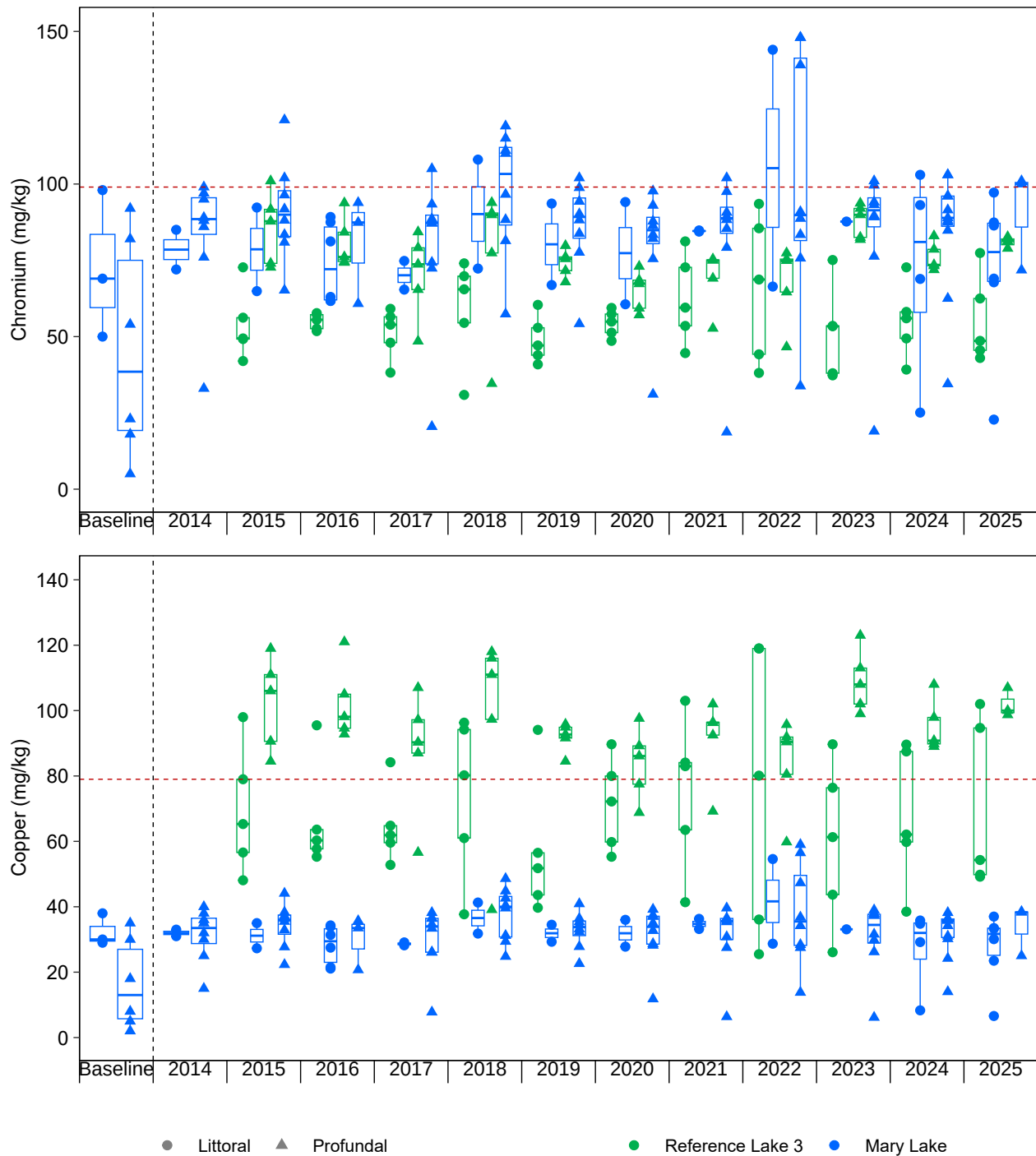


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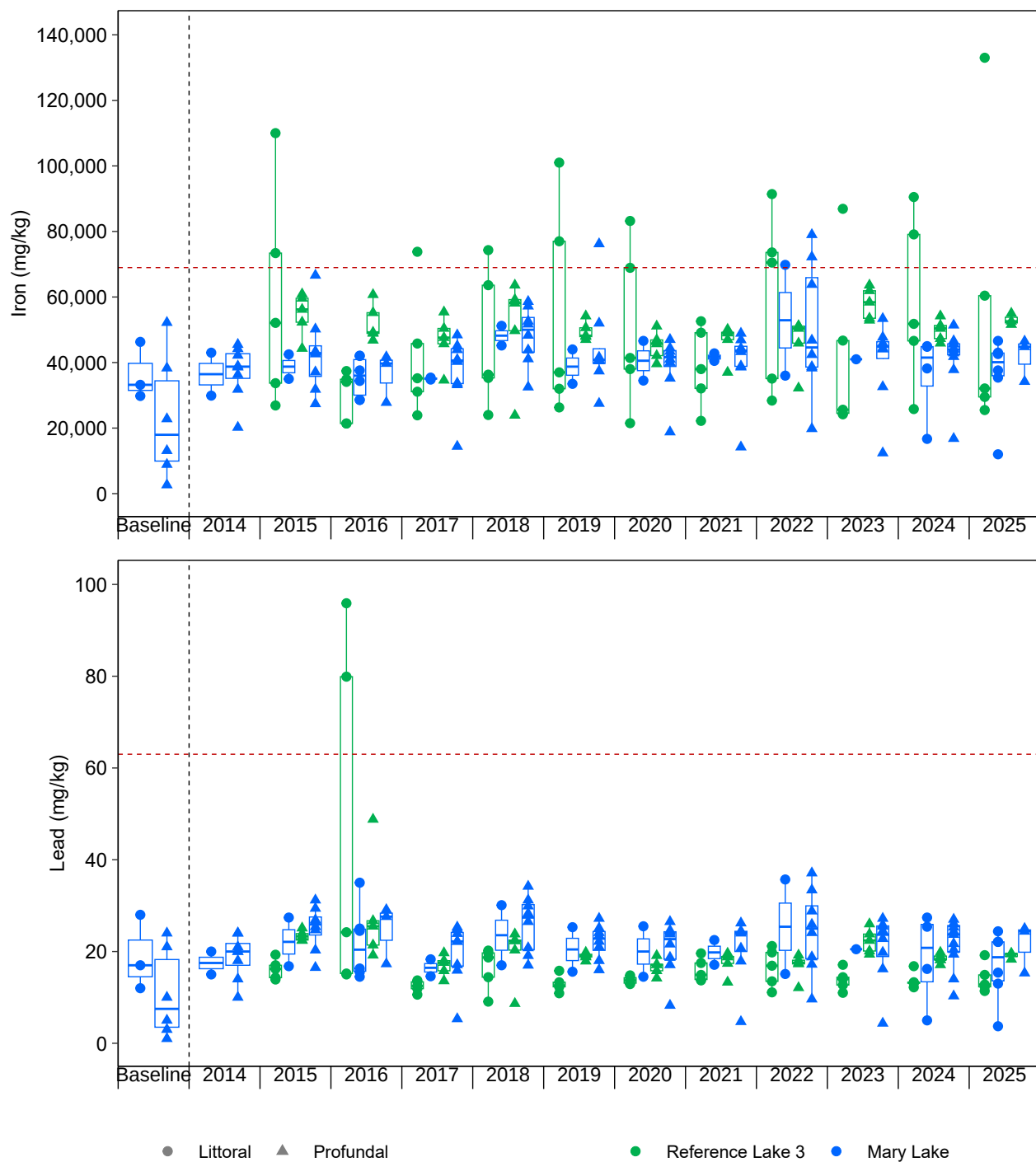


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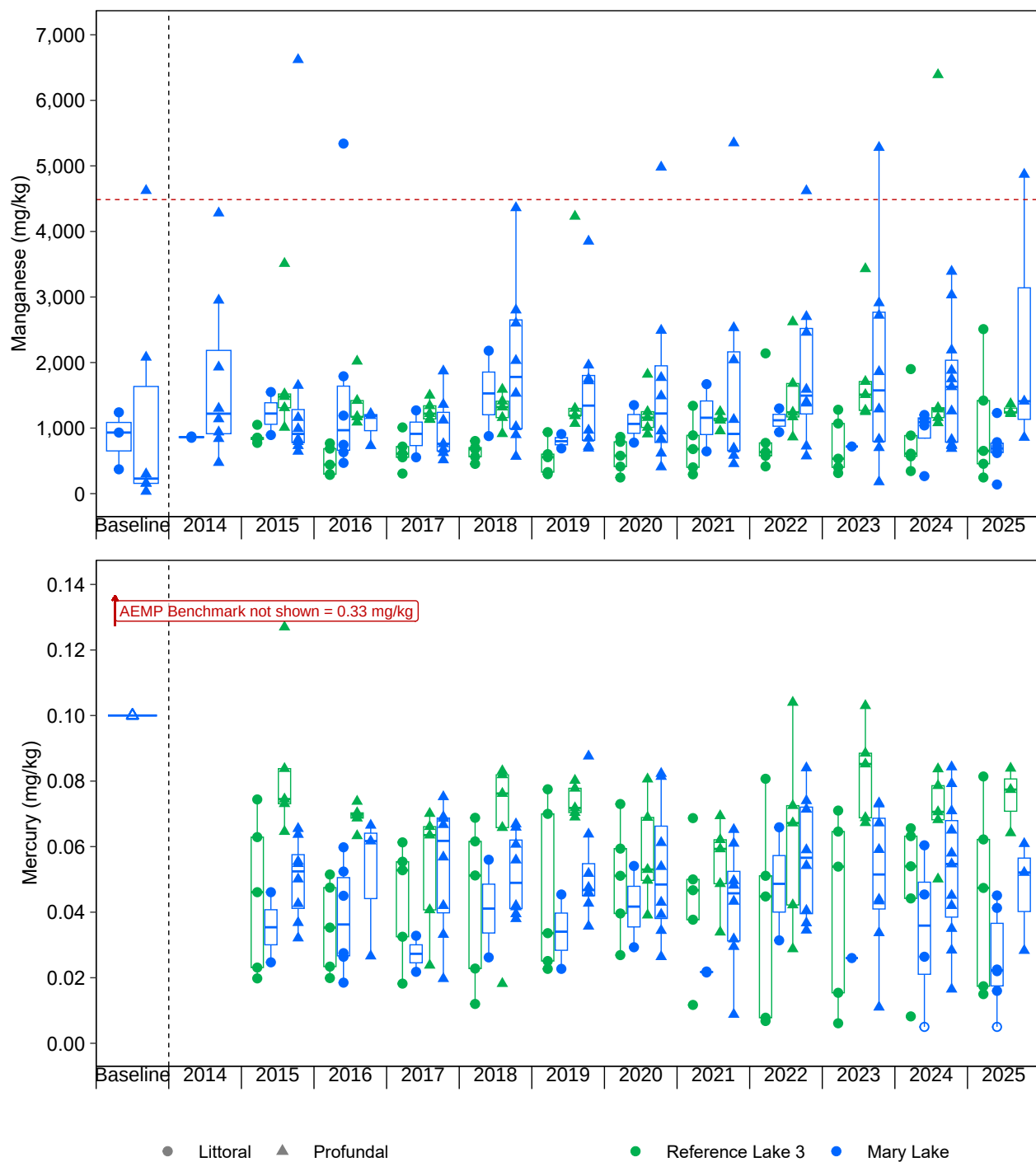


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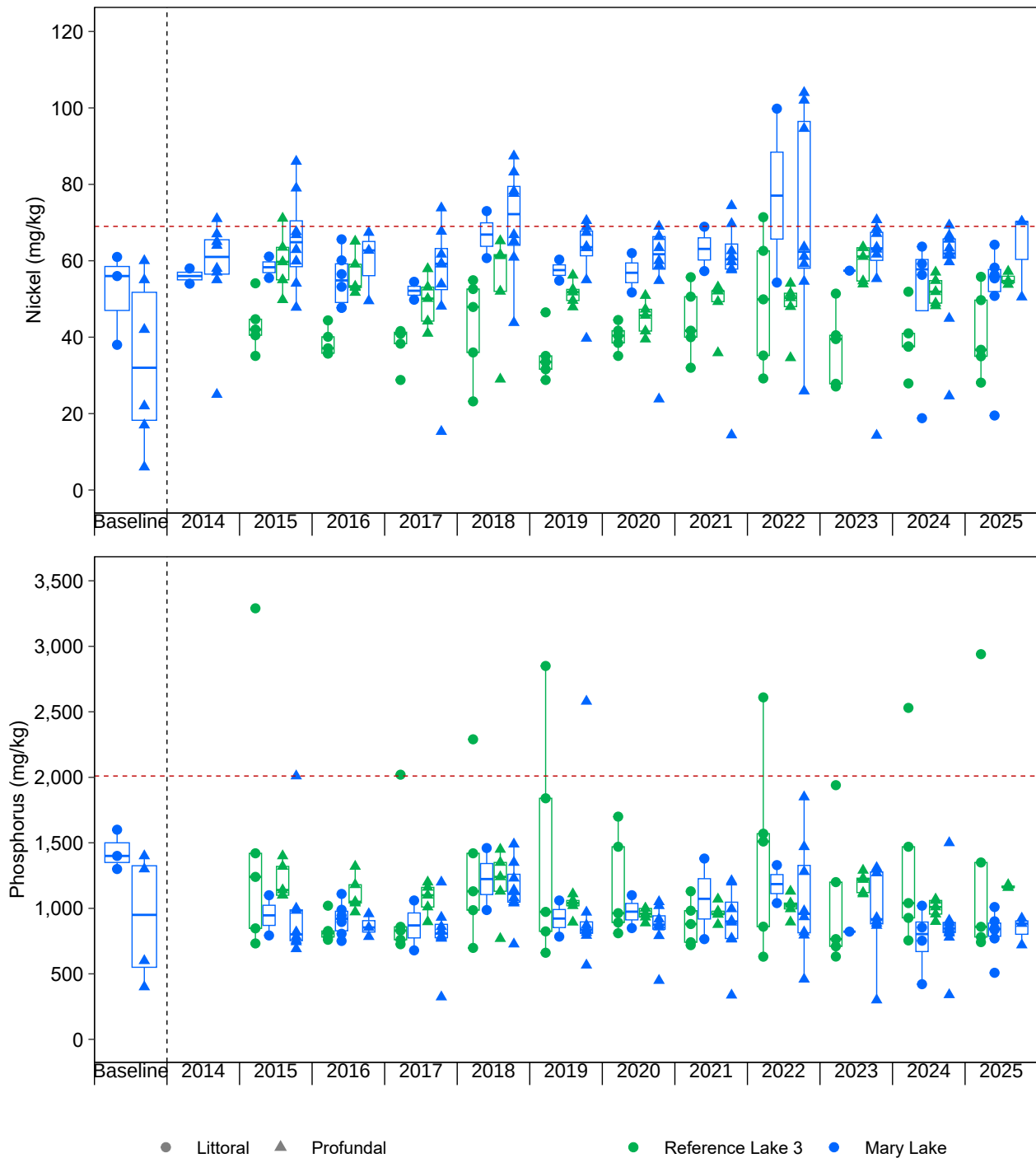


Figure 5.4: Temporal Comparisons of Metal Concentrations in Sediments at Littoral and Profundal Stations of Mary Lake and Reference Lake 3 for Mine Baseline (2005 to 2013), Construction (2014), and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicate upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

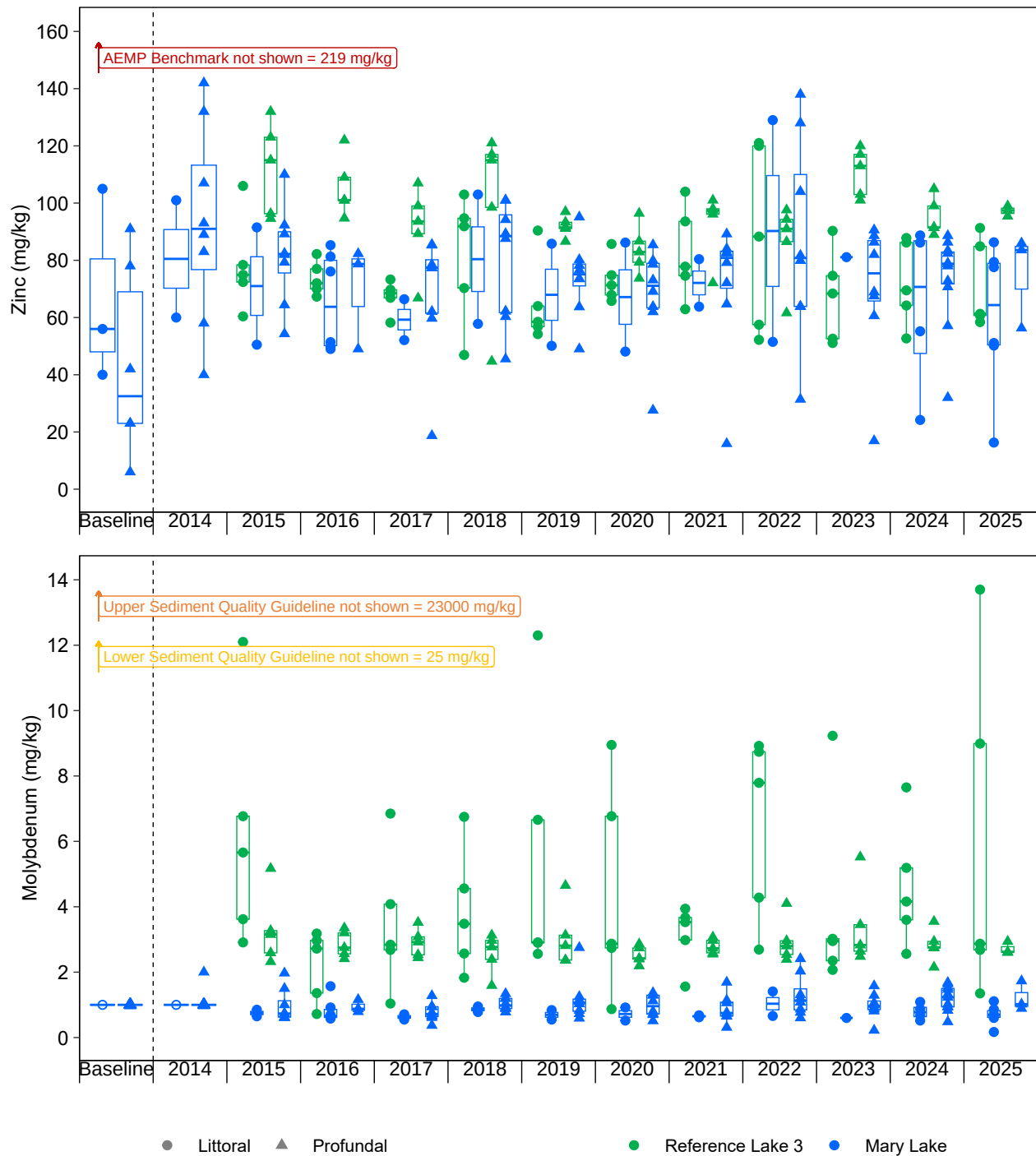


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Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red dashed lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks; orange dashed lines indicate upper sediment quality guidelines (SQG); yellow indicates the lower SQG. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

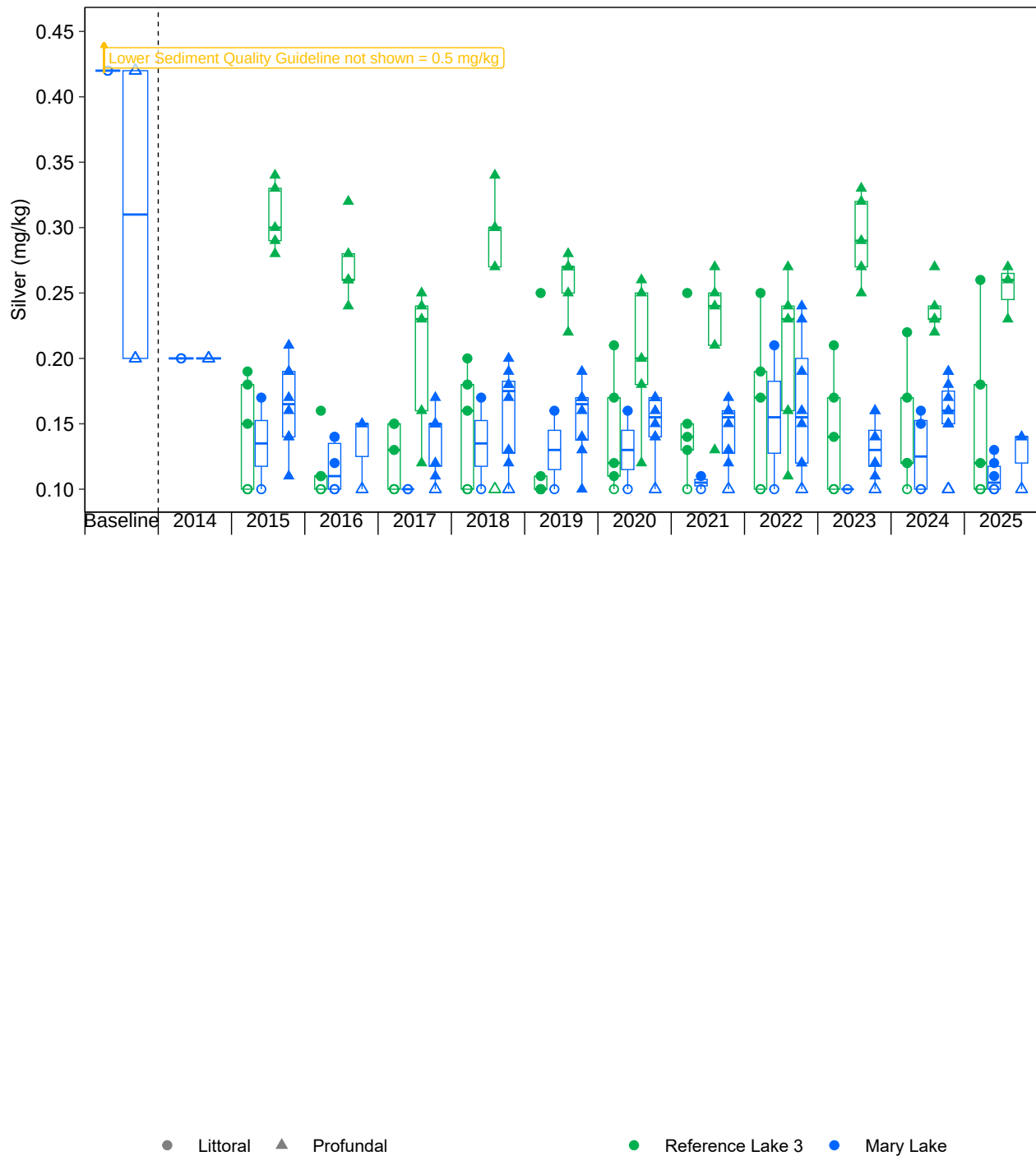


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concentrations increasing over time for any metal (Figure 5.4). Additionally, mean metal concentrations in sediments from Mary Lake were statistically similar to baseline, except for significantly lower total phosphorus concentrations, in 2025 (Appendix Tables C.9 and C.10).

Overall, there were no apparent mine-related changes in metal concentrations in sediments at Mary Lake since the initiation of commercial mine operations in 2015, and no action level responses were triggered in 2025 (Baffinland 2024).

5.4.3 Phytoplankton

In 2025, mean chlorophyll-a concentrations at the surface of the north and south basins of Mary Lake were highest in summer and winter, respectively; mean concentrations were higher in the south basin in 2025, relative to the north basin, regardless of season (Figure 3.9; Appendix Table D.7; Appendix Figure D.1). Chlorophyll-a concentrations measured near the bottom of the water column in both basins in winter⁶⁶ 2025 were lower relative to concurrent and co-located surface samples (Figure 3.9; Appendix Table D.7; Appendix Figure D.1). Compared to Reference Lake 3, chlorophyll-a concentrations measured at the surface in both basins of Mary Lake were consistently below the upper limits of seasonal reference normal ranges (Appendix Table D.7). Additionally, chlorophyll-a concentrations in Mary Lake were well below the AEMP benchmark of 3.7 µg/L in 2025 and were characteristic of oligotrophic conditions (i.e., <4.5 µg/L; Wetzel 2001; Figure 3.9; Appendix Table D.7). Mean aqueous total phosphorus concentrations were also below 10 µg/L throughout 2025 (Table 5.4) consistent with an oligotrophic status for both basins under the CCME (2004) Phosphorus Guidance Framework (see also Section 3.3.3).

Chlorophyll-a concentrations in both basins of Mary Lake have shown seasonal and annual variability throughout mine construction (2014) and operations (2015 to 2025); 2025 concentrations fell within the seasonal ranges observed from 2014 to 2024 (Figure 5.5). No consistent increasing or decreasing patterns were observed over seasons and years (Figure 5.5). Due to the absence of baseline data (2005 to 2013), comparisons to pre-mining conditions could not be made. Chlorophyll-a concentrations in both basins were below the AEMP benchmark throughout mine operations (2015 to 2025; Figure 5.5).

Overall, chlorophyll-a concentrations in Mary Lake show no consistent increasing or decreasing patterns over time, have remained generally comparable to concentrations at Reference Lake 3 since 2015, and were well below the AEMP benchmark in 2025. Together, these results indicate there were no adverse mine-related effects on phytoplankton productivity within Mary Lake in 2025, and no action level responses were triggered under the TARP (Baffinland 2024).

⁶⁶ No bottom water samples for analysis of chlorophyll-a concentrations were collected in summer and fall 2025.



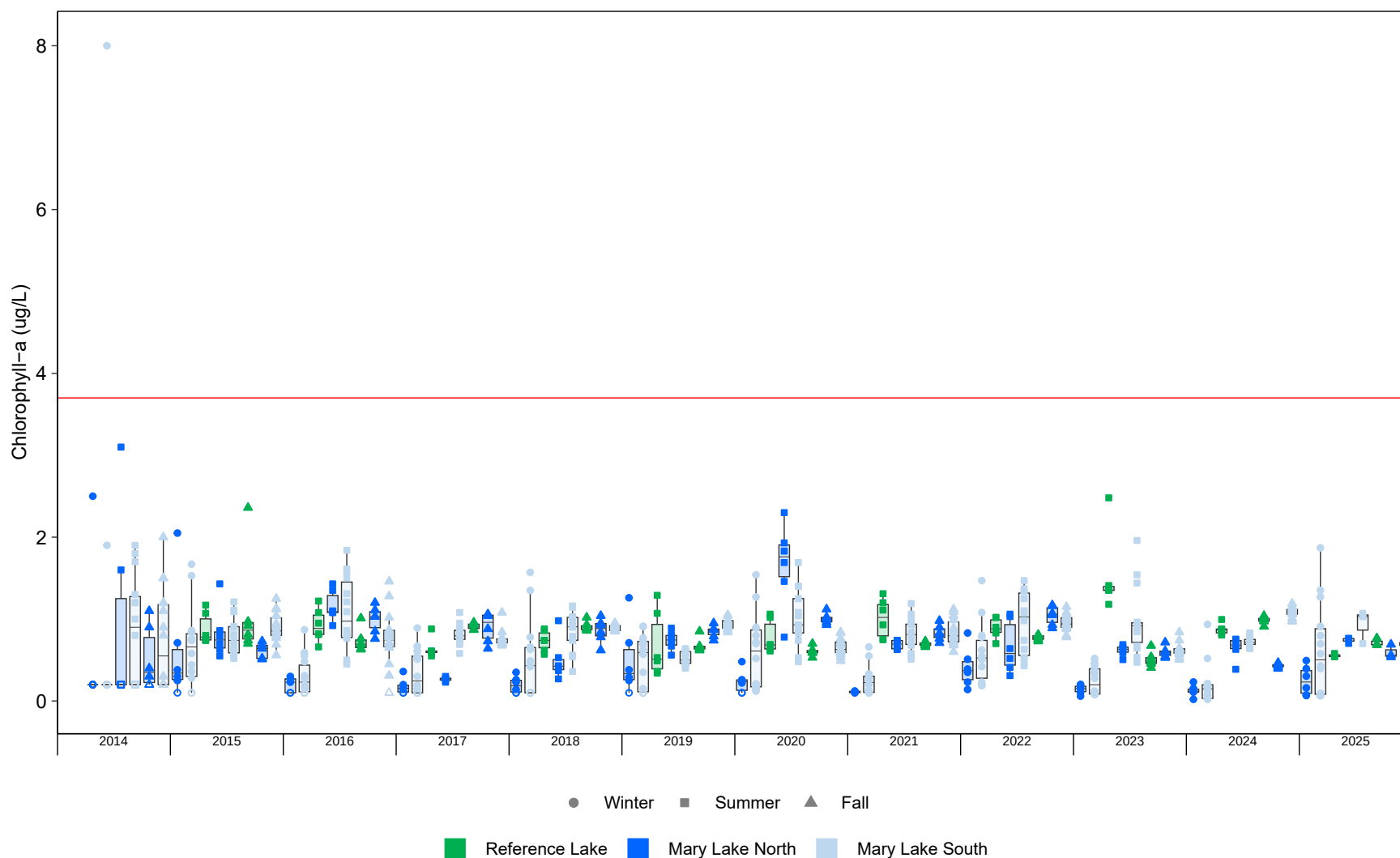


Figure 5.5: Temporal Comparison of Chlorophyll-a Concentrations in Mary Lake and Reference Lake 3 Based on Data for Construction (2014) and Operational (2015 to 2025), Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Red line indicates the Aquatic Effects Monitoring Plan (AEMP) benchmark. Black bars indicate average of samples. Boxplot lines show the 25th percentile, median, and 75th percentile with the boxplots whiskers showing the minimum and maximum (excluding potential outliers).

5.4.4 Benthic Invertebrate Community

In 2025, most BIC endpoints from the littoral habitats of Mary Lake were comparable to those observed at Reference Lake 3, except total density, which was significantly lower at Mary Lake, but still within the CES_{BIC} of $\pm 2 SD_{REF}$ (i.e., not ecologically meaningful; Table 3.9; Appendix Figure E.5; Appendix Tables E.14, E.16, and E.49). Bray–Curtis similarity analysis identified a statistically significant difference in overall community structure between Mary Lake and Reference Lake 3 (Appendix Table E.17). However, results of both the Mantel Test and dbRDA analysis both indicated the variations in overall community structure relative to reference were only slightly more than what would be considered as random noise in the model. This interpretation is consistent with the lack of significant differences in the relative proportions of various taxonomic groups between Mary Lake and Reference Lake 3, as well as the comparability of habitat conditions within the two lakes (Appendix Tables E.19 and E.50). However, despite the broad similarities between the BIC of Mary Lake and Reference Lake 3, the significant difference in organism densities in 2025 was sufficient to trigger a Low Risk Response (Baffinland 2024).

Except for the relative proportions of *Ostracoda*, BIC endpoints in the littoral habitats of Mary Lake remained comparable to 2007 baseline conditions throughout the mine operation period (2015 to 2025; Appendix Table E.51; Appendix Figure E.6). Although the relative proportion of *Ostracoda* were statistically significantly higher in 2018, 2020 to 2023, and 2025 relative to baseline, MODs could not be calculated because the $SD_{REF} = 0$ (Appendix Table E.51). Overall, the results of the temporal comparisons for Mary Lake indicate that the BIC has remained stable since operations began. Consistent with this interpretation, no TARP action level responses were triggered for the 2025 baseline comparison (Baffinland 2024).

Overall, in 2025, the littoral BIC at Mary Lake remained generally consistent with both Reference Lake 3 and 2007 baseline conditions. Although minor statistical differences were observed for individual endpoints, none exceeded the CES_{BIC} ; therefore, no ecologically meaningful differences were identified. However, the statistically significantly lower densities at Mary Lake in 2025 relative to reference was sufficient to trigger a Low Risk Response under the TARP (Baffinland 2024).

5.4.5 Fish Population

5.4.5.1 Fish Community

Arctic charr and ninespine stickleback were the only fish species captured at Mary Lake in 2025 (Table 5.6; Appendix Table F.1 and F.18). Electrofishing CPUE was higher at Mary Lake relative



Table 5.6: Fish Catch and Community Summary from Backpack Electrofishing and Gill Netting Conducted at Mary Lake (BL0) and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Lake	Method ^a		Number of Fish Caught and CPUE by Method			Total Number of Species
			Arctic Charr	Ninespine Stickleback	Total (all species)	
Reference Lake 3	Electrofishing	Number Caught	101	6	107	2
		CPUE	1.21	0.0720	1.28	
	Gill netting	Number Caught	54	0	54	
		CPUE	1.53	0	1.53	
Mary Lake	Electrofishing	Number Caught	106	1	107	2
		CPUE	1.87	0.02	1.89	
	Gill netting	Number Caught	109 (100) ^b	0	109 (100) ^b	
		CPUE	NC (5.00) ^b	0	NC (5.00) ^b	

^a Catch-per-unit-effort (CPUE) for electrofishing represents the number of fish captured per electrofishing minute and for gill netting represents the number of fish captured per 100 m hours of net.

^b Effort data were not recorded for gill netting effort BL0-25-GN-03 in Mary Lake. Therefore, the total gillnetting CPUE for Mary Lake could not be calculated (NC = not calculable). The numbers of fish caught and CPUEs in brackets represent the catch totals and CPUEs for the n = 18 other gill netting efforts completed in Mary Lake in 2025 (i.e., excluding BL0-25-GN-03).

to Reference Lake 3 in 2025, consistent with results for most previous years of monitoring⁶⁷, except 2019 and 2022, when CPUE was lower at Mary Lake relative to reference (Figure 5.6; Table 5.6; Appendix Table F.1). These results were supported by higher summertime chlorophyll-a concentrations (indicating greater phytoplankton productivity; Section 5.4.3) and higher benthic invertebrate density (Section 5.4.4) compared to Reference Lake 3 in 2025, suggesting greater food availability for arctic charr in Mary Lake.

Within Mary Lake, the electrofishing CPUE for 2025 was well within the range of variability associated with periods of mine construction (2014) and mine operations (2015 to 2024), representing a moderate catch rate relative to the lower values documented in 2016, 2022, and 2023 and peak CPUEs observed in 2014, 2015, 2019, and 2020 (Figure 5.6). Relative to baseline (2006 and 2008), the electrofishing CPUEs for all mine construction and operational years, including 2025, were substantially higher (Figure 5.6). Although there are no baseline electrofishing data from Reference Lake 3 to compare to, electrofishing CPUEs reported for Sheardown NW, Sheardown SE, and Mary Lake in 2008⁶⁸ (baseline) were the lowest reported over the period of record (Figures 3.11, 4.5, and 5.6). This suggests that 2008 may have been an anomalous year in terms of nearshore fish catchability, potentially driven by system-wide climatic and biological conditions, whereas observations for later years are potentially more reflective of “normal” conditions. Overall, the 2025 electrofishing CPUE Mary Lake indicates that littoral arctic charr catchability remains elevated relative to system-wide baseline patterns and consistent with long-term patterns of interannual variability, with no evidence of adverse mine-related influence.

Gill net CPUE at Mary Lake in 2025 was higher relative to Reference Lake 3, reinforcing the pattern of higher fish catchability (i.e., as noted for electrofishing, above) in Mary Lake relative to the reference area (Figure 5.6, Table 5.6; Appendix Tables F.3 and F.18). Throughout baseline (2006 to 2013), mine construction (2014), and operations (2015 to 2025), gill netting CPUE for Mary Lake has reflected periods of relatively low (e.g., 2006, 2014, 2015, 2019) and high (particularly 2023) CPUE (Figure 5.6). The CPUE for gill netting in 2025 fits within this established range of natural variability. Additionally, there are no consistent temporal patterns in chlorophyll-a concentrations (i.e., phytoplankton productivity) or ecologically meaningful differences in BIC endpoints within Mary Lake that would explain the observed patterns over time (Sections 5.4.3 and 5.4.4). Regardless, the 2025 gill net CPUE results collectively indicate that arctic charr

⁶⁸ No electrofishing was completed in Camp Lake in 2008.



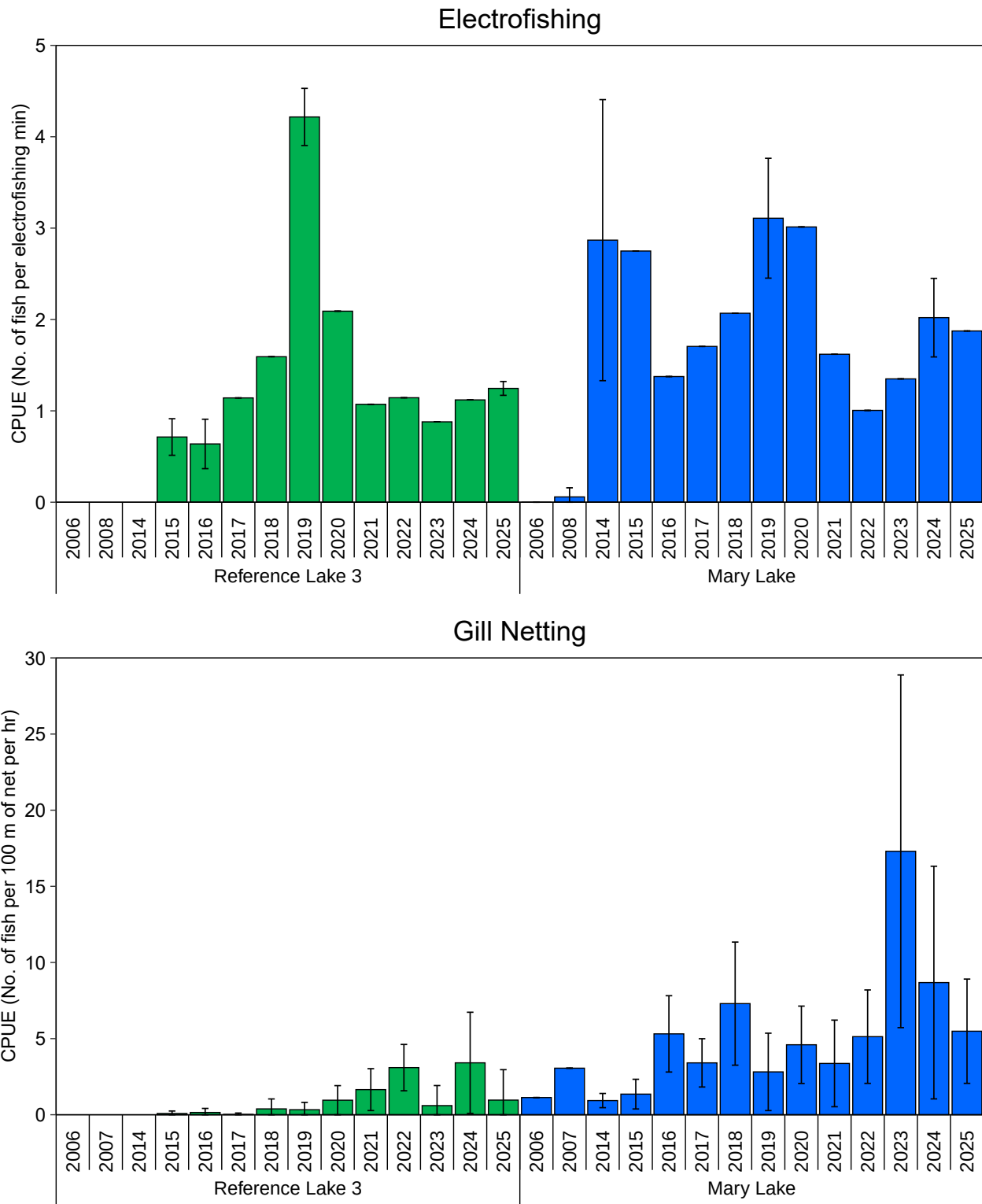


Figure 5.6: Catch-per-unit-effort (CPUE; mean $\pm$ standard deviation) of Arctic Charr Captured by Backpack Electrofishing and Gill Netting at Mary Lake (BL0) and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Notes: Data presented for fish sampling conducted in fall during baseline (2006, 2007), construction (2014), and operational (2015 to 2025) mine phases. Reference areas are shown in green and mine-exposed areas are shown in blue.

catchability in Mary Lake remains high relative to reference and within the range of long-term interannual variability, with no evidence of adverse mine-related influence.

Overall, the observed interannual variation in electrofishing and gill netting CPUE is considered consistent with natural fluctuations in fish movement, environmental conditions, and passive-gear catchability, rather than the potential result of mine-related changes in fish populations. Therefore, there is no evidence to suggest adverse mine-related effects on arctic charr catchability in Mary Lake.

5.4.5.2 Fish Health Assessment

5.4.5.2.1 Nearshore Arctic Charr

In August 2025, a total of 106 and 101 arctic charr were sampled from nearshore habitats of Mary Lake and Reference Lake 3, respectively using backpack electrofishing for the assessment of fish health (Appendix Tables F.5 and F.19). The YOY arctic charr were distinguished from older age classes (non-YOY) based on LFDs and supporting measurements of individual fish lengths, weights, and ages (Figure 3.12). This resulted in fish from Mary Lake with fork lengths <5.0 cm and fish from Reference Lake 3 with fork lengths <4.0 cm being classified as YOY (Appendix Tables F.5 and F.19). Because fewer than ten YOY arctic charr were captured in Mary Lake in 2025 (Appendix Table F.19), statistical comparisons of fish health endpoints were restricted to the non-YOY age class, except LFD comparisons to Reference Lake 3, which were conducted for the distribution of all nearshore arctic charr fish lengths, regardless of age class (Figures 3.12 and 3.13; Appendix Figures F.1 and F.2; Appendix Tables F.5 and F.19).

In 2025, non-YOY arctic charr captured by electrofishing in Mary Lake were significantly longer and heavier relative to reference, and LFDs for both non-YOY and combined YOY and non-YOY age groups differed significantly between lakes (Figures 3.12 and 3.13; Appendix Figures F.1 to F.3; Appendix Table F.6). Inclusion of the YOY in the LFD did not change the significance of the interpretation, or the MOD, signalling that no difference in YOY abundance between areas existed in 2025 (Appendix Table F.6). Overall, the significant differences in LFDs between areas appears to be driven by Mary Lake having a narrower size range of fish, as well as a greater proportion of medium-sized arctic charr (6 to 10 cm), whereas Reference Lake 3 was dominated by smaller individuals (<7 cm; Figure 3.13; Appendix Figure F.2; Appendix Tables F.5 and F.19). The predominance of larger-sized fish in the catch from Mary Lake relative to Reference Lake 3 provides context for the significantly higher fish lengths (MOD = +8.3%) and weights (MOD = +32%) reported for Mary Lake in 2025 (Appendix Table F.6). Despite these size differences between lakes, overall body condition was comparable between Mary Lake and the reference lake (Appendix Figure F.3, Appendix Table F.6).



Baseline fish health data are not available for Mary Lake, preventing completion of temporal comparisons. However, comparisons between Mary Lake and Reference Lake 3 over the mine operational period show that LFD have differed over time since 2016, and that body size (fork length and body weight) for non-YOY (and YOY when sample size is sufficient for stats) arctic charr has generally either been comparable between lakes, or higher at Mary Lake (Table 5.7). Exceptions are limited to lengths and weights of non-YOY fish in 2019, which were lower in Mary Lake relative to reference. Over time since 2015, differences in fish condition between non-YOY fish from Mary Lake and Reference Lake 3 have been identified; however, significant differences have typically been sufficiently small to be considered not ecologically meaningful (i.e., within a CES of $\pm 10\%$; Tables 2.9 and 5.7; Baffinland 2024).

Overall, the 2025 health assessment results for nearshore arctic charr from Mary Lake show clear and consistent differences in size class structure relative to Reference Lake 3; Mary Lake supports larger and heavier non-YOY fish and has a narrower LFD. These results, along with the results from 2024, triggered a Moderate Risk Response for LFDs (Baffinland 2024). However, the observed size differences between lakes were not accompanied by meaningful differences in fish body condition. Although comparisons to baseline cannot be made for Mary Lake due to the absence of baseline health data for electrofished arctic charr, historical comparisons to Reference Lake 3 (i.e., over the period of mine operations) show periodic size differences without consistent or ecologically significant effects on condition, similar to 2025. Taken together, the 2025 findings suggest natural variability in growth and size structure rather than adverse mine-related effects on fish health at Mary Lake. However, continued monitoring and implementation of the Moderate will remain important for confirming long-term patterns.

5.4.5.2.2 Littoral/Profundal Arctic Charr

In August 2025, a total of 100 and 54 arctic charr gill netted from littoral and profundal habitats of Mary Lake and Reference Lake 3, respectively, were assessed for fish health (Table 5.6; Appendix Tables F.8 and F.20). The LFD differed significantly between the two lakes, driven by arctic charr at Mary Lake exhibiting a wider size range (approximately 25 to 75 cm) and a greater proportion of larger individuals relative to Reference Lake 3 (Figure 3.15; Appendix Tables F.9, F.10, and F.20). These results suggest a well-established, multi-aged arctic charr population with stronger growth and/or survivorship in Mary Lake compared to Reference Lake 3. Additionally, fork length (MOD = +33%), body weight (MOD = +152%), and condition (MOD = +16% with outliers removed) were significantly higher at Mary Lake relative to Reference Lake 3 in 2025, once again reflecting a broader and size class structure and prevalence of larger individuals at Mary Lake (Figure 3.15, Appendix Table F.10). Moderate Risk Responses were triggered for



Table 5.7: Summary of Statistical Results for Arctic Charr Population Comparisons between Mary Lake (BL0) and Reference Lake 3 (REF-03), and between Mine Operational and Baseline Period Data for Mary Lake, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Data Set by Sampling Method	Response Category	Endpoint	Statistically Significant Differences Observed? ^a																						
			Mary Lake vs Reference Lake 3											Mary Lake Mine Operational Year vs Baseline Period ^b											
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Electrofishing Samples	Survival ^c	Length-Frequency Distribution	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	-	-	-	-	
		Age	Yes (-43%)	No	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Energy Use (YOY)	Size (mean fork length)	-	-	Yes (+14%)	No	-	-	-	Yes (+17%)	-	Yes (+38%)	-	-	-	-	-	-	-	-	-	-	-	-	
		Size (mean weight)	-	-	Yes (+40%)	No	-	-	-	Yes (+70%)	-	Yes (+173%)	-	-	-	-	-	-	-	-	-	-	-	-	
	Energy Storage (YOY)	Condition (body weight-at-fork length)	-	-	Yes (-7.7%)	Yes (-11%)	-	-	-	Yes (+50%)	-	No	-	-	-	-	-	-	-	-	-	-	-		
	Energy Use (non-YOY)	Size (mean fork length)	No	No	Yes (+17%)	Yes (+10%)	Yes (-27%)	No	Yes (+39%)	Yes (+28%)	No	Yes (+42%)	Yes (+8.3%)	-	-	-	-	-	-	-	-	-	-	-	
		Size (mean weight)	No	No	Yes (+51%)	No	Yes (-61%)	No	Yes (+185%)	Yes (+89%)	No	Yes (+205%)	Yes (+32%)	-	-	-	-	-	-	-	-	-	-	-	
		Growth (weight-at-age)	Yes (+99%)	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Growth (fork length-at-age)	Yes (+23%)	No	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Energy Storage (non-YOY)	Condition (body weight-at-fork length)	Yes (+3%)	No	No	Yes (-8%)	Yes (+4%)	Yes (+2.6%)	Yes (+5.1%)	Yes (+4.0%)	Yes (-17%)	Yes (+11%)	No	-	-	-	-	-	-	-	-	-	-	-	
Gill Netting Samples ^d	Survival	Length Frequency Distribution	-	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	
		Age	-	-	-	-	-	-	-	-	-	-	-	-	No	Yes (-14%)	No	-	-	-	-	-	-	-	
	Energy Use	Size (mean fork length)	-	-	-	Yes (+12%)	Yes (+24%)	Yes (+23%)	Yes (+32%)	Yes (+24%)	No	Yes (+33%)	Yes (+33%)	Yes (+6%)	No	Yes (-5%)	No	Yes (-4%)	No	No	No	No	No	Yes (+4.2%)	
		Size (mean weight)	-	-	-	Yes (+51%)	Yes (+96%)	Yes (+118%)	Yes (+186%)	Yes (+164%)	No	Yes (+152%)	Yes (+152%)	Yes (+19%)	No	Yes (-9%)	No	Yes (-14%)	No	Yes (+8.5%)	No	No	No	Yes (+14%)	
		Growth (fork length-at-age)	-	-	-	-	-	-	-	-	-	-	-	-	No	Yes (nc)	No	-	-	-	-	-	-	-	
		Growth (weight-at-age)	-	-	-	-	-	-	-	-	-	-	-	-	No	Yes (nc)	No	-	-	-	-	-	-	-	
	Energy Storage	Condition (body weight-at-fork length)	-	-	-	Yes (+3%)	Yes (+3%)	Yes (+14%)	Yes (+28%)	Yes (+26%)	Yes (-6.9%)	Yes (+16%)	Yes (+16%)	No	Yes (+3%)	Yes (+5%)	Yes (-3%)	Yes (-5%)	No	Yes (+6.0%)	Yes (+6.9%)	No	No	No	

BOLD indicates a statistically significant difference.

Notes: - = insufficient data for comparison. % = percent. nc = not calculable. YOY = young-of-the-year.

^a Values in parentheses indicate direction and magnitude of any significant differences.

^b No baseline period data collected for nearshore electrofishing; baseline period littoral/profundal gill netting data included combined 2006 and 2007 information.

^c The length-frequency distribution for Reference Lake 3 includes all fish, whereas for baseline conditions, it only includes non-YOY fish.

^d Due to low catches of arctic charr in gill nets at Reference Lake 3 in 2015, 2016, and 2017, no comparison of fish health was conducted for gill netted fish.

LFDs and fish condition, based on statistically significant differences, accompanied by MODs outside the CES of $\pm 10\%$ for condition, in both 2025 and 2024 (Table 5.7; Baffinland 2024).

Comparisons between gill netted fish from Mary Lake and Reference Lake 3 over time show that LFD, body size (fork length and body weight), and condition have generally exhibited consistent significant differences throughout mine operations (2018 to 2025), with the exception of 2023, when no body size differences were detected and fish condition was lower at Mary Lake relative to Reference (Table 5.7). In all other years of paired Mary Lake and reference data, gill netted fish from Mary Lake have been consistently longer, heavier, and in better condition relative to reference fish, although the results for condition in 2018 and 2019 are considered to be within the range of natural variability (i.e., based on a CES of $\pm 10\%$; Baffinland 2024; Environment Canada 2012).

In 2025, the LFD for gill netted fish from Mary Lake exhibited a wider and more right-skewed length distribution relative to baseline, with a greater proportion of medium and large arctic charr a pattern further supported by the CRFD curve showing consistently larger fish in 2025 (Appendix Figure F.18; Appendix Table F.11). The arctic charr gill netted from Mary Lake in 2025 were significantly longer (MOD = +4.2%, which is within the expected range of natural variability) and heavier (MOD = +14%) relative to baseline; however, weight-at-length relationships were similar between 2025 and baseline, indicating comparable overall condition among years (Appendix Figure F.19, Appendix Table F.11). These results for 2025 appear to be consistent with patterns observed for comparisons between other years of mine operation and baseline. Specifically, when significant differences in length, weight, and/or condition have been identified between any given year and baseline, the differences are often relatively small (e.g., within $\pm 6.9\%$ of the reference mean for condition) and not consistently in the positive or negative direction (Table 5.7). No action level responses were triggered based on the baseline comparisons of fish condition for 2025; however, the differences in LFDs between 2025 and baseline triggered a Low Risk Response (Baffinland 2024).

Overall, results from the 2025 littoral and profundal gill netting program at Mary Lake indicate that the observed differences relative to both Reference Lake 3 and the mine baseline period were driven primarily by differences in size structure, rather than clear changes in overall fish health. Mary Lake continued to support an arctic charr population with substantially larger and heavier individuals compared to the reference system, yet weight-at-length relationships showed that body condition was broadly comparable between lakes and among years. Taken together, the 2025 CREMP results do not indicate adverse mine-related effects on arctic charr health in Mary Lake. However, ongoing monitoring and implementation of Low and Moderate Risk Responses for fish condition will be important for identifying potential emerging patterns in fish health.



5.4.6 Effects Assessment and Recommendations

5.4.6.1 Effects Assessment

At Mary Lake, concentrations of water quality parameters were below AEMP benchmarks throughout the spring, summer, and fall 2025 monitoring programs, except for total aluminum in the lake's south basin in summer. Because total aqueous total aluminum concentrations were also above reference and baseline normal ranges in summer, a Moderate Risk Response was triggered for this parameter in the south basin of Mary Lake (Baffinland 2024).

Low Risk Responses were also triggered for total and dissolved molybdenum in the north basin, as well as laboratory turbidity and aqueous concentrations of total and dissolved molybdenum; total silicon; and dissolved aluminum in the south basin of Mary Lake (Baffinland 2024).

Sediment is collected annually from littoral and profundal stations in the north and south basins of Mary Lake. In 2025, none of the sediment chemistry parameters had mean concentrations above AEMP benchmarks, nor did they have concentrations that were higher relative to both baseline or reference values. Consequently, no action level responses were triggered for sediment quality in Mary Lake in 2025 (Baffinland 2024).

No adverse mine-related effects on chlorophyll-a concentrations (as an indicator of primary productivity) were observed at Mary Lake in 2025, and BIC conditions were broadly comparable to the reference lake and baseline conditions. Although total invertebrate density was significantly lower relative to the reference lake in 2025, this difference was not considered ecologically meaningful. Despite this, and although the 2025 results indicate that observed differences in BIC endpoints at Mary Lake relative to reference reflect natural variability rather than mine-related effects, a Low Risk Response was triggered for invertebrate densities under the TARP (Baffinland 2024).

The assessment of arctic charr health at Mary Lake focused on endpoints related to survival (fish community composition and catch rates), energy use (size structure and growth), and energy storage (condition). The 2025 monitoring program indicate that the fish community continues to be dominated by arctic charr, and ninespine stickleback are present at low abundance. Arctic charr catch rates from both electrofishing and gill netting fell within the long-term range of natural variability and remained consistently higher than those observed at Reference Lake 3, likely reflecting greater food availability and natural differences in productivity rather than mine-related effects. Differences in size structure between Mary Lake and the reference lake included a narrower nearshore size distribution and a broader distribution in deeper habitats, with generally larger and heavier fish at Mary Lake. Despite these differences, and a Moderate Risk Response being triggered based on LFDs for nearshore fish; nearshore fish condition was comparable



between lakes. For gill netted fish, arctic charr were significantly larger, heavier, and in better condition relative to the reference lake in 2025, consistent with recent years; these differences in LFDs and condition triggered a Moderate Risk Response under the TARP (Baffinland 2024).

Overall, although statistical differences in fish health endpoints were identified, the observed patterns are consistent with natural variability in population structure and productivity rather than adverse mine-related effects on arctic charr health in Mary Lake. Continued monitoring and implementation of TARP responses will help determine whether these patterns reflect natural fluctuations or longer-term trends.

5.4.6.2 Recommendations

Low Risk Responses for Mary Lake were triggered for laboratory turbidity, aqueous concentrations of total and dissolved molybdenum; total silicon; and dissolved aluminum, as well as for benthic invertebrate densities. Moderate Risk Responses were triggered for total aluminum concentrations in the south basin of Mary Lake, as well as LFDs for electrofished and gill netted arctic charr, as well as condition of gill netted arctic charr. The following actions are recommended in response to these Low and Moderate Risk Responses that were triggered for Mary Lake:

- Continue monitoring the BIC in 2026 (and future CREMP studies) to assess potential effects to biota and support an evaluation of total aluminum concentrations above AEMP benchmarks using a weight-of-evidence approach.
- Adopt the variable FEQG as the AEMP benchmark for aqueous total aluminum.
- Complete temporal trend analyses for turbidity, total and dissolved aluminum and molybdenum, and total silicon to investigate temporal patterns and confirm potential mine-related influences.
- Investigate potential sources or factors influencing turbidity and aqueous concentrations of total and dissolved aluminum and molybdenum and total silicon in Mary Lake to better define mine-related influence.
- Complete a BACI-style analysis of BIC data using mine-exposed and reference area data collected over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time (i.e., have the BIC always differed between the mine-exposed and reference areas, and has that difference remained constant or changed over time?).
- Continue to use data for indicator taxa, FFGs, and HPGs in conjunction with habitat data (e.g., water chemistry, substrate, vegetation) to support understanding of factors driving



differences in key BIC endpoints of density, taxonomic richness, and Simpson's Evenness relative to reference and baseline conditions.

- Consider completing a BACI-style analysis of fish health endpoints (e.g., for condition) using data collected from mine-exposed and reference areas over the period of record from baseline to present to determine whether differences between mine-exposed and reference areas have changed over time.

5.4.6.3 Comparison to FEIS Predictions

A comparison of water quality data collected from Mary Lake during spring, summer, and fall 2025 to FEIS predictions for Aqueous Non-point Source Emissions effects related to applicable SWSQ2 (Site Water Management) indicated all parameter concentrations were within the Level II significance rating for magnitude expected for the waterbody during mine operations. Therefore, Mary Lake water quality was in conformance with predictions made in the FEIS (Baffinland 2012).

Comparison of sediment quality data collected from Mary Lake in 2025 to FEIS predictions related to Airborne Emission sources (i.e., fugitive dust; FEIS Issue SWSQ-17-3) indicated all mean parameter concentrations were within the applicable significance rating magnitudes expected for lake sediments during mine operations. Therefore, sediment quality at Mary Lake was in conformance with predictions made in FEIS (Baffinland 2012).

Because water and sediment quality parameter concentrations were within applicable FEIS significance rating magnitude predictions in 2025, it is generally expected that effects predictions for arctic charr health would also be met. Although significant differences in arctic charr condition relative to reference were identified in 2025, the long-term datasets indicate that spatial and temporal differences have existed throughout the mine operation period. Additionally, the weight-of-evidence associated with the long-term datasets suggests spatial and interannual variability in fish endpoints for Mary Lake are largely driven by natural variation in conditions between areas and over time, similar to the other CREMP lakes. However, outcomes of the Low and Moderate Risk Responses triggered for fish in 2025 will be important for understanding whether FEIS predictions for arctic charr are being met (Baffinland 2012).



6 CONCLUSIONS

6.1 Overview

The objective of the 2025 CREMP was to evaluate potential mine-related effects on the chemical and biological conditions of aquatic environments in proximity to the mine following eleven years of operations. Consistent with previous operational years, the program applied an effects-based approach to assess water quality, sediment quality, primary productivity (phytoplankton), BIC, and fish populations within mine-exposed areas of the Camp Lake, Sheardown Lake, and the Mary River and Mary Lake systems, in accordance with the Revision 2 AEMP (Baffinland 2024). Potential mine-related effects were evaluated by comparing 2025 data to applicable reference and baseline conditions (i.e., normal ranges), as well as site-specific AEMP benchmarks, which inform management decisions within a multi-step Data Assessment and Response Framework (i.e., TARP; Baffinland 2024). Effects determinations for key waterbodies in each system were based on a weight-of-evidence approach, integrating AEMP benchmark exceedances, evidence of mine-related influences on water and sediment quality, and evidence of potential biological responses. Where warranted, recommendations for additional study were provided to support management and decision-making. A summary of results, including determinations of mine-related effects, is presented in Table 6.1.

6.2 Camp Lake System

In 2025, the Camp Lake system exhibited localized potential mine-related influences on water quality conditions, primarily within the CLT1 Main Stem, whereas nearby creek (CLT2) and downstream lake and creek environments (Camp Lake and the Camp Lake outlet) generally had water quality conditions that were comparable to baseline and reference. Seasonal water quality patterns were consistent with natural Arctic processes, including near full oxygen saturation during open water periods, localized winter oxygen depletion at depth, and seasonal variability in SPC driven by freshet dilution and increasing groundwater and potential permafrost thaw-related influence later in the open water season.

Mine-related influences on water chemistry were most evident at the CLT1 Upper Main Stem, where total uranium and iron concentrations triggered Moderate and Low Risk Responses, respectively, based on comparisons to AEMP benchmarks. Additional water quality parameters (e.g., major ions and metals) triggered Low Risk Responses based on concentrations above baseline and reference conditions. These patterns largely reflect step-changes in concentrations from baseline to early operations, with no sustained increases over time since 2015, except for concentrations of uranium, which continue to increase and are likely influenced by both mine-related disturbance and permafrost thaw. Elsewhere in CLT1, localized Low Risk Responses



Table 6.1: Summary of Aquatic Effects Monitoring Plan (AEMP) Benchmark Exceedances, Effects Determinations, and Next Steps in the Data Assessment and Response Framework, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

System/ Waterbody			AEMP Benchmark Exceedances for Water and Sediment	Effects Determination Summary	Action Level Response Under the AEMP Data Assessment and Response Framework	Next Steps for 2026 CREMP Monitoring and Reporting	Comparison to FEIS Predictions ^a
Camp Lake System	Camp Lake Tributary 1	CLT1 North Branch	AEMP benchmark exceedance for mean aqueous dissolved copper in spring 2025.	Mean aqueous concentrations of total barium, total and dissolved copper, molybdenum and potassium, and dissolved uranium were above reference and baseline normal ranges in at least one season in 2025. No stream sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a concentrations were observed in 2025. In 2025, total invertebrate density was higher relative to reference, and Simpson's Evenness was higher than baseline; both differences were considered ecologically meaningful.	Low Risk Responses were triggered for aqueous concentrations of total barium, total and dissolved copper, molybdenum, and potassium, and dissolved uranium; and BIC endpoints of total invertebrate density and Simpson's Evenness.	1. Continue BIC monitoring in 2026 to assess potential biological effects and evaluate elevated dissolved copper concentrations in water using a weight-of-evidence approach. 2. Conduct temporal trend analyses for total barium, total and dissolved copper, molybdenum, and potassium, and dissolved uranium to assess temporal patterns and potential mine-related influences. 3. Investigate potential sources of these parameters to CLT1 North Branch to better characterize mine-related influence. 4. Complete a BACI analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 5. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions.	Water quality conformed to FEIS predictions.
		CLT1 Main Stem	AEMP benchmark exceedances for mean aqueous total iron and uranium (summer and fall 2025) in the Upper Main Stem .	Aqueous total uranium concentrations in the Upper Main Stem were above reference and baseline normal ranges during each of the spring, summer, and fall sampling events. Mean SPC; DO; hardness; TDS; alkalinity; DOC; TOC; chloride; sulphate; total nickel; total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, and strontium; and dissolved uranium were above (or below, in the case of DO) reference and baseline normal ranges in the Upper Main Stem in at least one season in 2025. Mean DO, hardness, alkalinity, total and dissolved barium, magnesium, molybdenum, potassium, sodium, and uranium, and dissolved copper concentrations were above (or below, in the case of DO) reference and baseline normal ranges at the Lower Main Stem in at least one season in 2025. No stream sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a were observed in 2025. In 2025, the Upper Main Stem exhibited higher invertebrate densities but lower Simpson's Evenness relative to reference conditions, whereas invertebrate densities (Upper Main Stem) and richness (Lower Main Stem) were lower than baseline levels.	Low Risk Responses were triggered for SPC; DO; hardness; TDS; alkalinity, DOC; TOC; chloride; sulphate; total iron and nickel; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, and strontium, and dissolved uranium and copper, as well as BIC endpoints of total invertebrate density, Simpson's Evenness, and taxonomic richness. A Moderate Risk Response was triggered for aqueous total uranium.	1. Continue BIC monitoring in 2026 to assess potential biological effects and support evaluation of elevated total iron and uranium concentrations in water using a weight-of-evidence approach. 2. Conduct temporal trend analyses for SPC; DO; hardness; TDS; alkalinity; DOC; TOC; chloride; sulphate; total iron and nickel; dissolved copper; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium to assess temporal patterns and potential mine-related influences. 3. Investigate potential sources and drivers of these parameters in the CLT1 Main Stem to better characterize mine-related influence. 4. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 5. Evaluate interannual variability within baseline data to identify regional factors (e.g., climate) influencing BIC interpretation. 6. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions.	Water quality conformed to FEIS predictions.

Notes: N/A = not applicable. AEMP = Aquatic Effects Monitoring Plan. WQG = Water Quality Guideline. TDS = total dissolved solids. TKN = Total Kjeldahl nitrogen. CLT = Camp Lake Tributary. SDLT = Sheardown Lake Tributary. MRTF = Mary River Tributary-F. BIC = Benthic Invertebrate Community. FEIS = Final Environmental Impact Statement; FEQG = Federal Environmental Quality Guidelines; BACI = Before-After Control-Impact; FFG = Functional Feeding Groups; HPG = Habitat Preference Groups; SPC = Specific Conductance; DOC = Dissolved Organic Carbon; DO = Dissolved Oxygen; CREMP = Core Receiving Environmental Monitoring Program; TSS = Total Suspended Solids; TOC = Total Organic Carbon; YOY = Young-of-the-Year.

^a Comparisons to FEIS predictions were completed according to methods described in Section 2.7.2.

Table 6.1: Summary of Aquatic Effects Monitoring Plan (AEMP) Benchmark Exceedances, Effects Determinations, and Next Steps in the Data Assessment and Response Framework, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

System/ Waterbody			AEMP Benchmark Exceedances for Water and Sediment	Effects Determination Summary	Action Level Response Under the AEMP Data Assessment and Response Framework	Next Steps for 2026 CREMP Monitoring and Reporting	Comparison to FEIS Predictions ^a
Camp Lake System	Camp Lake Tributary 2	CLT2	No AEMP benchmark exceedances for water quality parameters in 2025.	Mean hardness, alkalinity, and concentrations of total nickel, dissolved molybdenum, and total and dissolved barium, magnesium, potassium, and sodium were above reference and baseline normal ranges in at least one season in 2025. No stream sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a or BIC were observed in 2025.	Low Risk Responses were triggered for hardness, alkalinity, and concentrations of total nickel, dissolved molybdenum, and total and dissolved barium, magnesium, potassium, and sodium.	1. Conduct temporal trend analyses for hardness, alkalinity, and concentrations of total nickel, dissolved molybdenum, and total and dissolved barium, magnesium, potassium, and sodium to assess temporal patterns and potential mine-related influences. 2. Investigate potential sources and drivers of these parameters in CLT2 to better characterize mine-related influence.	Water quality conformed to FEIS predictions.
	Camp Lake	JL0	No AEMP benchmark exceedances for water quality parameters in 2025. AEMP benchmark exceedance for mean manganese and nickel concentrations in sediment.	Mean hardness, alkalinity, and aqueous concentrations of chloride and total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium were above reference and baseline normal ranges in at least one season in 2025. Mean sediment metal concentrations were similar to or lower than reference and baseline levels. No adverse mine-related effects on chlorophyll-a were observed in 2025. In 2025, BIC showed higher taxonomic richness relative to reference conditions and reduced invertebrate density from 2023 to 2025 relative to baseline. Electrofished arctic charr exhibited maximum LFD differences for non-YOY and combined YOY/non-YOY groups that exceeded CES in 2025 (relative to reference and baseline). Non-YOY fish condition was reduced over 2021 to 2025 relative to baseline. Gill netted fish exhibited differences in LFDs and condition between Camp Lake and Reference Lake 3 in 2025, and in multiple recent years relative to baseline. However, differences in fish endpoints over time appear to be primarily driven by differences in habitat conditions between lakes, as well as interannual variability potentially attributable to factors like weather and water levels.	Low Risk Responses were triggered for hardness, alkalinity, chloride, and total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium in water, as well as concentrations of manganese and nickel in sediments, taxonomic richness in the BIC, and condition of non-YOY fish. Moderate Risk Responses were triggered for BIC density and, for arctic charr, LFDs (all groups) and condition (gill netted fish).	1. Conduct temporal trend analyses for hardness; alkalinity; chloride; and total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, sodium, strontium, and uranium to assess temporal patterns and potential mine-related influences. 2. Investigate sources and drivers of these parameters in Camp Lake to better define mine-related contributions. 3. Adopt the variable FEQG as the AEMP benchmark for total aluminum. 4. Continue BIC monitoring in 2026 to assess biological effects and evaluate elevated manganese and nickel concentrations in sediments using a weight-of-evidence approach. 5. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 6. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions. 7. Consider a BACI-style analysis of fish health endpoints (e.g., condition) to evaluate changes between mine-exposed and reference areas over time.	FEIS predictions were met for water and sediment quality in 2025; arctic charr populations will be evaluated further as part of Low and Moderate Risk Response evaluations.
	Camp Lake Outlet	J0-01	No AEMP benchmark exceedances for water quality parameters in 2025.	Hardness, TDS, alkalinity, chloride, dissolved manganese and silicon, and total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium were above reference and baseline normal ranges in at least one season in 2025. No adverse mine-related effects on chlorophyll-a were observed in 2025. No stream sediment or BIC samples are collected at this location under the AEMP.	Low Risk Responses were triggered for hardness; TDS; dissolved manganese and silicon; alkalinity; chloride; and aqueous total and dissolved concentrations of barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium.	1. Conduct temporal trend analyses and investigate sources of hardness; TDS; alkalinity; chloride; dissolved manganese and silicon; and total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium to assess temporal patterns and potential mine-related influence. 2. Investigate potential sources and drivers of these parameters to better characterize mine-related influence.	Water quality conformed to FEIS predictions.

Notes: N/A = not applicable. AEMP = Aquatic Effects Monitoring Plan. WQG = Water Quality Guideline. TDS = total dissolved solids. TKN = Total Kjeldahl nitrogen. CLT = Camp Lake Tributary. SDLT = Sheardown Lake Tributary. MRTF = Mary River Tributary-F. BIC = Benthic Invertebrate Community. FEIS = Final Environmental Impact Statement; FEQG = Federal Environmental Quality Guidelines; BACI = Before-After Control-Impact; FFG = Functional Feeding Groups; HPG = Habitat Preference Groups; SPC = Specific Conductance; DOC = Dissolved Organic Carbon; DO = Dissolved Oxygen; CREMP = Core Receiving Environmental Monitoring Program; TSS = Total Suspended Solids; TOC = Total Organic Carbon; YOY = Young-of-the-Year.

^a Comparisons to FEIS predictions were completed according to methods described in Section 2.7.2.

Table 6.1: Summary of Aquatic Effects Monitoring Plan (AEMP) Benchmark Exceedances, Effects Determinations, and Next Steps in the Data Assessment and Response Framework, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

System/ Waterbody			AEMP Benchmark Exceedances for Water and Sediment	Effects Determination Summary	Action Level Response Under the AEMP Data Assessment and Response Framework	Next Steps for 2026 CREMP Monitoring and Reporting	Comparison to FEIS Predictions ^a
Sheardown Lake System	Sheardown Lake Tributary 1	SDLT1	AEMP benchmark exceedances for aqueous concentrations of nitrate, total uranium, and dissolved copper.	Nitrate and total uranium concentrations were above reference normal ranges in at least one season in 2025 and increased over time relative to baseline based on trend analyses and temporal plots. Concentrations of SPC; hardness; TDS; TOC; sulphate; TKN; total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, and strontium; and dissolved manganese were above reference and baseline conditions in at least one season in 2025. No stream sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a or BIC were observed in 2025.	Low Risk Responses were triggered for SPC; hardness; TDS; TOC; sulphate; TKN; total and dissolved barium, calcium, magnesium, molybdenum, potassium, sodium, and strontium; and dissolved copper and manganese. Moderate Risk Responses were triggered for aqueous concentrations of nitrate and total uranium.	1. Continue BIC monitoring in 2026 to assess biological effects and evaluate elevated aqueous nitrate, total uranium, and dissolved copper concentrations using a weight-of-evidence approach. 2. Conduct temporal trend analyses for SPC; hardness; TDS; nitrite; chloride; sulphate; TKN; total barium, calcium, magnesium, molybdenum, potassium, and sodium; and dissolved copper and manganese to assess temporal patterns and potential mine-related influences. 3. Investigate sources of these parameters to better characterize mine-related contributions.	Water quality conformed to FEIS predictions.
	Sheardown Lake Tributary 12	SDLT12	No water quality samples were collected in 2025 due to low water levels; therefore, no AEMP benchmark exceedances were identified.	No water quality samples were collected in 2025 due to low water levels; therefore, no comparisons to reference or baseline conditions were completed. No stream sediment or chlorophyll-a samples were collected in 2025. In 2025, BIC taxonomic richness was lower relative to baseline conditions.	A Low Risk Response was triggered for taxonomic richness within the BIC.	1. Continue monitoring water quality (as conditions allow) and BIC in 2026 to better understand water chemistry and potential biological effects in SDLT12. 2. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 3. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions.	No water chemistry samples were collected from SDLT12 in 2025 due to low water levels; therefore, comparisons to FEIS predictions could not be completed.
	Sheardown Lake Tributary 9	SDLT9	AEMP benchmark exceedances for aqueous mean concentrations of nitrite (summer), nitrate (summer and fall), and total ammonia (fall).	No other water quality parameter concentrations in any season were above reference or baseline in 2025. No stream sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a were observed in 2025. In 2025, invertebrate densities were elevated relative to reference and baseline conditions and differences were ecologically meaningful.	Low Risk Responses were triggered for nitrite, nitrate, and total ammonia in water, as well invertebrate densities.	1. Continue BIC monitoring in 2026 to assess biological effects and evaluate elevated total ammonia, nitrate, and nitrite concentrations using a weight-of-evidence approach. 2. Conduct temporal trend analyses and investigate sources of total ammonia, nitrate, and nitrite to assess temporal patterns and potential mine-related influences. 3. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 4. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions.	Water quality conformed to FEIS predictions.

Notes: N/A = not applicable. AEMP = Aquatic Effects Monitoring Plan. WQG = Water Quality Guideline. TDS = total dissolved solids. TKN = Total Kjeldahl nitrogen. CLT = Camp Lake Tributary. SDLT = Sheardown Lake Tributary. MRTF = Mary River Tributary-F. BIC = Benthic Invertebrate Community. FEIS = Final Environmental Impact Statement; FEQG = Federal Environmental Quality Guidelines; BACI = Before-After Control-Impact; FFG = Functional Feeding Groups; HPG = Habitat Preference Groups; SPC = Specific Conductance; DOC = Dissolved Organic Carbon; DO = Dissolved Oxygen; CREMP = Core Receiving Environmental Monitoring Program; TSS = Total Suspended Solids; TOC = Total Organic Carbon; YOY = Young-of-the-Year.

^a Comparisons to FEIS predictions were completed according to methods described in Section 2.7.2.

Table 6.1: Summary of Aquatic Effects Monitoring Plan (AEMP) Benchmark Exceedances, Effects Determinations, and Next Steps in the Data Assessment and Response Framework, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

System/ Waterbody			AEMP Benchmark Exceedances for Water and Sediment	Effects Determination Summary	Action Level Response Under the AEMP Data Assessment and Response Framework	Next Steps for 2026 CREMP Monitoring and Reporting	Comparison to FEIS Predictions ^a
Sheardown Lake System	Sheardown Lake Northwest	DL0-01	AEMP benchmark exceedances for aqueous concentrations of dissolved copper. AEMP benchmark exceedance for iron concentrations in sediment.	Aqueous dissolved copper, along with hardness, TDS, chloride, sulphate, dissolved silicon, and total and dissolved concentrations of barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium, were above reference and baseline normal ranges in at least one season in 2025. Mean sediment metal concentrations were similar to or lower than reference and baseline levels. No adverse mine-related effects on chlorophyll-a or BIC were observed in 2025. Electrofished arctic charr showed shifts in size structure and reduced condition relative to baseline in recent years, whereas gill netted fish differed in size structure and condition from the reference lake and baseline in 2025. However, differences in fish endpoints over time appear to be primarily driven by differences in habitat conditions between lakes, as well as interannual variability potentially attributable to factors like weather and water levels.	Low Risk Responses were triggered for hardness, TDS, chloride, sulphate, dissolved silicon, and total and dissolved concentrations of barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium in water, as well as iron concentration in sediment. Moderate Risk Responses were triggered for dissolved copper concentrations and arctic charr LFDs and condition.	1. Continue BIC monitoring in 2026 to assess biological effects and evaluate elevated aqueous dissolved copper and sediment iron concentrations using a weight-of-evidence approach. 2. Conduct temporal trend analyses for aqueous dissolved copper; hardness; TDS; chloride; sulphate; dissolved silicon; and total and dissolved barium, calcium, magnesium, manganese, molybdenum, potassium, sodium, strontium, and uranium to assess temporal patterns and potential mine-related influences. 3. Investigate sources and drivers of these parameters in Sheardown Lake NW to better define mine-related contributions. 4. Continue evaluating temporal trends in sediment iron (littoral and profundal; station-specific) in Sheardown Lake NW to confirm potential sources (e.g., SDLT1 inputs). 5. Consider a BACI-style analysis of fish health endpoints (e.g., condition) to evaluate changes between mine-exposed and reference areas over time.	FEIS predictions were met for water and sediment quality in 2025; arctic charr populations will be evaluated further as part of a Moderate Risk Response evaluation.
	Sheardown Lake Southeast	DL0-02	AEMP benchmark exceedances for aqueous concentrations of total aluminum (summer). No AEMP benchmark exceedances for sediment quality in 2025.	Mean concentrations of total aluminum, as well as hardness; TDS; laboratory turbidity; chloride; sulphate; total manganese; total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium; and dissolved aluminum exceeded reference and baseline normal ranges in at least one season in 2025. Mean sediment metal concentrations were similar to or lower than reference and baseline. No adverse mine-related effects on chlorophyll-a were observed in 2025. In 2025, invertebrate densities were higher relative to reference and lower density and richness were observed relative to baseline. Nearshore (electrofished) arctic charr showed reduced condition relative to baseline in 2025, whereas littoral/profundal (gill netted) fish differed in condition from both reference and baseline. LFDs in 2024 and 2025 were significantly different from reference (both groups) and baseline (gill netted fish). However, differences in fish endpoints over time appear to be primarily driven by differences in habitat conditions between lakes, as well as interannual variability potentially attributable to factors like weather and water levels.	Low Risk Responses were triggered for hardness; TDS; laboratory turbidity; chloride; sulphate; total manganese; dissolved aluminum; total and dissolved barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium; invertebrate density and richness; and arctic charr condition (all groups). Moderate Risk Responses were triggered for aqueous total aluminum concentrations and arctic charr LFDs (all groups).	1. Continue BIC monitoring in 2026 to assess biological effects and evaluate elevated total aluminum concentrations in water using a weight-of-evidence approach. 2. Adopt the variable FEQG as the AEMP benchmark for total aluminum. 3. Conduct temporal trend analyses for hardness; TDS; laboratory-measured turbidity; chloride; sulphate; total manganese; and total and dissolved aluminum, barium, calcium, magnesium, molybdenum, potassium, silicon, strontium, and uranium to assess temporal patterns and potential mine-related influences. 4. Investigate sources and drivers of these parameters in Sheardown Lake SE to better define mine-related contributions. 5. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 6. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions. 7. Consider a BACI-style analysis of fish health endpoints (e.g., condition) to evaluate changes between mine-exposed and reference areas over time.	FEIS predictions were met for water and sediment quality in 2025; arctic charr populations persist despite observed differences, pending Low and Moderate Risk Response evaluations.

Notes: N/A = not applicable. AEMP = Aquatic Effects Monitoring Plan. WQG = Water Quality Guideline. TDS = total dissolved solids. TKN = Total Kjeldahl nitrogen. CLT = Camp Lake Tributary. SDLT = Sheardown Lake Tributary. MRTF = Mary River Tributary-F. BIC = Benthic Invertebrate Community. FEIS = Final Environmental Impact Statement; FEQG = Federal Environmental Quality Guidelines; BACI = Before-After Control-Impact; FFG = Functional Feeding Groups; HPG = Habitat Preference Groups; SPC = Specific Conductance; DOC = Dissolved Organic Carbon; DO = Dissolved Oxygen; CREMP = Core Receiving Environmental Monitoring Program; TSS = Total Suspended Solids; TOC = Total Organic Carbon; YOY = Young-of-the-Year.

^a Comparisons to FEIS predictions were completed according to methods described in Section 2.7.2.

Table 6.1: Summary of Aquatic Effects Monitoring Plan (AEMP) Benchmark Exceedances, Effects Determinations, and Next Steps in the Data Assessment and Response Framework, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

System/ Waterbody			AEMP Benchmark Exceedances for Water and Sediment	Effects Determination Summary	Action Level Response Under the AEMP Data Assessment and Response Framework	Next Steps for 2026 CREMP Monitoring and Reporting	Comparison to FEIS Predictions ^a
Mary River and Mary Lake System	Tom River	10 Series	No AEMP benchmark exceedances for water quality parameters in 2025.	No water quality parameter concentrations in any season were above reference or baseline in 2025. No adverse mine-related effects on chlorophyll-a were observed in 2025. No sediment quality or BIC samples are collected at Tom River under the AEMP.	No action required.	None required.	Water quality conformed to FEIS predictions.
	Mary River Tributary-F	MRTF	No AEMP benchmark exceedances for water quality parameters in 2025.	Mean SPC; hardness; TDS; alkalinity; TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium concentrations were above reference and baseline normal ranges in at least one season. No stream sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a were observed in 2025. BIC sampling in MRTF is not completed as part of the CREMP, but is a component of triennial sampling completed to address EEM requirements (next scheduled for 2026).	Low Risk Responses were triggered for SPC; hardness; TDS; alkalinity; TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium.	1. Conduct temporal trend analyses for SPC; hardness; TDS; alkalinity; TKN; sulphate; total and dissolved calcium, magnesium, and molybdenum; and dissolved potassium to assess temporal patterns and potential mine-related influences. 2. Investigate sources (including MS-08 effluent) and drivers of these parameters in MRTF to better define mine-related contributions.	Water quality conformed to FEIS predictions.
	Mary River	G0, E0, C0 Series	No AEMP benchmark exceedances for water quality parameters in 2025.	Aqueous concentrations of DOC were elevated at the G0 and E0 stations in summer and fall relative to reference and baseline conditions. No river sediment samples were collected in 2025. No adverse mine-related effects on chlorophyll-a were observed in 2025. In 2025, invertebrate density (E0-01, C0-05) and Simpson's Evenness (E0-01) differed from reference conditions. Relative to baseline, differences were observed in density (E0-20; E0-01), richness (E0-01), and Simpson's Evenness (G0-03, E0-01, E0-20).	Low Risk Responses were triggered for DOC and invertebrate density relative to reference (E0-01 and C0-05) and baseline (E0-20 and E0-01), as well as Simpson's Evenness relative to reference (E0-01). Moderate Risk Responses were triggered for invertebrate taxonomic richness (C0-05) relative to reference and Simpson's Evenness (G0-03, E0-01, and E0-20) relative to baseline.	1. Conduct temporal trend analyses for DOC to assess temporal patterns and potential regional and mine-related influences. 2. Investigate sources and drivers of DOC in the Mary River to better define mine-related contributions. 3. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 4. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions.	Water quality conformed to FEIS predictions.

Notes: N/A = not applicable. AEMP = Aquatic Effects Monitoring Plan. WQG = Water Quality Guideline. TDS = total dissolved solids. TKN = Total Kjeldahl nitrogen. CLT = Camp Lake Tributary. SDLT = Sheardown Lake Tributary. MRTF = Mary River Tributary-F. BIC = Benthic Invertebrate Community. FEIS = Final Environmental Impact Statement; FEQG = Federal Environmental Quality Guidelines; BACI = Before-After Control-Impact; FFG = Functional Feeding Groups; HPG = Habitat Preference Groups; SPC = Specific Conductance; DOC = Dissolved Organic Carbon; DO = Dissolved Oxygen; CREMP = Core Receiving Environmental Monitoring Program; TSS = Total Suspended Solids; TOC = Total Organic Carbon; YOY = Young-of-the-Year.

^a Comparisons to FEIS predictions were completed according to methods described in Section 2.7.2.

Table 6.1: Summary of Aquatic Effects Monitoring Plan (AEMP) Benchmark Exceedances, Effects Determinations, and Next Steps in the Data Assessment and Response Framework, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

System/ Waterbody			AEMP Benchmark Exceedances for Water and Sediment	Effects Determination Summary	Action Level Response Under the AEMP Data Assessment and Response Framework	Next Steps for 2026 CREMP Monitoring and Reporting	Comparison to FEIS Predictions ^a
Mary River and Mary Lake System	Mary Lake	BLO	AEMP benchmark exceedances for aqueous concentrations of total aluminum (summer) in the south basin. No AEMP benchmark exceedances for sediment quality in 2025.	Aqueous total aluminum concentrations were above reference and baseline normal ranges in summer, whereas total and dissolved molybdenum (north basin) and laboratory turbidity, total and dissolved molybdenum, total silicon, dissolved aluminum (south basin) were above normal ranges in at least one season.	Low Risk Responses were triggered for total and dissolved molybdenum (north basin) and laboratory turbidity, total and dissolved molybdenum, total silicon, and dissolved aluminum, as well as invertebrate densities. Moderate Risk Responses were triggered for total aluminum (south basin) and arctic charr condition (littoral/profundal adults) and LFDs (both groups).	1. Continue BIC monitoring in 2026 to assess biological effects and evaluate elevated total aluminum and dissolved copper concentrations using a weight-of-evidence approach. 2. Adopt the variable FEQG as the AEMP benchmark for total aluminum. 3. Conduct temporal trend analyses for turbidity; total and dissolved aluminum and molybdenum; and total silicon to assess temporal patterns and potential mine-related influences. 4. Investigate sources and drivers of these parameters in Mary Lake to better define mine-related contributions. 5. Complete a BACI-style analysis of BIC data (baseline to present) to evaluate changes between mine-exposed and reference areas over time. 6. Continue integrating indicator taxa, FFGs, and HPGs with habitat data to interpret BIC endpoints (density, richness, evenness) relative to reference and baseline conditions. 7. Consider a BACI-style analysis of fish health endpoints (e.g., condition) to evaluate changes between mine-exposed and reference areas over time.	FEIS predictions were met for water and sediment quality in 2025; arctic charr populations persist despite observed differences, pending Moderate Risk Response evaluation.
				Mean sediment metal concentrations were similar to or lower than reference and baseline.			
				No adverse mine-related effects on chlorophyll-a were observed in 2025. In 2025, invertebrate densities were lower than reference. Arctic charr captured by gill netting were in better condition than those in the reference lake in 2025, consistent with recent years. LFDs for fish captured by electrofishing and gill netting were significantly different from reference. However, differences in fish endpoints over time appear to be primarily driven by differences in habitat conditions between lakes, as well as interannual variability potentially attributable to factors like weather and water levels.			

Notes: N/A = not applicable. AEMP = Aquatic Effects Monitoring Plan. WQG = Water Quality Guideline. TDS = total dissolved solids. TKN = Total Kjeldahl nitrogen. CLT = Camp Lake Tributary. SDLT = Sheardown Lake Tributary. MRTF = Mary River Tributary-F. BIC = Benthic Invertebrate Community. FEIS = Final Environmental Impact Statement; FEQG = Federal Environmental Quality Guidelines; BACI = Before-After Control-Impact; FFG = Functional Feeding Groups; HPG = Habitat Preference Groups; SPC = Specific Conductance; DOC = Dissolved Organic Carbon; DO = Dissolved Oxygen; CREMP = Core Receiving Environmental Monitoring Program; TSS = Total Suspended Solids; TOC = Total Organic Carbon; YOY = Young-of-the-Year.

^a Comparisons to FEIS predictions were completed according to methods described in Section 2.7.2.

were also identified (e.g., for aqueous total and dissolved copper, molybdenum, and potassium in the North Branch and hardness, alkalinity, total nickel, dissolved molybdenum, and total and dissolved concentrations of barium, magnesium, potassium, and sodium in CLT2).

In Camp Lake, *in situ* water quality was within baseline and reference conditions, and mean concentrations of water chemistry parameters were below AEMP benchmarks. Multiple parameters triggered Low Risk Responses, including concentrations of uranium, which showed increasing trends, despite being below the AEMP benchmark. Similarly, at the Camp Lake outlet, Low Risk Responses were triggered for hardness, alkalinity, chloride, and aqueous concentrations of major ions and metals due to concentrations being above baseline and reference conditions. Sediment quality in Camp Lake was comparable to baseline and reference, with Low Risk Responses for manganese and nickel attributed to natural geological enrichment rather than mine influence.

Biological indicators across the Camp Lake system were generally comparable to baseline and reference conditions in 2025. Phytoplankton productivity was low and consistent with oligotrophic conditions; no action level responses were triggered. Low Risk Responses were triggered for invertebrate densities, richness, and evenness at CLT1 and taxonomic richness at Camp Lake, and a Moderate Risk Response was triggered for reduced invertebrate densities in Camp Lake relative to baseline. However, these patterns in the BIC were attributed to natural variability rather than mine-related effects. Fish communities and health endpoints were also consistent with historical conditions, with no evidence of adverse mine-related effects; however, Low Risk Responses for fish condition were triggered, along with Moderate Risk Responses for LFDs.

Overall, the weight-of-evidence indicates that mine-related effects in 2025 were limited to localized water chemistry changes in CLT1, particularly for uranium, with little to no propagation of effects downstream to Camp Lake or its outlet creek. Most responses were Low Risk, with only a few Moderate Risk Responses being triggered, and none were associated with consistent or biologically meaningful changes in aquatic communities. Together, these results indicate no evidence of widespread or increasing mine-related effects, with observed patterns best explained by a combination of localized mine influence, natural seasonal processes, regional geology, and climate-driven permafrost dynamics. Continued monitoring and implementation of the Data Assessment and Response Framework will help refine understanding of these localized responses and support adaptive management.

6.3 Sheardown Lake System

In 2025, the Sheardown Lake system exhibited localized mine-related influences on water quality conditions within upstream tributaries (SDLT1 and, to a lesser extent, SDLT9), whereas conditions in downstream receiving environments (Sheardown Lake NW and SE) were generally



comparable to baseline and reference conditions. Seasonal patterns in *in situ* water quality across the system were consistent with natural Arctic processes, including near full oxygen saturation during open water periods, localized winter oxygen depletion at depth in lakes (specifically Sheardown Lake SE), and seasonal variability in SPC driven by freshet dilution and increasing groundwater and permafrost thaw-related influence later in the year.

Mine-related influences on water chemistry were most evident at SDLT1, where increasing trends in SPC and major ions and metals (e.g., barium, calcium, magnesium, molybdenum, potassium, sodium, strontium, and uranium) were observed, along with Moderate Risk Responses for aqueous nitrate and uranium and a Low Risk Response for dissolved copper. At SDLT9, Low Risk Responses were triggered for ammonia, nitrate, and nitrite, whereas SDLT12 remained data-limited but showed no clear temporal patterns in concentrations of water quality parameters. Within Sheardown Lake NW, a Moderate Risk Response was triggered for dissolved copper concentrations, and Low Risk Responses were associated with concentrations of major ions and metals; temporal trends suggested increasing concentrations for parameters such as chloride, sulphate, barium, calcium, molybdenum, strontium, and uranium. In Sheardown Lake SE, a Moderate Risk Response was triggered for aqueous total aluminum concentrations, likely influenced by backflow from the Mary River, along with additional Low Risk Responses for elevated aqueous concentrations of major ions and metals; however, concentrations remained below applicable benchmarks and spatial patterns were generally uniform across the lake.

Sediment quality across the Sheardown Lakes system was generally comparable to baseline and reference conditions. In Sheardown Lake NW, a Low Risk Response was triggered for iron concentrations in littoral sediments, and increasing trends suggest potential mine-related and/or tributary influences. Concentrations of other metals in sediments remained within expected ranges, based on comparisons to baseline and reference conditions. In Sheardown Lake SE, sediments were dominated by fine-grained material, reflecting natural depositional processes (e.g., river backflow), and no action level responses were triggered for sediment chemistry.

Biological indicators across the Sheardown Lake system were generally comparable to reference and baseline. Phytoplankton productivity was low and consistent with oligotrophic conditions across all stations throughout the system, with no action level responses triggered. Benthic invertebrate communities were generally comparable to baseline and reference conditions, with Low Risk Responses limited to SDLT12 (richness), SDLT9 (density), and Sheardown Lake SE (density and richness); these patterns were attributed to habitat characteristics and natural variability rather than mine-related effects.

Fish communities and health endpoints for Sheardown Lakes NW and SE were also consistent with long-term patterns in 2025. Catch rates remained within historical ranges and were generally



higher than reference, reflecting natural variability in productivity and fish behaviour. Differences in size structure between mine-exposed and reference areas were common, with fish often larger in Sheardown lakes; however, body condition was generally comparable across areas. Moderate Risk Responses were triggered for fish condition and LFDs in Sheardown Lake NW relative to baseline, and Low and Moderate Risk Responses were triggered for condition and LFDs, respectively, in Sheardown Lake SE; however, these differences were not consistently ecologically meaningful and were not linked to clear mine-related effects.

Overall, the weight-of-evidence indicates that mine-related effects in 2025 were limited to localized changes in water quality within upstream tributaries (particularly SDLT1), and there was limited downstream propagation to Sheardown Lake NW and SE. Most responses across the system were Low Risk, with a small number of Moderate Risk Responses being triggered, and these were not associated with consistent or biologically meaningful changes in aquatic communities. Collectively, results indicate no evidence of widespread or increasing mine-related effects, with observed patterns best explained by a combination of localized mine influence, natural seasonal processes, regional geology, sediment dynamics, and permafrost-related effects. Continued monitoring and implementation of the Data Assessment Response Framework will support further evaluation of these localized mine-related influences and support adaptive management.

6.4 Mary River and Mary Lake System

In 2025, the Mary River and Mary Lake system exhibited generally stable water and sediment quality conditions from upstream tributaries (MRTF) through the Mary River to the downstream receiving environment (Mary Lake); potential mine-related influences were limited and localized. Seasonal patterns in *in situ* water quality were consistent with natural northern processes, including near full oxygen saturation during open water periods, elevated turbidity during summer, and localized under-ice oxygen depletion at depth in Mary Lake. SPC was elevated at MRTF and along the Mary River relative to baseline and reference conditions, triggering Low Risk Responses; however, similar patterns at both mine-exposed and reference areas indicate a strong regional or seasonal influence rather than a localized mine effect.

Mine-related influences on water chemistry were most evident at MRTF, where concentrations of several major ions and nutrients (e.g., hardness, TDS, alkalinity, TKN, sulphate, and select metals) were above baseline and reference conditions, triggering Low Risk Responses; increasing trends in nitrate concentrations and a step-change increase in sulphate concentrations in MRTF were likely associated with effluent discharge from the MS-08 FDP. In the Mary River, water chemistry remained largely within baseline and reference ranges, except for a Low Risk Response that was triggered for DOC, based on minor and localized deviations relative to



reference and baseline. In Mary Lake, water chemistry was generally within AEMP benchmarks, although total aluminum (Moderate Risk) concentrations exceeded benchmarks in the south basin during summer, and additional parameters (e.g., molybdenum) had concentrations above normal ranges, thereby triggering Low Risk Responses. The occurrences of concentrations above benchmarks and normal ranges were spatially limited and not indicative of widespread changes in water quality.

Sediment quality in Mary Lake was comparable to baseline and reference conditions in 2025. Sediments were dominated by fine-grained material, reflecting natural depositional processes, and metal concentrations were below AEMP benchmarks and there were no increasing trends in concentrations over time. No action level responses were triggered for sediment quality, and there is no evidence of mine-related effects on sediment chemistry.

Biological indicators across the Mary River and Mary Lake system were consistent with historical conditions in 2025. Phytoplankton productivity was low throughout MRTF, the Mary River, and Mary Lake; chlorophyll-a concentrations were well below AEMP benchmarks and indicative of oligotrophic conditions. Therefore, no action level responses triggered for phytoplankton. Benthic invertebrate communities were generally comparable to reference and baseline conditions, with Low and Moderate Risk Responses in the Mary River associated with localized differences in density, evenness, and richness. A Low Risk Response was also triggered for lower invertebrate densities in Mary Lake, relative to reference, in 2025. However, these patterns were spatially variable, often mirrored at reference sites, and attributed to habitat variability and regional influences rather than mine-related effects.

Fish communities and health endpoints in Mary Lake were consistent with long-term patterns in 2025. Catch rates were higher than reference and within the range of natural interannual variability, reflecting differences in productivity and fish behaviour rather than mine influence. Arctic charr in Mary Lake were generally larger and heavier than those in the reference lake, and differences were primarily driven by size structure rather than health, as body condition remained broadly comparable across areas and over time. Moderate Risk Responses were triggered for fish condition and LFDs relative to reference; however, these patterns were not associated with adverse biological effects and is consistent with historical variability.

Overall, the weight-of-evidence indicates that mine-related effects in 2025 were limited to localized water chemistry changes at MRTF and, to a lesser extent, within Mary Lake, with no clear evidence of cumulative or downstream amplification of effects through the system. Most responses were Low Risk and were not associated with consistent or biologically meaningful changes in aquatic communities. Collectively, results indicate no evidence of widespread or increasing mine-related influence, with observed patterns best explained by a combination of



localized mine influence in MRTF, natural seasonal processes, regional geochemistry, and climate-driven permafrost dynamics. Continued monitoring and implementation of the Data Assessment and Response Framework will support evaluation of these localized responses and support adaptive management.

6.5 Comparison to FEIS Predictions

Water and sediment quality data collected across the Camp Lake, Sheardown Lake, and Mary River and Mary Lake systems in 2025 were consistent with predictions outlined in the FEIS (Baffinland 2012). Across all monitored stations and seasons, water quality parameters were within the applicable Level II significance rating for magnitude (or Level I for SWSQ-7) associated with Aqueous Non-point Source Emissions, indicating conformance with predicted effects during mine operations. Similarly, sediment quality across all lakes was within expected significance rating magnitudes for Airborne Emissions (SWSQ-17-3), further supporting alignment with FEIS predictions. Water quality comparisons could not be completed for one Sheardown tributary (SDLT12) in 2025 due to low water levels; however, all other assessed locations were consistent with predicted outcomes.

Given that water and sediment quality remained within predicted effect thresholds, FEIS expectations for fish health would generally be anticipated to be met across all systems. Although differences in arctic charr condition and/or LFD relative to reference and baseline conditions were identified in 2025, long-term monitoring indicates that similar spatial and temporal variability has persisted throughout the mine operation period, with populations remaining stable and, in some cases, exhibiting higher catchability relative to baseline and reference conditions. As such, these observations do not currently contradict FEIS predictions, and are expected to be largely reflective of differences in habitat conditions between lakes (e.g., lake morphology, water levels and water quality) and interannual variability in conditions such as growing season degree day, water levels, and productivity. However, the Moderate and Low Risk Responses triggered for fish health in 2025 across the study areas warrant further investigation to confirm continued alignment with predicted outcomes.

6.6 Conclusion

Overall, mine-related influences in 2025 were observed primarily in the tributaries to Camp Lake (CLT1), Sheardown Lake NW (SDLT1), Sheardown Lake SE (SDLT9), and Mary River (MRTF) and were less evident with distance downstream from the mine. A number of mitigation measures and recommendations (e.g., additional data analyses) were implemented in 2025 to address and better understand mine-related influences on tributary creeks, and additional next steps have been developed for implementation during the 2026 monitoring and reporting cycle (Table 6.1).



The 2026 CREMP is expected to include assessments of water and sediment quality, phytoplankton productivity, benthic invertebrate community endpoints, fish communities, and fish health endpoints. Consistent with the Revision 3 AEMP study design (Baffinland 2025) and the EEM (TCC 2026b), fish monitoring will move to a triennial cycle, with next sampling completed in 2026 and 2029. Ongoing implementation of the CREMP will continue to assess potential mine-related influences and management actions will be applied as required according to the AEMP Data Assessment and Response Framework.



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APPENDIX A
DATA QUALITY REVIEW

APPENDIX A DATA QUALITY REVIEW

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A1 INTRODUCTION

A1.1 Background

A variety of factors can influence the physical, chemical, and biological measurements made in an environmental study and thus affect the accuracy and/or precision of the data. Depending on their magnitude, inaccuracy and/or imprecision have the potential to affect the reliability of conclusions made from data; therefore, it is important that programs incorporate appropriate steps to control non-natural sources of data variability (i.e., minimize variability that does not reflect authentic spatial and temporal variability in the environment) and thus assure the quality of the data. Data quality as a concept is meaningful only when it relates to the intended use of the data. That is, one must know the context in which the data will be interpreted in order to establish a relevant basis for judging whether or not the data set is adequate. A data quality review (DQR) involves the comparison of field and laboratory measurement performance to Data Quality Objectives (DQOs) established for a particular study, such as evaluation of Laboratory Reporting Limits (LRLs), blank sample data, data precision (based on field and laboratory duplicate samples), and data accuracy (based on matrix spike recoveries and/or analysis of standards or certified reference materials). Trusted analytical laboratories certified by the Canadian Association for Laboratory Accreditation Inc. (CALA) or the National Environmental Laboratory Accreditation Program (NELAP), with a rigorous internal quality assurance program, were selected for this project to promote the highest possible data quality. Data quality objectives were established a priori to reflect reasonable and achievable performance expectations. Programs involving many samples and analytes or parameters may sometimes yield results that exceed DQOs, which is particularly true for multi-element scans, as the analytical conditions are not necessarily optimal for every element included in the scan. Generally, scan results may be considered acceptable if no more than 20% of the parameters fail to meet DQOs. Overall, the intent of a DQR is not to reject any measurement that did not meet a DQO, but to ensure that any questionable data received more scrutiny to determine what effect, if any, this had on interpretation of results within the context of the project.

A1.2 Quality Control Samples

A DQR was conducted on all laboratory data collected as part of the Mary River Project Core Receiving Environment Monitoring Program (CREMP) in 2025 and involves the examination of analytical results associated with several types of Quality Control (QC) samples collected (or prepared) in the field and laboratory. General QC samples collected for this project, and a description of each, are included as follows:



- **Blanks** are samples of deionized water and/or appropriate reagent(s) that are handled and analyzed the same way as regular samples. These samples reflect contamination that occurred from the equipment (in the case of equipment blanks), in the field or during shipment (in the case of trip or field blanks), or in the laboratory (in the case of laboratory or method blanks). Parameter concentrations should be non-detectable, although a DQO of five times the LRL allows for slight “noise” around the detection limit.
- **Trip Blanks** are meant to detect any widespread contamination resulting from the container (including caps) and preservative during transport and storage. A trip blank is a bottle set to which deionized water was added in a laboratory prior to the field sample collections; the trip blank is then transported with the regular sample bottles in the field, and remains unopened throughout the trip.
- **Field Blanks** mimic the sampling and preservative process but do not come in contact with ambient water. Field blanks are exposed to the sampling environment at the sample site. Consequently, they provide information on potential contamination resulting from the handling technique and through exposure to the atmosphere. They are processed in the same manner as the associated field samples (i.e., they are exposed to all the same potential sources of contamination as the field samples), including handling and, in some cases, filtration and/or preservation.
- **Equipment Blanks** are samples of deionized water collected from the sampling equipment following decontamination (i.e., rinsing of the sampling device using deionized water) in the field between sampling stations and/or events. These blanks are useful in identifying cross contamination of samples in the field as a result of contact with the sampling device.
- **Field Duplicates** are sub-sample pairs collected from randomly selected field stations using identical collection and handling methods that are then analyzed separately in the laboratory. The duplicate samples are handled and analyzed in an identical manner in the laboratory. The data from field duplicate samples reflect natural variability, as well as the variability associated with sample collection methods, and therefore provide a measure of field precision.
- **Benthic Invertebrate Taxonomic Quality Control Samples** are randomly selected portions of a benthic invertebrate community field sample to be assessed by the laboratory using an internal quality control audit. A blind re-enumeration and re-identification of random samples is performed by an analyst uninvolved in the original sample processing. This assessment quantifies taxonomic misidentification among laboratory analysts and ensures accurate organism identities are reported.



- **Benthic Invertebrate Laboratory Sub-samples** are community samples prepared by the laboratory to confirm that the fraction of the total sample examined was an accurate representation of the total number of organisms. By comparing the amount recovered between at least two sub-samples, one can assess the analytical precision. In addition, comparisons of the sub-samples relative to the whole community sample allows for an evaluation of sub-sampling accuracy.



A2 WATER CHEMISTRY AND PHYTOPLANKTON

A2.1 Lake Samples

A2.1.1 Laboratory Reporting Limits

The analytical reports for water quality from ALS Environmental (ALS) were examined to determine which parameters had results less than (<) the LRLs. The LRLs for water quality parameters were assessed relative to existing water quality guidelines (WQG) for the protection of freshwater aquatic life and site-specific benchmarks (Appendix Table A.1; see also Table 2.3 of the main body of the report). Most parameters had at least one result <LRL in 2025 (Appendix Table A.1¹). For parameters with results <LRL, all reported LRLs were lower than applicable WQG and benchmarks (Appendix Table A.1). Overall, the achieved LRLs were appropriate for this study.

A2.1.2 Laboratory, Equipment and Field Blanks

Method blank (MB) samples were analyzed in the ALS laboratory reports. Of the 2,131 reported MB results, three results exceeded the laboratory DQO, including one result each for dissolved magnesium, dissolved organic carbon (DOC), and total tellurium. Associated DOC and dissolved magnesium results were either <LRL or greater than (>) five-times the MB concentration and were therefore considered reliable, and the LRL was adjusted for the total tellurium results. As a relatively low number of MBs exceeded the laboratory DQO (0.14 % of all results), these laboratory flags had a negligible impact on data reliability.

Two water quality field blanks and three trip blank samples were submitted to ALS to assess the potential for field and shipping/transport contamination. Field and trip blanks were subject to the same laboratory DQOs as were used for MBs (i.e., concentrations should be <LRL). Of the 480 individual field blank results, three resulted in detections at concentrations >LRL (Appendix Table A.2). Of the 288 total trip blank results, two resulted in parameters being detected at concentrations >LRL (Appendix Table A.2). Since only 1.56% of field and 0.69% of trip blank results were >LRL, field and travel contamination was considered negligible in 2025.

¹ Tables only include analytes with at least one result below the LRL or where the LRL was above guidelines. This applies to all other LRL tables for this appendix.



A total of six equipment blank samples were collected during the 2025 CREMP, including two each during the winter, summer, and fall monitoring events. Of the 510 individual results, 40 had parameter concentrations >LRL (Appendix Table A.3). For most equipment blank samples, fewer than ten results were detectable (i.e., >LRL), and most detectable results were marginally (i.e., less than two times) above the LRL. During the summer sampling event, 18 parameter results were detectable in one equipment blank sample (QD-BE2EB_S_2025-07-24). This equipment blank sample had detectable concentrations of conductivity; turbidity; DOC; total organic carbon (TOC); total ammonia; total Kjeldahl nitrogen; total phosphorus; total aluminum, barium, calcium, chromium, magnesium, manganese, nickel, sodium, tin, and zirconium; and dissolved barium, magnesium, sodium, and zirconium. As only 7.8% of the equipment blank results did not meet the DQO, equipment contamination of water samples was considered unlikely to affect the data interpretation for this study (Appendix Table A.3).

A2.1.3 Data Precision

Laboratory duplicate samples were used to evaluate precision within the ALS laboratory reports. All of the 2,063 individual parameter results met the laboratory DQO, and therefore laboratory analytical precision was considered acceptable for this study.

Field sampling precision is evaluated based on relative percent differences (RPDs) between paired (i.e., duplicate) samples; RPDs are calculated as follows:

$$RPD = \frac{|R1 - R2|}{(|R1 + R2|/2)} * 100$$

where R1 is the value of the original (“parent”) sample and R2 is the value of the duplicate sample; the absolute difference and sum of the two samples are used in the calculation. RPDs cannot be calculated if both values are below the LRL. If the original and duplicate sample have the same value, then the RPD is 0%.

There are two applicable DQOs for field duplicates:

1. Each RPD comparison between the original and duplicate result should be < 25%; and,
2. Within each original and duplicate pairing (i.e., each duplicate pair), fewer than 20% of the total comparisons should be above the DQO as outlined above.

Six field duplicate samples were collected to assess water quality field sampling precision (Appendix Table A.4). Several RPDs could not be calculated as concentrations in both paired samples were <LRL. Of the 330 RPDs that could be calculated, only 26 results did not meet the DQO of 25% and include three results for each of total and dissolved aluminum, two results



for each of turbidity, total ammonia, total Kjeldahl nitrogen, and one result for each of TOC, DOC, dissolved iron, dissolved magnesium, dissolved titanium, and dissolved zinc, and chlorophyll-a (Appendix Table A.4). Overall, as only 7.6% of all water quality duplicate comparisons did not meet the DQO, field precision and reproducibility of these samples were considered acceptable for this study.

A2.1.4 Data Accuracy

Data accuracy was evaluated based on results of Laboratory Control Samples (LCS) and Matrix Spike (MS) samples within the ALS laboratory reports. All of the 2,109 individual LCS results and 1,935 individual MS results met the DQO, therefore the laboratory accuracy was acceptable for this study.

A2.1.5 Hold Times

The recommended hold times for pH (15 minutes) were exceeded in all samples, and for turbidity (three days) in 29 samples collected. However, for these physical tests, *in situ* measures were used to support data interpretation and, as such, hold time exceedances for these laboratory results have no impact on data interpretability. Several additional parameters, including total dissolved solids (TDS) and total suspended solids (TSS; recommended hold times ≤ 7 days for both), and nitrite and nitrate (recommended hold times ≤ 72 hours for both), also exceeded recommended hold times. A combination of short hold times, shipping of samples from a remote location, and laboratory sample and workload delays resulted in hold time exceedances prior to analysis for results outlined above. Parameter results with hold time exceedances were similar to those samples without hold time exceedances in 2025 and were within the range of historical results, suggesting little if any impact of the hold time exceedances on parameter results.

A2.2 Stream Samples

A2.2.1 Laboratory Reporting Limits

The analytical reports for water quality from ALS were examined to determine which parameters had results $< \text{LRL}$. The LRLs for water quality parameters were assessed relative to existing WQG and site-specific benchmarks (Appendix Table A.5; Table 2.3). Several parameters had at least one result $< \text{LRL}$ (Appendix Table A.5). For parameters with results $< \text{LRL}$, all reported LRLs were lower than applicable WQG and benchmarks and were therefore not of concern (Appendix Table A.5). Overall, the achieved LRLs were appropriate for this study.



A2.2.2 Laboratory and Field Blanks

MB samples were analyzed in the ALS laboratory reports. Of the 1,352 reported MB results, only one result for total magnesium exceeded the laboratory DQO and had detectable concentrations. Associated total magnesium results were either greater than five-times the MB concentration or <LRL, and were therefore considered reliable. As only 0.07% of MB results exceeded the laboratory DQO, and the MB results were not likely to impact the reliability of the results, potential laboratory contamination had a negligible impact on data reliability.

Two field and four trip blank samples were submitted to ALS to assess the potential for field sampling and shipping/transport contamination for water quality analyses of stream samples. Field and trip blanks were subject to the same laboratory DQOs as were used for MBs (i.e., concentrations should be <LRL). Of the 192 individual field blank results, three were >LRL (Appendix Table A.6). Of the 384 total trip blank results, 11 results were >LRL (Appendix Table A.6). Since only 1.56% and 2.86% of field and trip blank results were >LRL, potential field and travel contamination was considered acceptable for this study.

A2.2.3 Data Precision

Laboratory duplicate samples were used to evaluate precision within the ALS laboratory reports. All of the 1,265 individual results met the laboratory DQO; therefore, laboratory analytical precision was considered acceptable for this study.

Three field duplicate samples were collected to assess stream water quality field sampling precision (Appendix Table A.7). Several RPDs could not be calculated as both paired concentrations were <LRL. Of the 281 RPDs that could be calculated, only 32 results did not meet the DQO of 25%; these include three results for total aluminum and turbidity, two results for each of total nickel, total titanium, dissolved aluminum, and chlorophyll-a, and one result for each of total alkalinity, TSS, total Kjeldahl nitrogen, TOC, TDS, total cesium, total lead, dissolved iron, dissolved titanium, and dissolved zinc (Appendix Table A.7). Overall, as only 11.4% of all stream water quality duplicate comparisons did not meet the DQO, field precision and reproducibility of these samples were considered acceptable for this study.

A2.2.4 Data Accuracy

Data accuracy was evaluated based on results of LCS and MS samples within the ALS laboratory reports. Of the 1,300 individual LCS results, only two individual results for total magnesium and dissolved zinc did not meet the laboratory DQO. However, LCS results were only marginally exceeded (by <10% absolute) for <10% of parameters in a multi-



elemental scan. All 1,185 individual MS analyte results met the DQO. As only 0.15% of LCS results did not meet the DQO and all of MS results did meet the DQO, the accuracy achieved by the laboratory was considered acceptable for this study.

A2.2.5 Hold Times

The recommended hold times for pH (15 minutes) were exceeded in all samples. However, *in situ* measures were used to support data interpretation and, as such, hold time exceedances for these laboratory pH results have no impact on data interpretability. Additional parameters, including DOC, nitrite, and nitrate (recommended hold times ≤ 72 hours), also exceeded recommended hold times. A combination of short hold times, shipping of samples from a remote location, and laboratory sample and workload delays resulted in hold time exceedances prior to analysis for results outlined above. Parameter results with hold time exceedances were similar to those samples without hold time exceedances in 2025 and were within the range of historic results, suggesting little if any impact of the hold time exceedances on the water quality results.

A2.3 Data Quality Statement

Lake and stream water quality data collected for the 2025 Mary River Project CREMP were considered acceptable for this study as characterized by, appropriate LRLs, negligible parameter concentrations in MBs, good laboratory precision and accuracy, and few hold time exceedances. Multiple detectable parameter concentrations were observed in one equipment blank collected during lake sampling.



A3 SEDIMENT

A3.1 Laboratory Reporting Limits

The analytical reports for sediment chemistry from ALS were examined to provide an inventory of sample results <LRL (Appendix Table A.8). The range of reported LRLs for individual parameters were assessed relative to existing sediment quality guidelines (SQG) and AEMP benchmark values (Table 2.6). Several parameters had results that were <LRL (Appendix Table A.6). For parameters with at least one result <LRL, all reported LRLs were lower than applicable guidelines and benchmarks. Therefore, LRLs for sediment chemistry samples were appropriate for this study.

A3.2 Laboratory Blanks

Method blank samples for sediment chemistry were analyzed by ALS. Of the 74 total reported MB results, only one result for chromium did not meet the DQO due to detectable blank results. Associated chromium results were all greater than five-times the blank concentration; therefore, results were considered reliable by the laboratory. Overall, the potential for laboratory contamination was low.

A3.3 Data Precision

Laboratory duplicate samples were used to evaluate precision within the ALS laboratory reports. All of the 80 individual results were within laboratory DQO for sediment duplicate analysis. Therefore, laboratory analytical precision was considered acceptable for this study.

A3.4 Data Accuracy

Data accuracy for sediment chemistry analyses completed by ALS was evaluated based on the analysis of reference material (RM) samples and LCS samples. All 76 RM and 74 LCS individual results met the laboratory DQO. Therefore, the accuracy achieved by the laboratory was considered acceptable for this study.

A3.4 Data Quality Statement

Sediment chemistry data collected for the 2025 CREMP were of acceptable quality as characterized by appropriate LRLs; appropriate detectability; negligible concentrations in MB samples, laboratory blanks; and excellent laboratory precision and accuracy. Overall, the associated data were considered acceptable for this study and can be used with a high level of confidence in the derivation of conclusions.



A4 BENTHIC INVERTEBRATE COMMUNITY

A4.1 Lake Samples

A4.1.1 Sub-sampling Precision and Accuracy

Of the 26 benthic invertebrate community samples analyzed for the CREMP in 2025, six were sub-sampled. The proportion of sub-sampled material ranged from 25% to 50% of the total sample material (Appendix Table A.9). Of the samples that were sub-sampled, two (33.3% of all samples) were assessed for precision and accuracy. All assessed samples met the laboratory DQO (<20%) for both precision and accuracy (Appendix Table A.10). Thus, the precision and accuracy for sub-sampling of the benthic invertebrate community samples was considered acceptable for this study.

A4.1.2 Sorting Efficiency

Four benthic invertebrate community composition samples were assessed for sorting efficiency relative to the laboratory's DQO ($\geq 90\%$) in 2025 (Appendix Table A.11). The average recovery was 96.8% and organism sorting efficiency was considered acceptable.

A4.2 Stream Samples

A4.2.1 Sub-sampling Precision and Accuracy

Of the 69 benthic invertebrate community samples analyzed, eight were sub-sampled. The proportion of sub-sampled material was 50% of the total sample material (Appendix Table A.12). One sample (12.5% of all samples) was assessed for precision and accuracy, and met the laboratory DQO (<20%) for both precision and accuracy (Appendix Table A.13). Thus, the precision and accuracy for sub-sampling of the benthic invertebrate community samples was considered acceptable for this study.

A4.2.2 Sorting Efficiency

Eight benthic invertebrate community samples were assessed for sorting efficiency relative to the laboratory's DQO ($\geq 90\%$) in (Appendix Table A.14). The average recovery was 94.4% and organism sorting efficiency was considered acceptable.

A4.3 Data Quality Statement

Lake and stream benthic community data collected for the 2025 CREMP were considered acceptable for this study, as characterized by appropriate sorting efficiency for most samples, and excellent sub-sampling precision and accuracy. Overall, the associated data can be used with a high level of confidence in the derivation of conclusions.



A5 FISH AGING

A5.1 Data Accuracy

Analytical reports of fish age estimates from North/South Consultants Inc. were examined to evaluate data accuracy. To determine the accuracy of arctic charr (*Salvelinus alpinus*) ages, 10% of aging structures were reprocessed by a second analyst (n = 5; Appendix Table A.15). The original and second analyst assigned a confidence index to each age estimate. The original and reassessed age estimates matched in all samples. Therefore, the accuracy achieved by the laboratory in this study can be considered as excellent.



A6 DATA QUALITY STATEMENT

The DQR results indicated that the water, sediment, benthic invertebrate taxonomy, and fish age data were of acceptable quality. Few water quality parameters were detectable in blanks collected during lake and stream sampling, and these were observed at low concentrations, most often near the LRL. The sediment data quality and fish age data met all laboratory DQO. The benthic invertebrate community data met most precision, accuracy, and percent recovery DQO. Overall, the data associated with the 2025 Mary River Project CREMP were considered acceptable for interpretation and derivation of conclusions with a good level of confidence.



Table A.1: Laboratory Reporting Limit (LRL) Evaluation for Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Units	Long-term WQG ^a		AEMP Benchmark ^b	Range of LRLs	No. Sample Results LRL
		Value	Type	Lakes		
Physical Parameters						
Alkalinity, Total (as CaCO ₃)	mg/L	-	-	-	2.00	12 (12%)
Conductivity	µS/cm	-	-	-	1.00	5 (5%)
Total Suspended Solids	mg/L	-	-	-	1.00 to 1.30	67 (64%)
Turbidity, Lab	NTU	-	-	-	0.100	10 (10%)
pH, Lab	pH	-	-	-	0.100	0 (0%)
Nutrients, Carbon, and Organics						
Ammonia, Total (as N)	mg/L	-	-	Variable	0.00500	57 (55%)
Bromide (Br)	mg/L	-	-	-	0.100	91 (88%)
Chloride (Cl)	mg/L	-	-	120	0.500	12 (12%)
Nitrate (as N)	mg/L	-	-	3	0.0200	37 (36%)
Nitrite (as N)	mg/L	-	-	0.06	0.0100	104 (100%)
Phosphorus (P)-Total	mg/L	-	-	-	0.00200 to 0.0500	140 (67%)
Sulphate	mg/L	-	-	Variable	0.300	12 (12%)
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.0500	8 (8%)
Total Organic Carbon	mg/L	-	-	-	0.500	9 (9%)
Dissolved Organic Carbon	mg/L	-	-	-	0.500	5 (5%)
Total Dissolved Solids	mg/L	-	-	-	10.0 to 21.0	12 (12%)
Phenols, total (4AAP)	mg/L	0.004	CCME	-	0.00100	100 (96%)
Total Metals						
Aluminum	mg/L	-	-	0.1 to 0.179	0.00300	11 (11%)
Antimony	mg/L	0.074	BC WQG	-	0.000100	103 (99%)
Arsenic	mg/L	-	-	0.005	0.000100	95 (91%)
Barium	mg/L	1	BC WQG	-	0.000100	11 (11%)
Beryllium	mg/L	0.00013	BC WQG	-	0.0000200	104 (100%)
Bismuth	mg/L	-	-	-	0.0000500	104 (100%)
Boron	mg/L	1.5	CCME	-	0.0100	69 (66%)
Cadmium	mg/L	-	-	Variable	0.00000500	77 (74%)
Calcium	mg/L	-	-	-	0.0500	11 (11%)
Cesium	mg/L	-	-	-	0.0000100	91 (88%)
Chromium	mg/L	-	-	0.0089	0.000500	94 (90%)
Cobalt	mg/L	-	-	Variable	0.000100	79 (76%)
Copper	mg/L	Variable	CCME	-	0.000500	12 (12%)
Iron	mg/L	-	-	0.3	0.0100	34 (33%)
Lead	mg/L	Variable	CCME	-	0.0000500	84 (81%)
Lithium	mg/L	-	-	-	0.00100	51 (49%)
Magnesium	mg/L	-	-	-	0.00500	9 (9%)
Manganese	mg/L	Variable	BC WQG	-	0.000100	11 (11%)
Mercury	mg/L	0.000026	CCME	-	0.000005	104 (100%)
Molybdenum	mg/L	7.6	BC WQG	-	0.0000500	12 (12%)
Nickel	mg/L	-	-	Variable	0.000500	26 (25%)
Potassium	mg/L	-	-	-	0.0500	12 (12%)
Rubidium	mg/L	-	-	-	0.000200	12 (12%)
Selenium	mg/L	-	-	0.001	0.0000500	69 (66%)
Silicon	mg/L	-	-	-	0.100	12 (12%)
Silver	mg/L	-	-	0.0001	0.0000100	104 (100%)
Sodium	mg/L	-	-	-	0.0500	11 (11%)
Strontium	mg/L	2.5	FEQG	-	0.000200	12 (12%)
Sulphur	mg/L	-	-	-	0.500	15 (14%)
Tellurium	mg/L	-	-	-	0.000200	104 (100%)
Thallium	mg/L	-	-	0.0008	0.0000100	103 (99%)
Thorium	mg/L	-	-	-	0.000100	95 (91%)
Tin	mg/L	-	-	-	0.000100	102 (98%)
Titanium	mg/L	-	-	-	0.000300 to 0.000900	58 (56%)
Tungsten	mg/L	-	-	-	0.000100	104 (100%)
Uranium	mg/L	-	-	0.015	0.0000100	12 (12%)
Vanadium	mg/L	-	-	0.06	0.000500	104 (100%)
Zinc	mg/L	-	-	-	0.00300	102 (98%)
Zirconium	mg/L	-	-	-	0.000200	89 (86%)
Dissolved Metals						
Aluminum	mg/L	-	-	-	0.00100	12 (12%)
Antimony	mg/L	-	-	-	0.000100	104 (100%)
Arsenic	mg/L	-	-	-	0.000100	102 (98%)
Barium	mg/L	-	-	-	0.000100	10 (10%)
Beryllium	mg/L	-	-	-	0.0000200	104 (100%)
Bismuth	mg/L	-	-	-	0.0000500	104 (100%)
Boron	mg/L	-	-	-	0.0100	69 (66%)
Cadmium	mg/L	Variable	BC WQG	-	0.00000500	81 (78%)
Calcium	mg/L	-	-	-	0.0500	12 (12%)
Cesium	mg/L	-	-	-	0.0000100	104 (100%)
Chromium	mg/L	-	-	-	0.000500	104 (100%)
Cobalt	mg/L	Variable	BC WQG	-	0.000100	90 (87%)
Copper	mg/L	-	-	Variable	0.000200	11 (11%)
Iron	mg/L	-	-	-	0.0100	76 (73%)
Lead	mg/L	-	-	Variable	0.0000500	104 (100%)
Lithium	mg/L	-	-	-	0.00100	59 (57%)
Magnesium	mg/L	-	-	-	0.00500	11 (11%)
Manganese	mg/L	-	-	Variable	0.000100	29 (28%)
Mercury	mg/L	-	-	-	0.00000500	104 (100%)
Molybdenum	mg/L	-	-	-	0.0000500	12 (12%)
Nickel	mg/L	Variable	BC WQG	-	0.000500	45 (43%)
Potassium	mg/L	-	-	-	0.0500	12 (12%)
Rubidium	mg/L	-	-	-	0.000200	12 (12%)
Selenium	mg/L	-	-	-	0.0000500	69 (66%)
Silicon	mg/L	-	-	-	0.0500	12 (12%)
Silver	mg/L	-	-	-	0.0000100	102 (98%)
Sodium	mg/L	-	-	-	0.0500	11 (11%)
Strontium	mg/L	2.5	FEQG	-	0.000200	12 (12%)
Sulphur	mg/L	-	-	-	0.500	18 (17%)
Tellurium	mg/L	-	-	-	0.000200	104 (100%)
Thallium	mg/L	-	-	-	0.0000100	104 (100%)
Thorium	mg/L	-	-	-	0.000100	104 (100%)
Tin	mg/L	-	-	-	0.000100	101 (97%)
Titanium	mg/L	-	-	-	0.000300 to 0.00100	89 (86%)
Tungsten	mg/L	-	-	-	0.000100	104 (100%)
Uranium	mg/L	-	-	-	0.0000100	12 (12%)
Vanadium	mg/L	-	-	-	0.000500	104 (100%)
Zinc	mg/L	-	-	Variable	0.00100	86 (83%)
Zirconium	mg/L	-	-	-	0.000300	104 (100%)
Plant Compounds						
Chlorophyll-a	mg/L	-	-	-	0.0000980 to 0.000200	16 (15%)

 LRL >WQG or AEMP benchmark.

Notes: WQG = Water Quality Guideline. AEMP = Aquatic Effects Monitoring Plan. LRL = Laboratory Reporting Limit. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. - = no applicable units or guideline. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. CCME = Canadian Council of Ministers of the Environment. BC = British Columbia; FEQG = Federal Environmental Quality Guideline. See Table 2.3 for guideline description, calculations, and selection. Only parameters with at least one result below LRL or LRL above guideline were displayed.

^a WQG for the protection of freshwater aquatic life include WQG from the CCME (2026), FEQG (ECCC 2024), and BC WQG (BCMOE 2026,2025). Parameters with site-specific benchmarks (Baffinland 2024) were not screened to generic WQG derived for other jurisdictions in Canada.

^b Aquatic Effects Monitoring Plan (AEMP) benchmarks apply to all stream/river or lake systems unless otherwise indicated (Baffinland 2024).

Table A.2: Evaluation of Field and Trip Blank Results for Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Units	LRL	Field Blanks		Trip Blanks		
			QD-BF1_B_2025-04-14	QD-BF2_S_2025-04-15	QD-BT3_B_2025-04-15	QD-BT2_B_2025-04-16	QD-BT1_S_2025-08-21
Physical Tests and Carbon							
Conductivity	mg/L	1	<1	<1	<1	<1	1.1
Solids, total suspended [TSS]	mg/L	1	1.2	<1	<1	<1	<1
Turbidity	NTU	0.1	0.16	<0.1	<0.1	<0.1	<0.1
Dissolved organic carbon	mg/L	0.5	11.2	<0.5	<0.5	<0.5	<0.5
Dissolved Metals							
Copper	mg/L	0.0002	<0.0002	<0.0002	0.00581	<0.0002	<0.0002



Result >LRL.

Notes: LRL = Laboratory Reporting Limit. mg/L = milligrams per litre. < = less than. NTU = Nephelometric Turbidity Units. > = greater than. Only parameters with at least one value above LRL were displayed.

Table A.3: Evaluation of Equipment Blank Results for Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Unit	LRL	Equipment Blank					
			Winter		Summer		Fall	
			QD- BE2_S_2025- 04-12	QD- BE2_B_2025- 04-19	QD- BE2EB_S_202 5-07-24	QD- BE1EB_S_202 5-07-29	QD- BE2_S_2025- 08-21	QD- BE1_S_2025- 08-23
Physical Tests and Carbon								
Conductivity	mg/L	1	<1	1.4	1.5	1.1	1.2	1.2
Alkalinity, total (as CaCO ₃)	mg/L	2	<2	<2	<2	<2	<2	<2
Hardness (as CaCO ₃)	mg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Solids, total dissolved [TDS]	mg/L	10	<10	<10	<20	<20	<18	<16
Solids, total suspended [TSS]	mg/L	1	<1	<1	<1.3	<1	<1	<1
Turbidity	NTU	0.1	0.93	<0.1	0.26	<0.1	<0.1	<0.1
Dissolved organic carbon	mg/L	0.5	0.72	<0.5	1	1.25	1.25	0.72
Total organic carbon	mg/L	0.5	<0.5	<0.5	0.9	<0.5	<0.5	0.57
Nutrients								
Ammonia, total (as N)	mg/L	0.005	<0.005	<0.005	0.0224	<0.005	0.009	0.0186
Bromide	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chloride	mg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Kjeldahl nitrogen, total [TKN]	mg/L	0.05	0.07	<0.05	0.09	<0.05	<0.05	0.05
Nitrate (as N)	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Nitrite (as N)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosphorus, total	mg/L	0.002	0.0058	<0.002	<0.002	<0.002	<0.002	<0.002
Sulfate (as SO ₄)	mg/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total Metals								
Aluminum	mg/L	0.003	<0.003	<0.003	0.0054	<0.003	<0.003	<0.003
Barium	mg/L	0.0001	<0.0001	<0.0001	0.00024	<0.0001	<0.0001	<0.0001
Calcium	mg/L	0.05	<0.05	0.055	<0.05	<0.05	<0.05	<0.05
Chromium	mg/L	0.0005	<0.0005	<0.0005	0.00063	<0.0005	<0.0005	<0.0005
Magnesium	mg/L	0.005	0.0059	0.0116	0.043	<0.005	<0.005	<0.005
Manganese	mg/L	0.0001	<0.0001	<0.0001	0.00057	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.0005	<0.0005	<0.0005	0.00388	<0.0005	<0.0005	<0.0005
Sodium	mg/L	0.05	<0.05	<0.05	0.064	<0.05	<0.05	<0.05
Tin	mg/L	0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001
Zirconium	mg/L	0.003	<0.003	<0.003	0.0035	<0.003	<0.003	<0.003
Dissolved Metals								
Barium	mg/L	0.0001	<0.0001	<0.0001	0.00011	<0.0001	<0.0001	0.00014
Magnesium	mg/L	0.005	<0.005	0.0094	<0.005	<0.005	<0.005	<0.005
Sodium	mg/L	0.05	<0.05	<0.05	0.051	<0.05	<0.05	<0.05
Zirconium	mg/L	0.001	<0.001	<0.001	0.003	0.0016	0.0014	<0.001

Result >LRL.

Notes: LRL = Laboratory Reporting Limit. mg/L = milligrams per litre. < = less than. CaCO₃ = calcium carbonate. NTU = Nephelometric Turbidity Units. > = greater than. Only parameters with at least one value above LRL were displayed.

Table A.4: Field Duplicate Evaluation for Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Units	BL0-01-A_S_2025-07-27	QD-BF1FB_S_2025-07-27	RPD (%)	BL0-09_S_2025-08-23	QD-CC1_S_2025-08-23	RPD (%)	DL0-02-6_S_2025-04-19	QD-CC2_S_2025-04-19	RPD (%)
Physical Parameters										
Alkalinity, Total (as CaCO ₃)	mg/L	60.1	61.7	2.63	36.8	37.2	1.08	80.3	80.9	0.744
Conductivity	µS/cm	121	123	1.64	87.7	87.8	0.114	249	248	0.402
Hardness (as CaCO ₃)	mg/L	56.8	57.6	1.40	41.1	41.4	0.727	112	112	0
Total Suspended Solids	mg/L	<1	<1	-	1.10	1.00	9.52	1.60	1.80	11.8
Turbidity, Lab	NTU	2.42	<0.1	184	4.17	4.17	0	0.330	0.300	9.52
pH, Lab	pH	8.01	6.23	25.0	7.56	7.67	1.44	7.25	7.21	0.553
Nutrients, Carbon, and Organics										
Ammonia, Total (as N)	mg/L	<0.005	<0.005	-	0.00720	0.00580	21.5	<0.005	<0.005	-
Bromide (Br)	mg/L	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Chloride (Cl)	mg/L	1.63	1.66	1.82	1.35	1.34	0.743	7.74	7.74	0
Nitrate (as N)	mg/L	<0.02	<0.02	-	0.0400	0.0400	0	0.847	0.846	0.118
Nitrite (as N)	mg/L	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Phosphorus (P)-Total	mg/L	0.0047	0.0029	47.4	0.0039	0.0036	8	<0.002	0.0024	18.2
Sulphate	mg/L	0.990	0.960	3.08	1.55	1.55	0	27.5	27.6	0.363
Total Kjeldahl Nitrogen	mg/L	0.173	0.126	31.4	0.0770	0.0790	2.56	0.146	0.167	13.4
Total Organic Carbon	mg/L	3.17	2.59	20.1	2.37	1.75	30.1	2.30	2.18	5.36
Dissolved Organic Carbon	mg/L	2.83	2.54	10.8	1.89	1.81	4.32	2.45	2.70	9.71
Total Dissolved Solids	mg/L	74.0	<20	115	41.0	43.0	4.76	123	126	2.41
Phenols, total (4AAP)	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Metals										
Aluminum	mg/L	0.0758	0.0504	40.2	0.106	0.0753	33.9	0.00870	0.00600	36.7
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Barium	mg/L	0.00666	0.00674	1.19	0.00538	0.00497	7.92	0.0129	0.0128	0.778
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	<0.01	<0.01	-	<0.01	<0.01	-	0.0180	0.0170	5.71
Cadmium	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-	0.00000520	0.00000580	10.9
Calcium	mg/L	12.3	12.6	2.41	12.6	7.65	0	21.1	20.3	3.86
Cesium	mg/L	<0.00001	<0.00001	-	0.0000150	0.0000130	14.3	<0.00001	<0.00001	-
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Copper	mg/L	0.00118	0.00111	6.11	0.000790	0.000780	1.27	0.000970	0.000920	5.29
Iron	mg/L	0.0660	0.0540	20.0	0.0920	0.0770	17.8	0.0220	0.0210	4.65
Lead	mg/L	0.0000690	0.0000540	24.4	0.0000960	0.0000810	16.9	<0.00005	<0.00005	-
Lithium	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	0.00210	0.00180	15.4
Magnesium	mg/L	7.50	7.64	1.85	4.70	4.52	3.90	14.3	14.2	0.702
Manganese	mg/L	0.00287	0.00262	9.11	0.00188	0.00176	6.59	0.00265	0.00266	0.377
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.000226	0.000230	1.75	0.000192	0.000180	6.45	0.00168	0.00171	1.77
Nickel	mg/L	0.000850	0.000790	7.32	0.000520	0.000500	3.92	0.000860	0.000880	2.30
Potassium	mg/L	0.887	0.892	0.562	0.654	0.639	2.32	2.39	2.35	1.69
Rubidium	mg/L	0.00174	0.00159	9.01	0.00131	0.00122	7.11	0.00454	0.00440	3.13
Selenium	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	0.0000820	0.0000850	3.59
Silicon	mg/L	0.830	0.800	3.68	0.760	0.670	12.6	1.07	1.05	1.89
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	1.50	1.55	3.28	1.13	1.13	0	2.79	2.81	0.714
Strontium	mg/L	0.00857	0.00872	1.74	0.00686	0.00667	2.81	0.0294	0.0297	1.02
Sulphur	mg/L	0.550	<0.5	9.52	0.580	0.560	3.51	9.51	9.31	2.13
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	0.00240	0.00203	16.7	0.00429	0.00352	19.7	<0.0003	<0.0003	-
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.000959	0.00100	4.19	0.000720	0.000700	2.82	0.00256	0.00255	0.391
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.003	<0.003	-	<0.003	<0.003	-	<0.003	<0.003	-
Zirconium	mg/L	0.000240	<0.0002	18.2	0.000230	<0.0002	13.9	<0.0002	<0.0002	-
Dissolved Metals										
Aluminum	mg/L	0.0140	0.0105	28.6	0.0339	0.0192	55.4	0.00310	0.00240	25.4
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Barium	mg/L	0.00635	0.00642	1.10	0.00512	0.00491	4.19	0.0133	0.0134	0.749
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	<0.01	<0.01	-	<0.01	<0.01	-	0.0180	0.0180	0
Cadmium	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-	<0.000005	0.00000590	16.5
Calcium	mg/L	11.3	11.4	0.881	8.06	8.10	0.495	20.3	20.8	2.43
Cesium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Copper	mg/L	0.000940	0.000960	2.11	0.000650	0.000560	14.9	0.000880	0.000930	5.52
Iron	mg/L	0.0150	0.0120	22.2	0.0180	0.0120	40.0	<0.01	<0.01	-
Lead	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Lithium	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	0.00240	0.00230	4.26
Magnesium	mg/L	6.93	7.08	2.14	5.09	5.14	0.978	14.8	14.7	0.678
Manganese	mg/L	0.00153	0.00155	1.30	0.000290	0.000250	14.8	0.000740	0.000950	24.9
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.000234	0.000228	2.60	0.000181	0.000178	1.67	0.00169	0.00174	2.92
Nickel	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	0.000860	0.000860	0
Potassium	mg/L	0.877	0.876	0.114	0.620	0.622	0.322	2.37	2.41	1.67
Rubidium	mg/L	0.00154	0.00152	1.31	0.00102	0.000920	10.3	0.00426	0.00425	0.235
Selenium	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	0.000102	0.0000960	6.06
Silicon	mg/L	0.714	0.695	2.70	0.634	0.596	6.18	1.06	1.07	0.939
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	1.49	1.54	3.30	1.15	1.16	0.866	2.84	2.83	0.353
Strontium	mg/L	0.00882	0.00885	0.340	0.00632	0.00646	2.19	0.0300	0.0302	0.664
Sulphur	mg/L	<0.5	<0.5	-	0.550	0.570	3.57	9.64	9.68	0.414
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	0.000350	<0.0003	15.4	0.000730	0.000450	47.5	<0.0003	<0.0003	-
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.000962	0.00102	5.85	0.000609	0.000612	0.491	0.00252	0.00252	0
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Zirconium	mg/L	<0.0003	<0.0003	-	<0.0003	<0.0003	-	<0.0003	<0.0003	-
Plant Compounds										
Chlorophyll a	mg/L	0.000758	0.0000170	191	0.000672	0.000766	13.1	0.000946	0.000880	7.23
Chlorophyll a	µg/sample	0.150	0.00350	191	0.0672	0.0766	13.1	0.0946	0.0880	7.23

RPD >25%.

Notes: RPD = relative percent difference. % = percent. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. µS/cm = microSiemens per centimetre. - = no data/not calculated. NTU = Nephelometric Turbidity Units. > = greater than. The RPD was calculated using < Laboratory Reporting Limit (LRL) results at the LRL if one result in a duplicate pair was below the LRL. The RPD was not calculated if both results were <LRL.

Table A.4: Field Duplicate Evaluation for Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Units	JL0-02_B_2025-04-12	QD-CC1_B_2025-04-12	RPD (%)	REF3-03_S_2025-07-29	QD-CC1FD_S_2025-07-29	RPD (%)
Physical Parameters							
Alkalinity, Total (as CaCO ₃)	mg/L	78.2	78.7	0.637	32.5	32.5	0
Conductivity	µS/cm	177	177	0	74.9	74.7	0.267
Hardness (as CaCO ₃)	mg/L	88.2	81.3	8.14	35.8	35.9	0.279
Total Suspended Solids	mg/L	<1	<1	-	<1	<1	-
Turbidity, Lab	NTU	0.200	0.210	4.88	0.390	0.300	26.1
pH, Lab	pH	7.62	7.62	0	7.83	7.77	0.769
Nutrients, Carbon, and Organics							
Ammonia, Total (as N)	mg/L	0.0238	0.0179	28.3	0.00760	<0.005	41.3
Bromide (Br)	mg/L	<0.1	<0.1	-	<0.1	<0.1	-
Chloride (Cl)	mg/L	4.84	4.84	0	1.20	1.19	0.837
Nitrate (as N)	mg/L	<0.02	<0.02	-	<0.02	<0.02	-
Nitrite (as N)	mg/L	<0.01	<0.01	-	<0.01	<0.01	-
Phosphorus (P)-Total	mg/L	0.0036	0.0057	45.2	0.0035	0.0032	9
Sulphate	mg/L	4.74	4.71	0.635	2.73	2.72	0.367
Total Kjeldahl Nitrogen	mg/L	0.193	0.154	22.5	0.150	0.194	25.6
Total Organic Carbon	mg/L	2.38	2.64	10.4	3.99	3.82	4.35
Dissolved Organic Carbon	mg/L	2.50	7.44	99.4	2.85	3.04	6.45
Total Dissolved Solids	mg/L	70.0	82.0	15.8	57.0	55.0	3.57
Phenols, total (4AAP)	mg/L	<0.001	<0.001	-	0.00110	0.00120	8.70
Total Metals							
Aluminum	mg/L	0.00510	0.00500	1.98	0.00630	0.00620	1.60
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	0.000120	0.000110	8.70	<0.0001	<0.0001	-
Barium	mg/L	0.00882	0.00854	3.23	0.00626	0.00622	0.641
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	<0.01	<0.01	-	<0.01	<0.01	-
Cadmium	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Calcium	mg/L	16.9	16.4	3.00	6.80	6.82	0.294
Cesium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Copper	mg/L	0.00166	0.00145	13.5	0.000940	0.000900	4.35
Iron	mg/L	<0.01	<0.01	-	0.0150	0.0140	6.90
Lead	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Lithium	mg/L	0.00120	0.00120	0	<0.001	<0.001	-
Magnesium	mg/L	10.2	10.2	0	4.44	4.38	1.36
Manganese	mg/L	0.000510	0.000470	8.16	0.000760	0.000760	0
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.000567	0.000537	5.43	0.000159	0.000155	2.55
Nickel	mg/L	0.000790	0.000780	1.27	<0.0005	<0.0005	-
Potassium	mg/L	1.63	1.61	1.23	0.881	0.863	2.06
Rubidium	mg/L	0.00344	0.00342	0.583	0.000960	0.000920	4.26
Selenium	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Silicon	mg/L	0.590	0.580	1.71	0.460	0.460	0
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	2.49	2.51	0.800	0.915	0.899	1.76
Strontium	mg/L	0.0137	0.0138	0.727	0.00813	0.00798	1.86
Sulphur	mg/L	1.64	1.58	3.73	0.910	0.960	5.35
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	<0.0003	<0.0003	-	<0.0003	0.000300	0
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.00184	0.00187	1.62	0.000315	0.000310	1.60
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.003	<0.003	-	<0.003	<0.003	-
Zirconium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Dissolved Metals							
Aluminum	mg/L	0.00280	0.00270	3.64	0.00330	0.00290	12.9
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	<0.0001	0.000100	0	<0.0001	<0.0001	-
Barium	mg/L	0.00876	0.00900	2.70	0.00642	0.00631	1.73
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	<0.01	<0.01	-	<0.01	<0.01	-
Cadmium	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Calcium	mg/L	17.2	16.4	4.76	6.88	6.96	1.16
Cesium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Copper	mg/L	0.00129	0.00124	3.95	0.000910	0.000870	4.49
Iron	mg/L	<0.01	<0.01	-	<0.01	<0.01	-
Lead	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Lithium	mg/L	0.00140	<0.001	33.3	<0.001	<0.001	-
Magnesium	mg/L	11.0	9.79	11.6	4.51	4.50	0.222
Manganese	mg/L	<0.0001	0.000100	0	0.000330	0.000290	12.9
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.000546	0.000536	1.85	0.000154	0.000144	6.71
Nickel	mg/L	0.000720	0.000660	8.70	<0.0005	<0.0005	-
Potassium	mg/L	1.63	1.49	8.97	0.914	0.905	0.990
Rubidium	mg/L	0.00350	0.00322	8.33	0.000950	0.000960	1.05
Selenium	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Silicon	mg/L	0.549	0.541	1.47	0.444	0.440	0.905
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	2.55	2.37	7.32	0.948	0.946	0.211
Strontium	mg/L	0.0137	0.0132	3.72	0.00824	0.00822	0.243
Sulphur	mg/L	1.48	1.58	6.54	1.02	1.00	1.98
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	<0.0003	<0.0003	-	<0.0003	<0.0003	-
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.00176	0.00166	5.85	0.000294	0.000299	1.69
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.001	0.00140	33.3	0.00110	<0.001	9.52
Zirconium	mg/L	<0.0003	<0.0003	-	<0.0003	<0.0003	-
Plant Compounds							
Chlorophyll a	mg/L	0.000761	0.000712	6.65	0.000540	0.000765	34.5
Chlorophyll a	µg/sample	0.0761	0.0712	6.65	0.108	0.156	36.4

RPD >25%.

Notes: RPD = relative percent difference. % = percent. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. µS/cm = microSiemens per centimetre. - = no data/not calculated. NTU = Nephelometric Turbidity Units. > = greater than. The RPD was calculated using < Laboratory Reporting Limit (LRL) results at the LRL if one result in a duplicate pair was below the LRL. The RPD was not calculated if both results were <LRL.

Table A.5: Laboratory Reporting Limit (LRL) Evaluation for Stream Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Units	Long-term WQG ^a		AEMP Benchmark ^b	Range of LRLs	No. Sample Results <LRL
		Value	Type	Lakes		
Physical Parameters						
Alkalinity, Total (as CaCO ₃)	mg/L	-	-	-	2.00	6 (6%)
Conductivity	µS/cm	-	-	-	1.00	2 (2%)
Total Suspended Solids	mg/L	-	-	-	1.00 to 1.30	68 (64%)
Turbidity, Lab	NTU	-	-	-	0.100	6 (6%)
pH, Lab	pH	-	-	-	0.100	0 (0%)
Nutrients, Carbon, and Organics						
Ammonia, Total (as N)	mg/L	-	-	Variable	0.00500	46 (44%)
Bromide (Br)	mg/L	-	-	-	0.100	99 (95%)
Chloride (Cl)	mg/L	-	-	120	0.500	21 (20%)
Nitrate (as N)	mg/L	-	-	3	0.0200	52 (50%)
Nitrite (as N)	mg/L	-	-	0.06	0.0100	101 (97%)
Phosphorus (P)	mg/L	-	-	-	0.00200	30 (28.8%)
Sulphate	mg/L	-	-	Variable	0.300	13 (12%)
Total Kjeldahl Nitrogen	mg/L	-	-	-	0.0500 to 0.500	8 (8%)
Total Organic Carbon	mg/L	-	-	-	0.500	1 (1%)
Dissolved Organic Carbon	mg/L	-	-	-	0.500	4 (4%)
Total Dissolved Solids	mg/L	-	-	-	15.0 to 22.0	7 (7%)
Phenols, total (4AAP)	mg/L	0.004	CCME	-	0.00100	102 (98%)
Total Metals						
Aluminum	mg/L	-	-	0.179 to 0.966	0.00300	6 (6%)
Antimony	mg/L	0.074	BC WQG	-	0.000100	103 (99%)
Arsenic	mg/L	-	-	0.005	0.000100	87 (84%)
Barium	mg/L	1	BC WQG	-	0.000100	6 (6%)
Beryllium	mg/L	0.00013	BC WQG	-	0.0000200	96 (92%)
Bismuth	mg/L	-	-	-	0.0000500	104 (100%)
Boron	mg/L	1.5	CCME	-	0.0100	93 (89%)
Cadmium	mg/L	-	-	Variable	0.00000500	90 (87%)
Calcium	mg/L	-	-	-	0.0500	6 (6%)
Cesium	mg/L	-	-	-	0.0000100	32 (31%)
Chromium	mg/L	-	-	0.0089	0.000500	70 (67%)
Cobalt	mg/L	-	-	Variable	0.000100	71 (68%)
Copper	mg/L	Variable	CCME	-	0.000500	11 (11%)
Iron	mg/L	-	-	0.326 to 0.874	0.0100	13 (12%)
Lead	mg/L	Variable	CCME	-	0.0000500	49 (47%)
Lithium	mg/L	-	-	-	0.00100	65 (62%)
Magnesium	mg/L	-	-	-	0.00500	6 (6%)
Manganese	mg/L	Variable	BC WQG	-	0.000100	8 (8%)
Mercury	mg/L	0.000026	CCME	-	0.00000500	104 (100%)
Molybdenum	mg/L	7.6	BC WQG	-	0.0000500	6 (6%)
Nickel	mg/L	-	-	Variable	0.000500	39 (38%)
Potassium	mg/L	-	-	-	0.0500	6 (6%)
Rubidium	mg/L	-	-	-	0.000200	6 (6%)
Selenium	mg/L	-	-	-	0.0000500	83 (80%)
Silicon	mg/L	-	-	0.001	0.100	6 (6%)
Silver	mg/L	-	-	-	0.0000100	104 (100%)
Sodium	mg/L	-	-	0.0001	0.0500	6 (6%)
Strontium	mg/L	-	-	-	0.000200	6 (6%)
Sulphur	mg/L	2.5	FEQG	-	0.500	34 (33%)
Tellurium	mg/L	-	-	-	0.000200	104 (100%)
Thallium	mg/L	-	-	-	0.0000100	78 (75%)
Thorium	mg/L	-	-	0.0008	0.000100	67 (64%)
Tin	mg/L	-	-	-	0.000100	104 (100%)
Titanium	mg/L	-	-	-	0.000300 to 0.000900	23 (22%)
Tungsten	mg/L	-	-	-	0.000100	104 (100%)
Uranium	mg/L	-	-	-	0.0000100	6 (6%)
Vanadium	mg/L	-	-	0.015	0.000500	84 (81%)
Zinc	mg/L	-	-	0.06	0.00300	104 (100%)
Zirconium	mg/L	-	-	-	0.000200	57 (55%)
Dissolved Metals						
Aluminum	mg/L	-	-	-	0.00100	6 (6%)
Antimony	mg/L	-	-	-	0.000100	104 (100%)
Arsenic	mg/L	-	-	-	0.000100	100 (96%)
Barium	mg/L	-	-	-	0.000100	6 (6%)
Beryllium	mg/L	-	-	-	0.0000200	104 (100%)
Bismuth	mg/L	-	-	-	0.0000500	104 (100%)
Boron	mg/L	-	-	-	0.0100	93 (89%)
Cadmium	mg/L	Variable	BC WQG	-	0.00000500	96 (92%)
Calcium	mg/L	-	-	-	0.0500	6 (6%)
Cesium	mg/L	-	-	-	0.0000100	82 (79%)
Chromium	mg/L	-	-	-	0.000500	104 (100%)
Cobalt	mg/L	Variable	BC WQG	-	0.000100	95 (91%)
Copper	mg/L	-	-	Variable	0.000200	6 (6%)
Iron	mg/L	-	-	-	0.0100	46 (44%)
Lead	mg/L	-	-	Variable	0.0000500	99 (95%)
Lithium	mg/L	-	-	-	0.00100	70 (67%)
Magnesium	mg/L	-	-	-	0.00500	6 (6%)
Manganese	mg/L	-	-	Variable	0.000100	11 (11%)
Mercury	mg/L	-	-	-	0.00000500	104 (100%)
Molybdenum	mg/L	-	-	-	0.0000500	6 (6%)
Nickel	mg/L	Variable	BC WQG	-	0.000500	60 (58%)
Potassium	mg/L	-	-	-	0.0500	6 (6%)
Rubidium	mg/L	-	-	-	0.000200	6 (6%)
Selenium	mg/L	-	-	-	0.0000500	79 (76%)
Silicon	mg/L	-	-	-	0.0500	6 (6%)
Silver	mg/L	-	-	-	0.0000100	104 (100%)
Sodium	mg/L	-	-	-	0.0500	6 (6%)
Strontium	mg/L	-	-	-	0.000200	6 (6%)
Sulphur	mg/L	2.5	FEQG	-	0.500	32 (31%)
Tellurium	mg/L	-	-	-	0.000200	104 (100%)
Thallium	mg/L	-	-	-	0.0000100	90 (87%)
Thorium	mg/L	-	-	-	0.000100	102 (98%)
Tin	mg/L	-	-	-	0.000100	104 (100%)
Titanium	mg/L	-	-	-	0.000300	59 (57%)
Tungsten	mg/L	-	-	-	0.000100	104 (100%)
Uranium	mg/L	-	-	-	0.0000100	6 (6%)
Vanadium	mg/L	-	-	-	0.000500	103 (99%)
Zinc	mg/L	-	-	-	0.00100	99 (95%)
Zirconium	mg/L	-	-	Variable	0.000300	102 (98%)
Plant Compounds						
Pheophytin a	mg/L	-	-	-	0.0000980 to 0.000200	7 (7%)
Pheophytin a	µg/sample	-	-	-	0.0200	7 (7%)

LRL >WQG or AEMP benchmark.

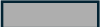
Notes: WQG = Water Quality Guideline. AEMP = Aquatic Effects Monitoring Plan. LRL = Laboratory Reporting Limit. No. = number. < = less than. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. - = no applicable units or WQG/benchmark. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. CCME = Canadian Council of Ministers of the Environment. BC = British Columbia; FEQG = Federal Environmental Quality Guideline. > = greater than. See Table 2.3 for guideline description, calculations, and selection. Only parameters with at least one result below LRL or LRL above guideline were displayed. The total number of samples assessed was 107 including 8 duplicate samples.

^a WQG for the protection of freshwater aquatic life include WQG from the CCME (2026), FEQG (ECCC 2024), and BC WQG (BCMOE 2026,2025). Parameters with site-specific benchmarks (Baffinland 2024) were not screened to generic WQG derived for other jurisdictions in Canada.

^b Aquatic Effects Monitoring Plan (AEMP) benchmarks apply to all stream/river or lake systems unless otherwise indicated (Baffinland 2024).

Table A.6: Evaluation of Field and Trip Blank Results for Stream Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Unit	LRL	Field Blanks		Trip Blanks			
			QD-BF1_2025-06-30	QD-BF6_2025-08-03	QD-BT1_2025-06-30	QD-BT1_2025-06-31	QD-BT1_2025-06-32	QD-BT1_2025-06-33
Physical Tests and Carbon								
Conductivity	µS/cm	1	<1	1.1	<1	1.1	1.1	1.1
Turbidity	NTU	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12
Dissolved organic carbon	mg/L	0.5	<0.5	<0.5	0.63	<0.5	<0.5	0.72
Total organic carbon	mg/L	0.5	0.76	0.76	0.58	<0.5	0.85	1.08
Nutrients								
Ammonia, total (as N)	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	0.0072	<0.005
Phosphorus, total	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	0.0042	<0.002

 Result >LRL.

Notes: LRL = Laboratory Reporting Limit. µS/cm = microSiemens per centimetre. < = less than. NTU = Nephelometric Turbidity Units. mg/L = milligrams per litre. > = greater than. Only parameters with at least one value >LRL were displayed.

Table A.7: Field Duplicate Evaluation for Stream Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Unit	CLT- REF4_2025- 08-26	QD- CC6_2025- 08-26	RPD (%)	D1-00_2025- 08-01	QD- CC6_2025- 08-01	RPD (%)	D9-1_2025- 08-01	QD- CC5_2025- 08-01	RPD (%)
Physical Parameters										
Alkalinity, Total (as CaCO ₃)	mg/L	75.5	75.6	0.132	92.2	92.0	0.217	20.0	101	134
Conductivity	µS/cm	147	148	0.678	526	526	0	273	271	0.735
Total Suspended Solids	mg/L	<1	<1	-	<1	<1	-	<1	<1	-
Turbidity, Lab	NTU	0.230	0.230	0	0.960	0.980	2.06	0.160	0.110	37.0
pH, Lab	pH	7.71	7.72	0.130	8.24	8.20	0.487	7.55	7.56	0.132
Nutrients, Carbon, and Organics										
Ammonia, Total (as N)	mg/L	<0.005	<0.005	-	0.00830	0.00790	4.94	0.174	0.191	9.32
Bromide (Br)	mg/L	<0.1	<0.1	-	0.120	0.120	0	<0.1	<0.1	-
Chloride (Cl)	mg/L	0.790	0.680	15.0	16.5	16.3	1.22	0.880	0.840	4.65
Nitrate (as N)	mg/L	<0.02	<0.02	-	6.87	6.79	1.17	7.55	7.13	5.72
Nitrite (as N)	mg/L	<0.01	<0.01	-	<0.01	<0.01	-	0.0620	0.0550	12.0
Phosphorus (P)	mg/L	<0.002	<0.002	-	0.0023	0.013	139.9	0.0028	0.003	6.9
Sulphate	mg/L	1.13	1.06	6.39	121	120	0.830	4.23	4.05	4.35
Total Kjeldahl Nitrogen	mg/L	0.0690	0.0950	31.7	0.429	0.459	6.76	0.539	0.480	11.6
Total Organic Carbon	mg/L	1.26	1.97	44.0	3.31	3.30	0.303	3.42	3.35	2.07
Dissolved Organic Carbon	mg/L	1.33	1.49	11.3	2.56	2.98	15.2	2.79	2.60	7.05
Total Dissolved Solids	mg/L	63.0	71.0	11.9	328	332	1.21	162	168	3.64
Phenols, total (4AAP)	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Metals										
Aluminum	mg/L	0.00580	0.00570	1.74	0.0222	0.0195	12.9	0.00400	0.00580	36.7
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Barium	mg/L	0.00669	0.00678	1.34	0.0226	0.0223	1.34	0.0150	0.0150	0
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	<0.01	<0.01	-	0.0210	0.0210	0	<0.01	<0.01	-
Cadmium	mg/L	<0.000005	<0.000005	-	0.0000534	0.0000588	9.63	<0.000005	<0.000005	-
Calcium	mg/L	16.5	16.7	1.20	40.0	39.9	0.250	25.7	25.7	0
Cesium	mg/L	<0.00001	<0.00001	-	0.0000160	0.0000160	0	0.0000160	0.0000140	13.3
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	0.000650	0.000610	6.35	<0.0001	<0.0001	-
Copper	mg/L	0.000570	0.000580	1.74	0.00195	0.00194	0.514	0.00155	0.00150	3.28
Iron	mg/L	<0.01	<0.01	-	0.103	0.101	1.96	<0.01	<0.01	-
Lead	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Lithium	mg/L	<0.001	<0.001	-	0.00670	0.00640	4.58	0.00170	0.00180	5.71
Magnesium	mg/L	9.83	9.88	0.507	34.2	33.9	0.881	16.0	16.0	0
Manganese	mg/L	<0.0001	<0.0001	-	0.0160	0.0156	2.53	0.00234	0.00258	9.76
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.000295	0.000294	0.340	0.00555	0.00551	0.723	0.000859	0.000824	4.16
Nickel	mg/L	<0.0005	0.00122	83.7	0.00128	0.00128	0	0.00158	0.00154	2.56
Potassium	mg/L	0.656	0.659	0.456	5.90	5.85	0.851	1.88	1.88	0
Rubidium	mg/L	0.00128	0.00131	2.32	0.00874	0.00863	1.27	0.00428	0.00398	7.26
Selenium	mg/L	<0.00005	<0.00005	-	0.000362	0.000380	4.85	<0.00005	<0.00005	-
Silicon	mg/L	0.860	0.870	1.16	1.54	1.50	2.63	1.18	1.18	0
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	1.00	1.00	0	6.50	6.47	0.463	1.49	1.48	0.673
Strontium	mg/L	0.0113	0.0114	0.881	0.0840	0.0845	0.593	0.0164	0.0163	0.612
Sulphur	mg/L	<0.5	<0.5	-	41.8	40.9	2.18	1.49	1.52	1.99
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	0.0000230	0.0000240	4.26	0.0000160	0.0000160	0
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	<0.0003	<0.0003	-	<0.0009	<0.0009	-	<0.0003	<0.0003	-
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.00570	0.00564	1.06	0.00976	0.00983	0.715	0.000826	0.000825	0.121
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.003	<0.003	-	<0.003	<0.003	-	<0.003	<0.003	-
Zirconium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Dissolved Metals										
Aluminum	mg/L	0.00290	0.00290	0	0.00570	0.00620	8.40	0.00300	0.00200	40.0
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	0.000100	0
Barium	mg/L	0.00684	0.00699	2.17	0.0234	0.0238	1.69	0.0160	0.0157	1.89
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	<0.01	<0.01	-	0.0200	0.0200	0	<0.01	<0.01	-
Cadmium	mg/L	<0.000005	<0.000005	-	0.0000507	0.0000537	5.75	<0.000005	<0.000005	-
Calcium	mg/L	16.2	16.2	0	44.1	44.3	0.452	29.1	28.8	1.04
Cesium	mg/L	<0.00001	<0.00001	-	0.0000160	0.0000140	13.3	0.0000140	0.0000130	7.41
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	0.000590	0.000610	3.33	<0.0001	<0.0001	-
Copper	mg/L	0.000550	0.000560	1.80	0.00185	0.00182	1.63	0.00149	0.00152	1.99
Iron	mg/L	<0.01	<0.01	-	0.0360	0.0470	26.5	<0.01	<0.01	-
Lead	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Lithium	mg/L	<0.001	<0.001	-	0.00690	0.00680	1.46	0.00220	0.00240	8.70
Magnesium	mg/L	8.88	8.91	0.337	35.2	35.3	0.284	16.8	16.9	0.593
Manganese	mg/L	<0.0001	<0.0001	-	0.0147	0.0148	0.678	0.00227	0.00218	4.04
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.000290	0.000286	1.39	0.00523	0.00529	1.14	0.000826	0.000797	3.57
Nickel	mg/L	<0.0005	<0.0005	-	0.00121	0.00123	1.64	0.00158	0.00151	4.53
Potassium	mg/L	0.631	0.627	0.636	5.89	5.98	1.52	1.83	1.83	0
Rubidium	mg/L	0.00141	0.00140	0.712	0.00887	0.00879	0.906	0.00427	0.00422	1.18
Selenium	mg/L	<0.00005	<0.00005	-	0.000444	0.000392	12.4	<0.00005	<0.00005	-
Silicon	mg/L	0.785	0.778	0.896	1.47	1.44	2.06	1.13	1.16	2.62
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	0.878	0.879	0.114	6.36	6.37	0.157	1.51	1.50	0.664
Strontium	mg/L	0.0114	0.0114	0	0.0842	0.0847	0.592	0.0167	0.0163	2.42
Sulphur	mg/L	<0.5	<0.5	-	41.6	41.4	0.482	1.64	1.67	1.81
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	0.0000230	0.0000240	4.26	0.0000160	0.0000160	0
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	<0.0003	<0.0003	-	<0.0003	<0.0003	-	<0.0003	<0.0003	-
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.00601	0.00588	2.19	0.0102	0.0100	1.98	0.000806	0.000817	1.36
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.001	<0.001	-	0.00130	0.00130	0	0.00240	<0.001	82.3
Zirconium	mg/L	<0.0003	<0.0003	-	<0.0003	<0.0003	-	<0.0003	<0.0003	-
Plant Compounds										
Chlorophyll a	mg/L	0.000122	0.000117	4.18	0.000252	0.000270	6.90	0.000120	0.000227	61.7
Chlorophyll a	µg/sample	0.0122	0.0117	4.18	0.0517	0.0540	4.35	0.0241	0.0459	62.3

RPD >25%.

Notes: RPD = relative percent difference. % = percent. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. µS/cm = microSiemens per centimetre. - = no data/not calculated. NTU = Nephelometric Turbidity Units. > = greater than. The RPD was calculated using < Laboratory Reporting Limit (LRL) results at the LRL if one result in a duplicate pair was below the LRL. The RPD was not calculated if both results were <LRL.

Table A.7: Field Duplicate Evaluation for Stream Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameter	Unit	L2-03_2025-08-28	QD-CC5_2025-08-28	RPD (%)	MRY-REF2_2025-06-30	QD-CC1_2025-06-30	RPD (%)
Physical Parameters							
Alkalinity, Total (as CaCO ₃)	mg/L	136	136	0	23.3	23.4	0.428
Conductivity	µS/cm	315	315	0	46.4	45.9	1.08
Total Suspended Solids	mg/L	7.50	3.20	80.4	<1	<1	-
Turbidity, Lab	NTU	10.7	5.70	61.0	1.68	1.29	26.3
pH, Lab	pH	8.04	8.05	0.124	6.98	7.03	0.714
Nutrients, Carbon, and Organics							
Ammonia, Total (as N)	mg/L	0.0257	0.0187	31.5	<0.005	<0.005	-
Bromide (Br)	mg/L	<0.1	<0.1	-	<0.1	<0.1	-
Chloride (Cl)	mg/L	11.2	11.2	0	0.630	0.620	1.60
Nitrate (as N)	mg/L	0.203	0.167	19.5	<0.02	<0.02	-
Nitrite (as N)	mg/L	<0.01	<0.01	-	<0.01	<0.01	-
Phosphorus (P)	mg/L	0.004	0.0038	5.1	0.0029	0.0035	18.8
Sulphate	mg/L	9.52	9.65	1.36	0.310	<0.3	3.28
Total Kjeldahl Nitrogen	mg/L	0.235	0.231	1.72	0.0640	0.0730	13.1
Total Organic Carbon	mg/L	5.60	5.54	1.08	1.64	1.81	9.86
Dissolved Organic Carbon	mg/L	3.65	3.51	3.91	1.39	1.33	4.41
Total Dissolved Solids	mg/L	179	178	0.560	33.0	20.0	49.1
Phenols, total (4AAP)	mg/L	0.00120	0.00100	18.2	<0.001	<0.001	-
Total Metals							
Aluminum	mg/L	0.124	0.0742	50.2	0.0503	0.0342	38.1
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	0.000130	0.000110	16.7	<0.0001	<0.0001	-
Barium	mg/L	0.0145	0.0141	2.80	0.00270	0.00268	0.743
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	0.0140	0.0140	0	<0.01	<0.01	-
Cadmium	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Calcium	mg/L	28.2	28.1	0.355	4.42	4.46	0.901
Cesium	mg/L	0.0000150	<0.00001	40.0	<0.00001	<0.00001	-
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	0.000150	0.000120	22.2	<0.0001	<0.0001	-
Copper	mg/L	0.00126	0.00120	4.88	0.000510	<0.0005	1.98
Iron	mg/L	0.442	0.362	19.9	0.0390	0.0340	13.7
Lead	mg/L	0.0000880	0.0000660	28.6	0.0000520	0.0000550	5.61
Lithium	mg/L	0.00320	0.00320	0	<0.001	<0.001	-
Magnesium	mg/L	20.8	20.3	2.43	2.58	2.59	0.387
Manganese	mg/L	0.0287	0.0261	9.49	0.000720	0.000840	15.4
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.00229	0.00227	0.877	0.0000950	0.000110	14.6
Nickel	mg/L	0.00115	0.00108	6.28	<0.0005	0.00104	70.1
Potassium	mg/L	3.55	3.50	1.42	0.372	0.360	3.28
Rubidium	mg/L	0.00424	0.00406	4.34	0.000650	0.000600	8.00
Selenium	mg/L	0.0000810	0.0000760	6.37	<0.00005	<0.00005	-
Silicon	mg/L	1.32	1.26	4.65	0.530	0.490	7.84
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	8.23	8.10	1.59	0.563	0.566	0.531
Strontium	mg/L	0.0300	0.0299	0.334	0.00337	0.00341	1.18
Sulphur	mg/L	3.86	3.91	1.29	<0.5	<0.5	-
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	0.00546	0.00311	54.8	0.00158	0.00114	32.4
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.0184	0.0182	1.09	0.000221	0.000222	0.451
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.003	<0.003	-	<0.003	<0.003	-
Zirconium	mg/L	0.000220	0.000200	9.52	<0.0002	<0.0002	-
Dissolved Metals							
Aluminum	mg/L	0.00480	0.00580	18.9	0.0175	0.0115	41.4
Antimony	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Arsenic	mg/L	0.000110	<0.0001	9.52	<0.0001	<0.0001	-
Barium	mg/L	0.0138	0.0139	0.722	0.00254	0.00249	1.99
Beryllium	mg/L	<0.00002	<0.00002	-	<0.00002	<0.00002	-
Bismuth	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Boron	mg/L	0.0130	0.0130	0	<0.01	<0.01	-
Cadmium	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Calcium	mg/L	28.4	28.1	1.06	4.46	4.49	0.670
Cesium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Chromium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Cobalt	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Copper	mg/L	0.00108	0.00108	0	0.000390	0.000370	5.26
Iron	mg/L	0.128	0.135	5.32	0.0120	<0.01	18.2
Lead	mg/L	<0.00005	<0.00005	-	<0.00005	<0.00005	-
Lithium	mg/L	0.00330	0.00330	0	<0.001	<0.001	-
Magnesium	mg/L	20.1	20.2	0.496	2.96	2.94	0.678
Manganese	mg/L	0.0235	0.0235	0	0.000430	0.000360	17.7
Mercury	mg/L	<0.000005	<0.000005	-	<0.000005	<0.000005	-
Molybdenum	mg/L	0.00224	0.00229	2.21	0.0000800	0.0000870	8.38
Nickel	mg/L	0.000940	0.000940	0	<0.0005	<0.0005	-
Potassium	mg/L	3.49	3.50	0.286	0.382	0.368	3.73
Rubidium	mg/L	0.00391	0.00390	0.256	0.000540	0.000590	8.85
Selenium	mg/L	0.0000710	0.0000610	15.2	<0.00005	<0.00005	-
Silicon	mg/L	1.12	1.12	0	0.470	0.452	3.90
Silver	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Sodium	mg/L	8.01	8.01	0	0.594	0.585	1.53
Strontium	mg/L	0.0300	0.0300	0	0.00345	0.00348	0.866
Sulphur	mg/L	3.79	3.90	2.86	<0.5	<0.5	-
Tellurium	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Thallium	mg/L	<0.00001	<0.00001	-	<0.00001	<0.00001	-
Thorium	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Tin	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Titanium	mg/L	<0.0003	<0.0003	-	0.000450	<0.0003	40.0
Tungsten	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Uranium	mg/L	0.0180	0.0180	0	0.000211	0.000207	1.91
Vanadium	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Zinc	mg/L	<0.001	<0.001	-	<0.001	<0.001	-
Zirconium	mg/L	<0.0003	<0.0003	-	<0.0003	<0.0003	-
Plant Compounds							
Chlorophyll a	mg/L	0.000829	0.000528	44.4	0.000130	0.000126	3.13
Chlorophyll a	µg/sample	0.0854	0.0597	35.4	0.0130	0.0126	3.13

RPD >25%.

Notes: RPD = relative percent difference. % = percent. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. µS/cm = microSiemens per centimetre. - = no data/not calculated. NTU = Nephelometric Turbidity Units. > = greater than. The RPD was calculated using < Laboratory Reporting Limit (LRL) results at the LRL if one result in a duplicate pair was below the LRL. The RPD was not calculated if both results were <LRL.

Table A.8: Laboratory Reporting Limit (LRL) Evaluation for Lake Sediment Chemistry Relative to Guidelines and Aquatic Effects Monitoring Plan (AEMP) Benchmarks, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025 ^a

Parameter	Unit	SQG		AEMP Benchmark	LRL	No. Sample Results <LRL
		Lower	Upper			
Metals						
Antimony	mg/kg	-	-	-	0.1	36 (94.7%)
Bismuth	mg/kg	-	-	-	0.2	12 (31.6%)
Mercury	mg/kg	-	-	0.33	0.005	1 (2.6%)
Selenium	mg/kg	-	-	-	0.2	7 (18.4%)
Silver	mg/kg	0.5	-	-	0.1	11 (28.9%)
Sulphur	mg/kg	-	-	-	1,000	29 (76.3%)
Tin	mg/kg	-	-	-	2	38 (100%)
Tungsten	mg/kg	-	-	-	0.5	34 (89.5%)

 The achieved LRL > the lowest SQG or AEMP benchmark.

Notes: SQG = Sediment Quality Guideline. LRL = Laboratory Reporting Limit. < = less than. mg/kg = milligrams per kilogram. - = no applicable SQG or benchmark. > = greater than. The total number of samples assessed was 38. Only parameters with at least one result <LRL or > SQG or benchmarks are displayed.

^a See Table 2.6 for a summary of SQG and AEMP benchmarks used in the assessment.

Table A.9: Percent of Benthic Invertebrate Community Samples Sorted, Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sample ID	% Sorted	Sample ID	% Sorted
REF-03-01	100	DLO-01-09	100
REF-03-02	100	DLO-01-10	100
REF-03-03 ^a	100	DD-HAB-9-STN2	50
REF-03-04	100	DLO-02-01	100
REF-03-05	100	DLO-02-03	50
BLO-01	100	DLO-02-09 ^b	100
BLO-06	100	DLO-02-11	100
BLO-11	25	DLO-02-13	100
BLO-20	50	JLO-02	50
BLO-21	100	JLO-21	100
BLO-22	100	JLO-30	100
DLO-01-03	25	JLO-31	100
DLO-01-08	100	JLO-32	100

Note : ID = identifier. % = percent.

^a Two halves sorted for subsampling error.

^b Four quarters sorted for subsampling error.

Table A.10: Benthic Invertebrate Community Sub-sampling Precision and Accuracy for Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Station	Whole Organisms	Organisms in Sub-Sample				Total	Precision Error		Accuracy Error	
		1	2	3	4		Min (%)	Max (%)	Min (%)	Max (%)
DLO-02-09	0	126	138	148	152	564	8.7	17.1	2.1	10.6
REF-03-03	0	203	233	-	-	436	12.9	-	6.9	-
Average							10.8	17.1	4.5	10.6

Note: Min = minimum absolute percent error. % = percent. Max = maximum absolute percent error. - = not applicable/no data.

Table A.11: Benthic Invertebrate Community Sorting Efficiency for Lake Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sample ID	Number of Organisms Recovered (initial sort)	Number of Organisms in Re-sort	Sorting Efficiency (%)
REF-03-01	57	58	98.3
BLO-21	162	166	97.6
BLO-22	387	394	98.2
DLO-01-10	163	175	93.1
Average			96.8

Notes: ID = identifier. % = percent.

Table A.12: Percent of Benthic Invertebrate Community Samples Sorted, Stream Sampling Events, Mary River, Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sample ID	% Sorted	Sample ID	% Sorted
CLTI-L2-B1	100	CLTI-DS-B3	100
CLTI-L2-B2	100	CLTI-DS-B4	100
CLTI-L2-B3	100	CLTI-DS-B5	100
CLTI-L2-B4	100	CLT2-US-B1	100
CLTI-L2-B5	100	CLT2-US-B2	100
CLTI-US-B1	100	CLT2-US-B3	100
CLTI-US-B2	100	CLT2-US-B4	100
CLTI-US-B3	100	CLT2-US-B5	100
CLTI-US-B4	100	CLT2-DS-B1	100
CLTI-US-B5	100	CLT2-DS-B2	100
E0-01-B1	100	CLT2-DS-B3	100
E0-01-B2A	100	CLT2-DS-B4	100
E0-01-B2B	100	CLT2-DS-B5	100
E0-01-B3	100	REF-CRK-B1	100
E0-01-B4	100	REF-CRK-B2	100
E0-01-B5	100	REF-CRK-B3	100
CLTI-DS-B1	100	REF-CRK-B4	100
CLTI-DS-B2	100	REF-CRK-B5	100
CO-05-B1	100	GO-03-B1	100
CO-05-B2	100	GO-03-B2	100
CO-05-B3	100	GO-03-B3	100
CO-05-B4	100	GO-03-B4	100
CO-05-B5	100	GO-03-B5	100
EO-20-B1	100	GO-9-B1	100
EO-20-B2	100	GO-9-B2	100
EO-20-B3	100	GO-9-B3	100
EO-20-B4	100	GO-9-B4	100
EO-20-B5	100	GO-9-B5	100
SDLT1-R1-B1 ^a	100	SDLT9-DS-B3	50
SDLT1-R1-B2	100	SDLT9-DS-B4	50
SDLT1-R1-B3	50	SDLT9-DS-B5	50
SDLT1-R1-B4	50	SDLT12-B1	50
SDLT1-R1-B5	100	SDLT12-B2	50
SDLT9-DS-B1	100	SDLT12-B3	100
SDLT9-DS-B2	50	-	-

Notes: ID = identifier. % = percent. - = no data.

^a Two halves sorted for subsampling error calculations.

Table A.13: Benthic Invertebrate Community Sub-sampling Precision and Accuracy for Stream Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Station	Whole Organisms	Organisms in Sub-Sample				Total	Precision Error		Accuracy Error	
		1	2	3	4		Min (%)	Max (%)	Min (%)	Max (%)
SDLT1-R1-B1	-	125	142	-	-	267	12.0	-	6.4	-
Average							12.0	-	6.4	-

Note: Min = minimum absolute percent error. % = percent. Max = maximum absolute percent error. - = not applicable/no data.

Table A.14: Benthic Invertebrate Community Sorting Efficiency for Stream Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sample ID	Number of Organisms Recovered (initial sort)	Number of Organisms in Re-sort	Sorting Efficiency (%)
REF-CRK-B3	47	50	94.0
CLT2-US-B3	45	49	91.8
CLTI-L2-B1	814	854	95.3
CLT2-DS-B2	108	120	90.0
GO-09-B1	15	16	93.8
EO-20-B2	99	102	97.1
SDLT9-B3	317	327	96.9
SDLT12-B2	83	86	96.5
Average			94.4

Notes: ID = identifier. % = percent.

APPENDIX B

WATER QUALITY

FIGURES

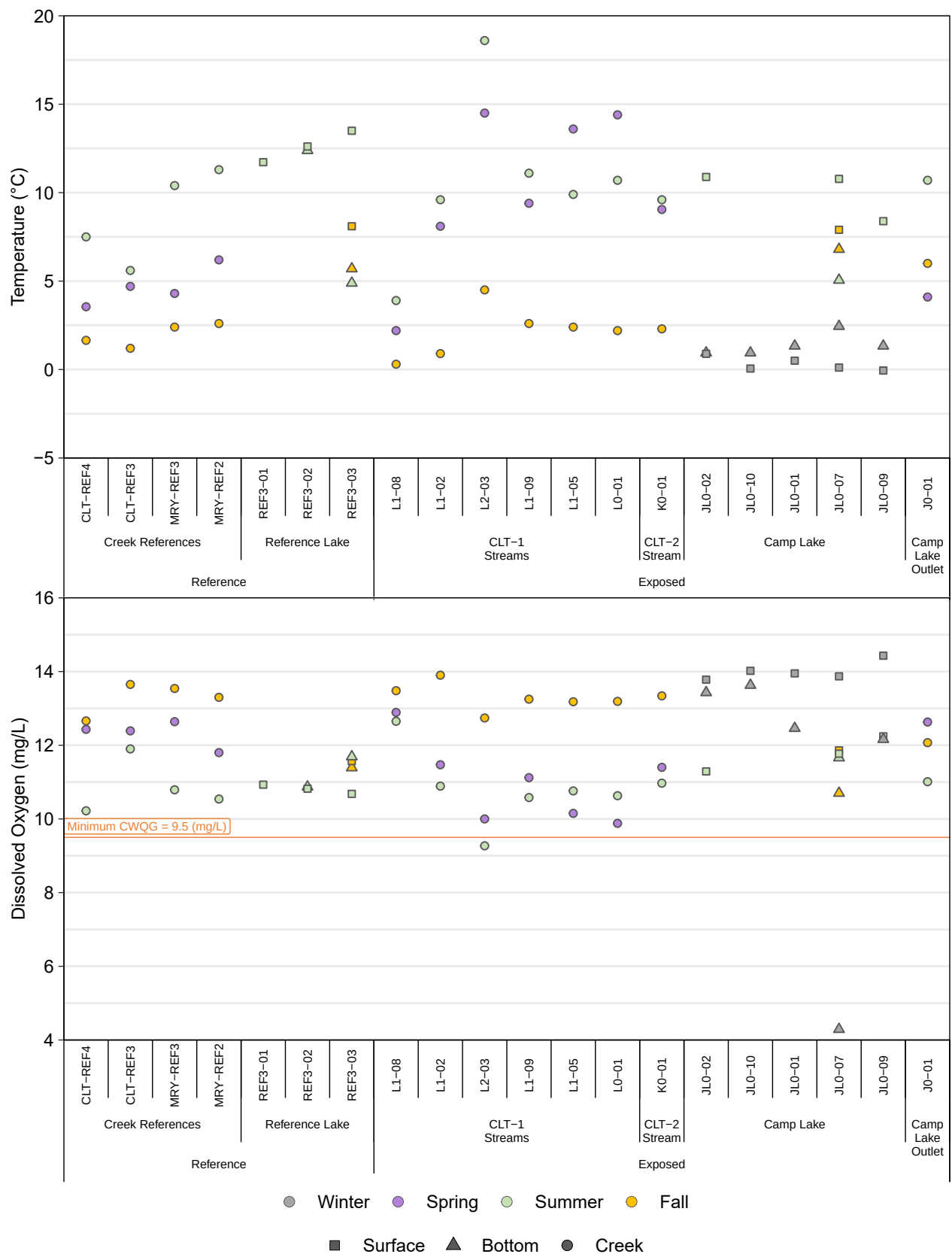


Figure B.1: *In Situ* Water Quality Measured at Camp Lake System Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

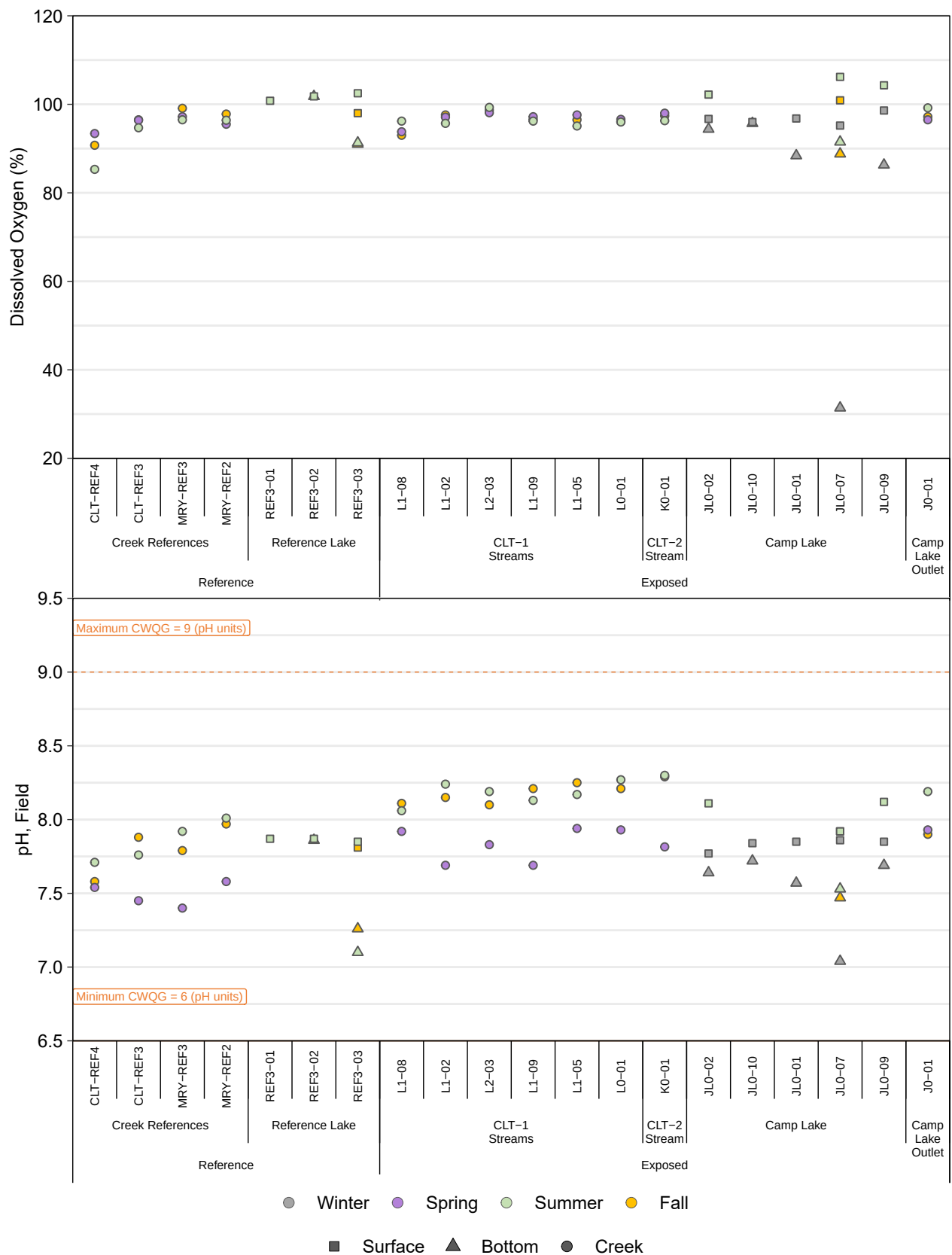


Figure B.1: *In Situ* Water Quality Measured at Camp Lake System Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

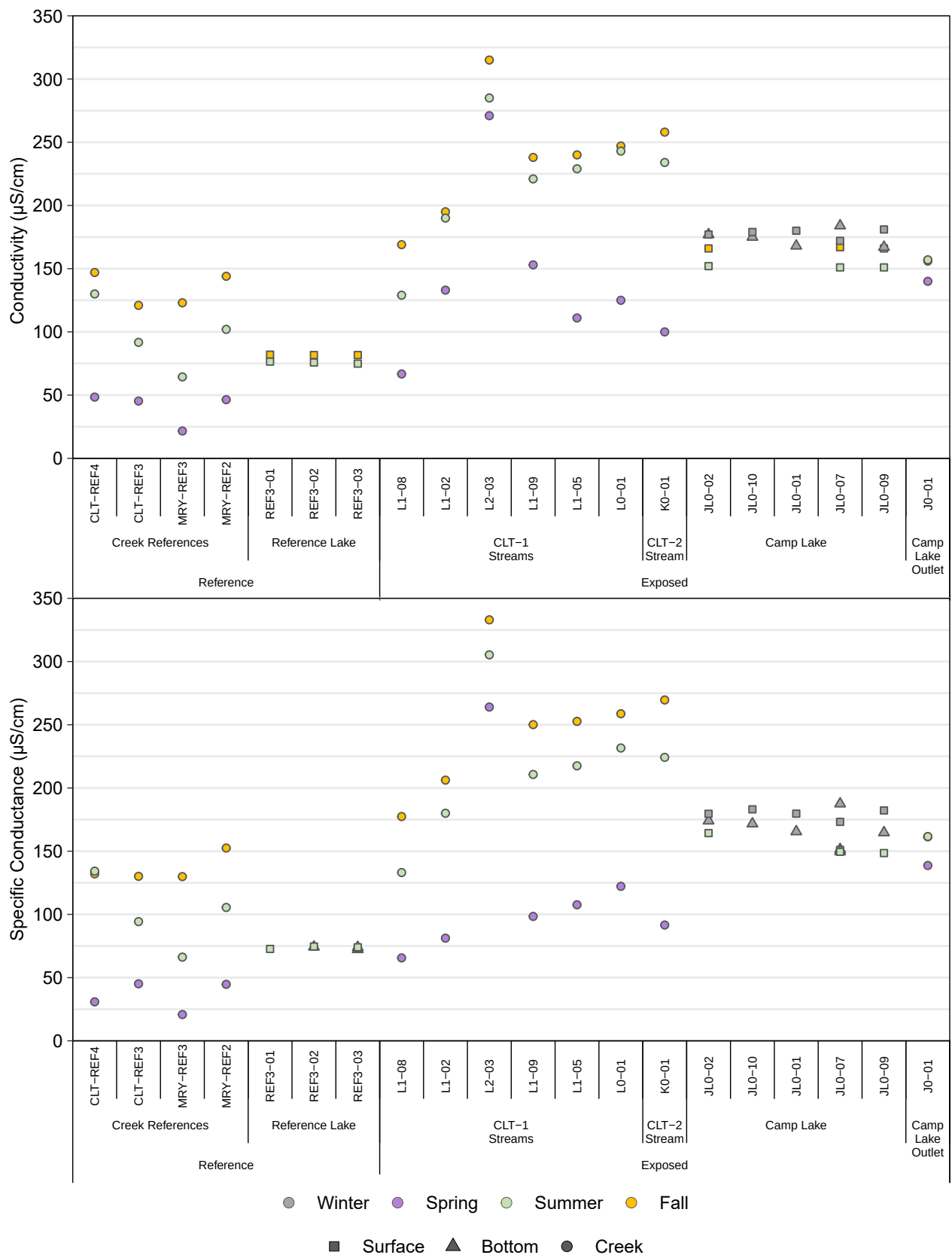


Figure B.1: *In Situ* Water Quality Measured at Camp Lake System Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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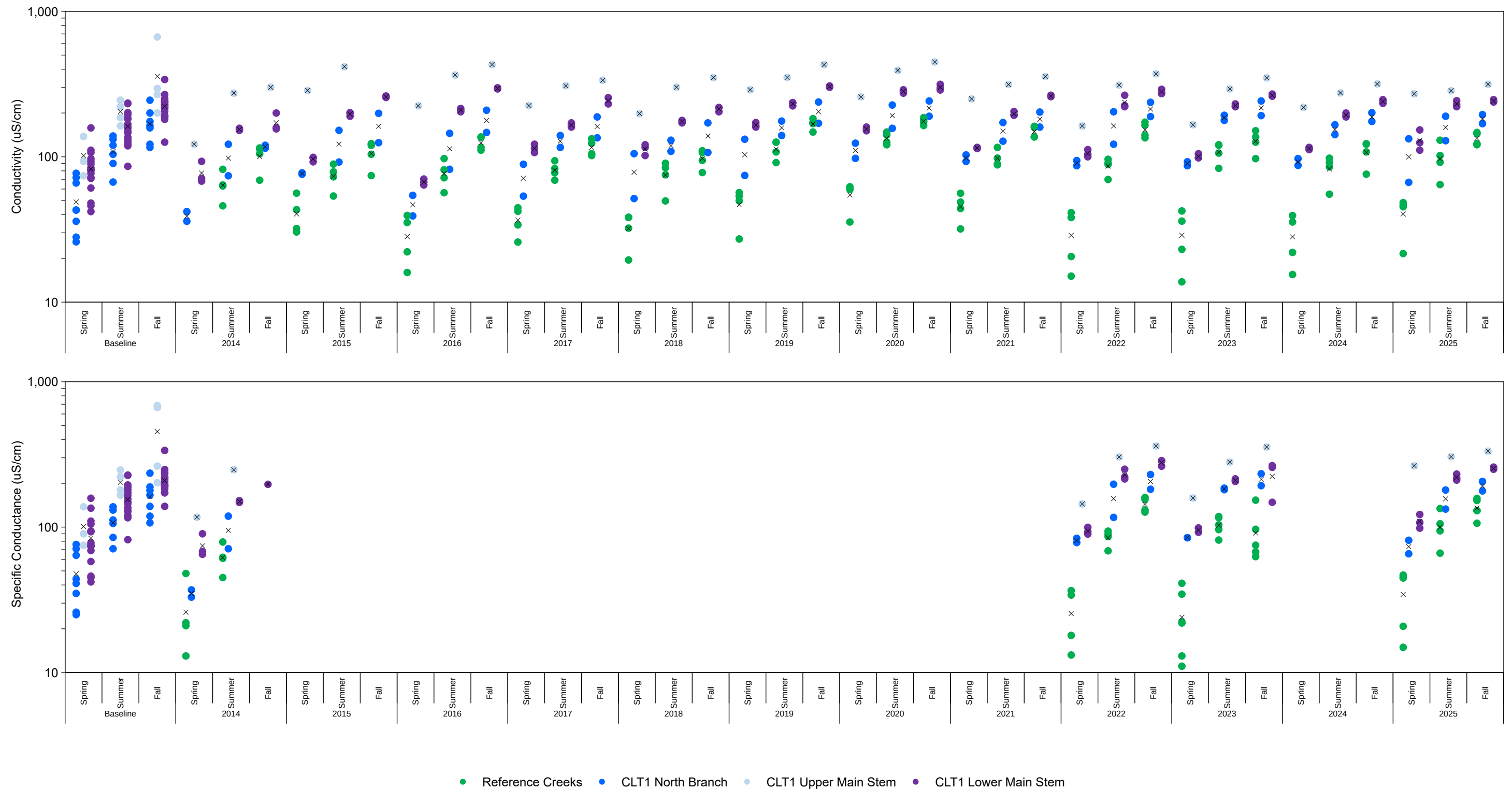


Figure B.2: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 1 (CLT1) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

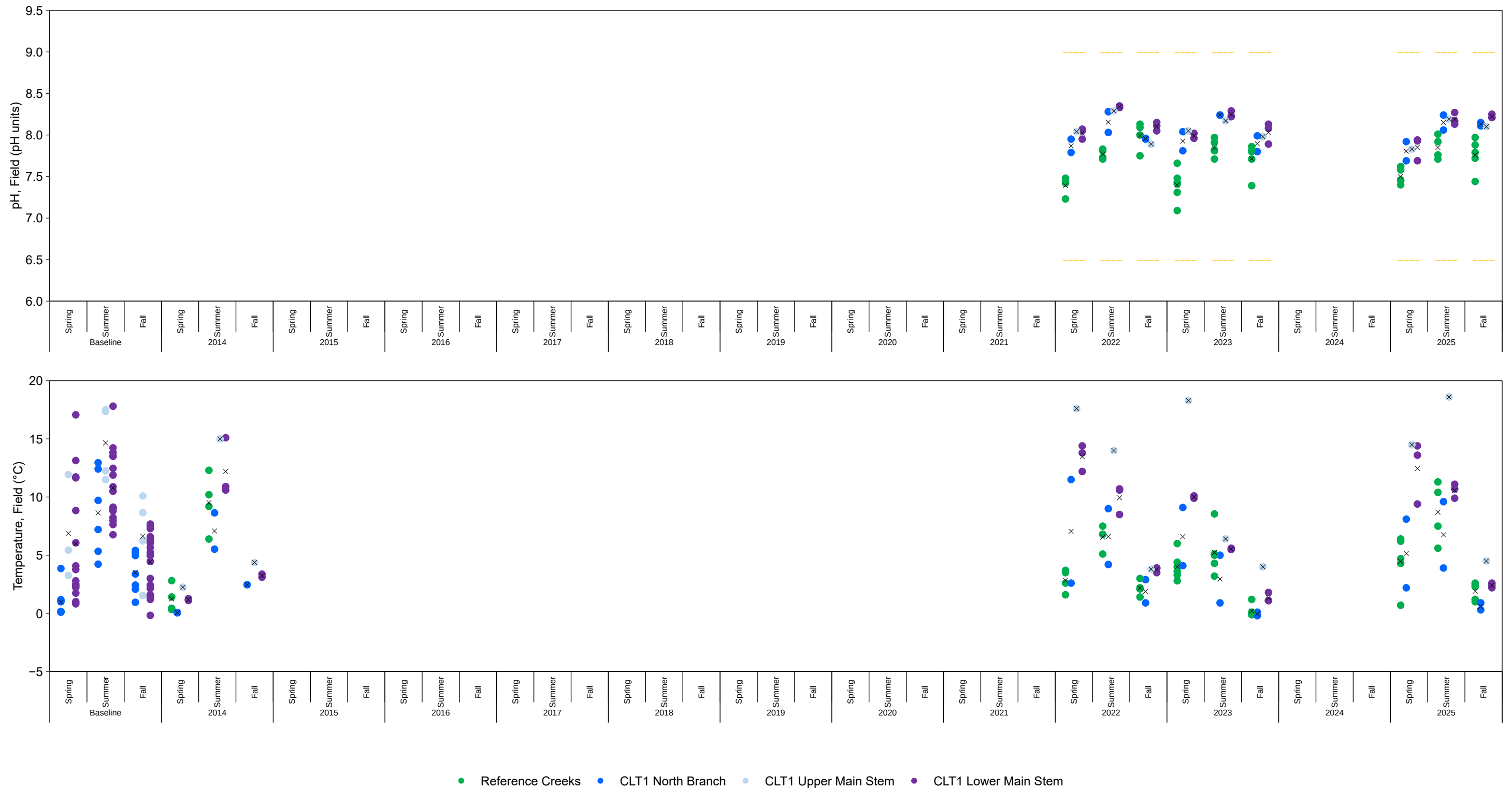


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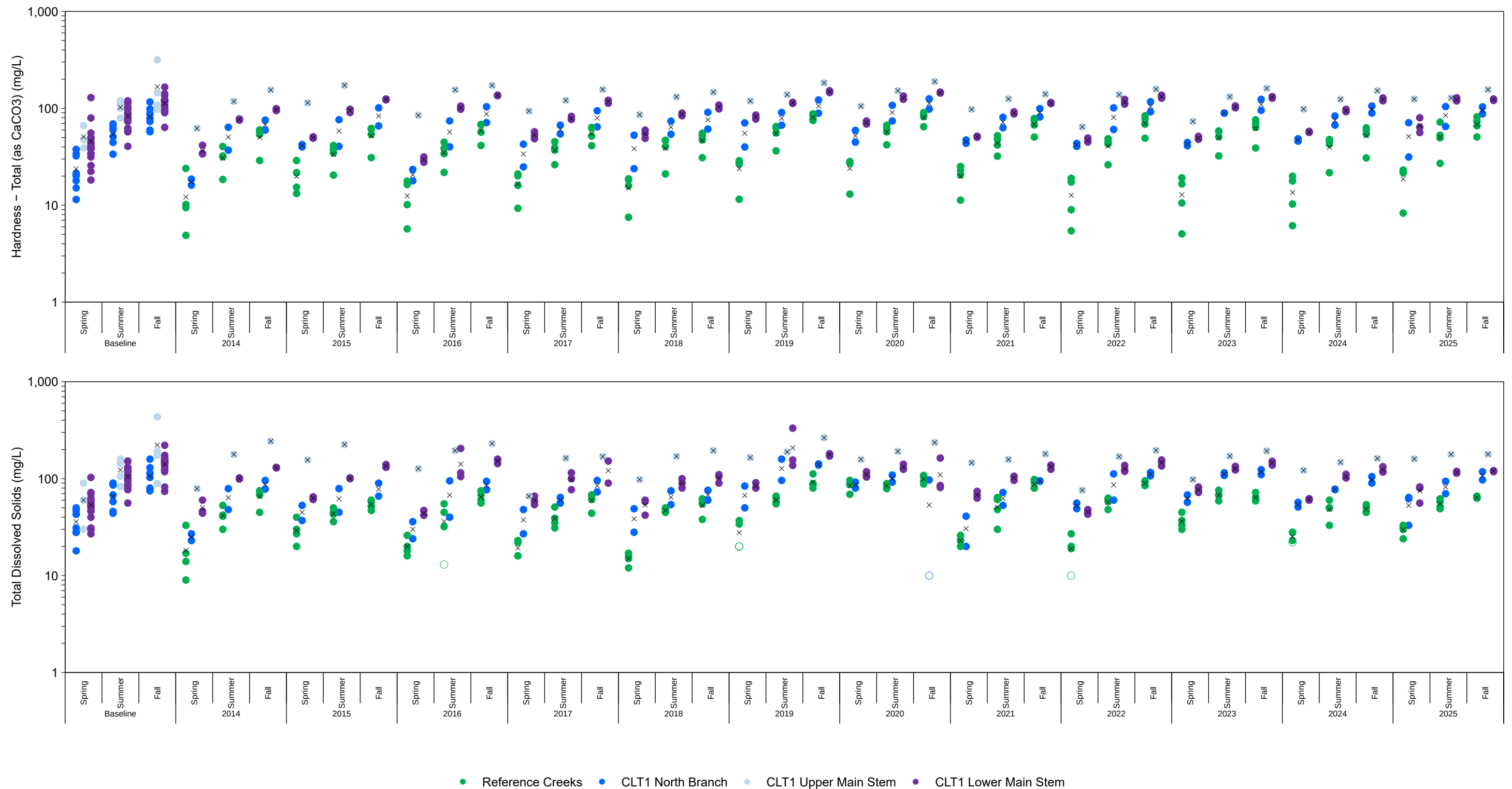


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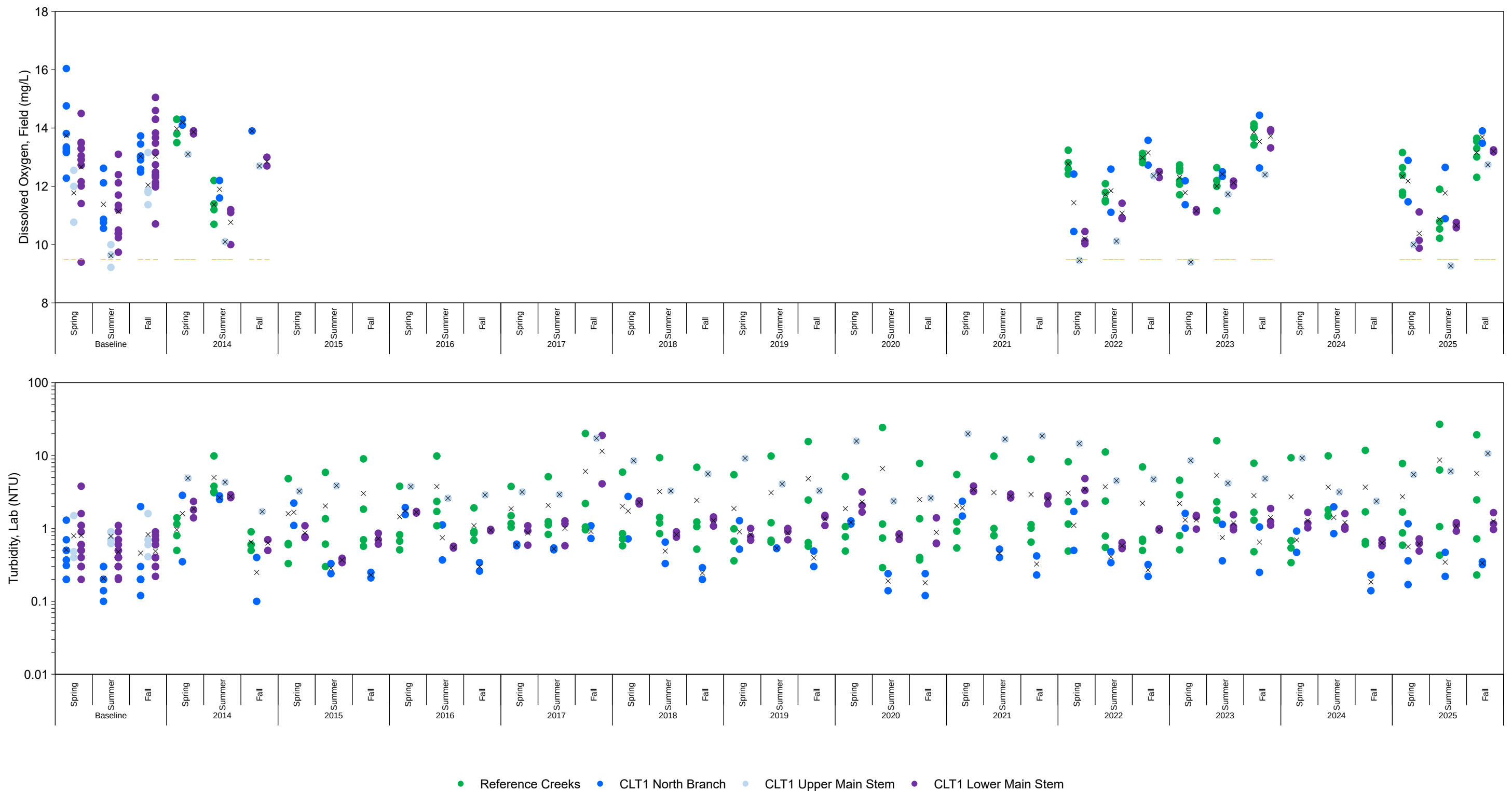


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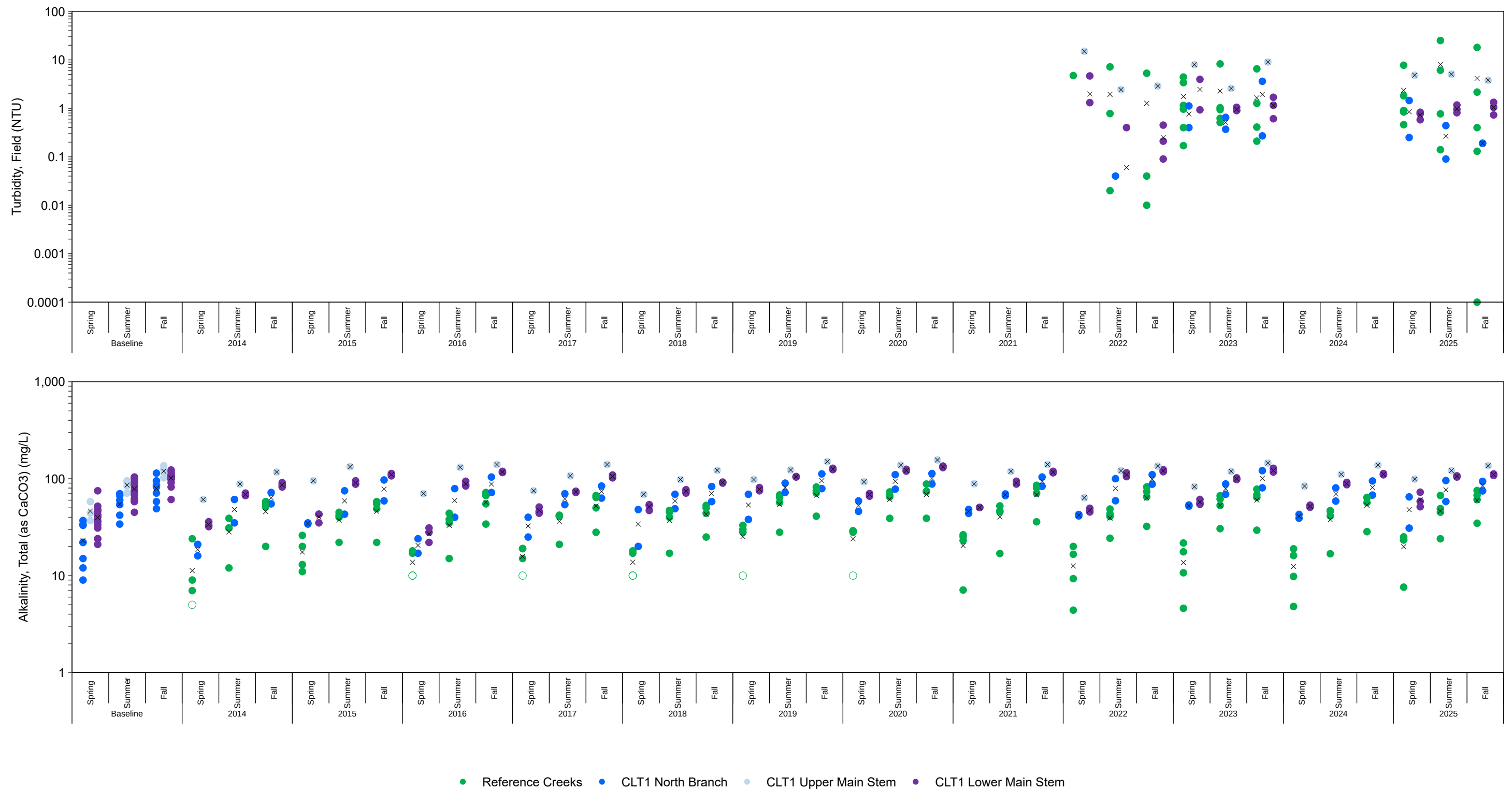


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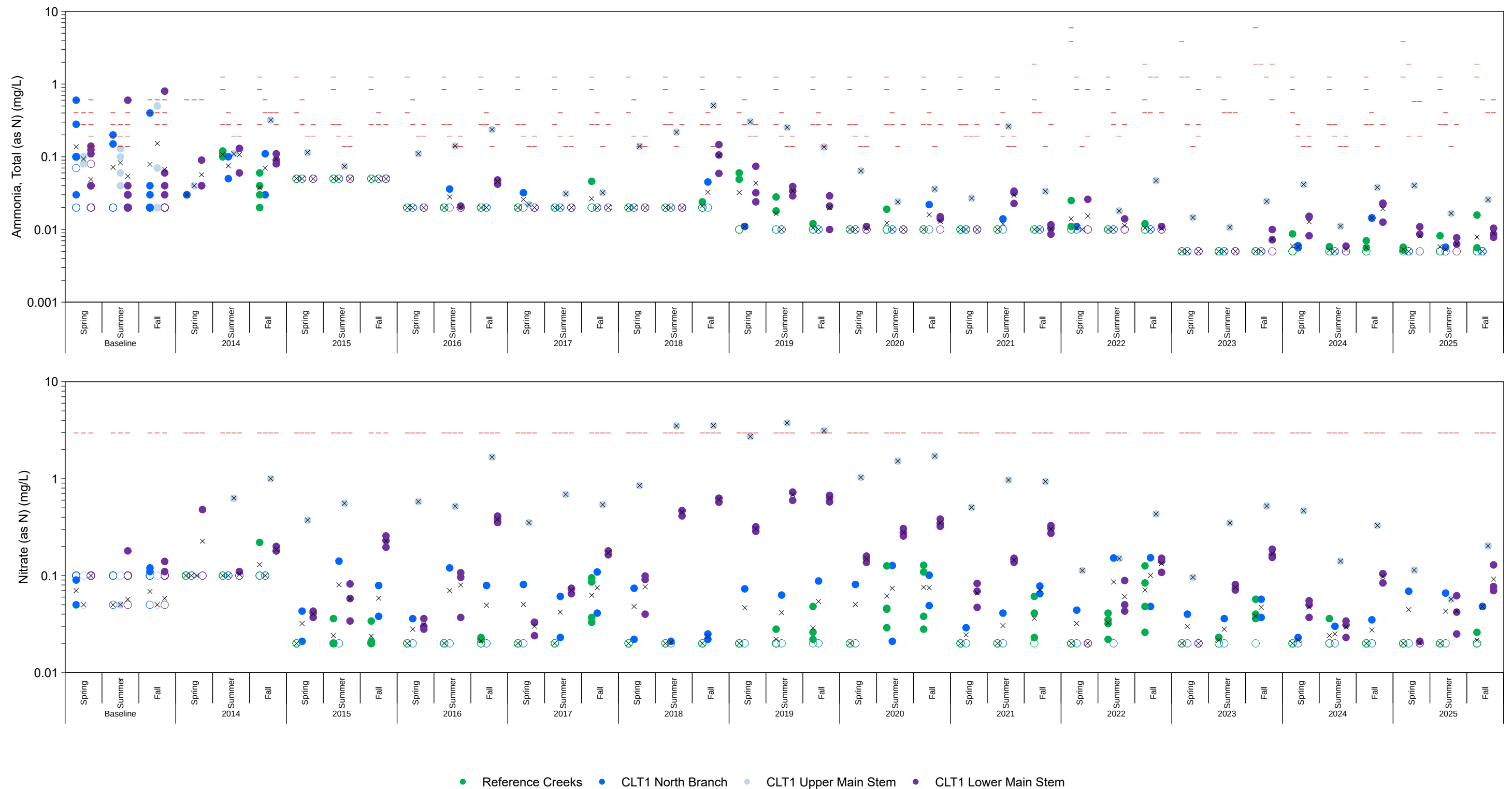


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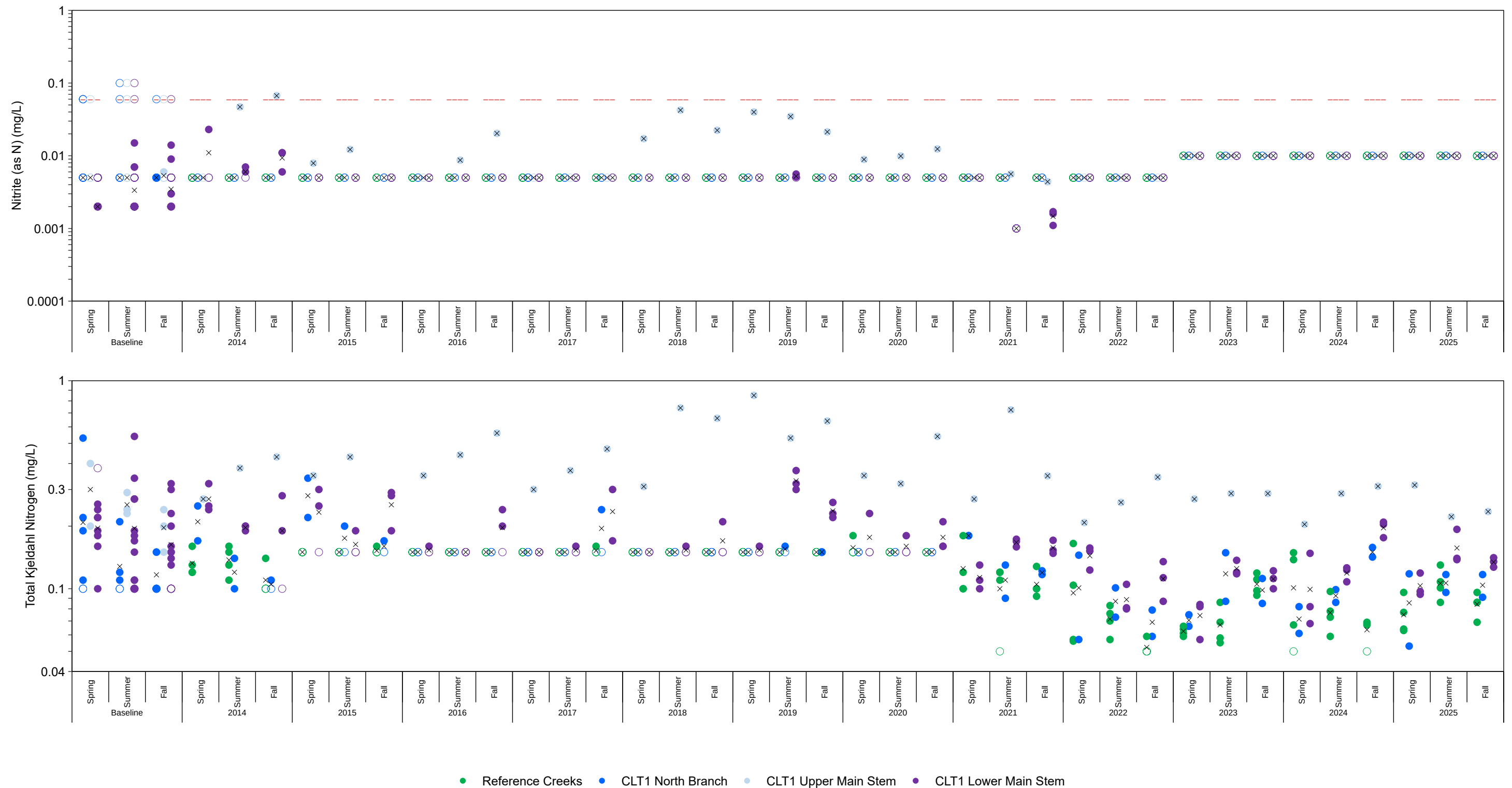


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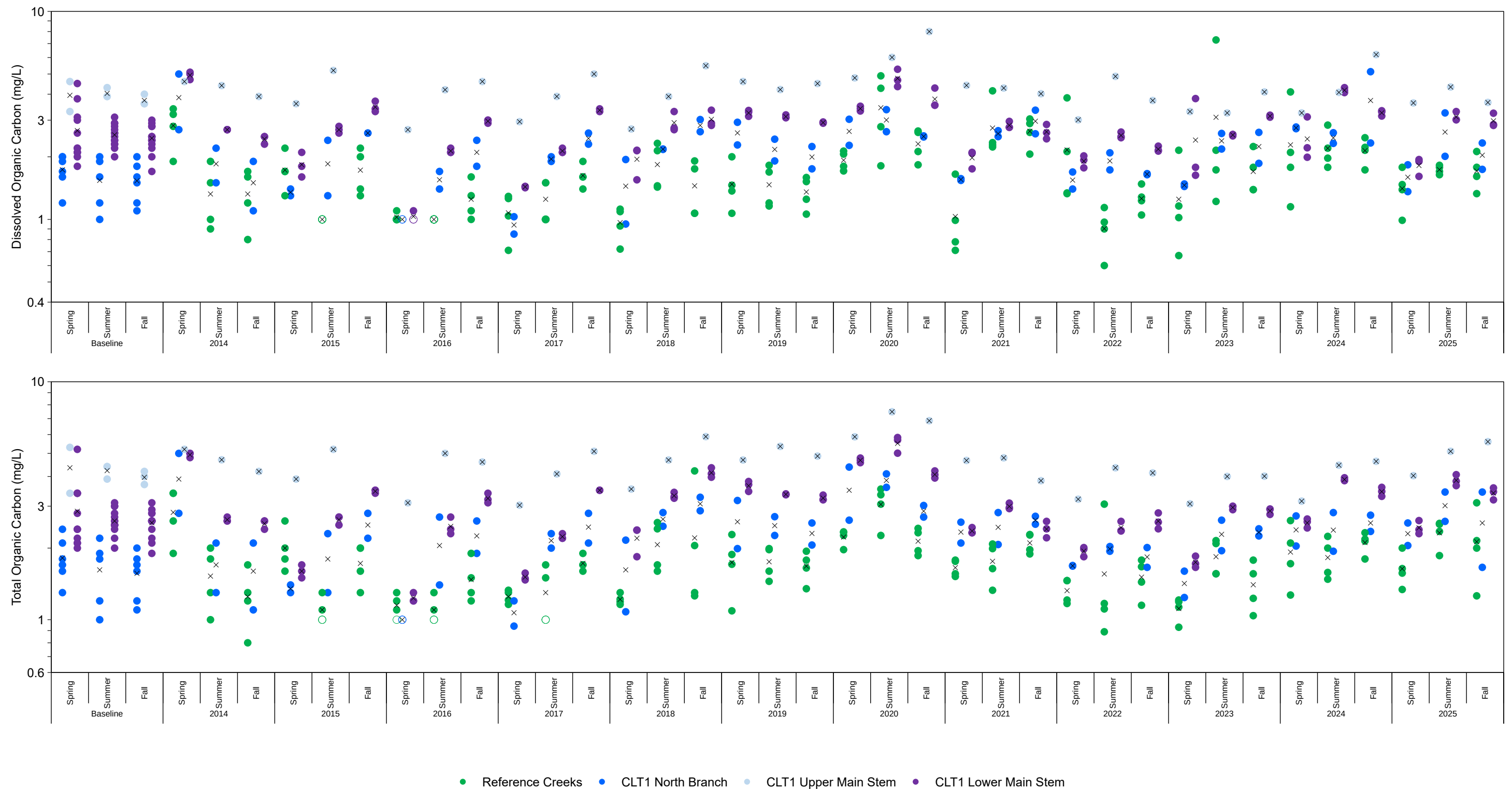


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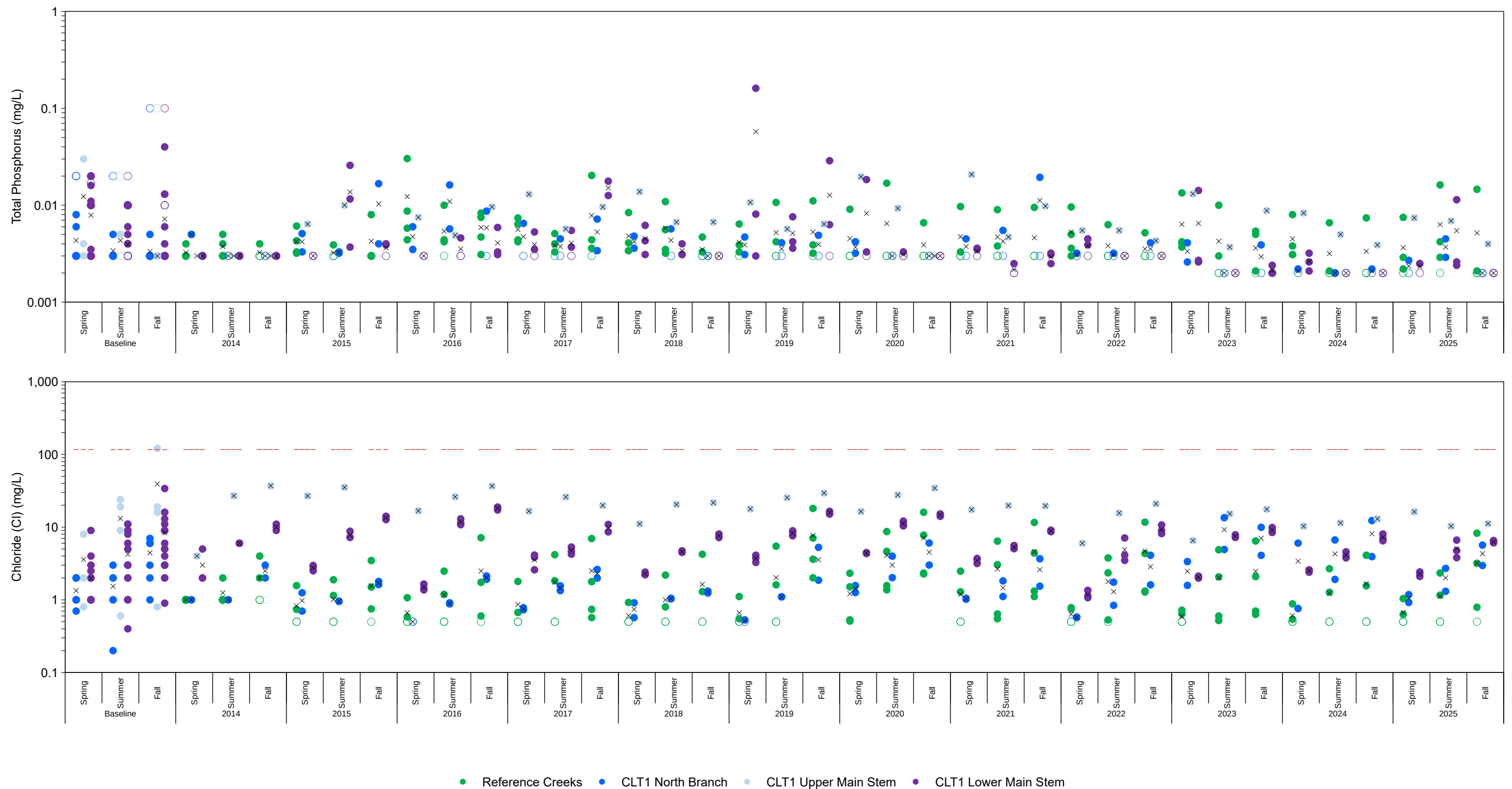


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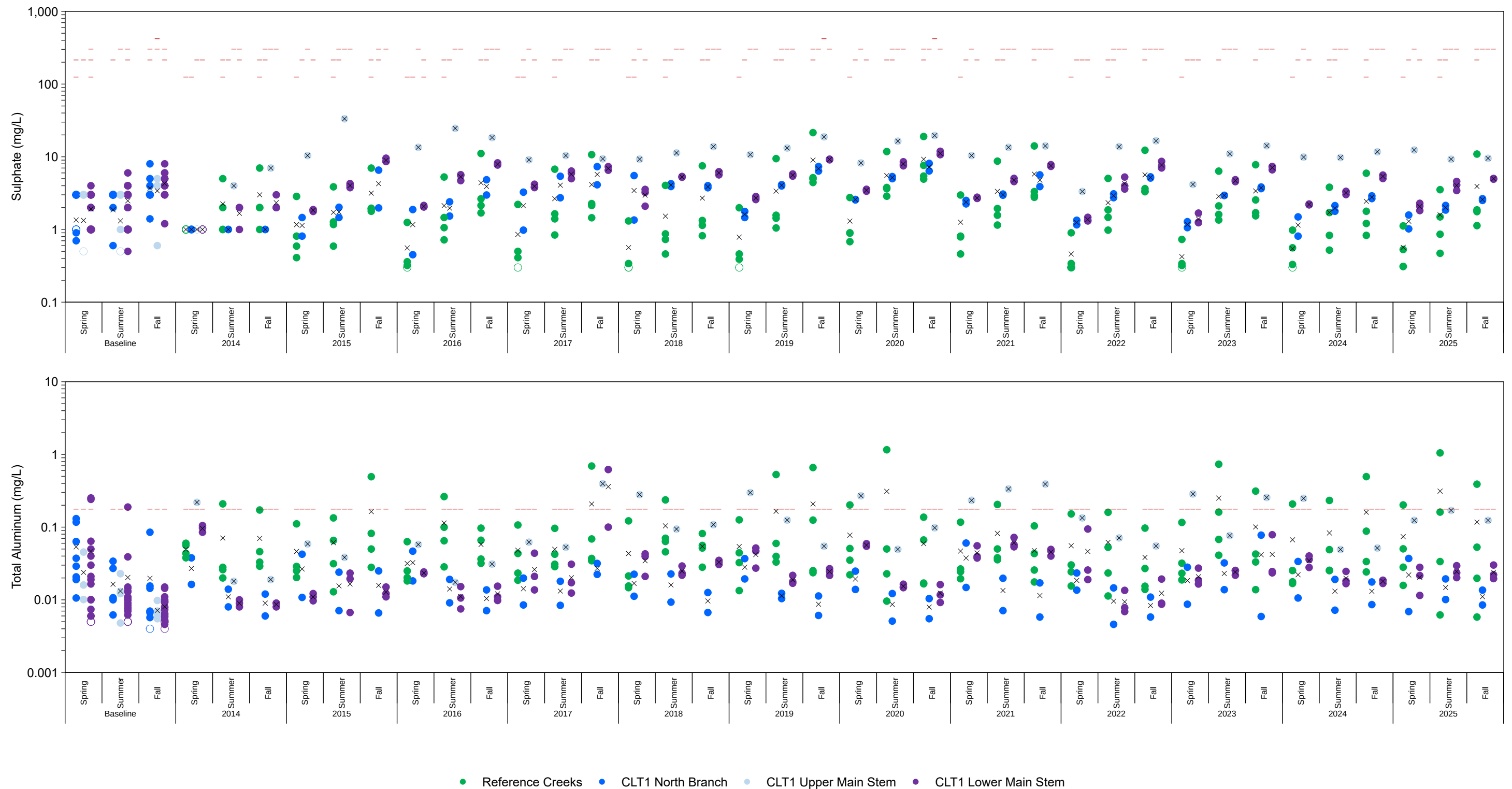


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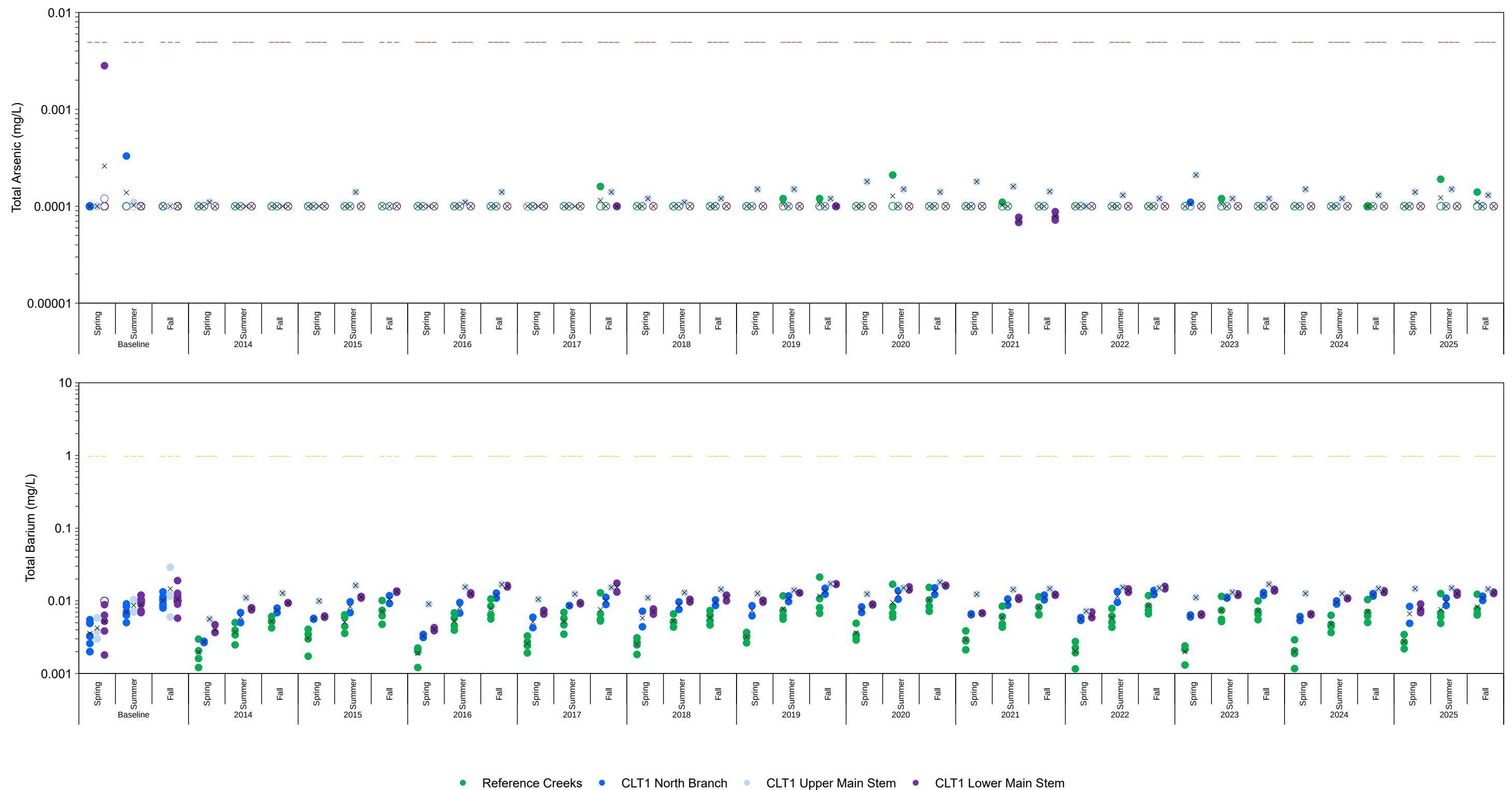


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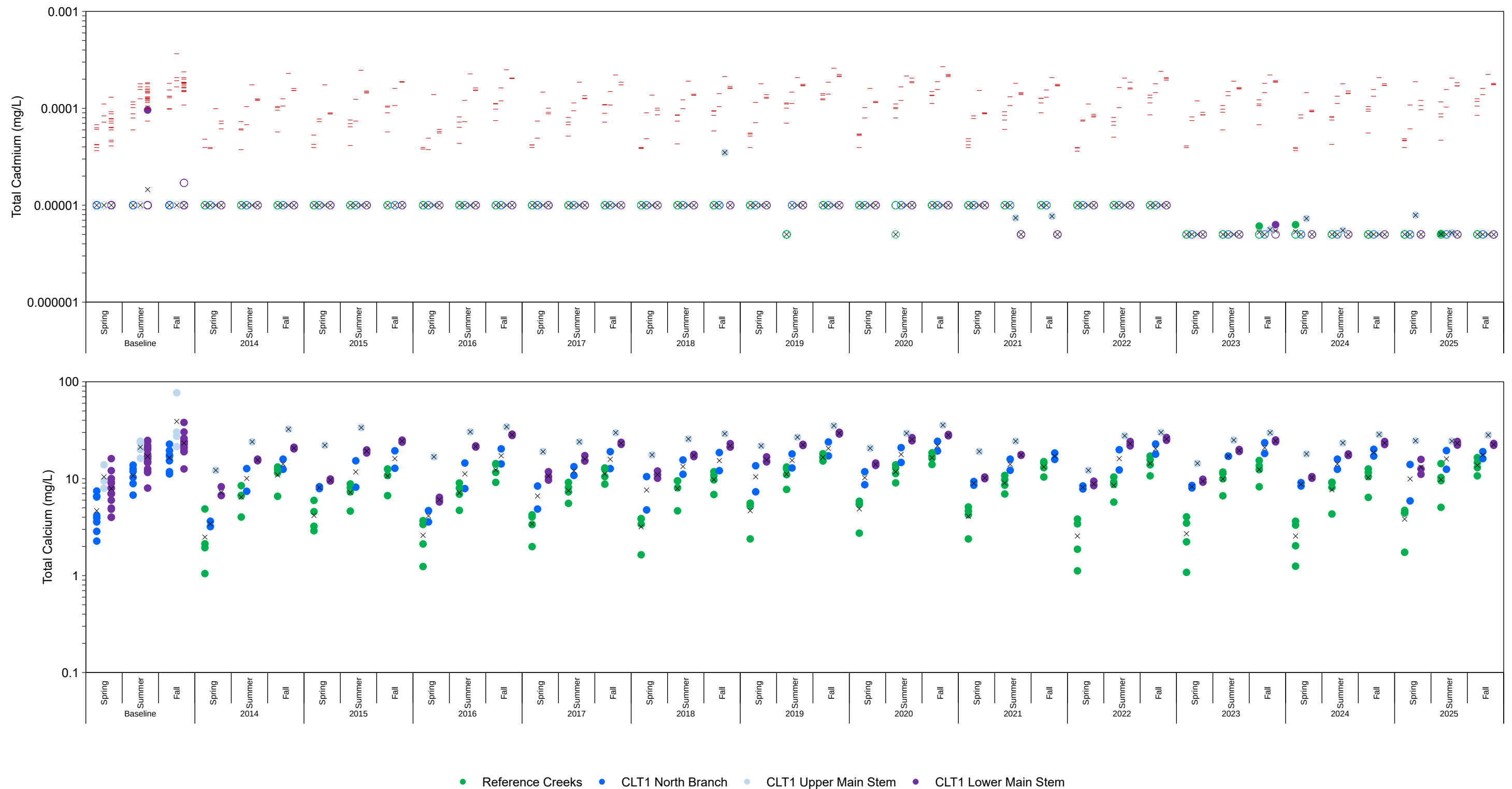


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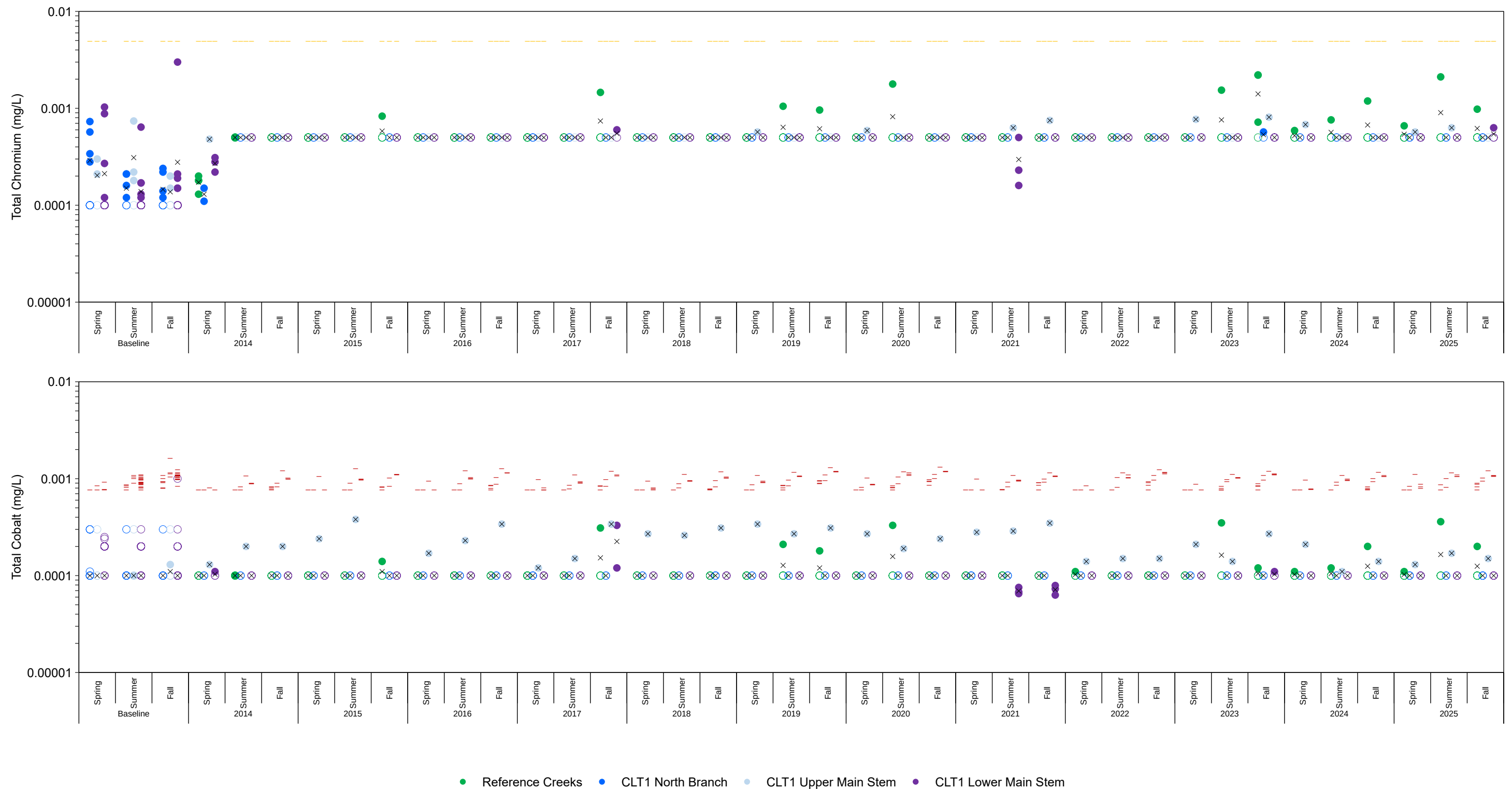


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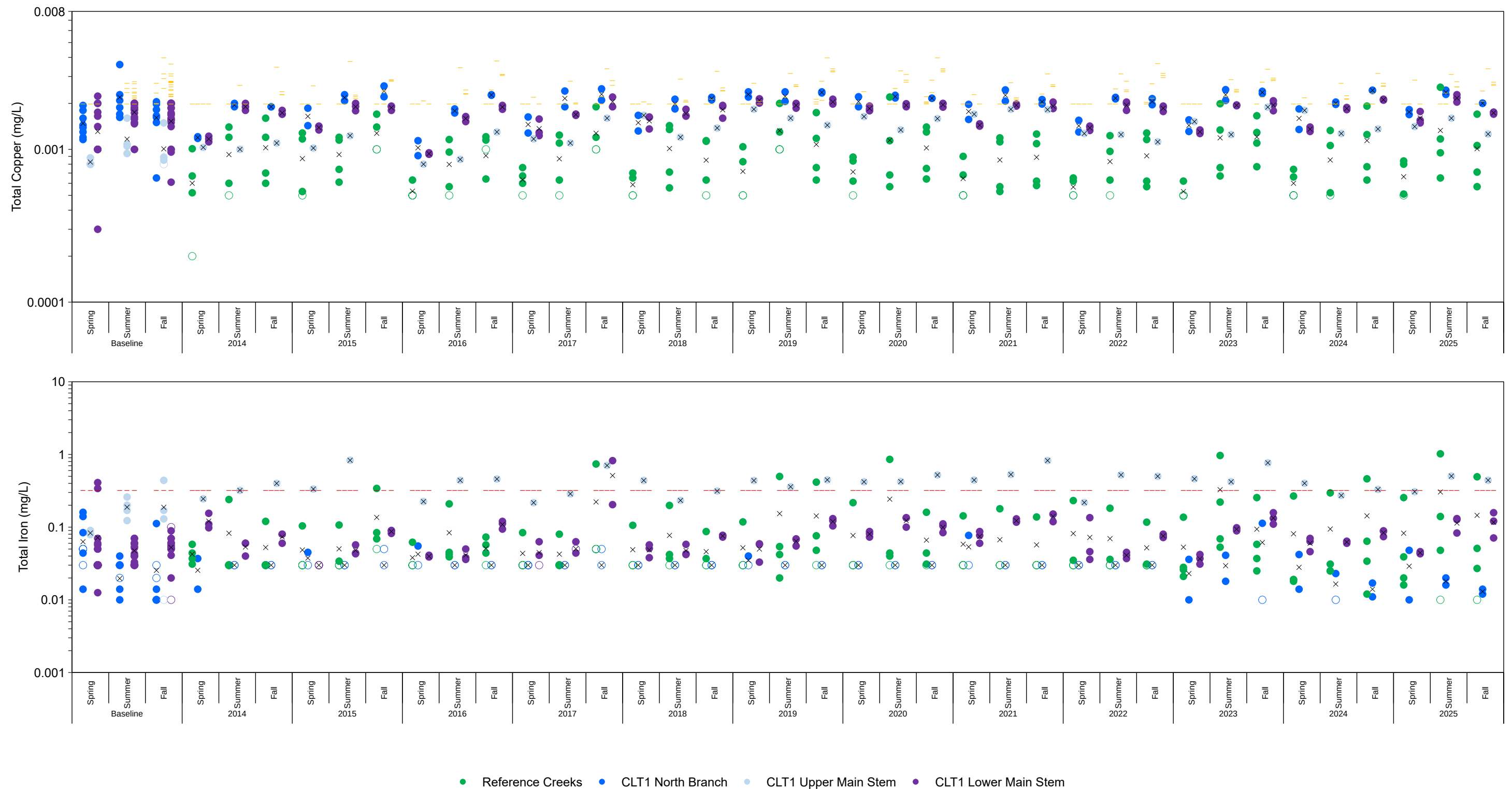


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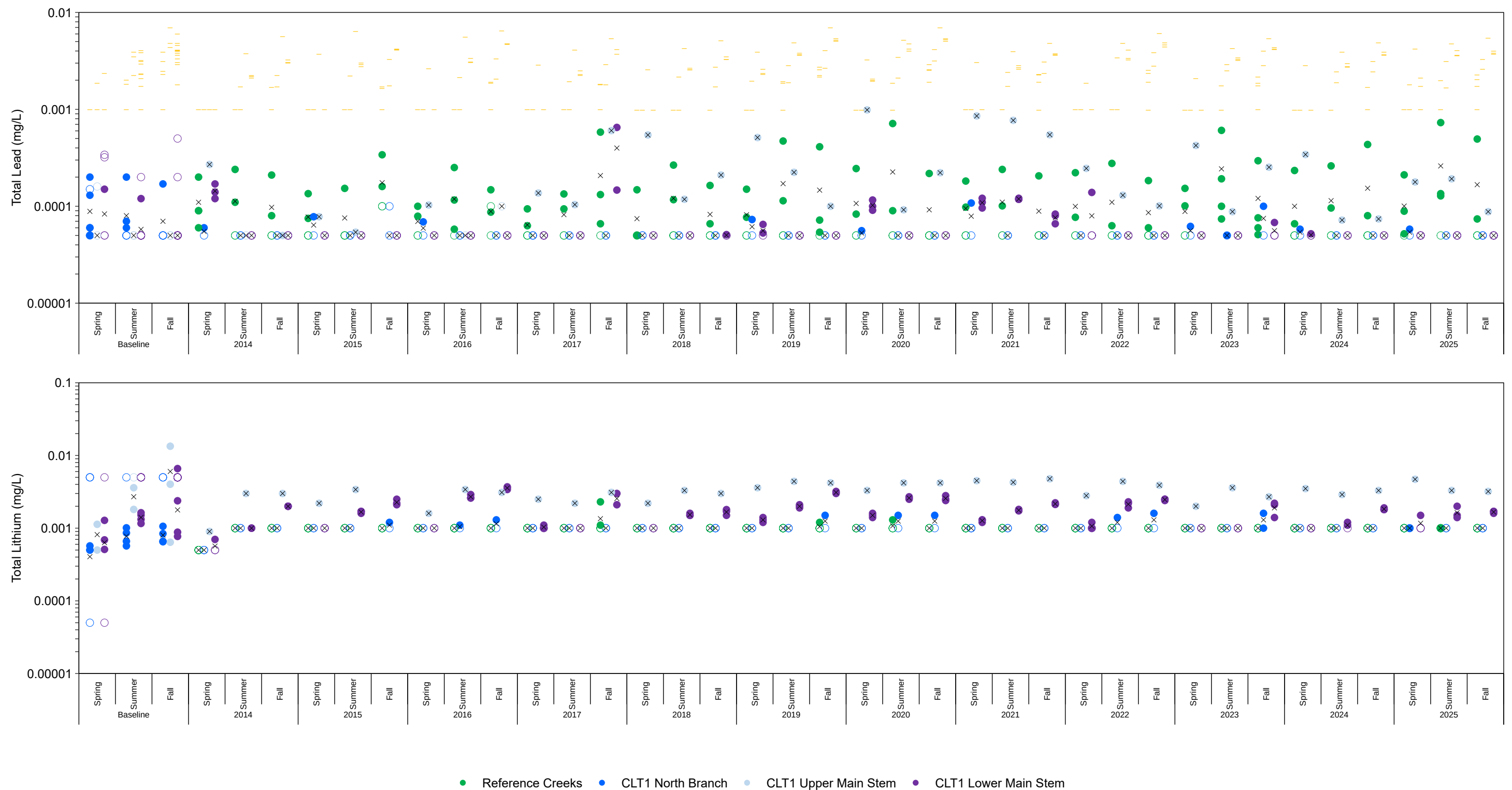


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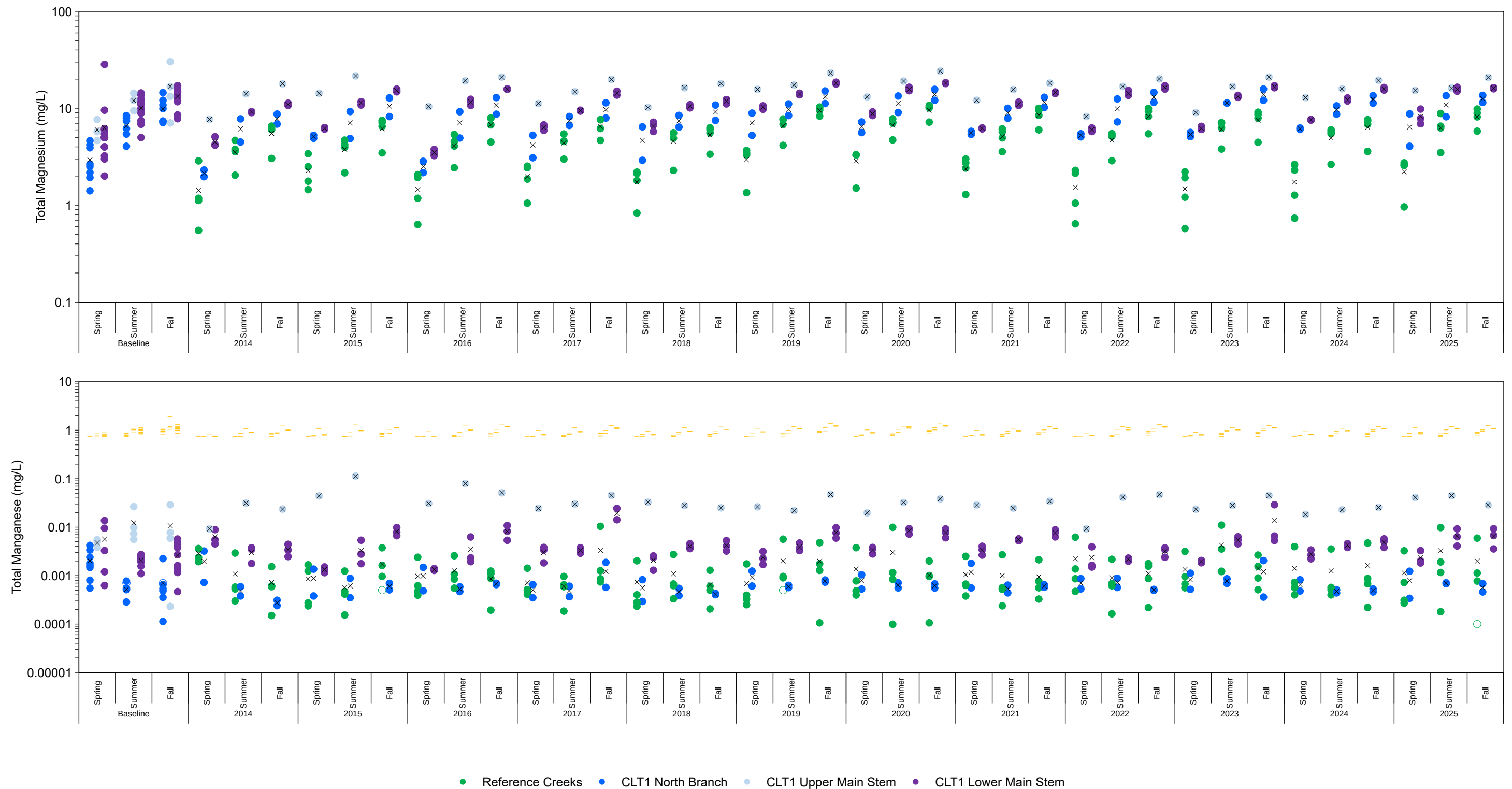


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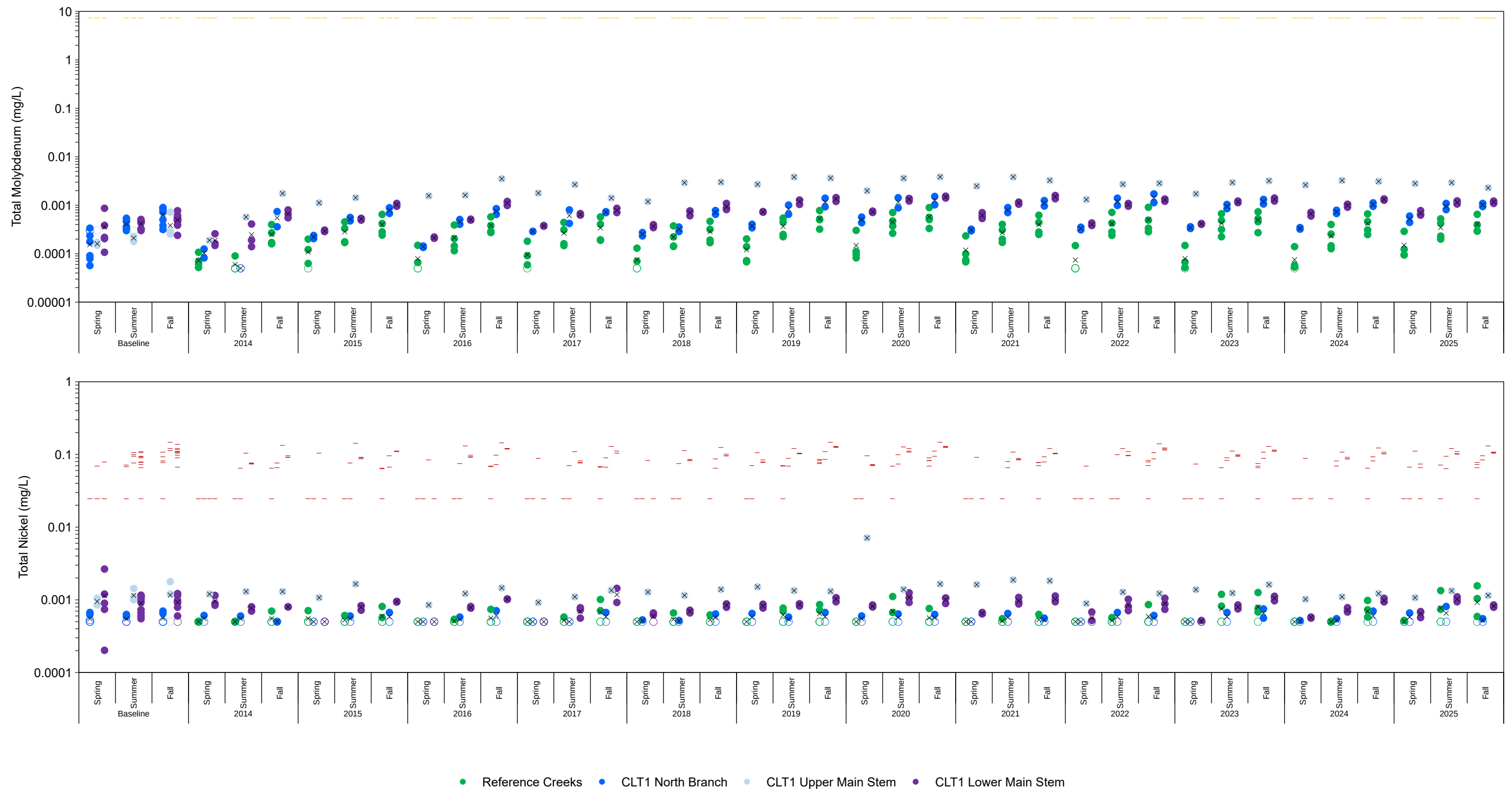


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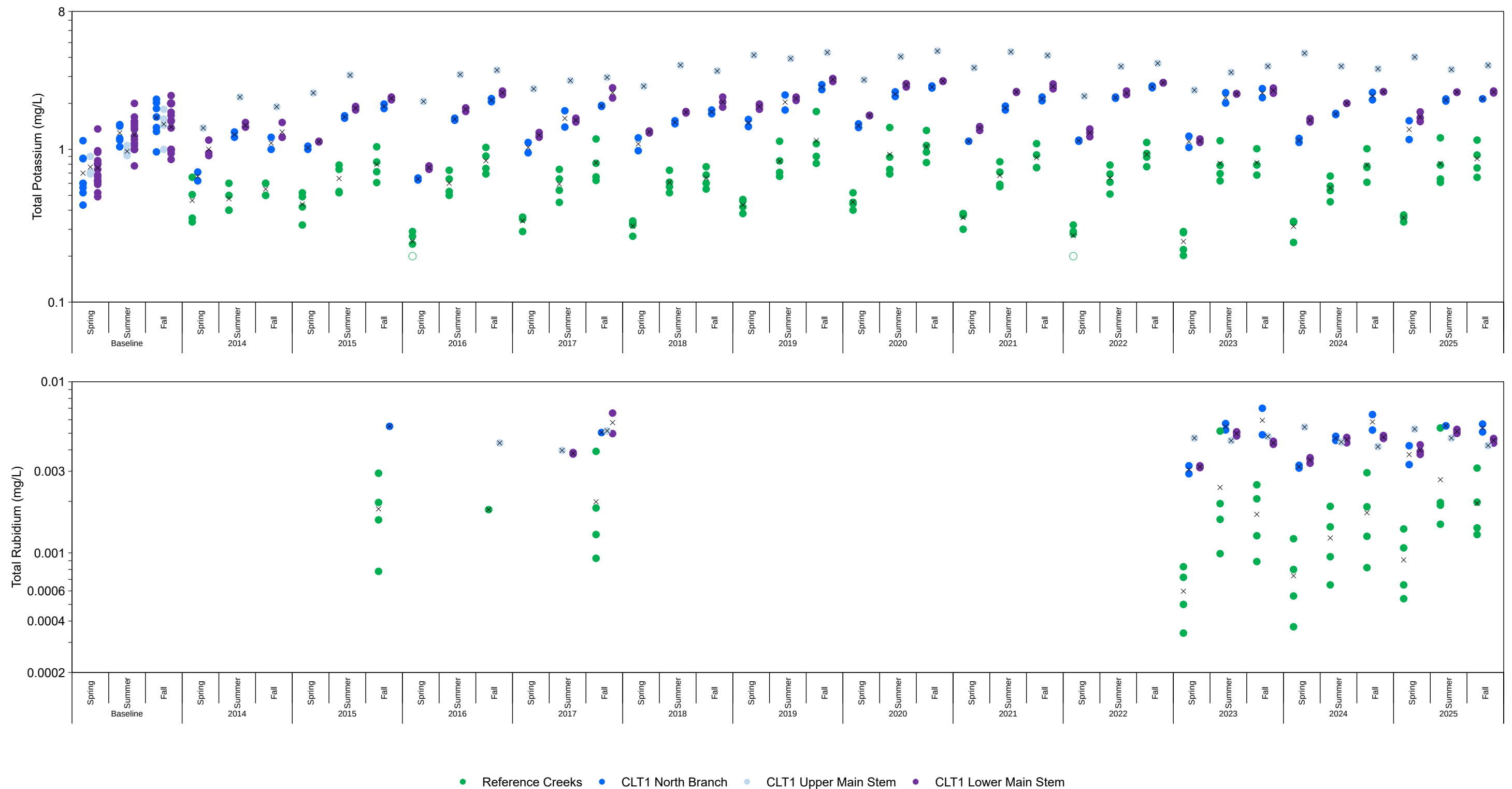


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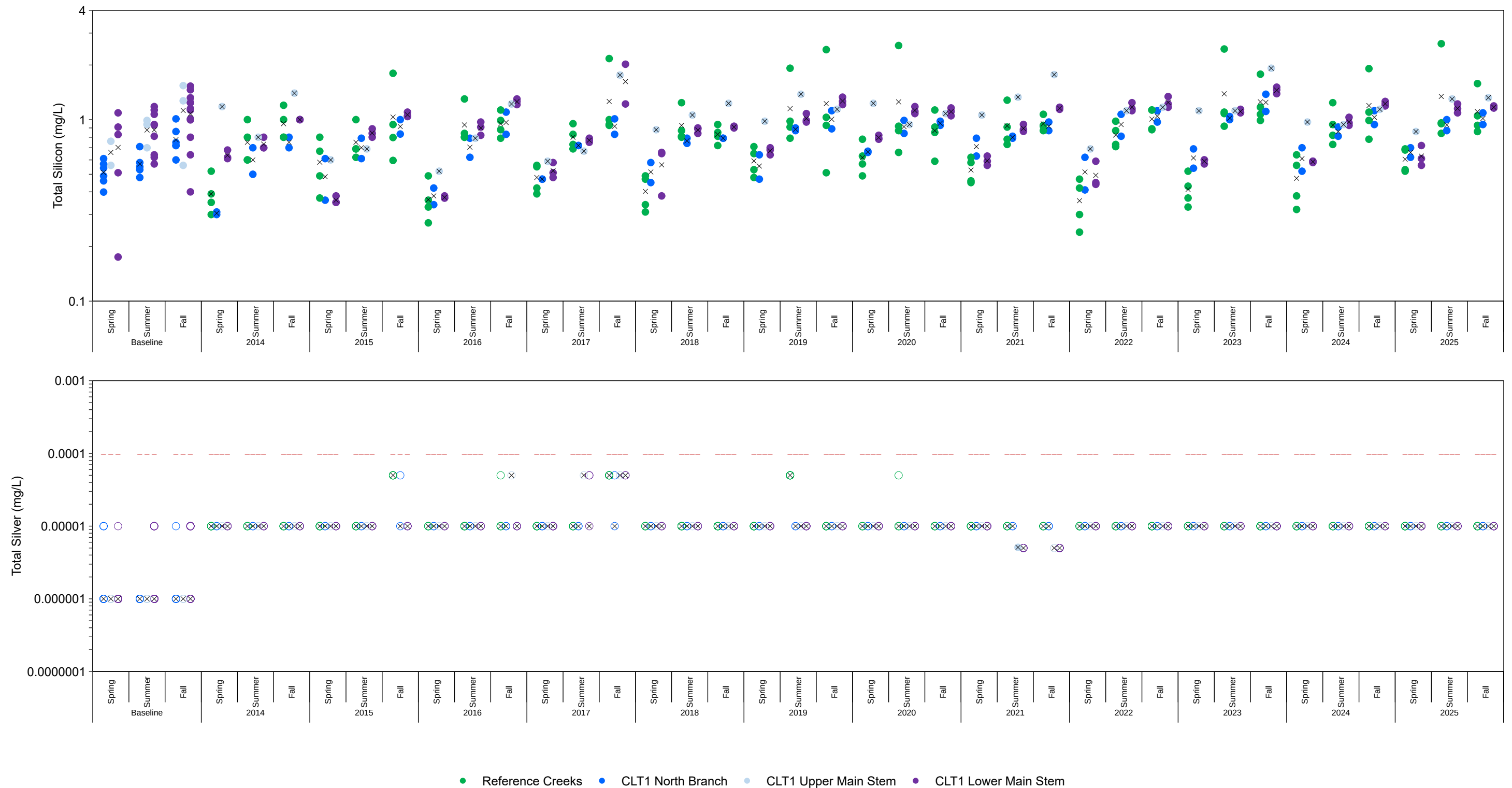


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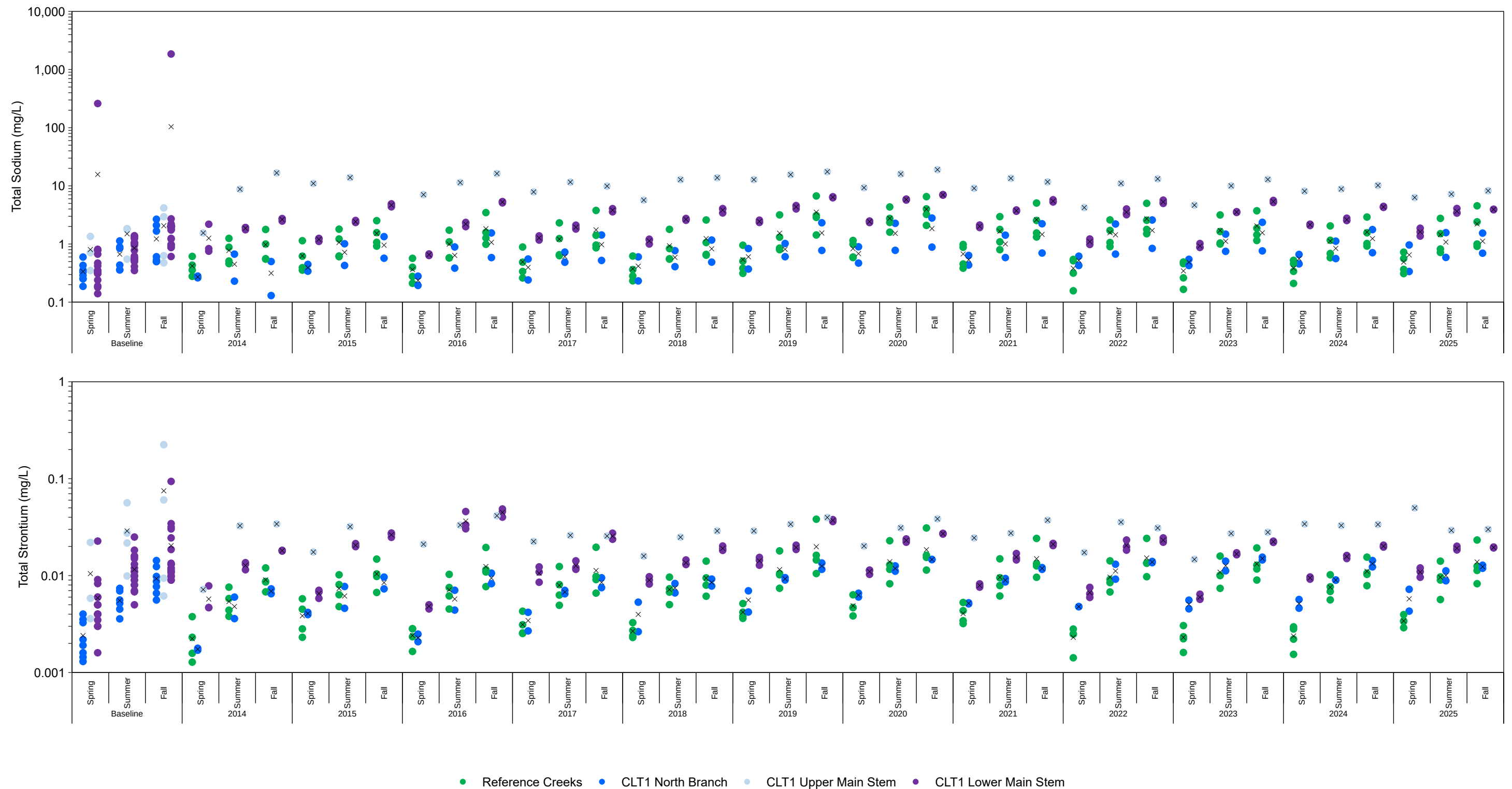


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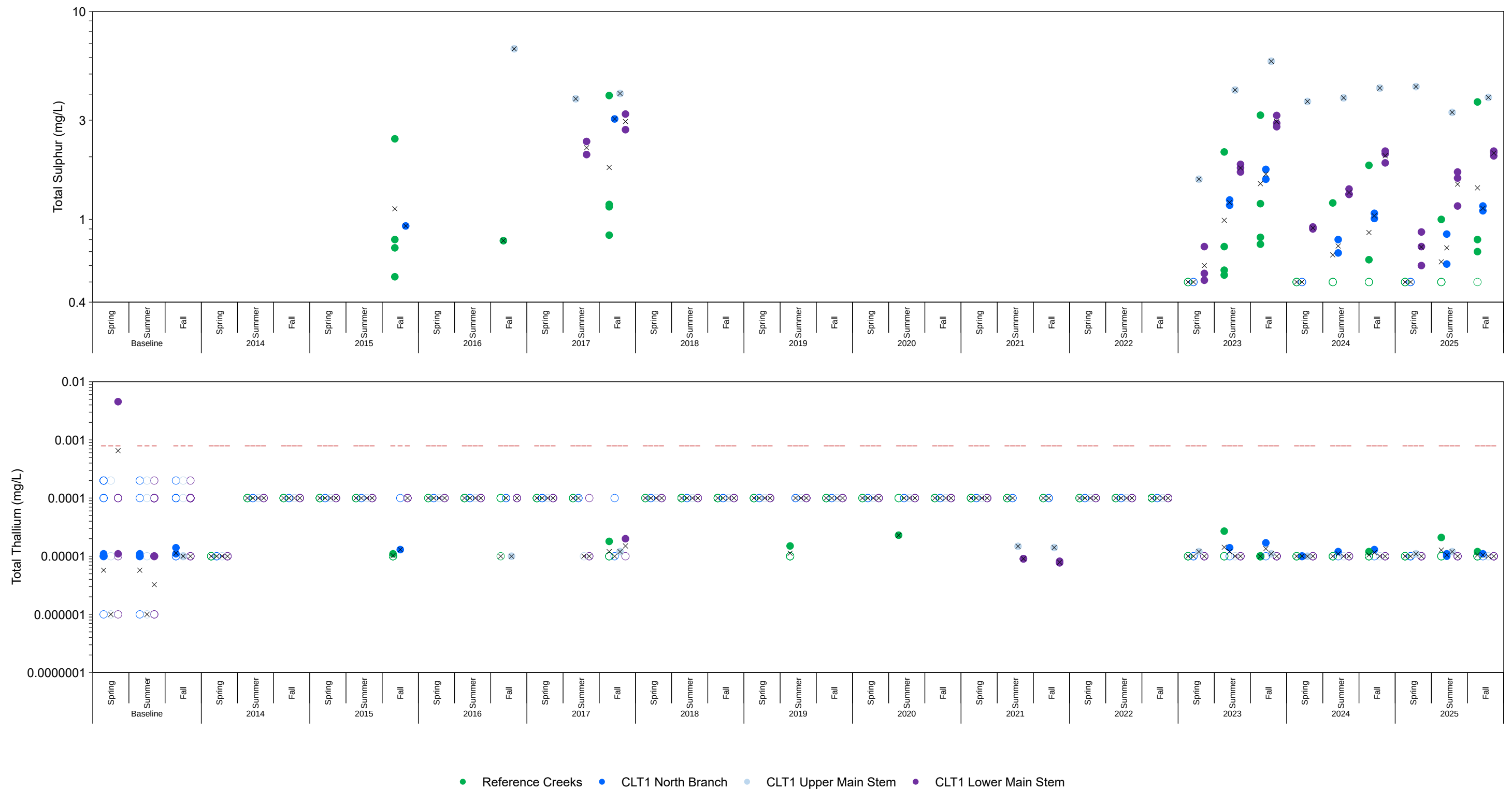


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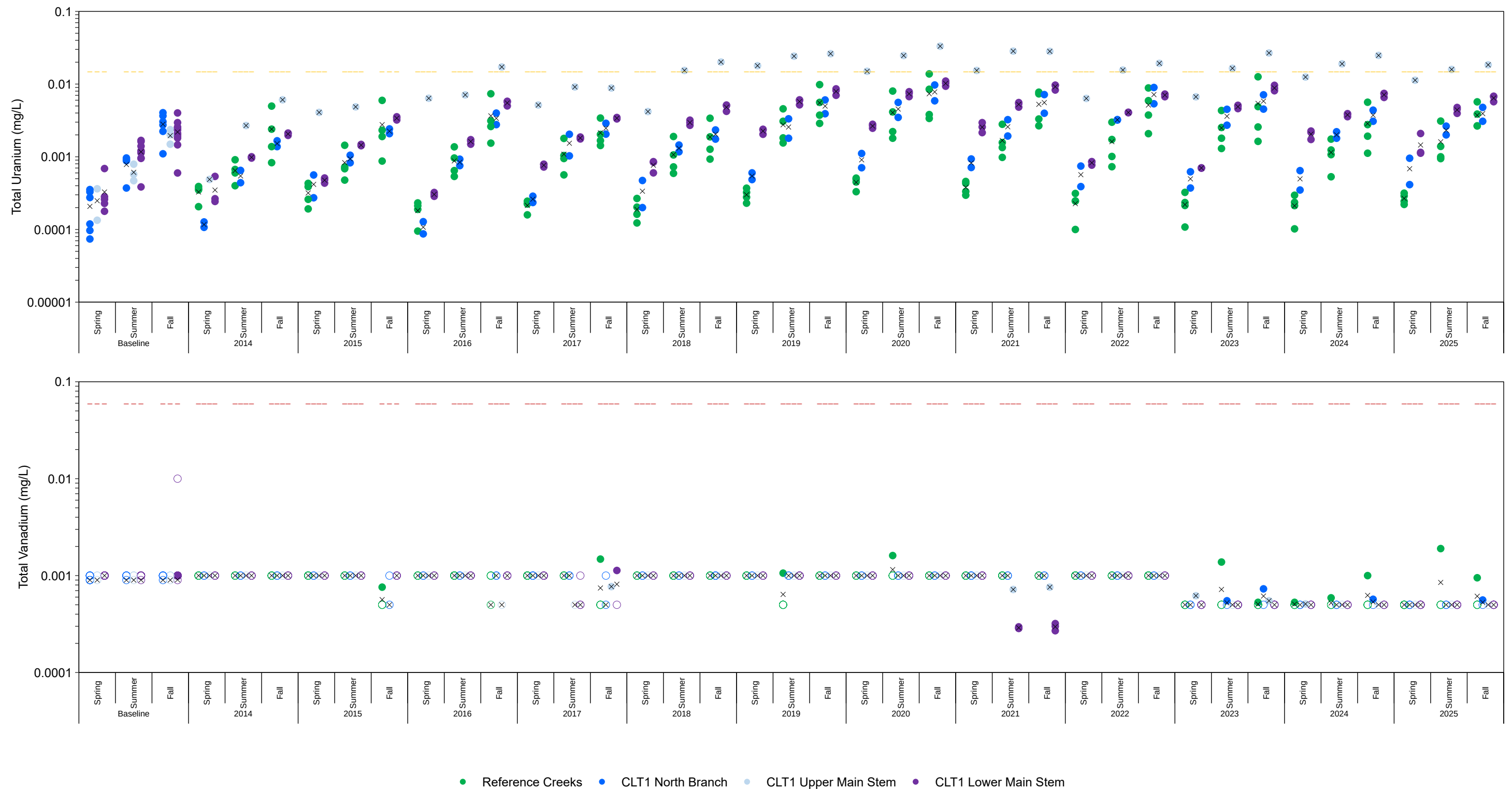


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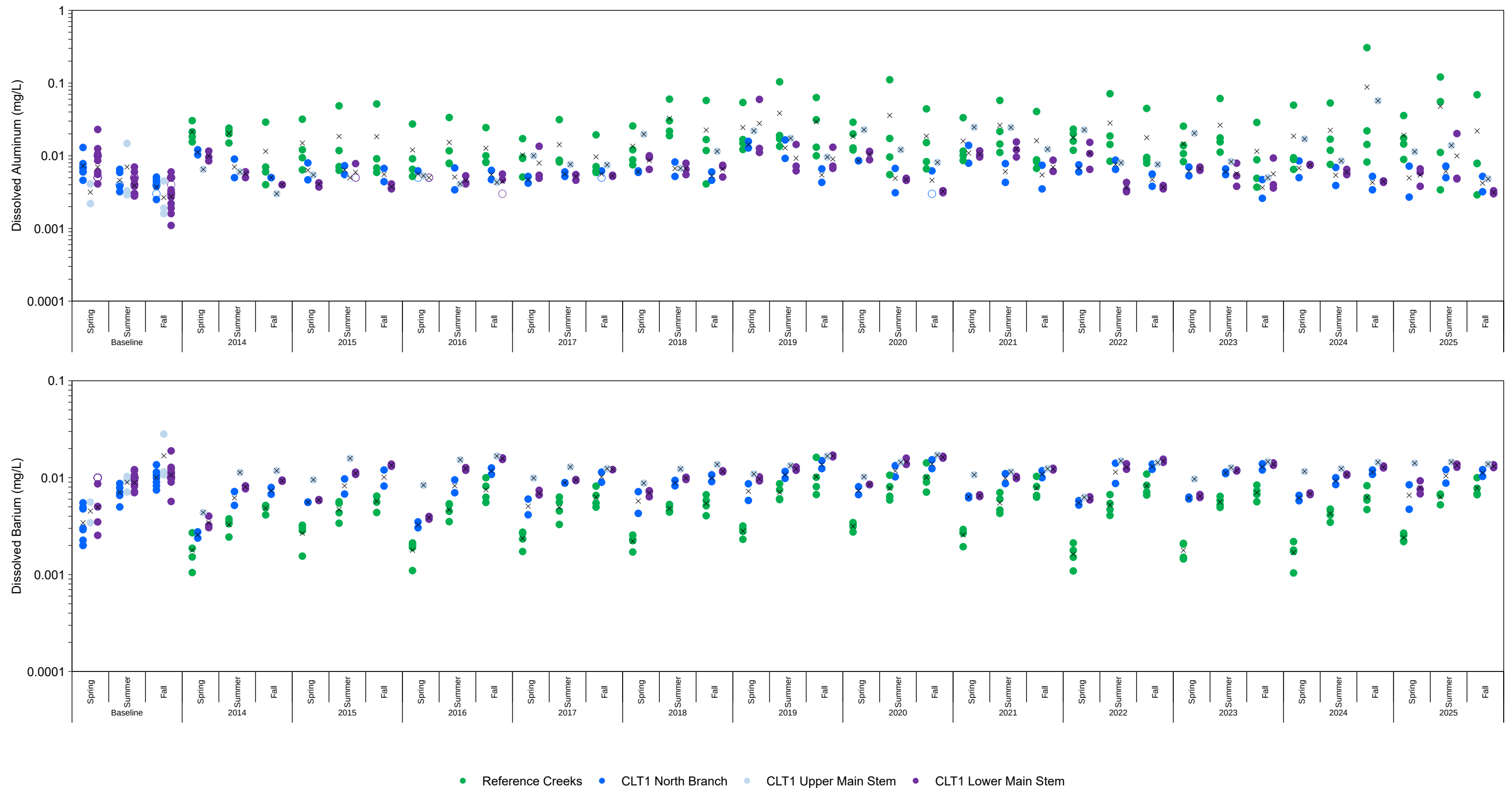


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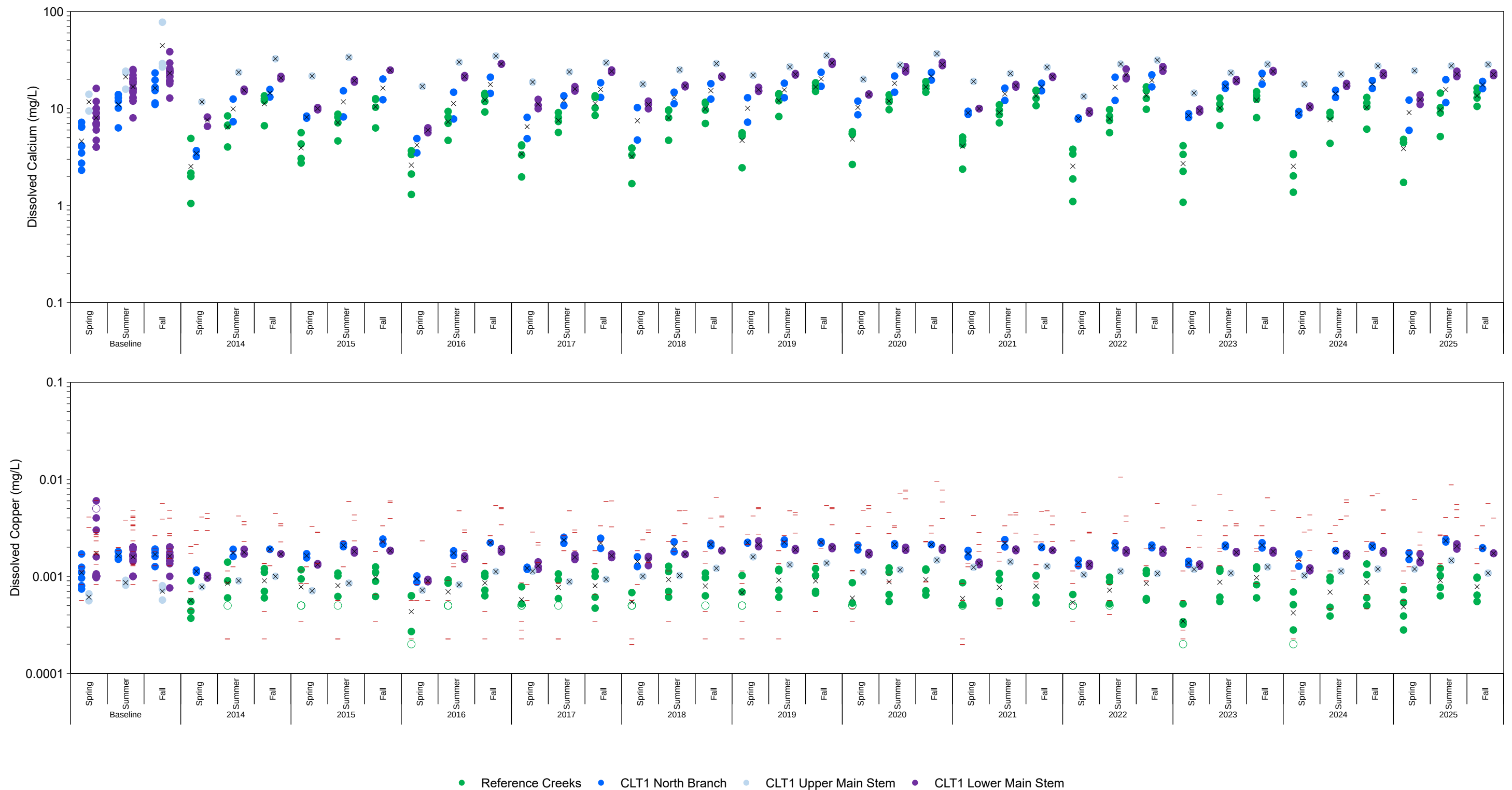


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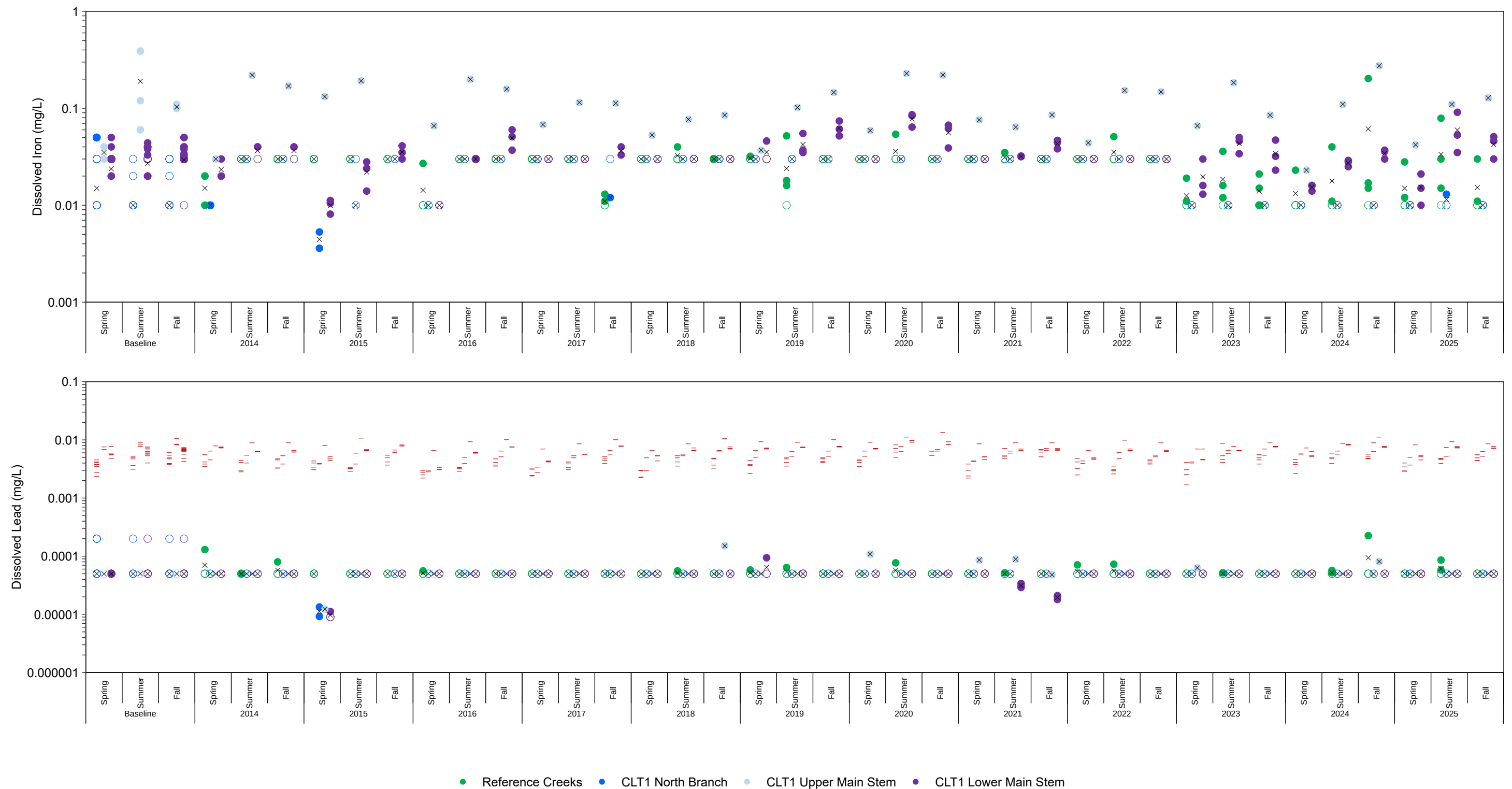


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Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

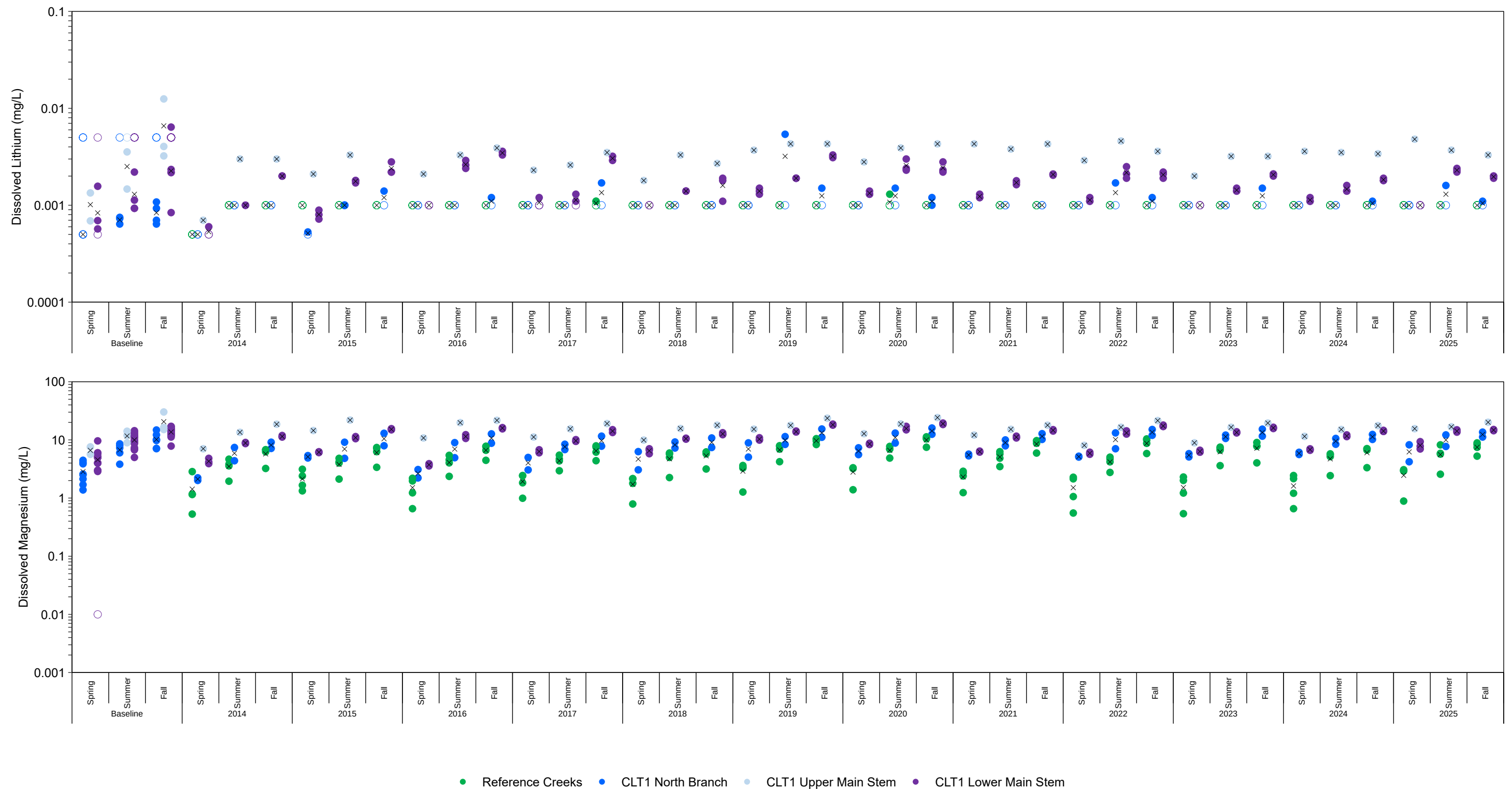


Figure B.2: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 1 (CLT1) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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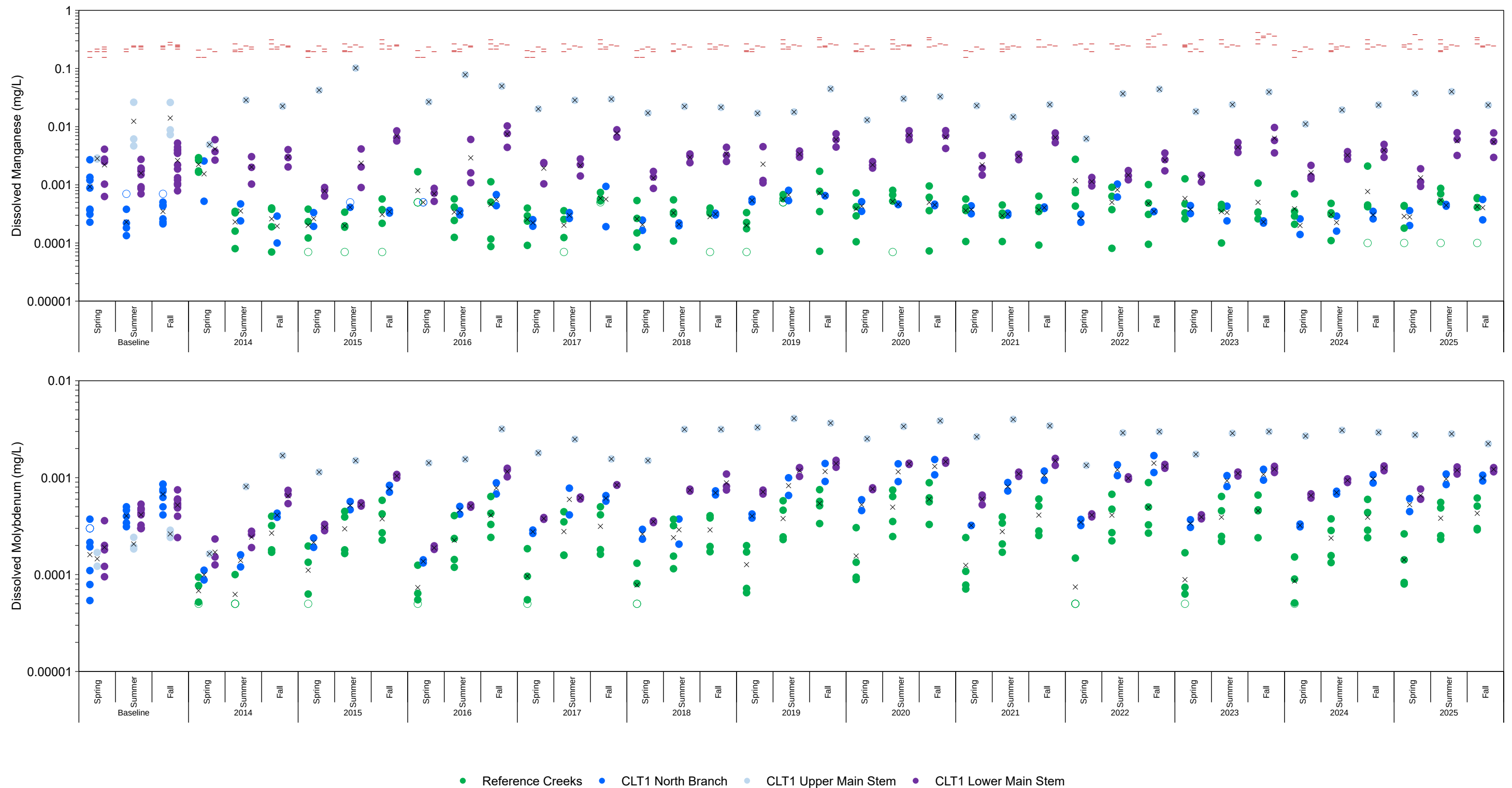


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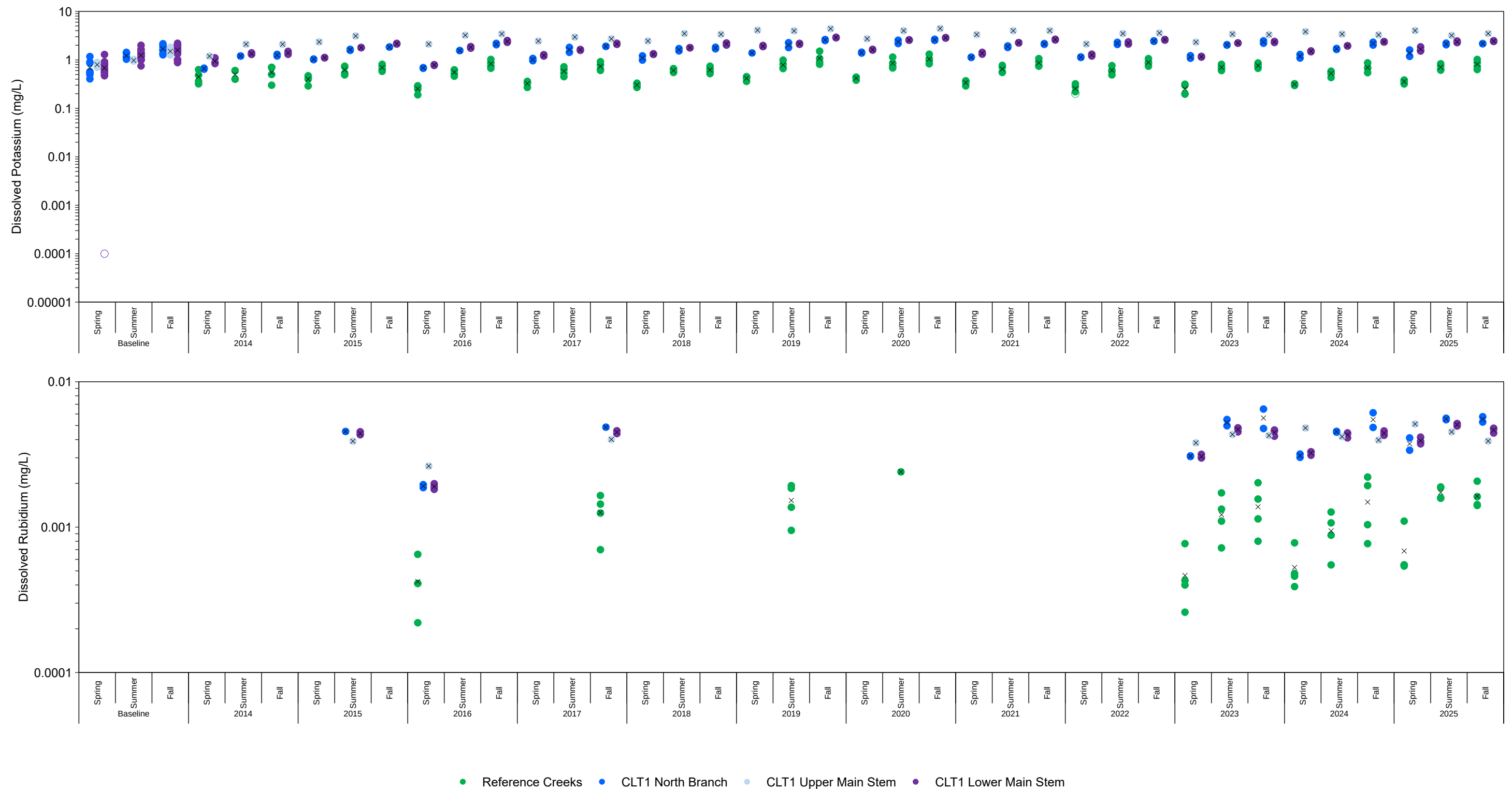


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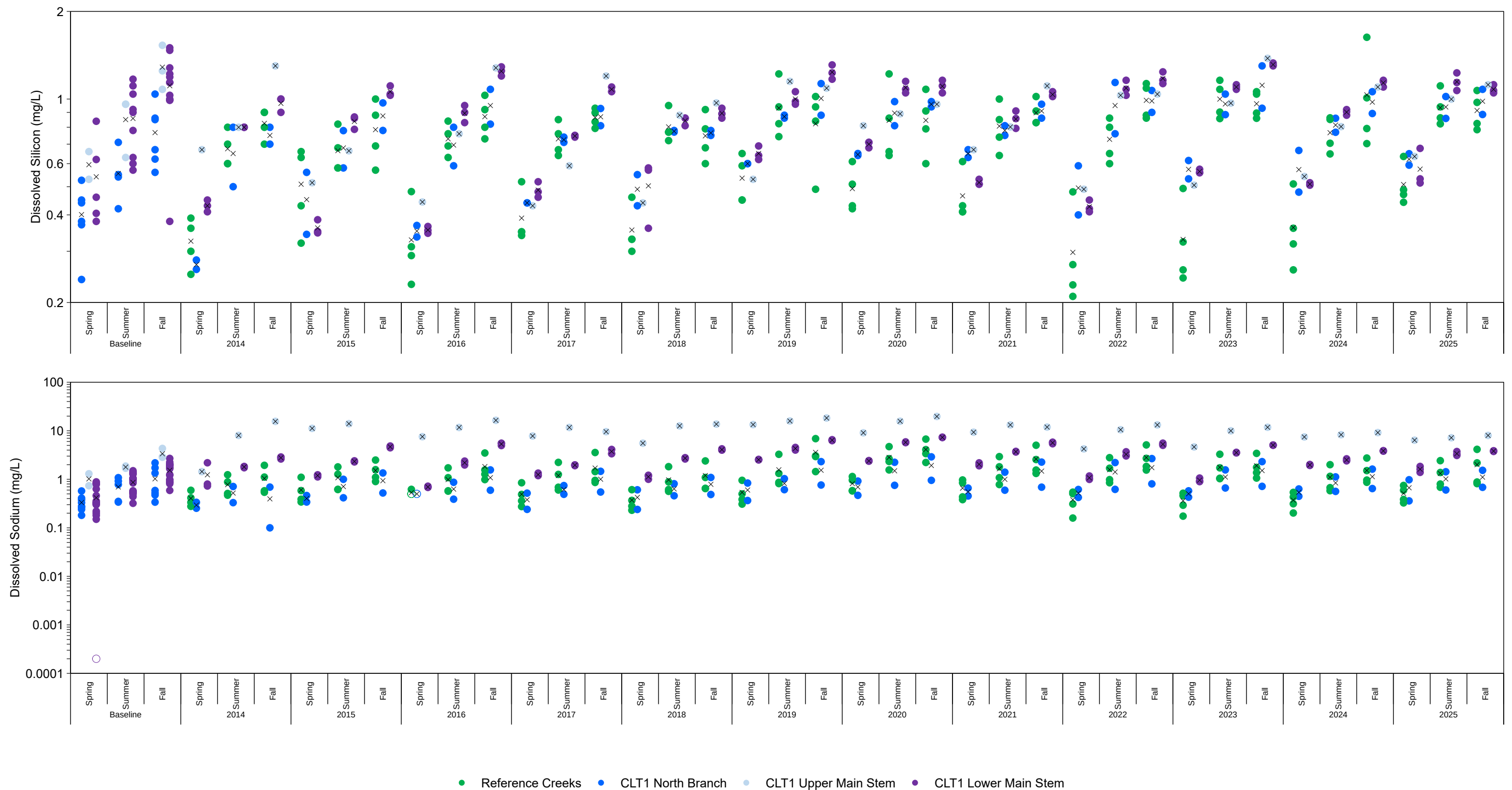


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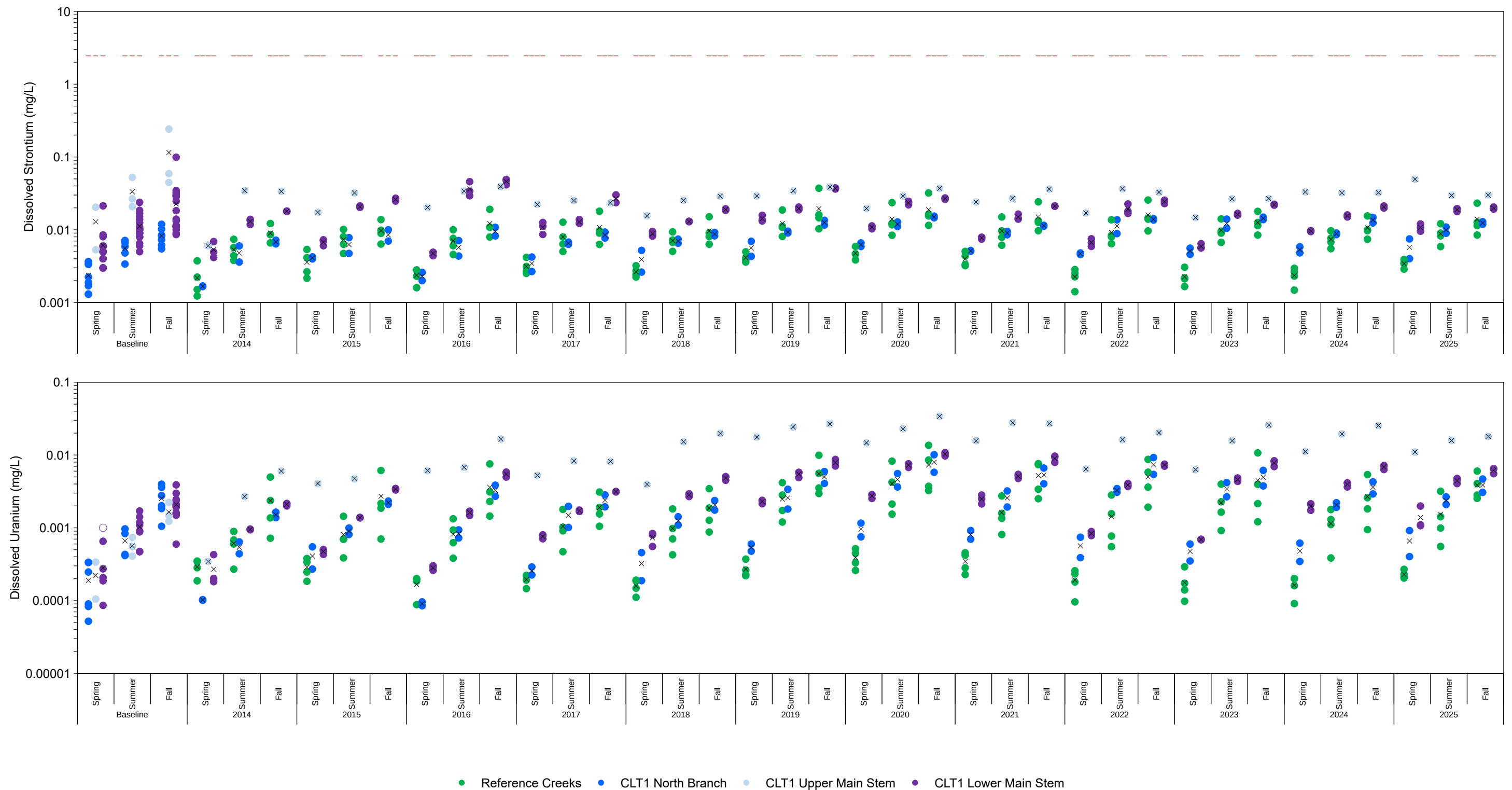


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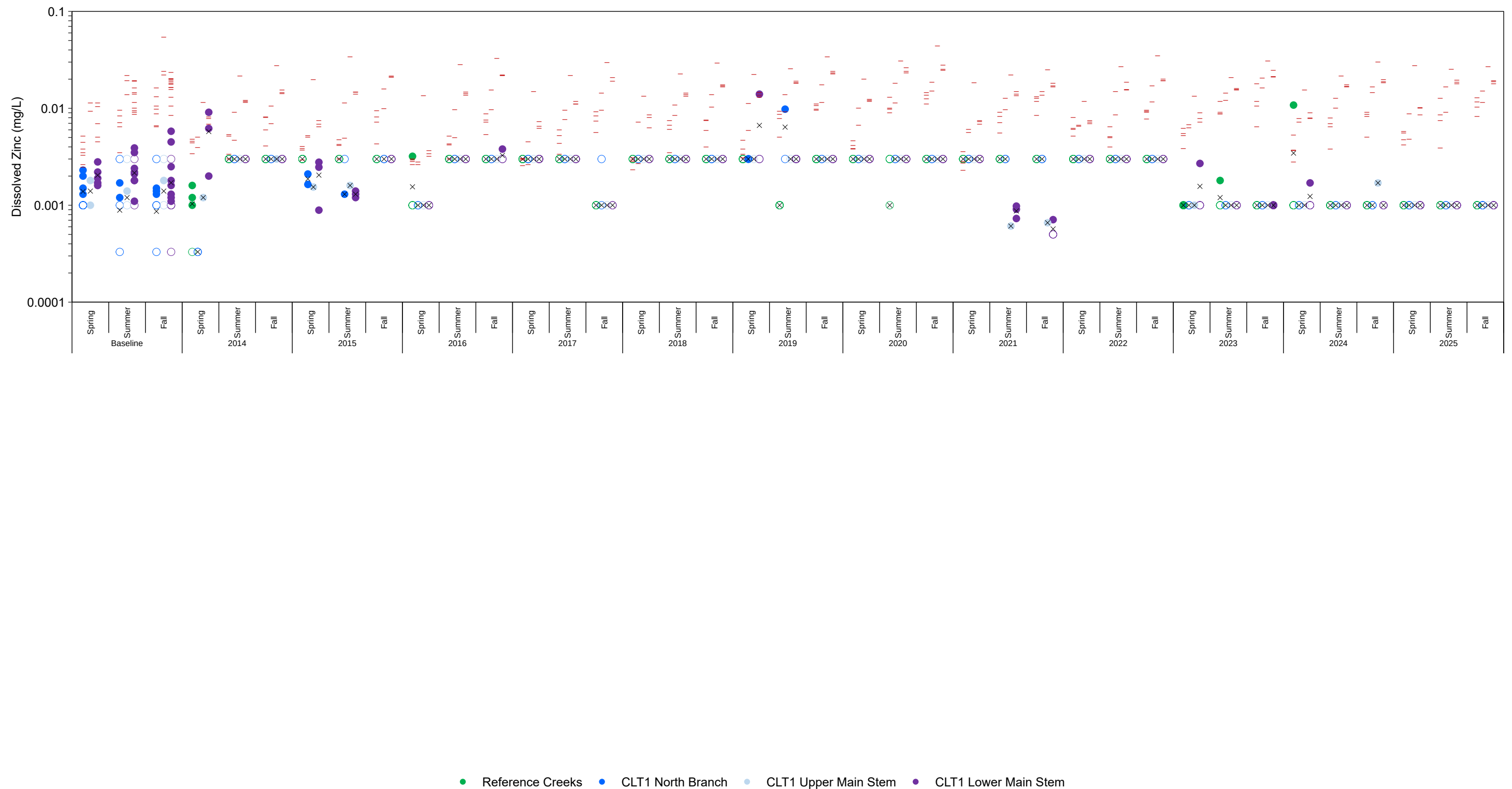


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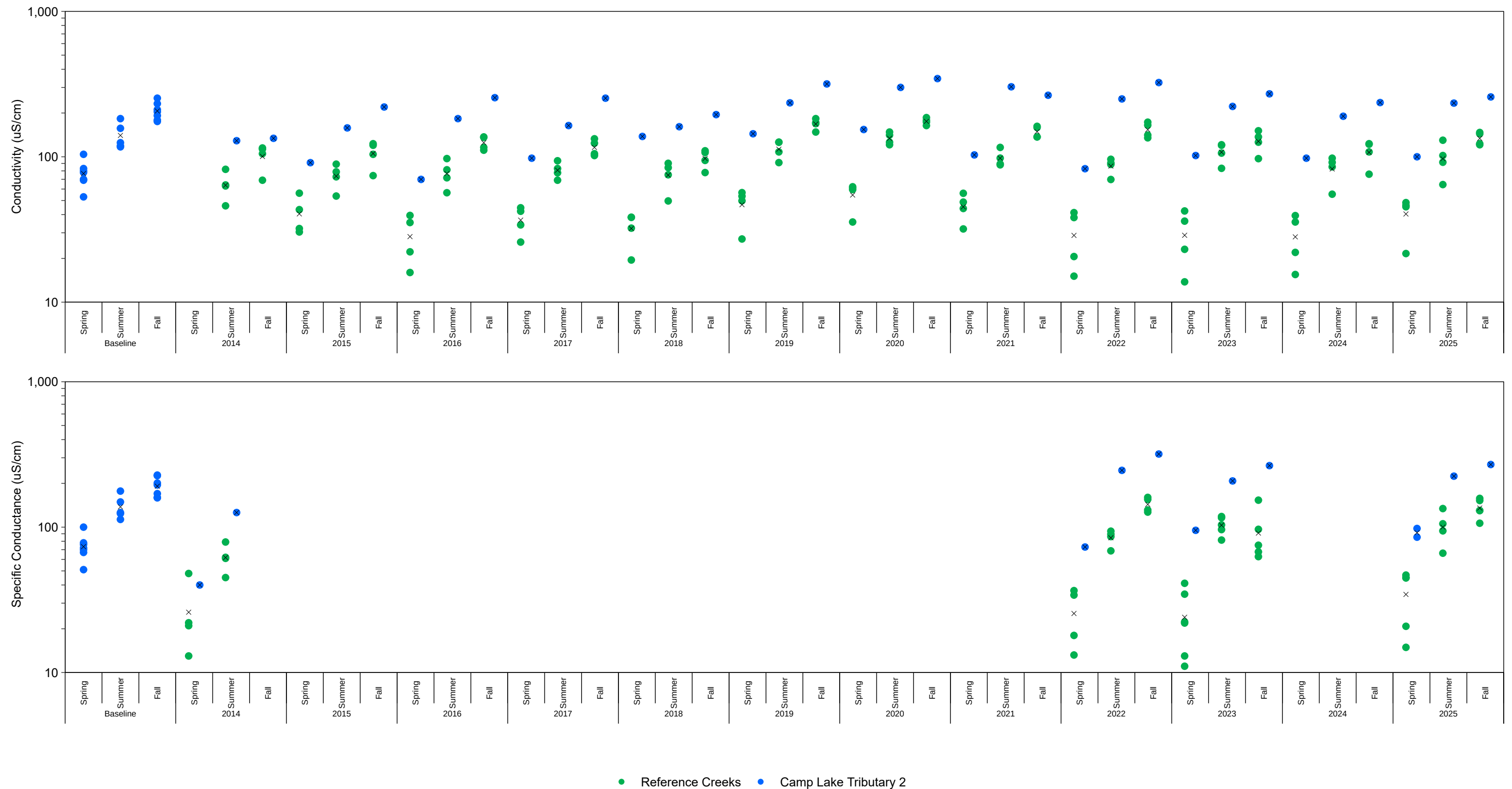


Figure B.3: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 2 (CLT2) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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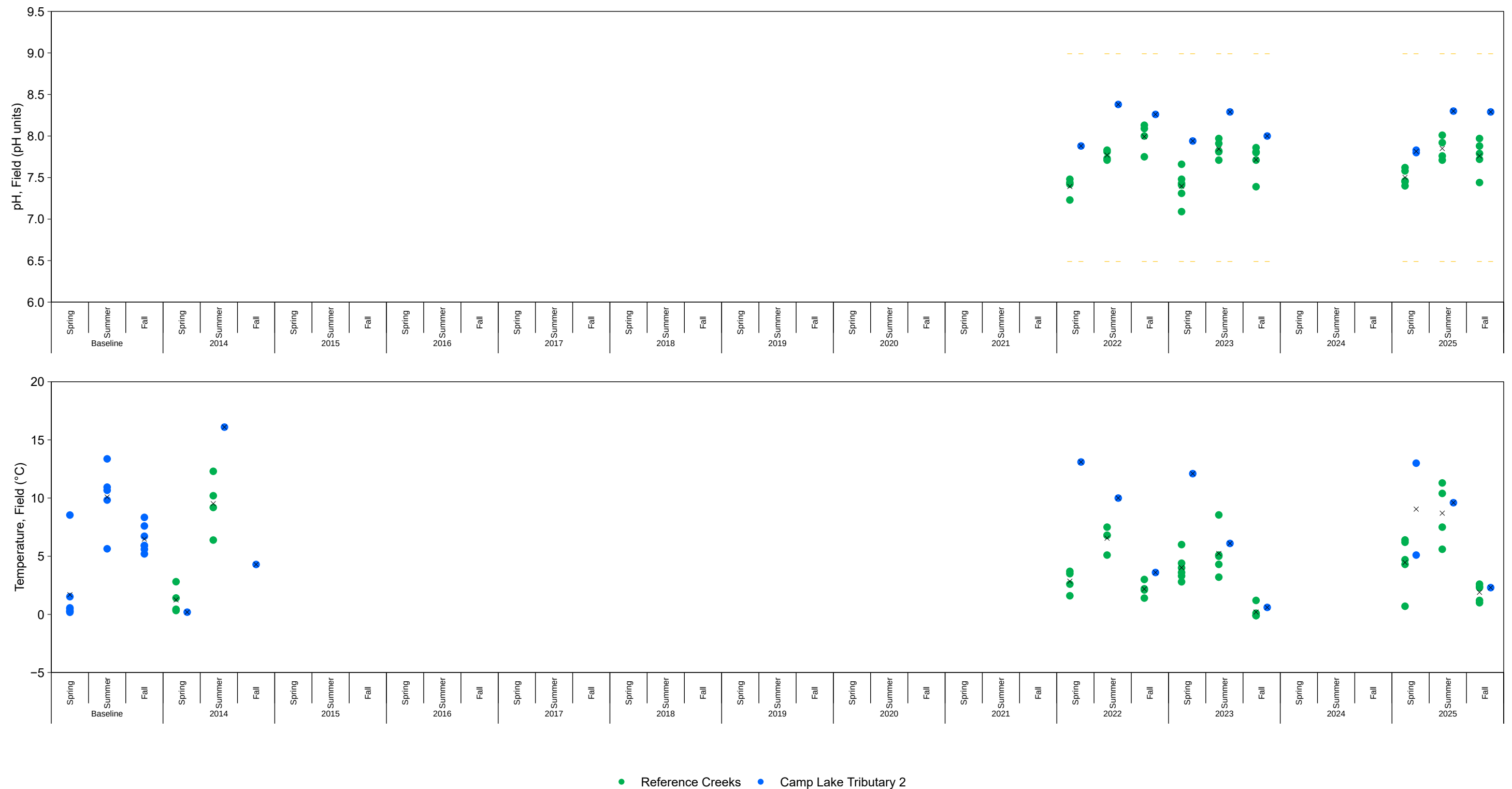


Figure B.3: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 2 (CLT2) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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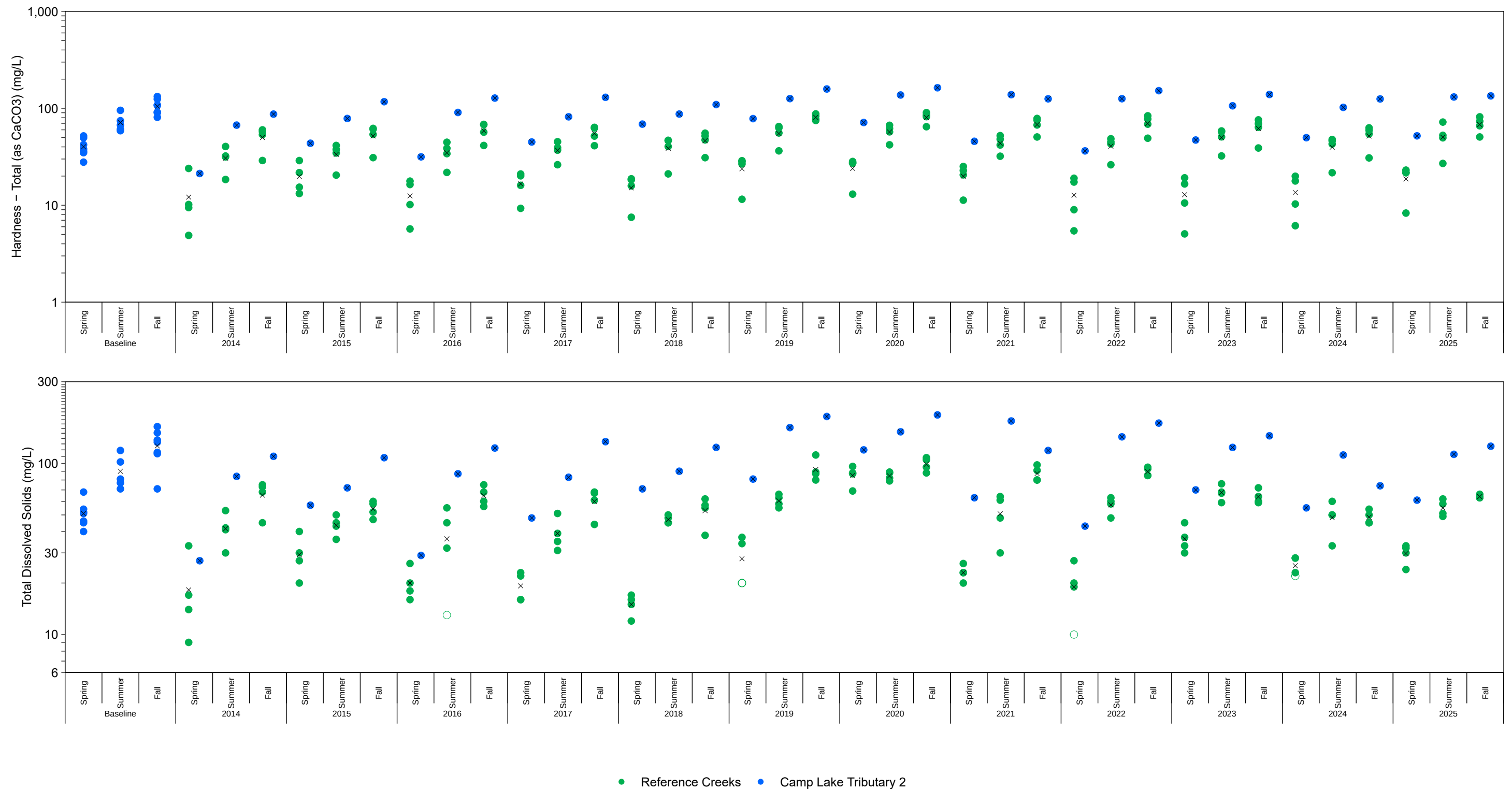


Figure B.3: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 2 (CLT2) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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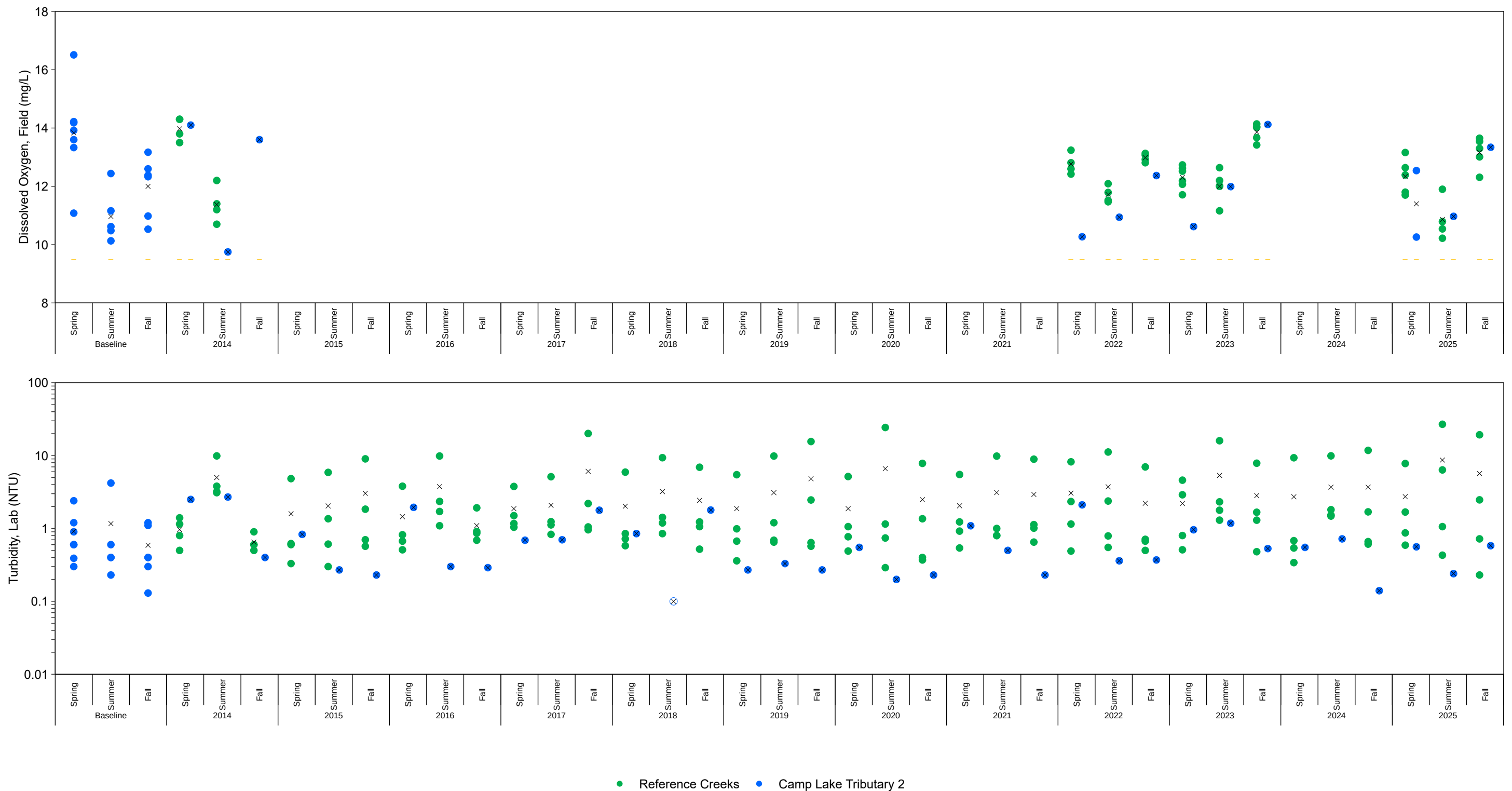


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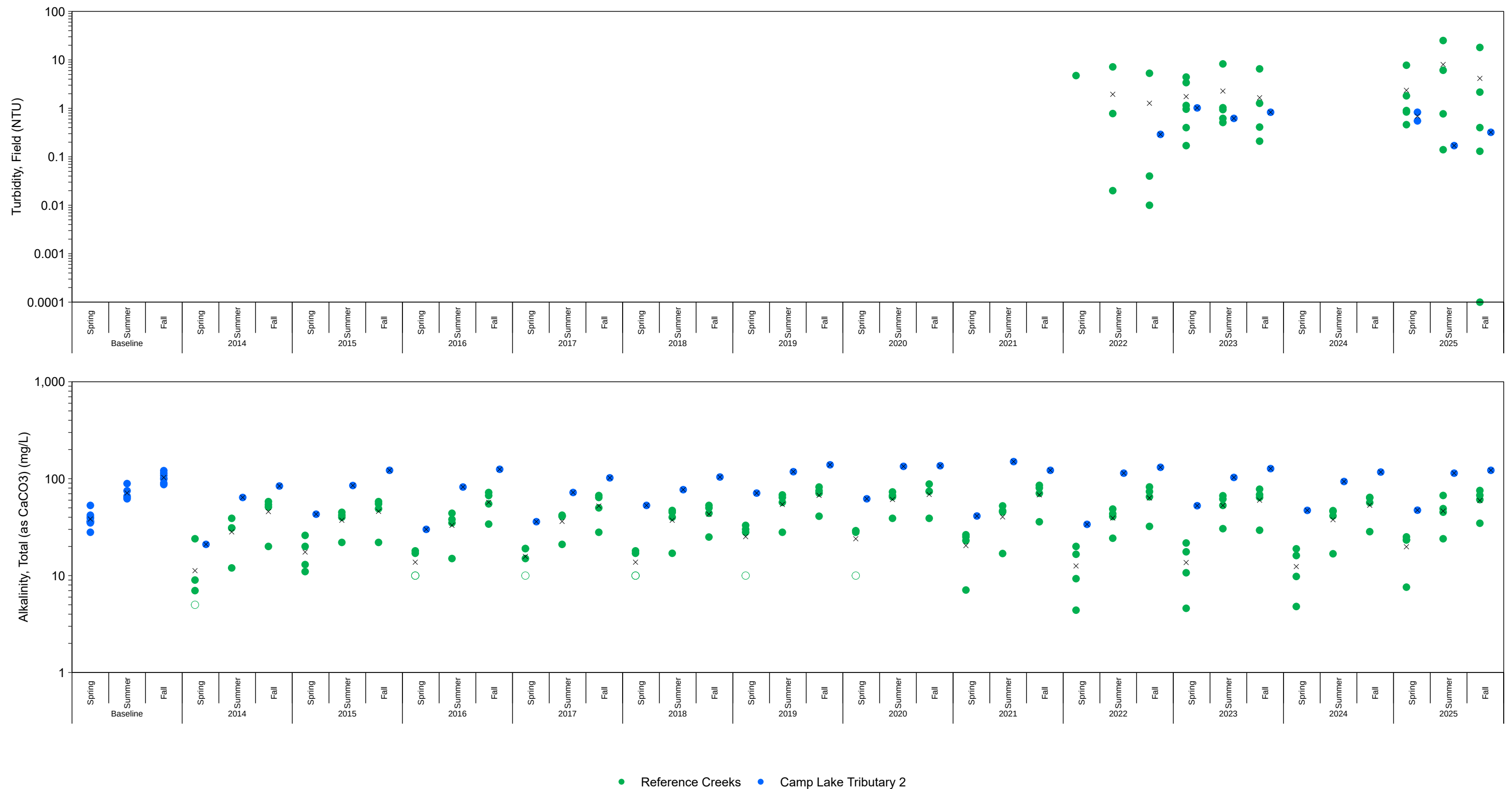


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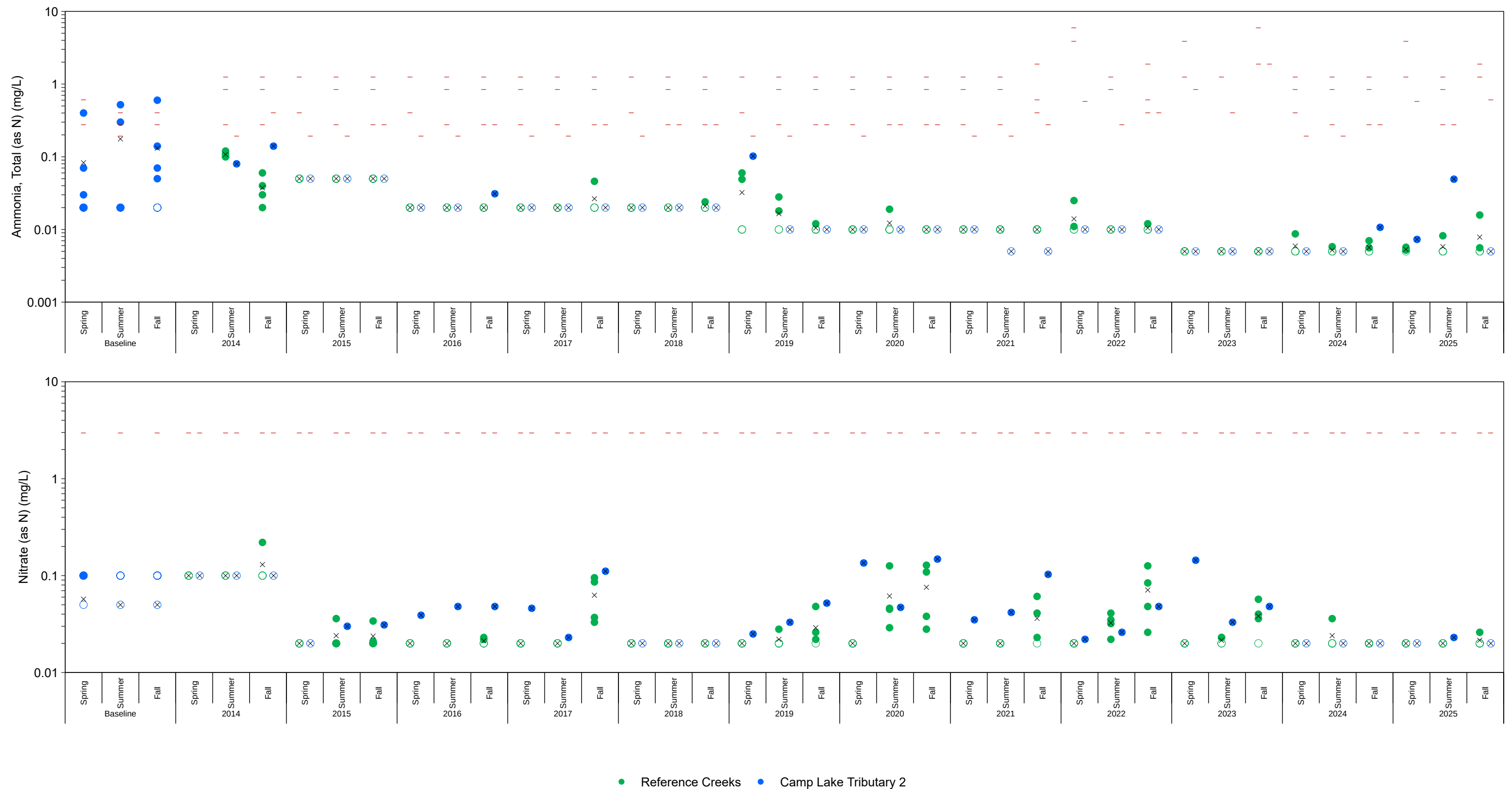


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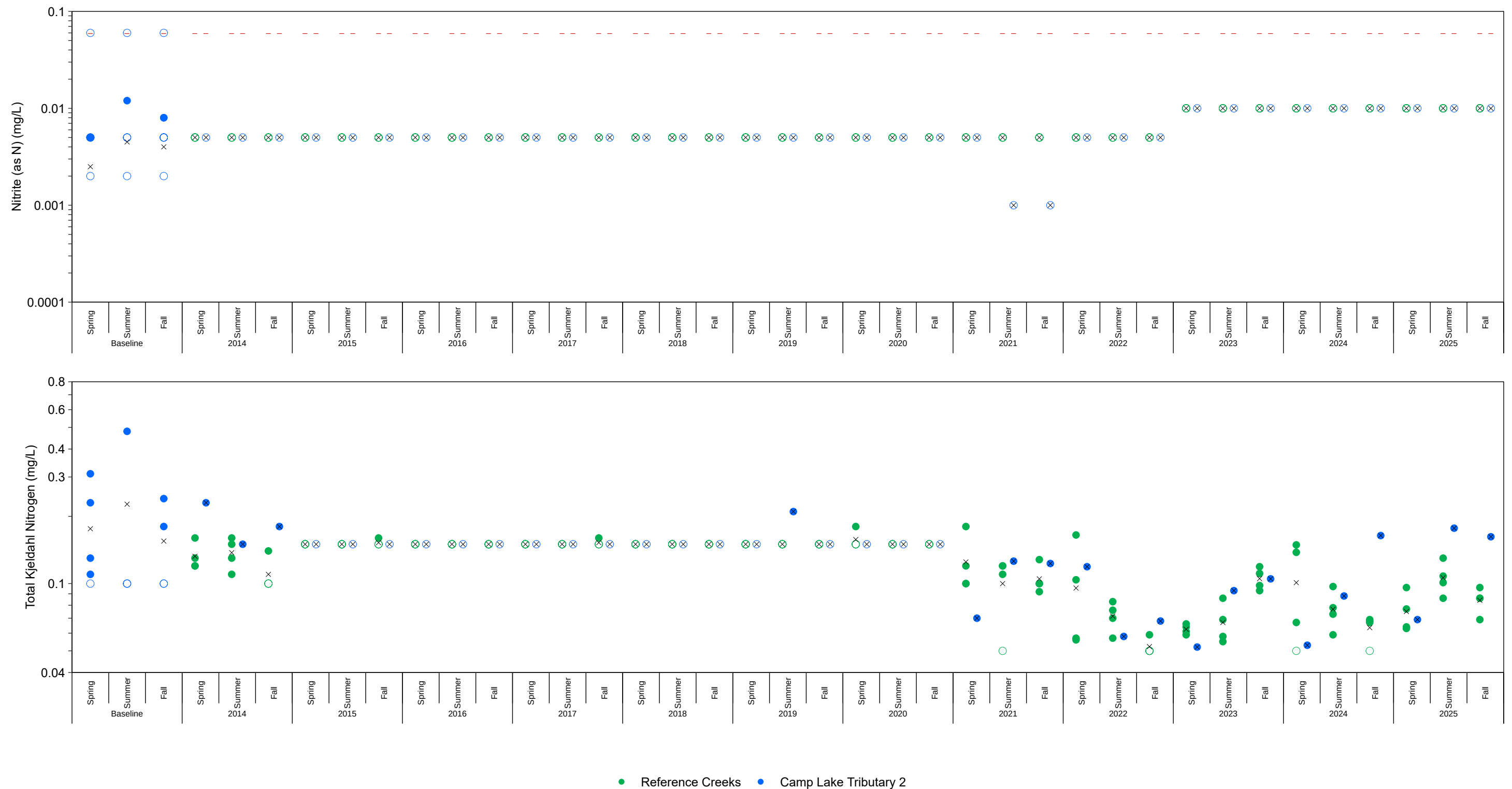


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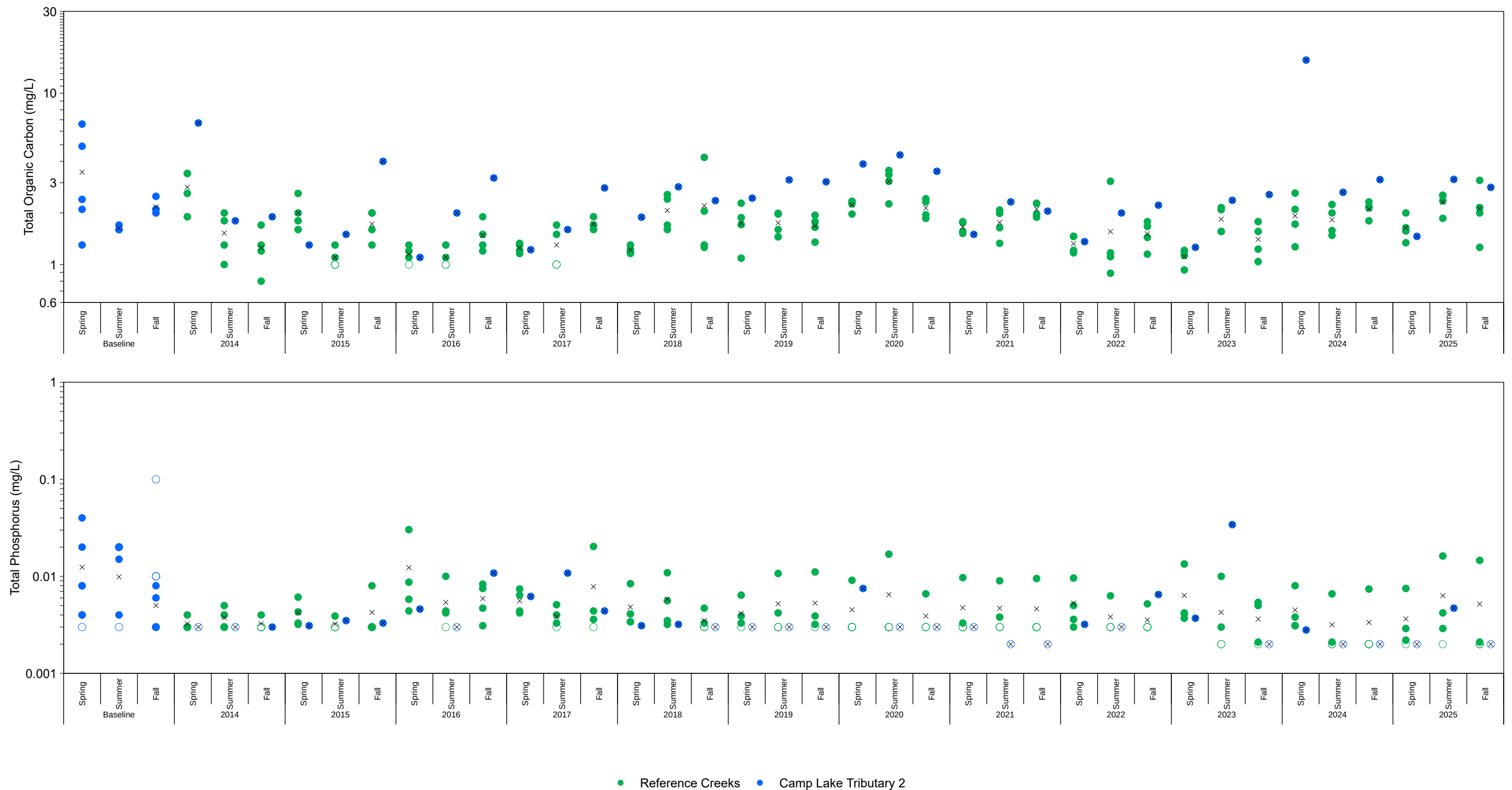


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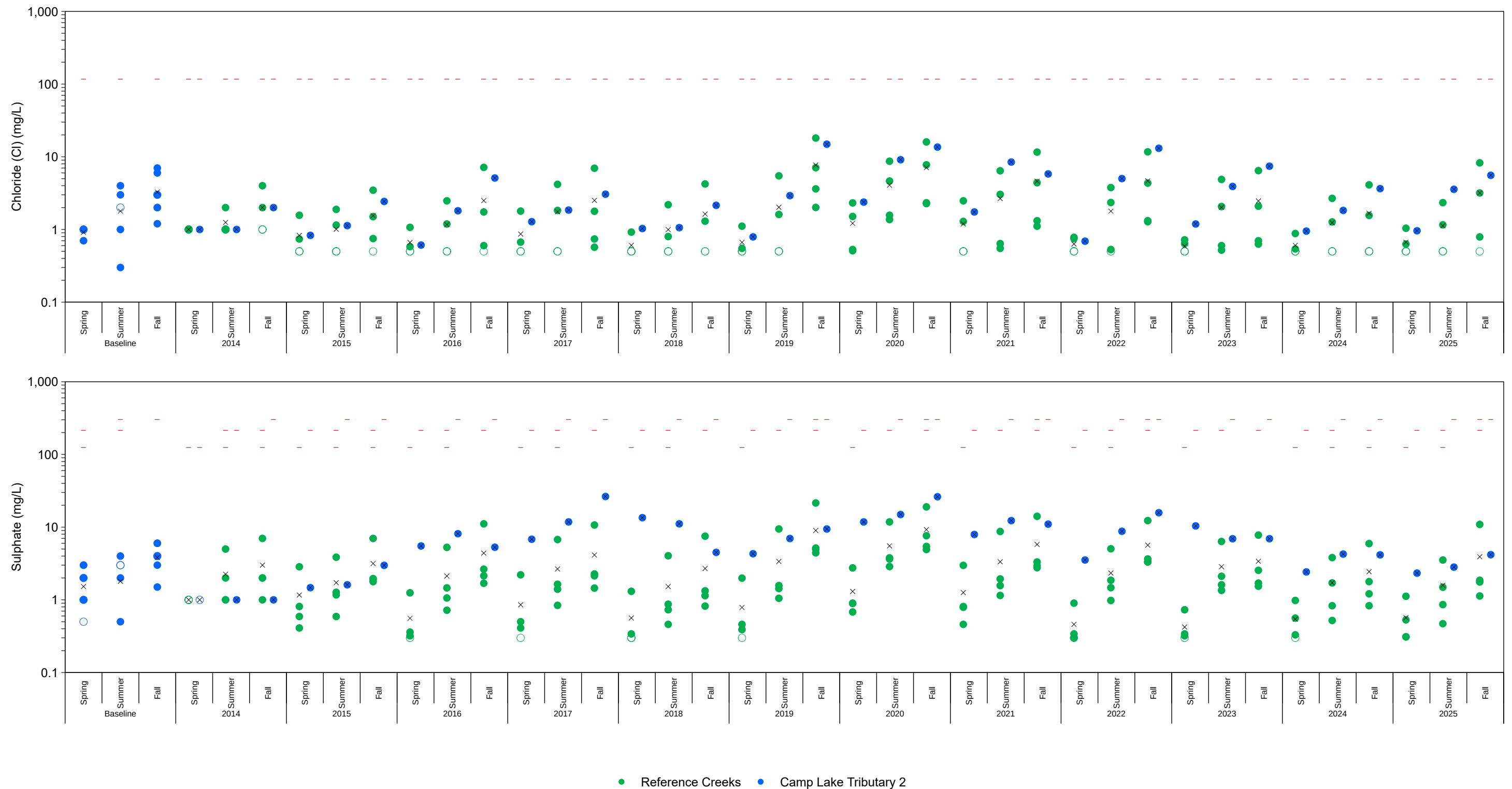


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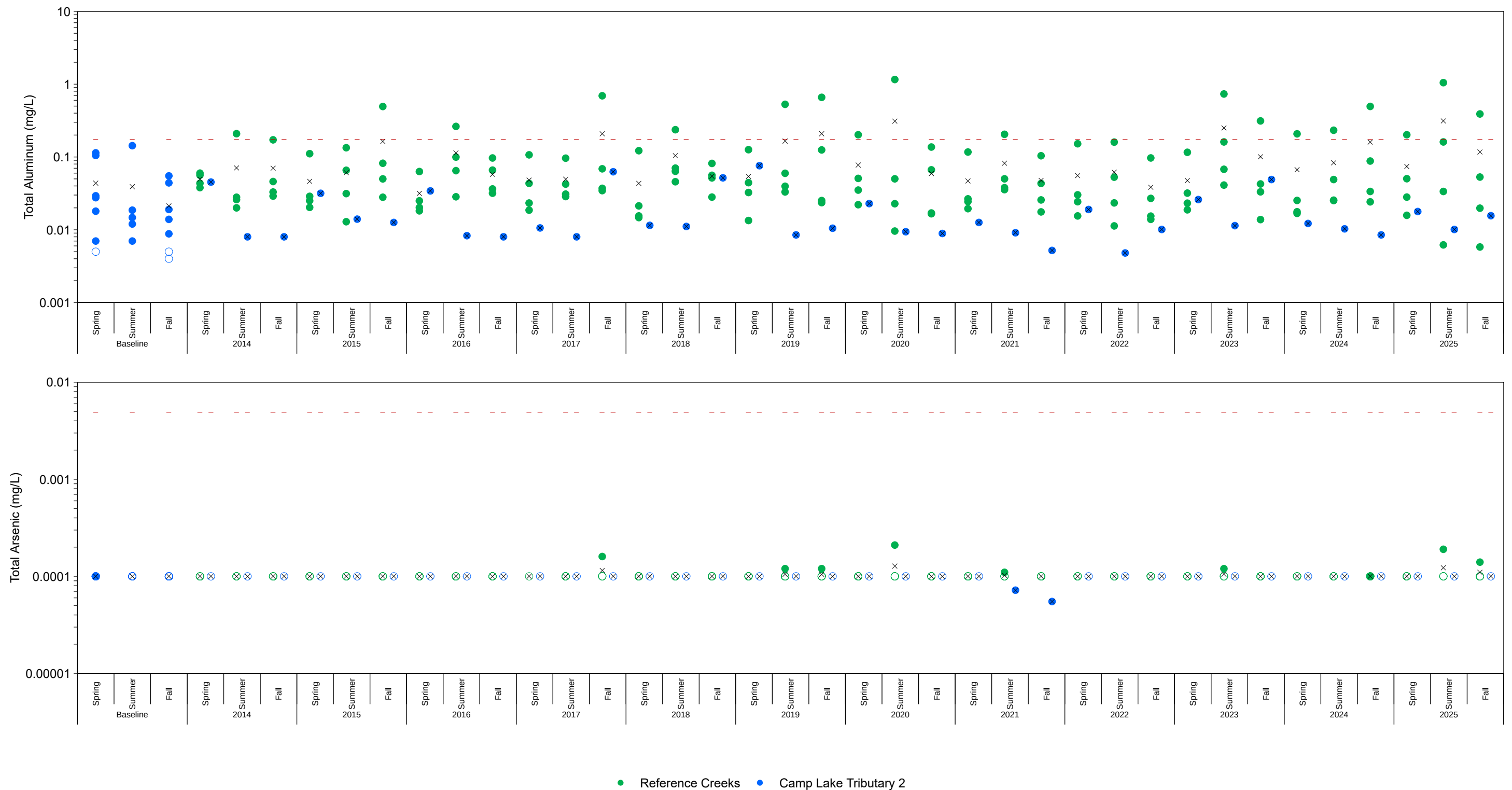


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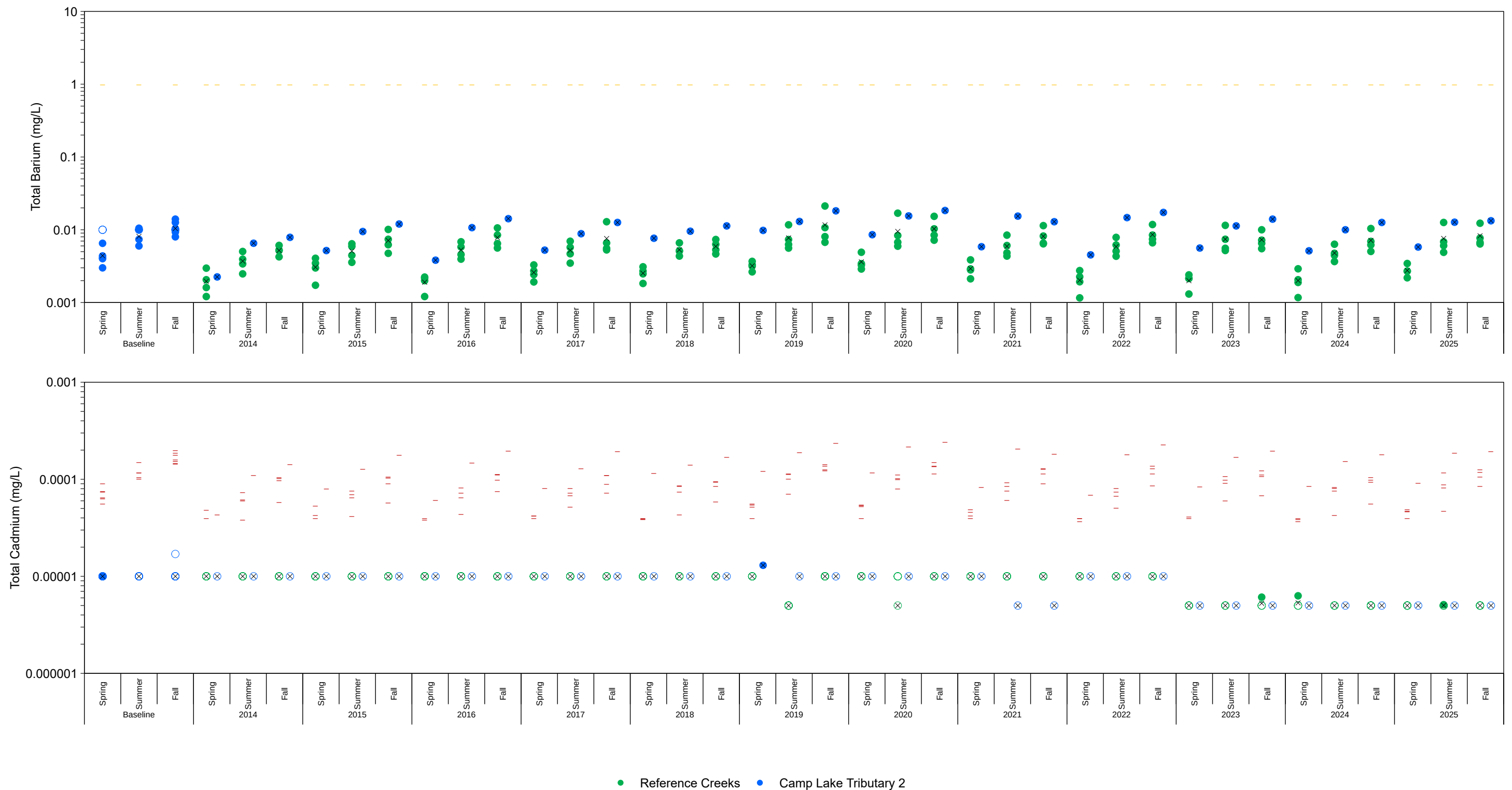


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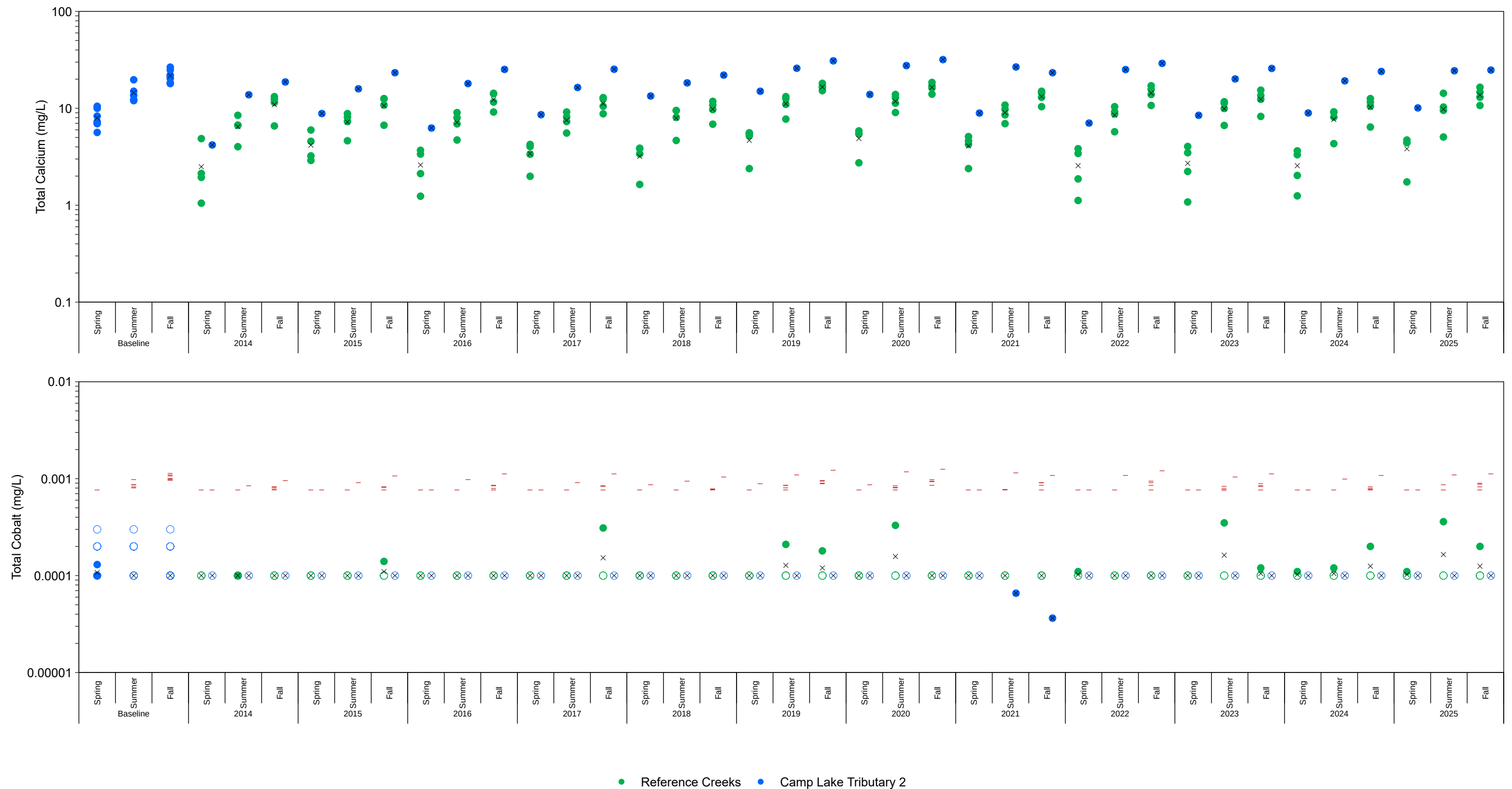


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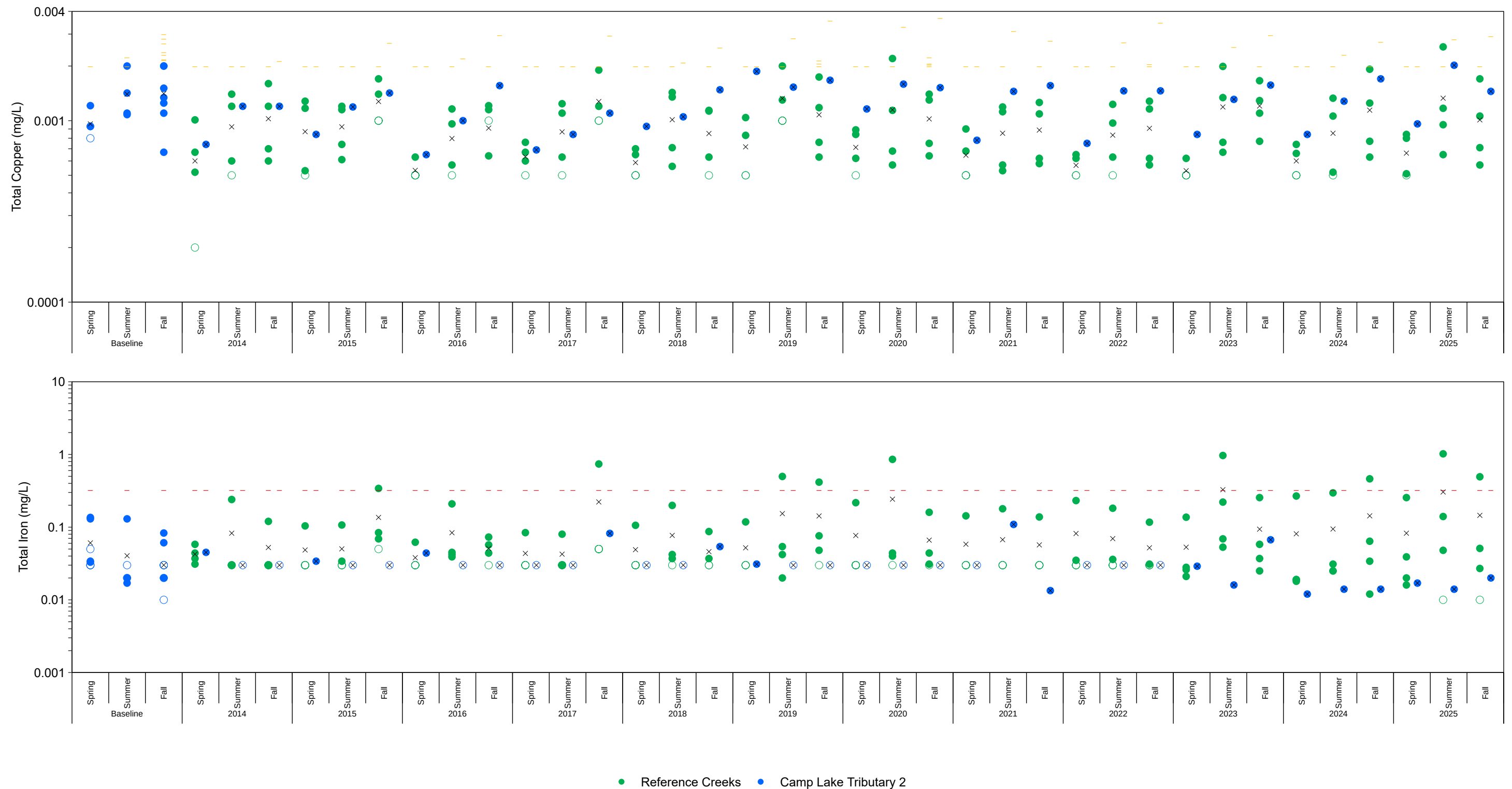


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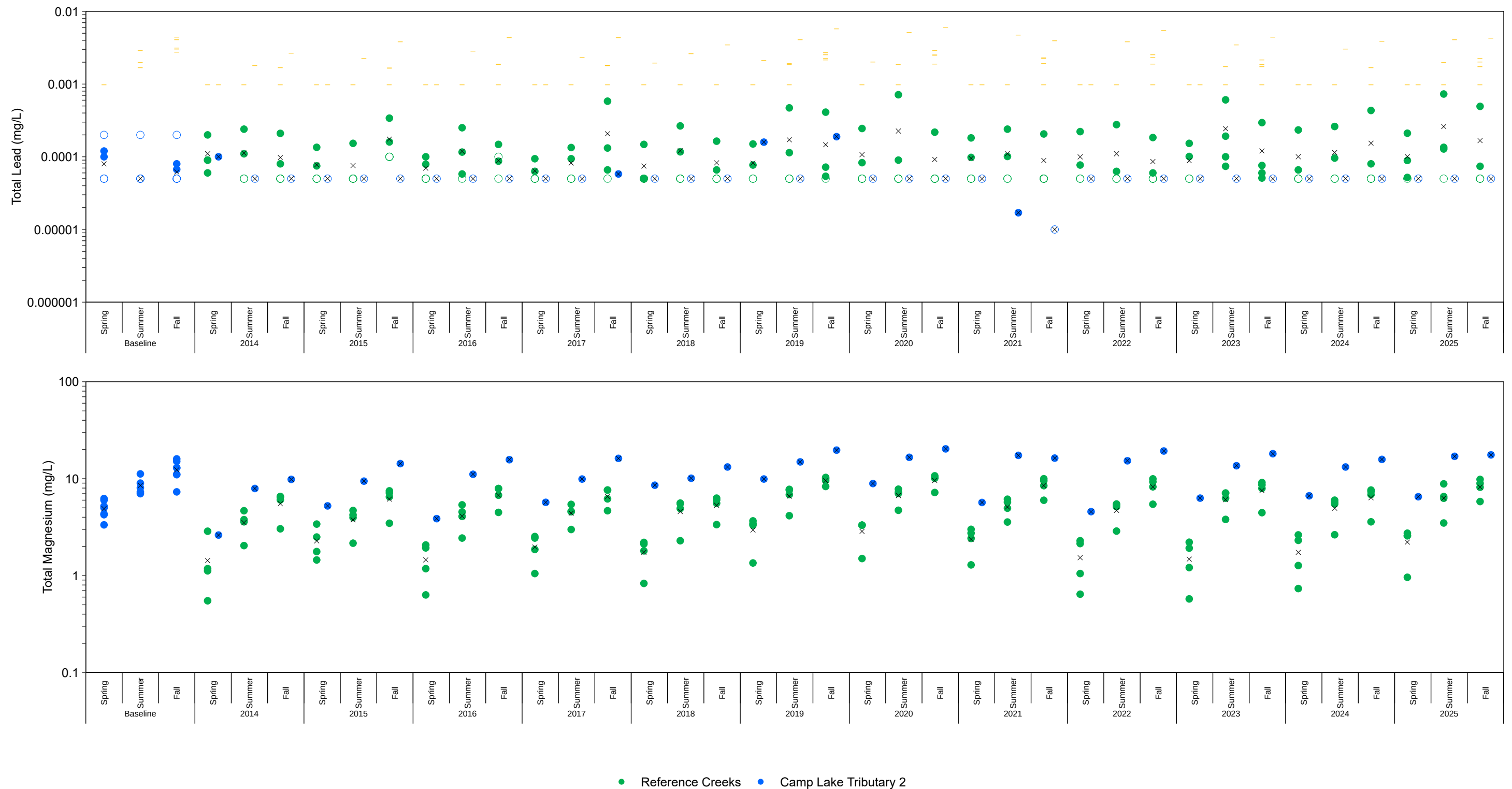


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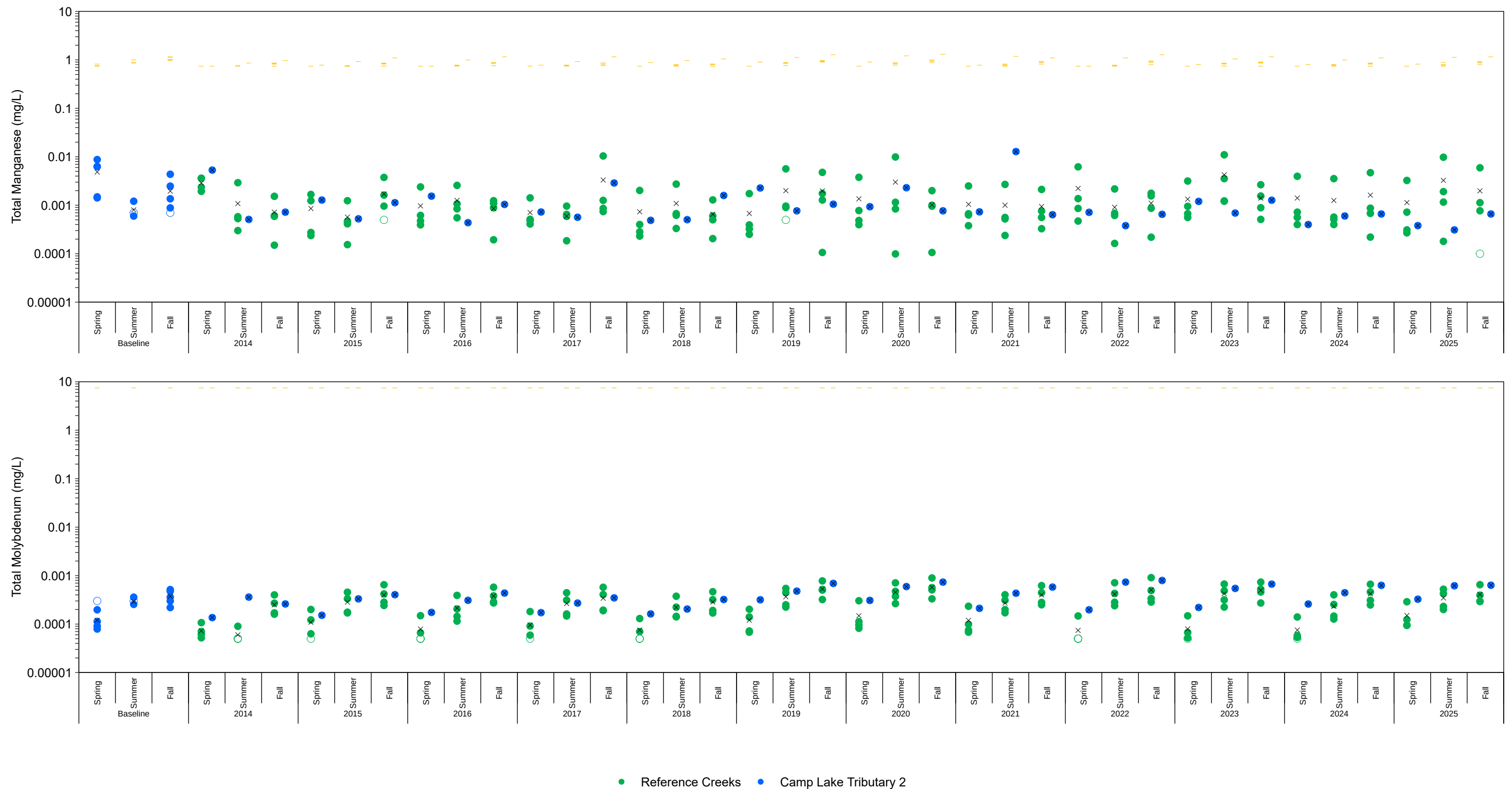


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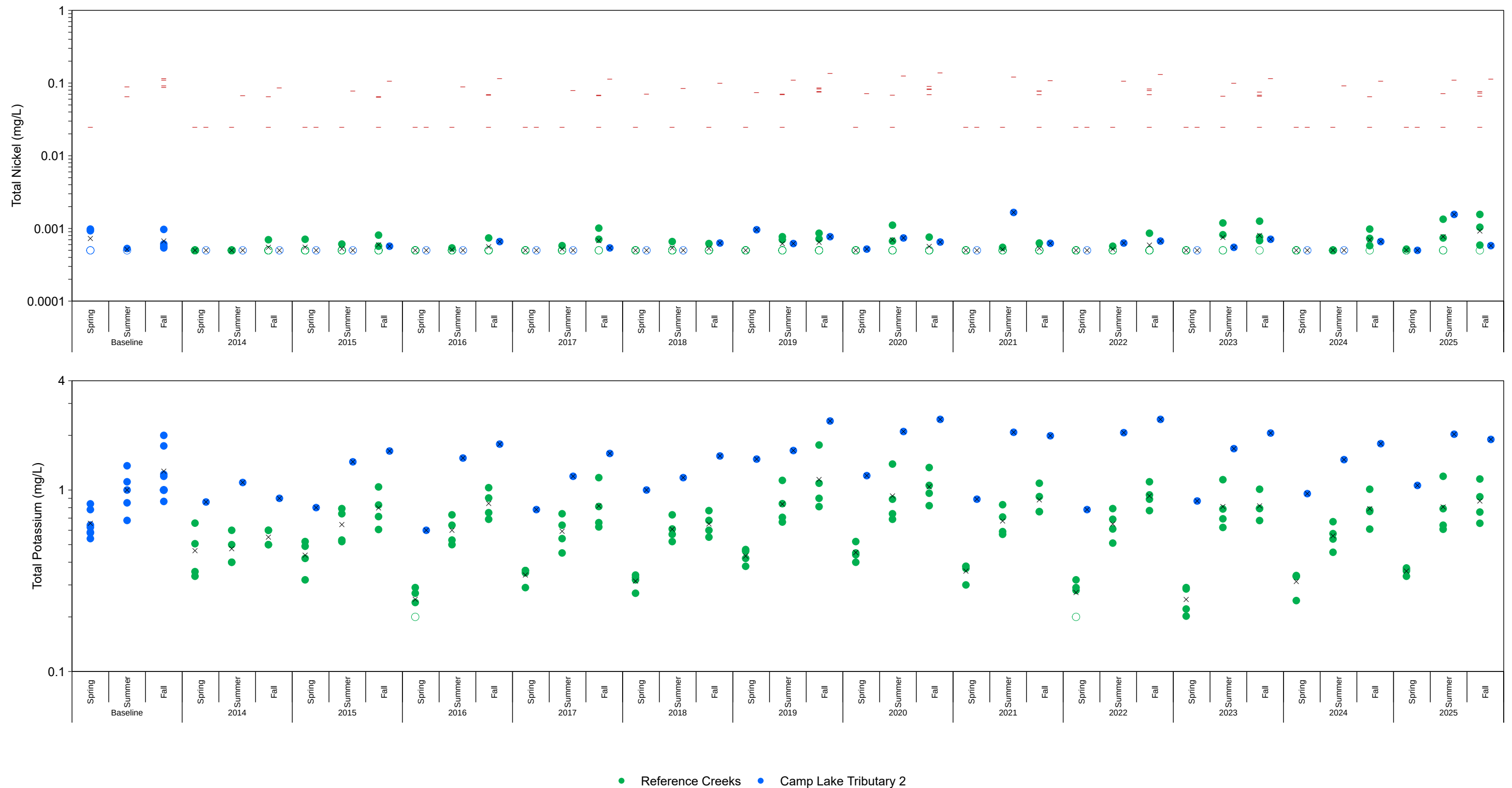


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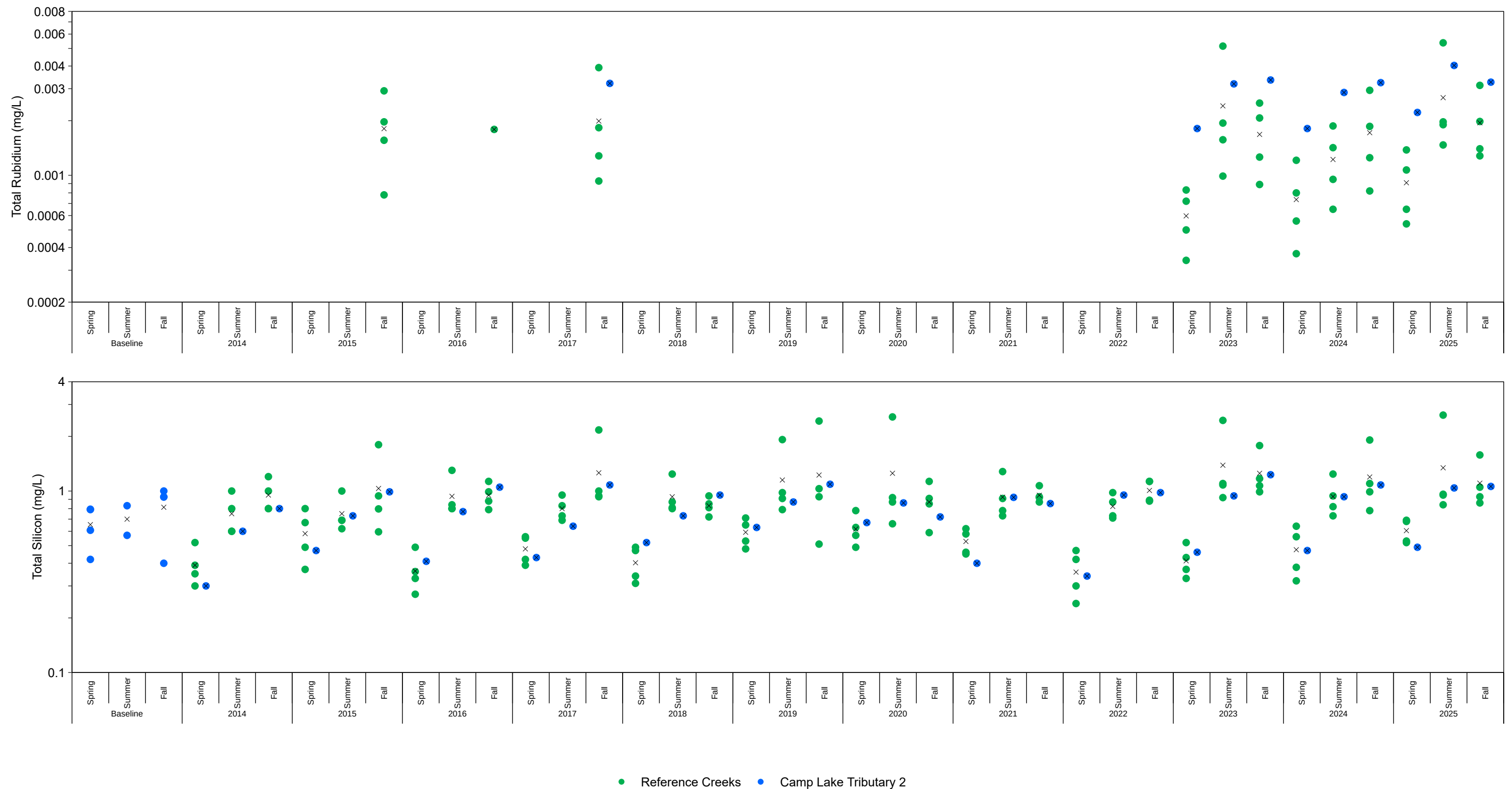


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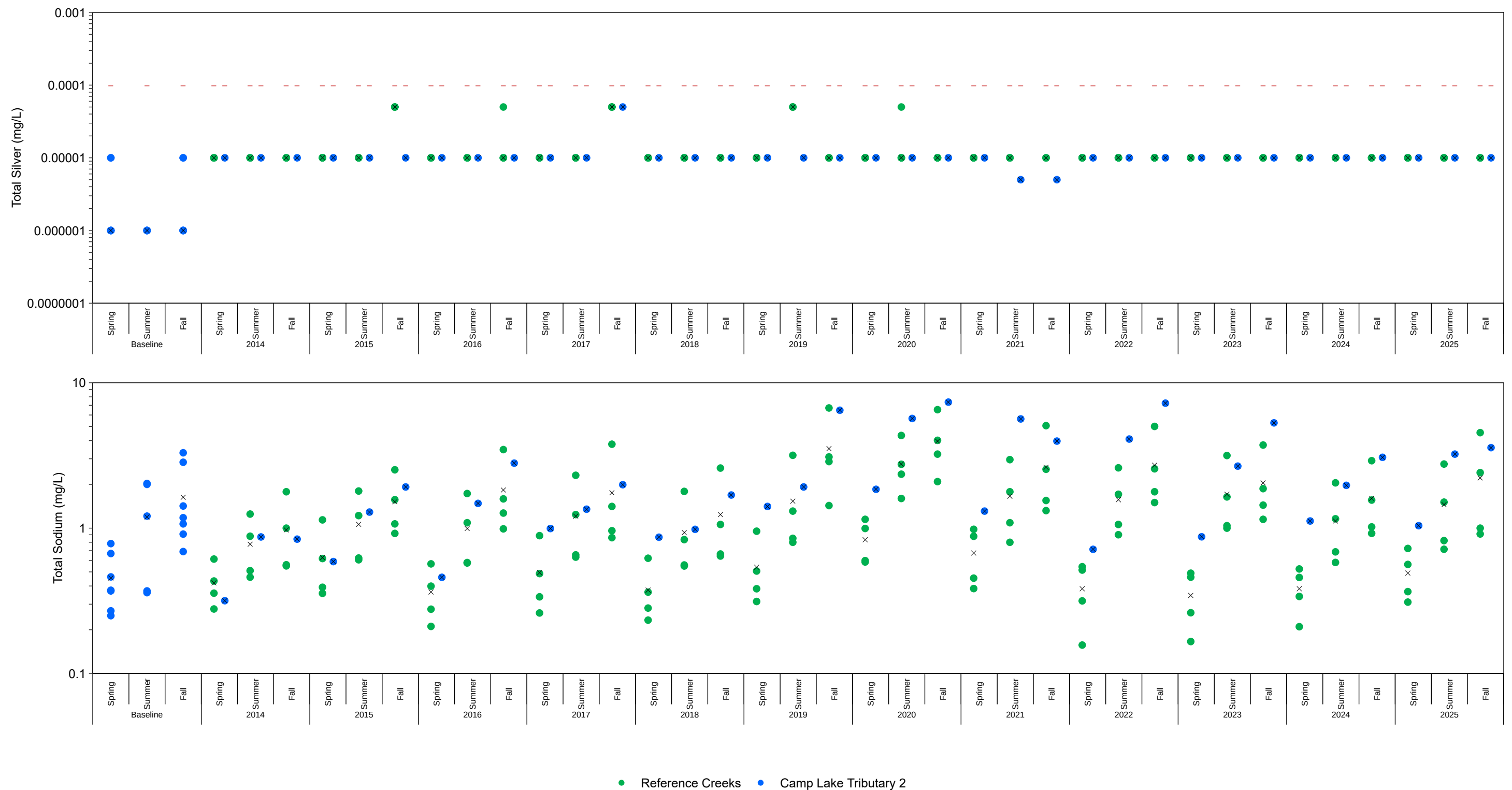


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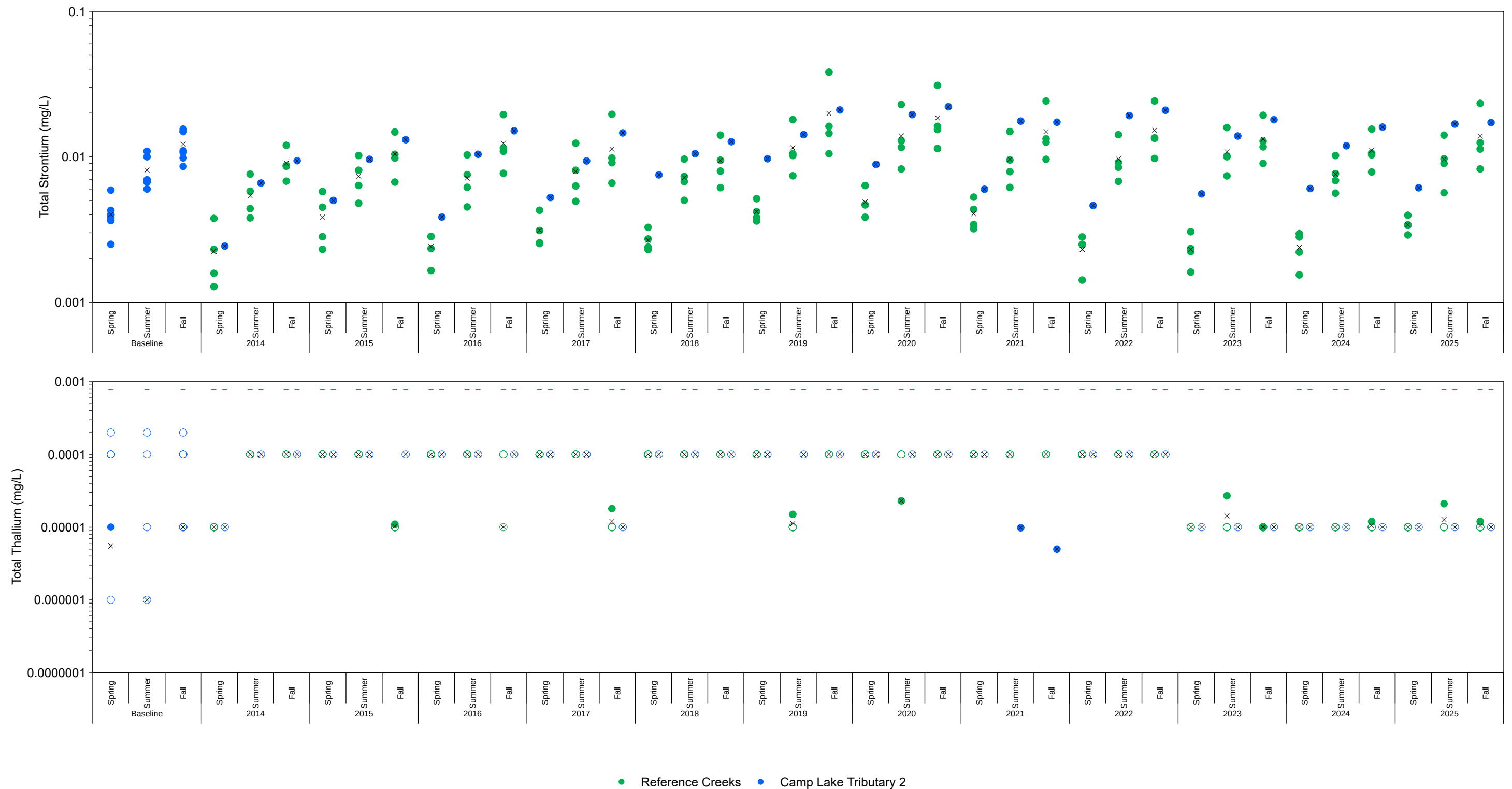


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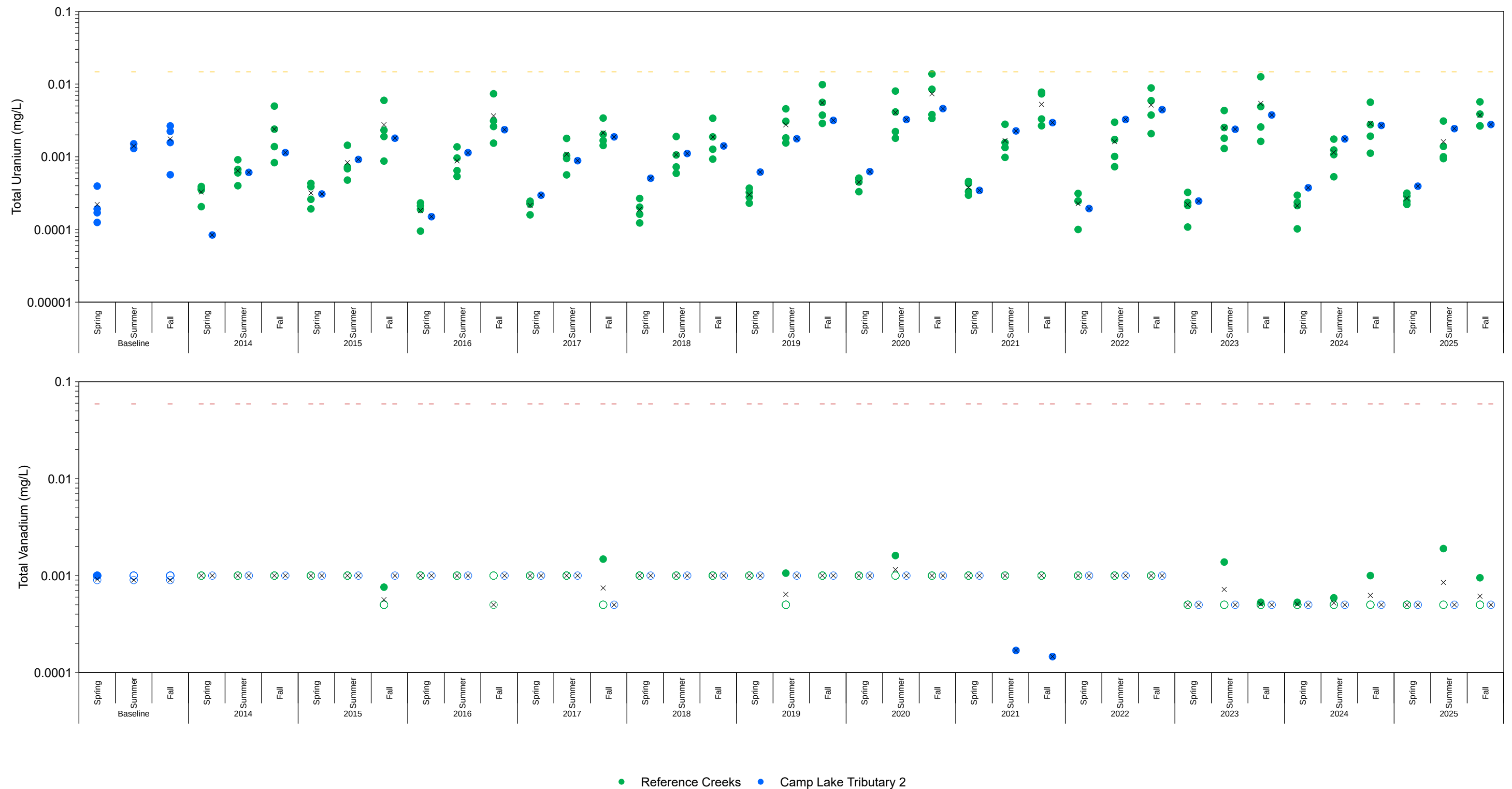


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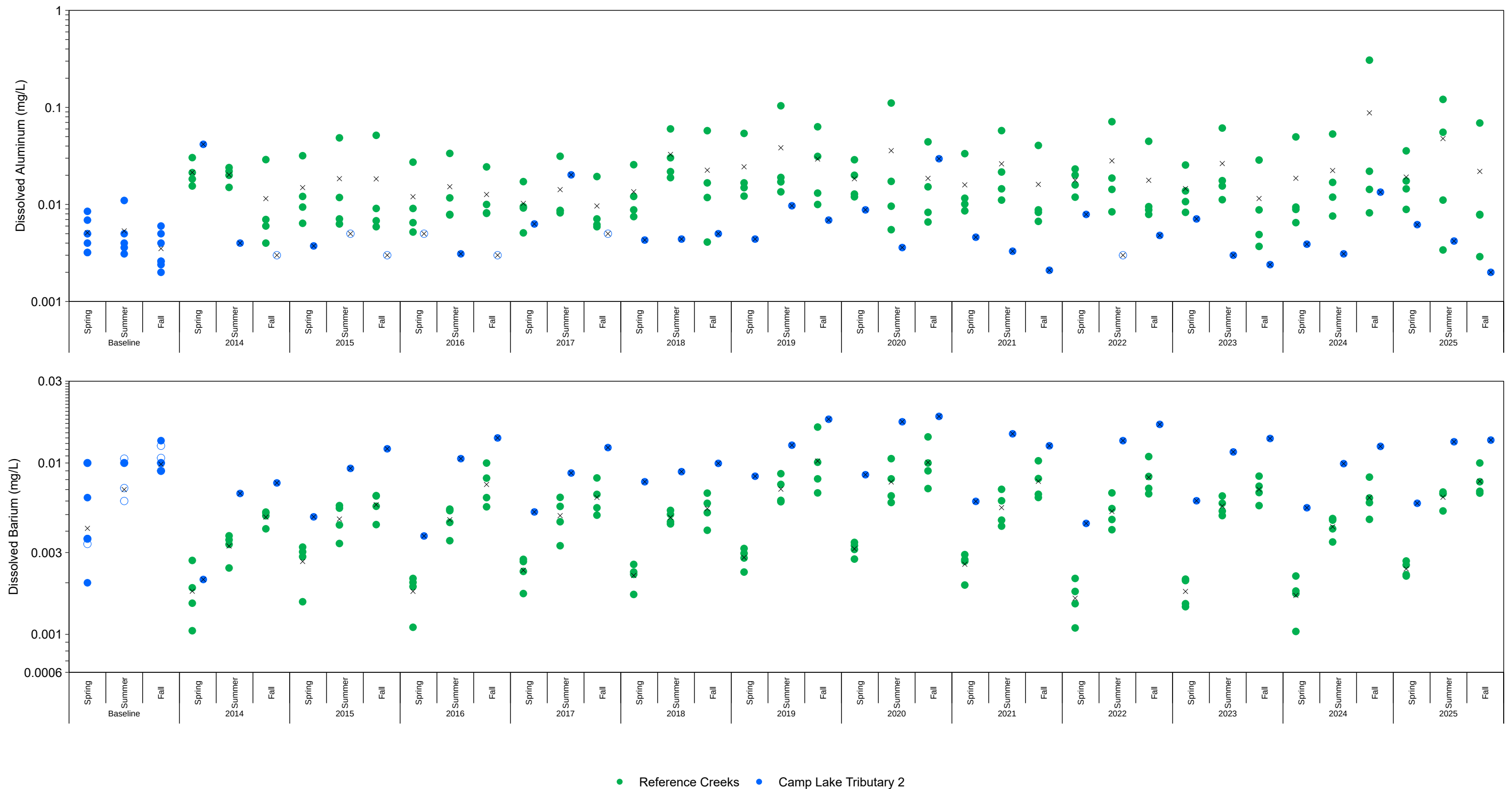


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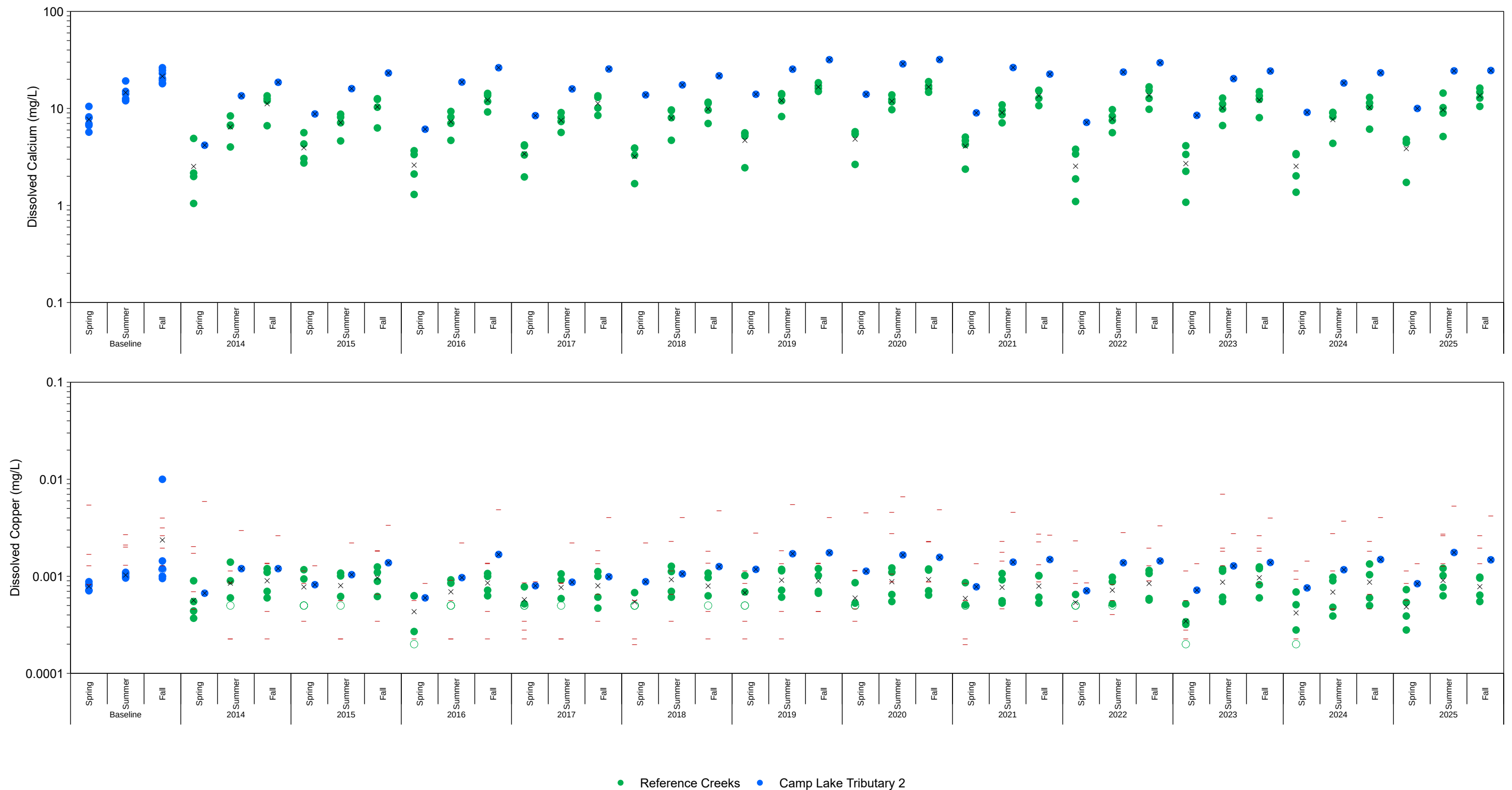


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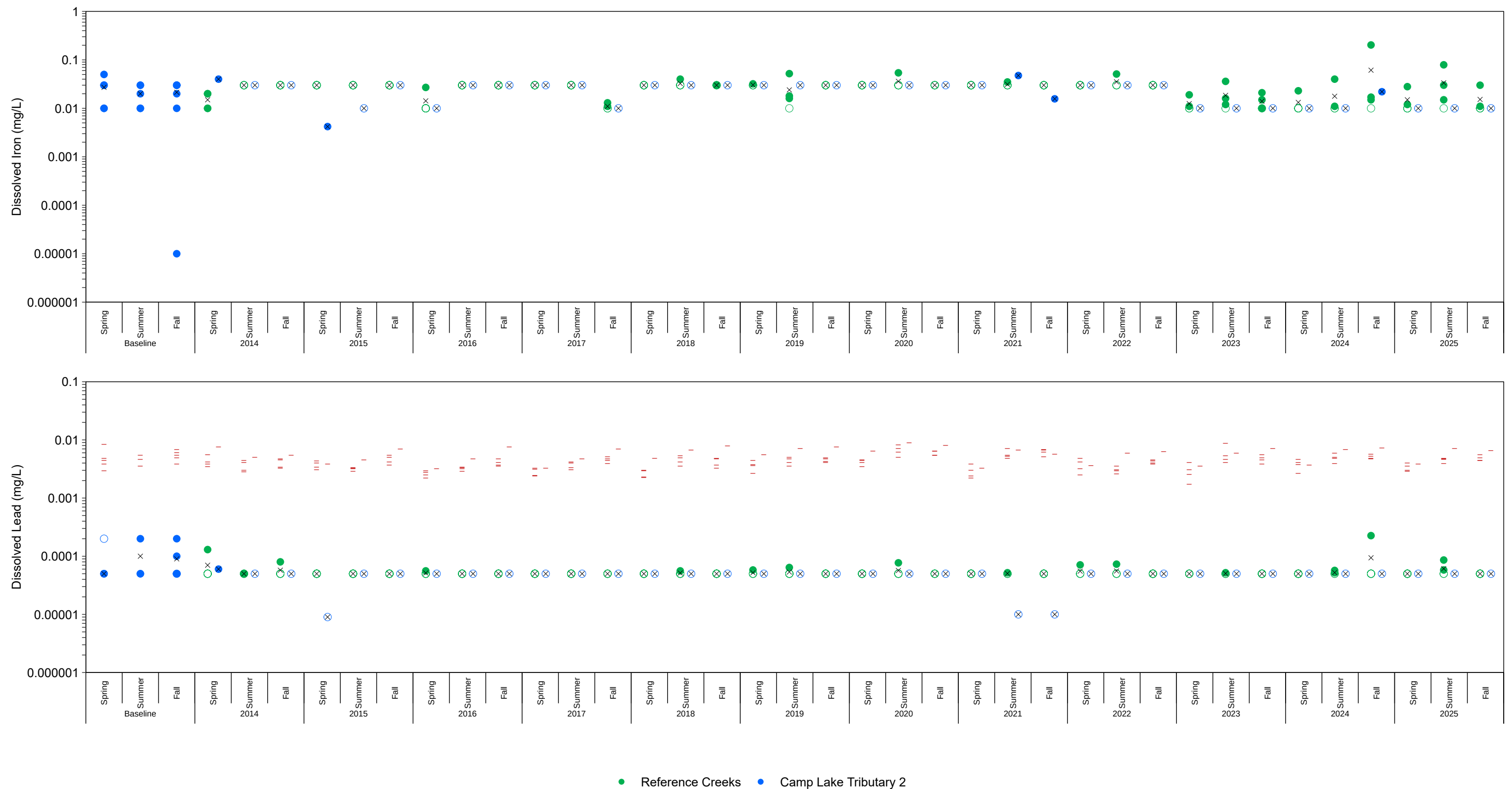


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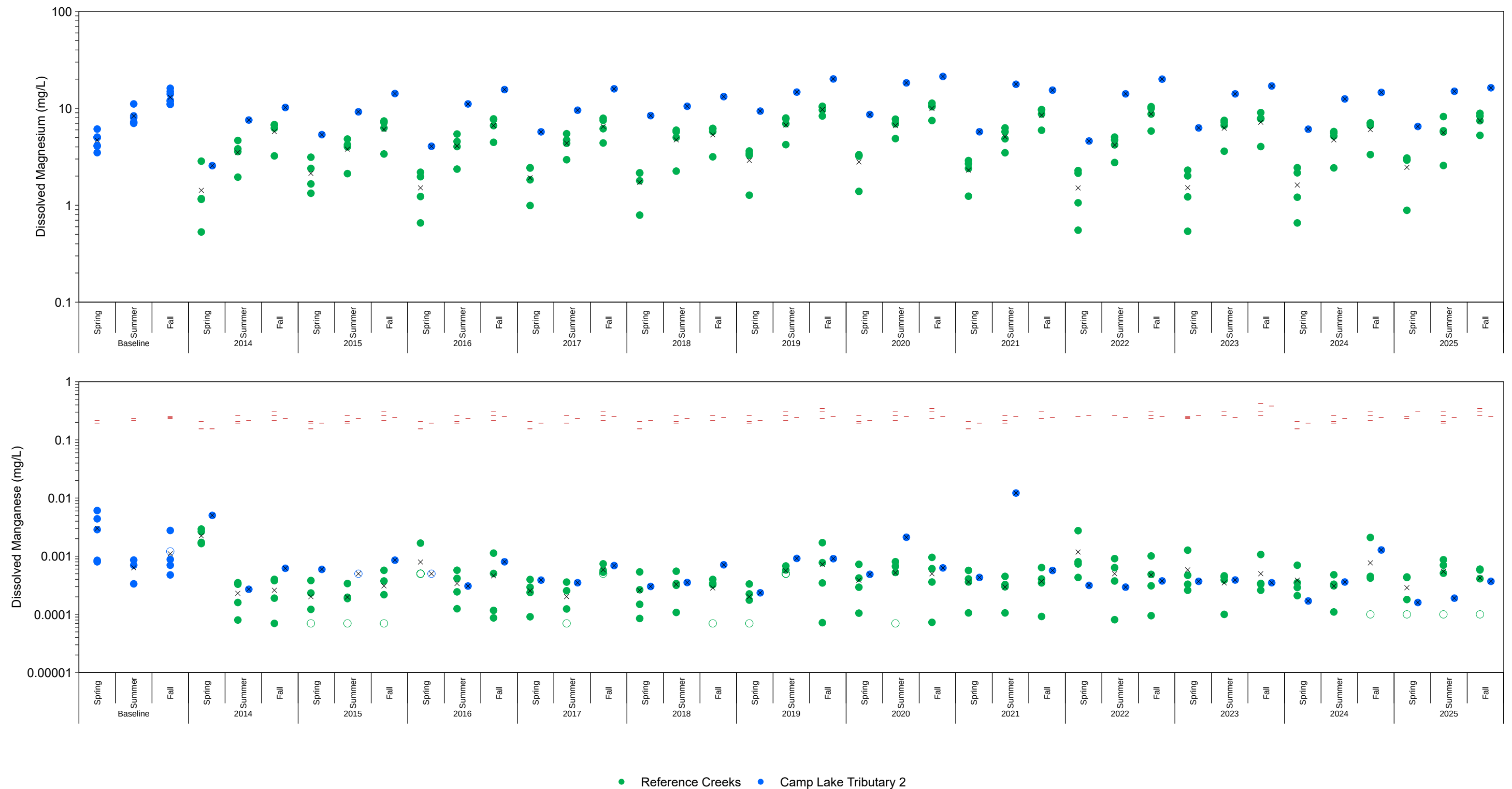


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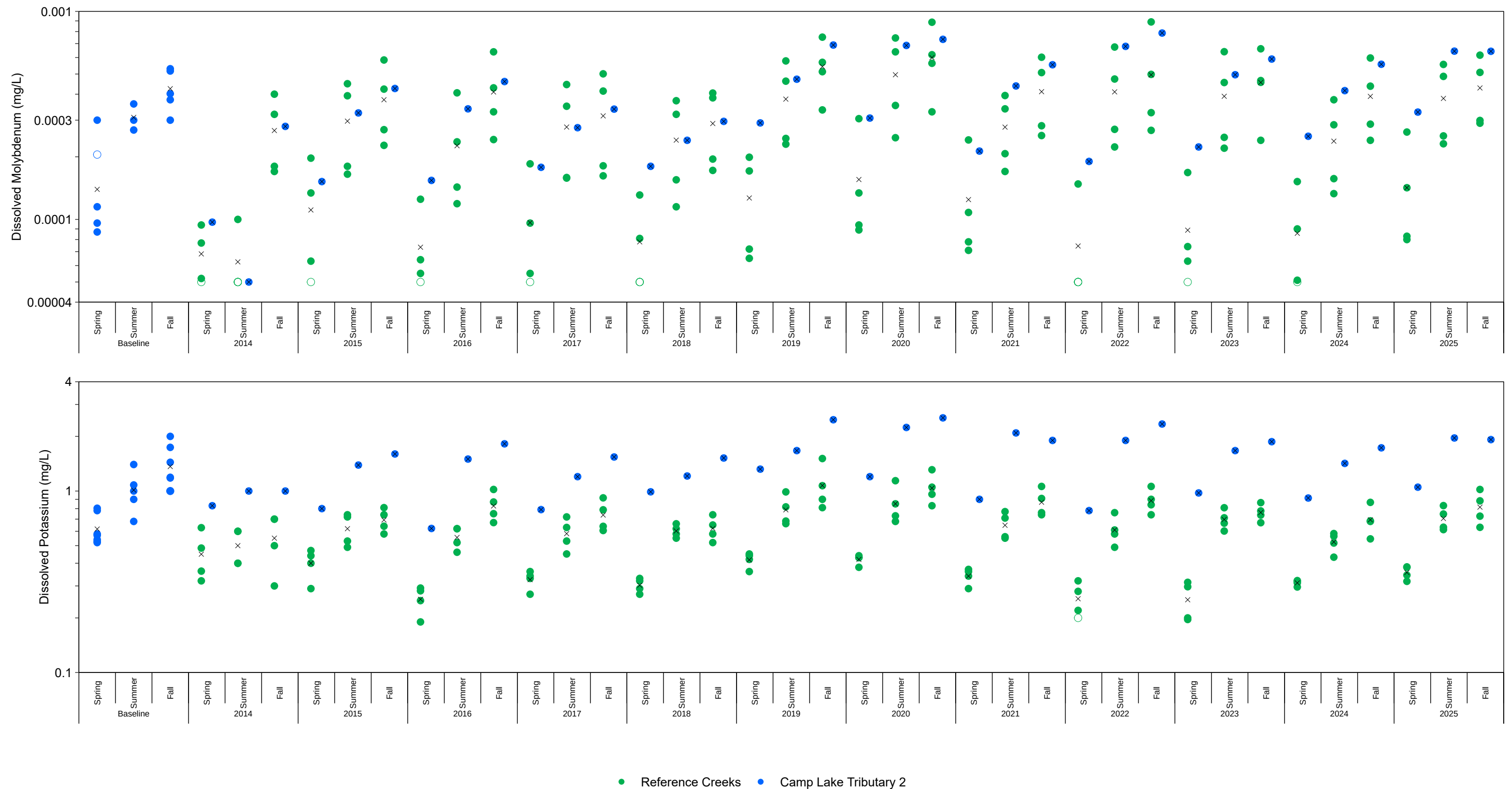


Figure B.3: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 2 (CLT2) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. The open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

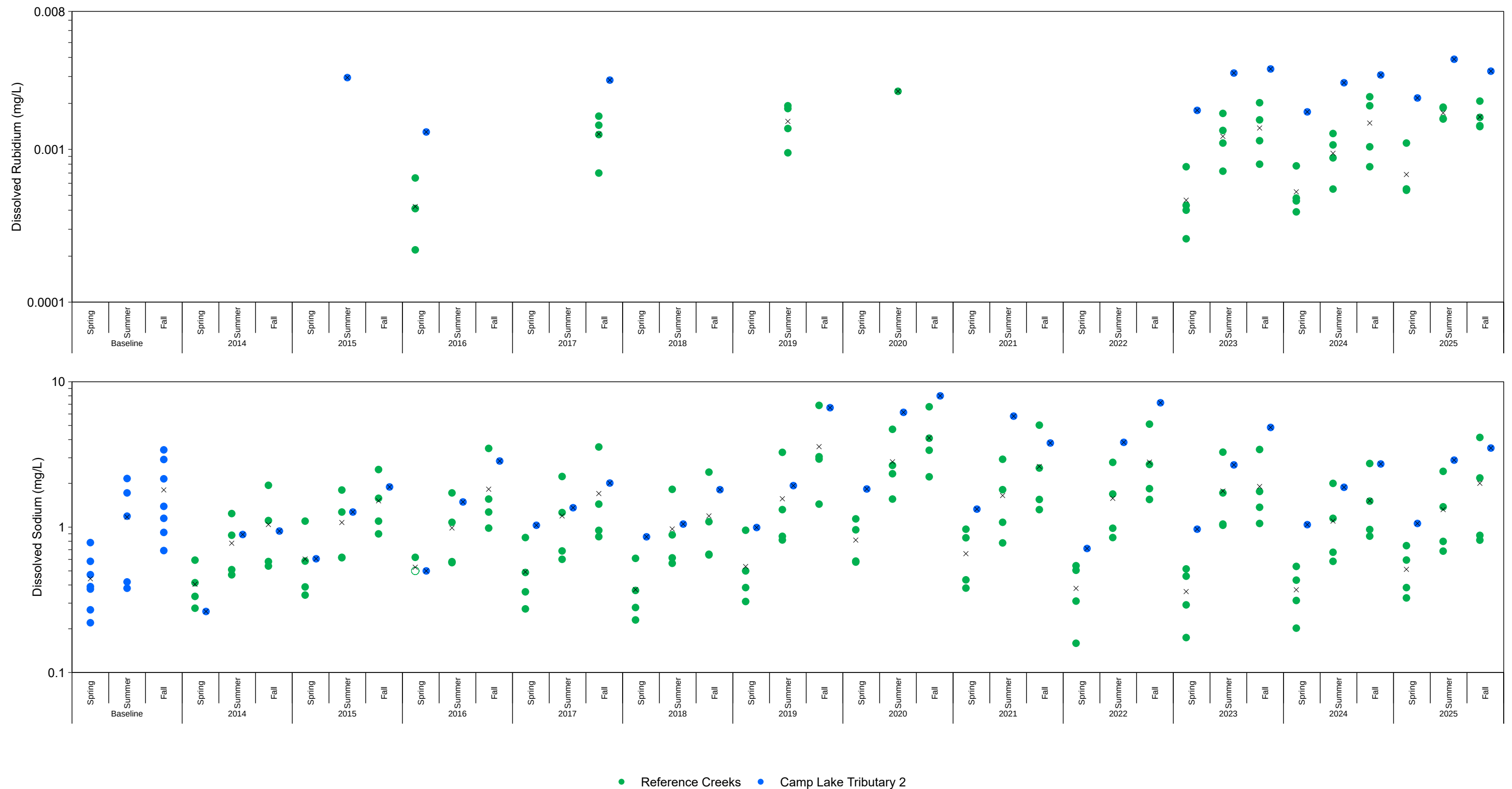


Figure B.3: Temporal Comparisons for Water Chemistry at Camp Lake Tributary 2 (CLT2) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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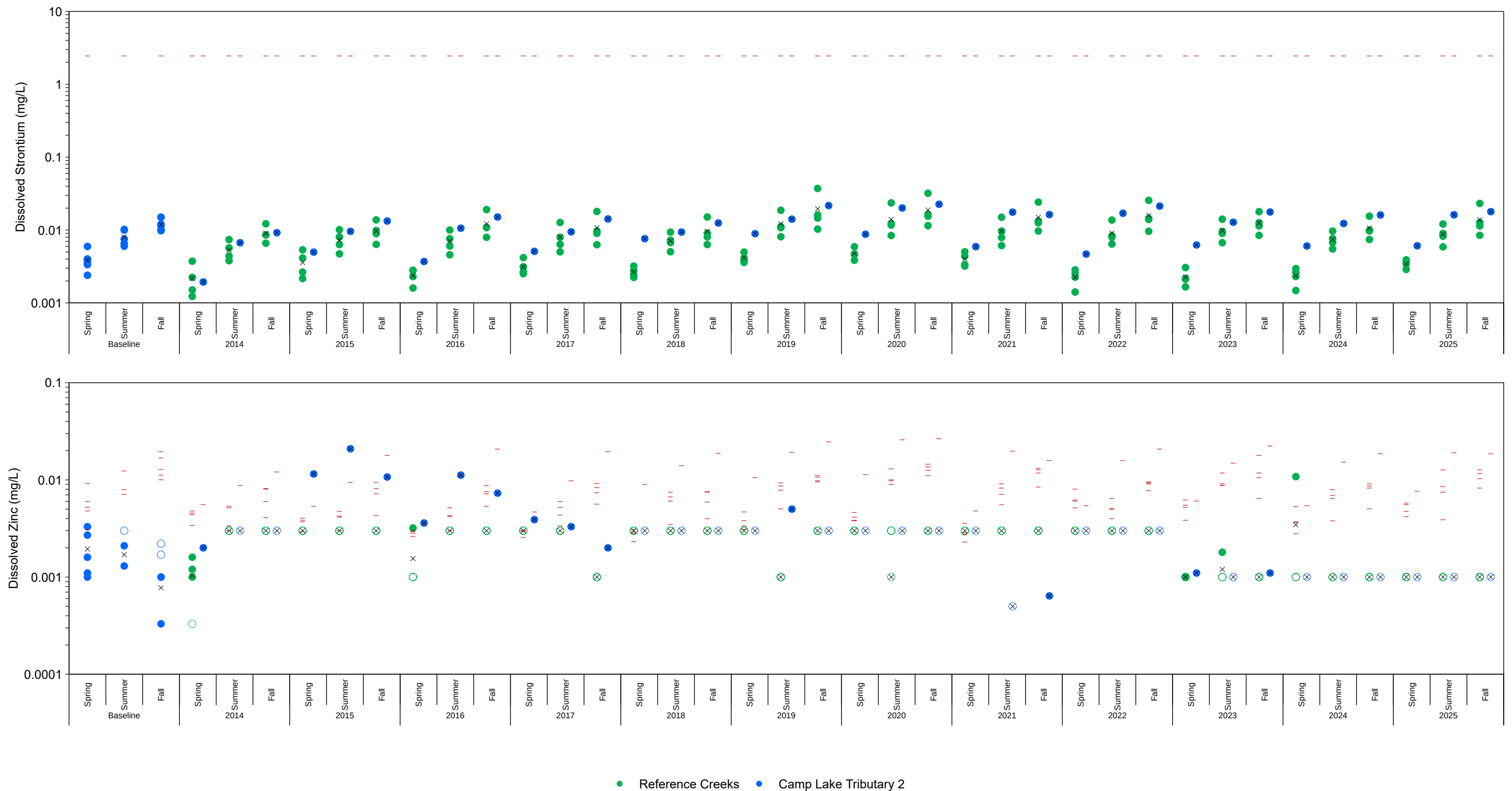


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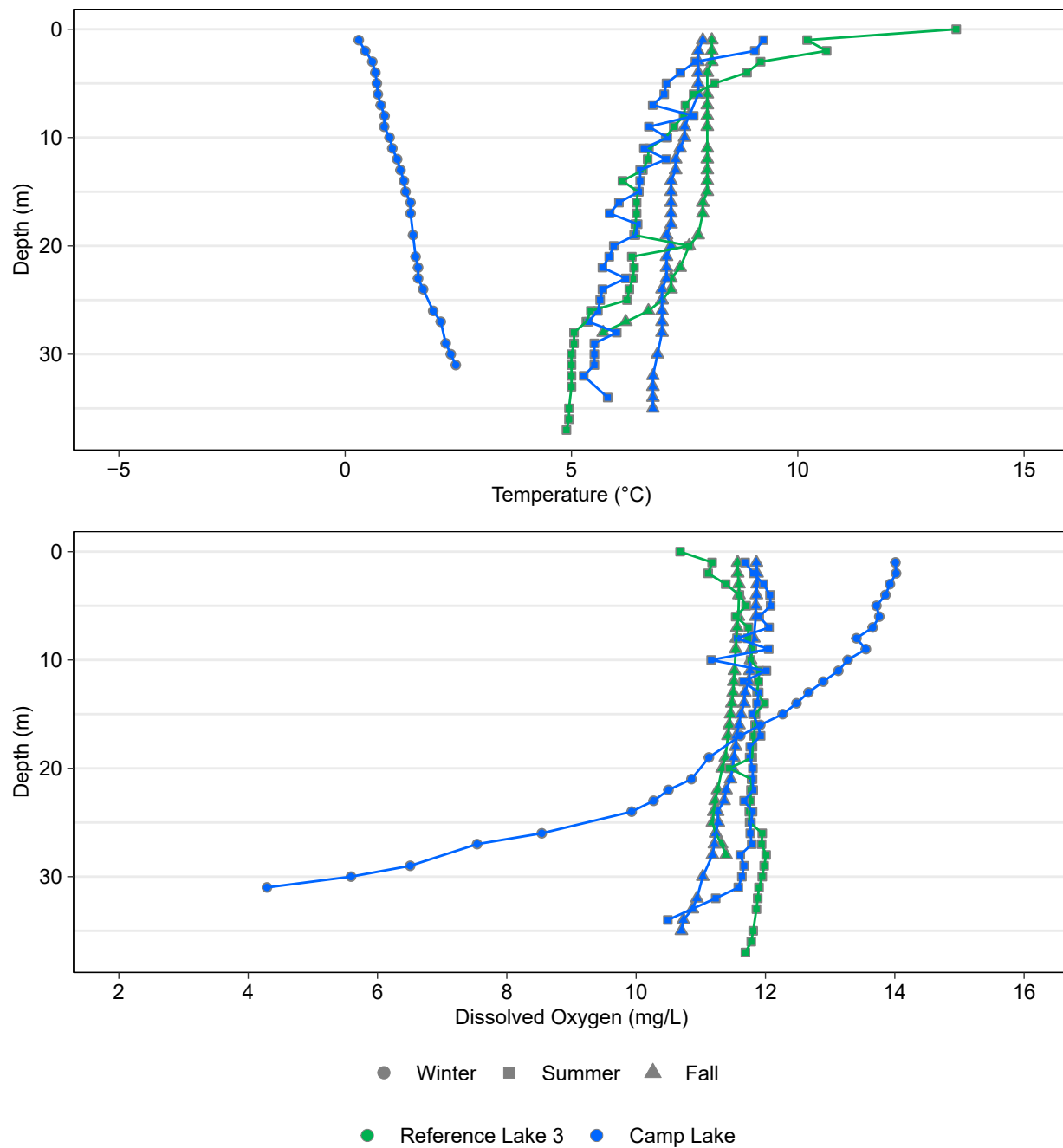


Figure B.4: *In Situ* Water Quality Profile Measurements at Camp Lake (JL0) and Reference Lake (REF-03) During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

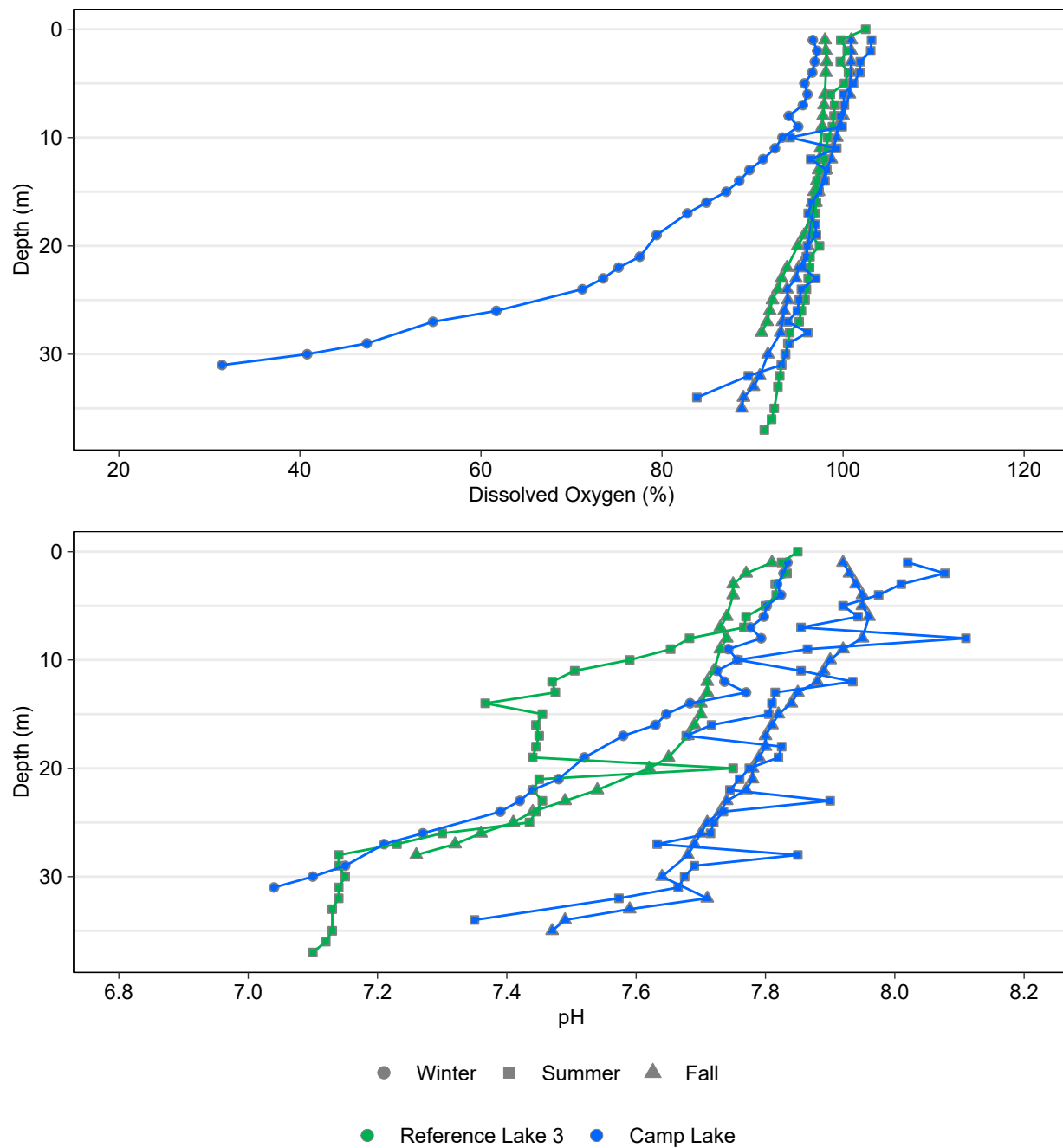


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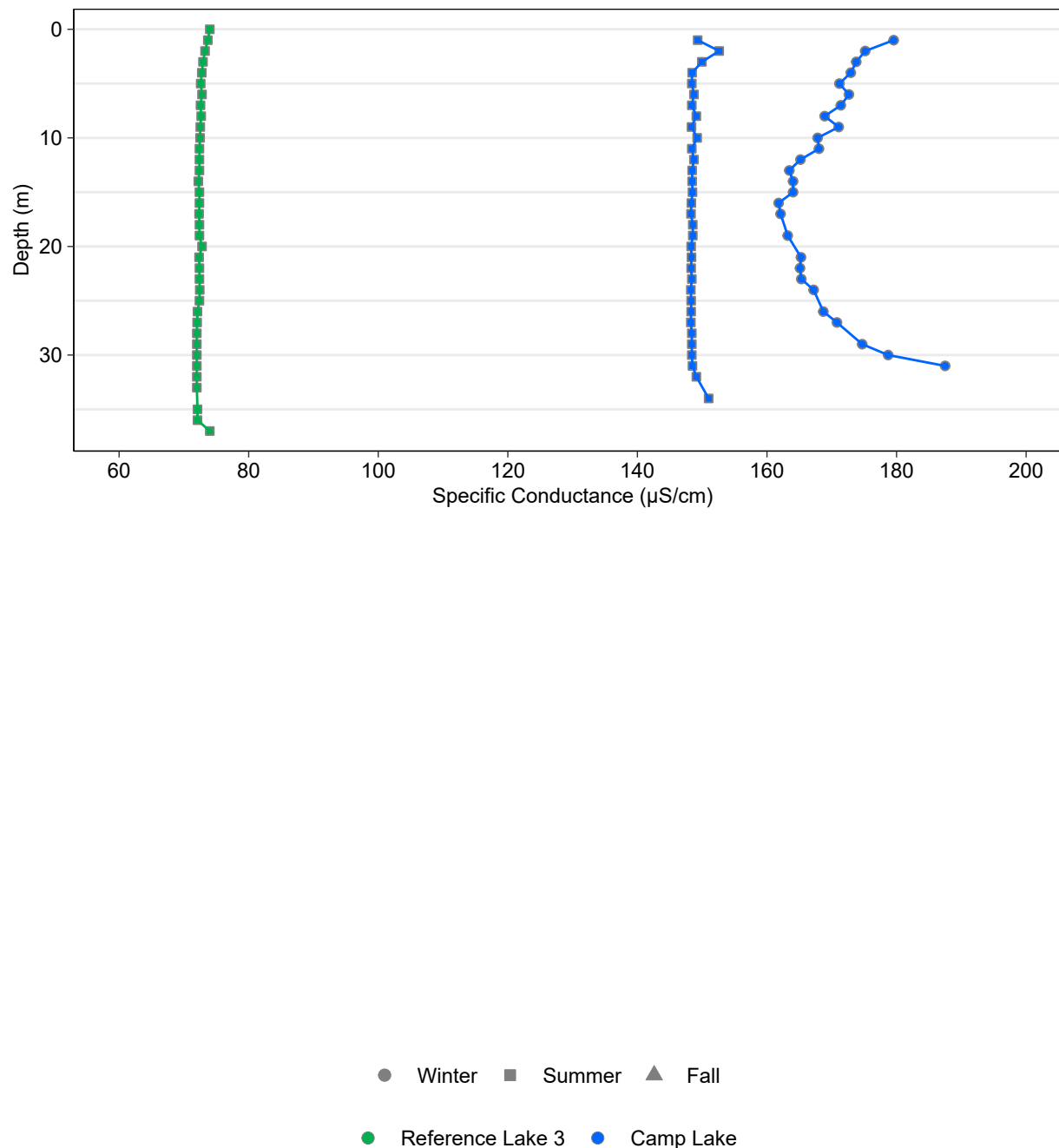


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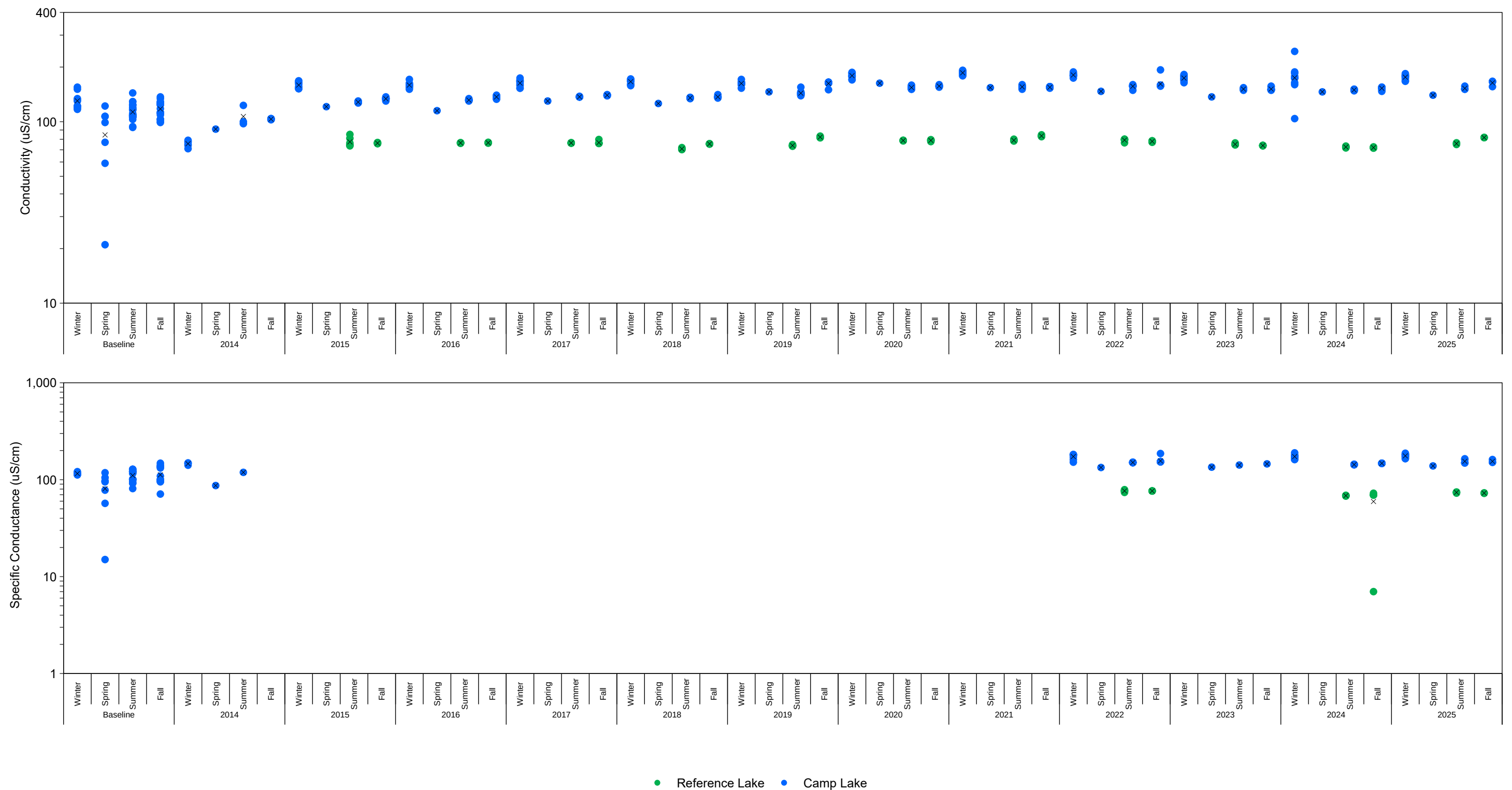


Figure B.5: Temporal Comparisons for Water Chemistry at Camp Lake (JL0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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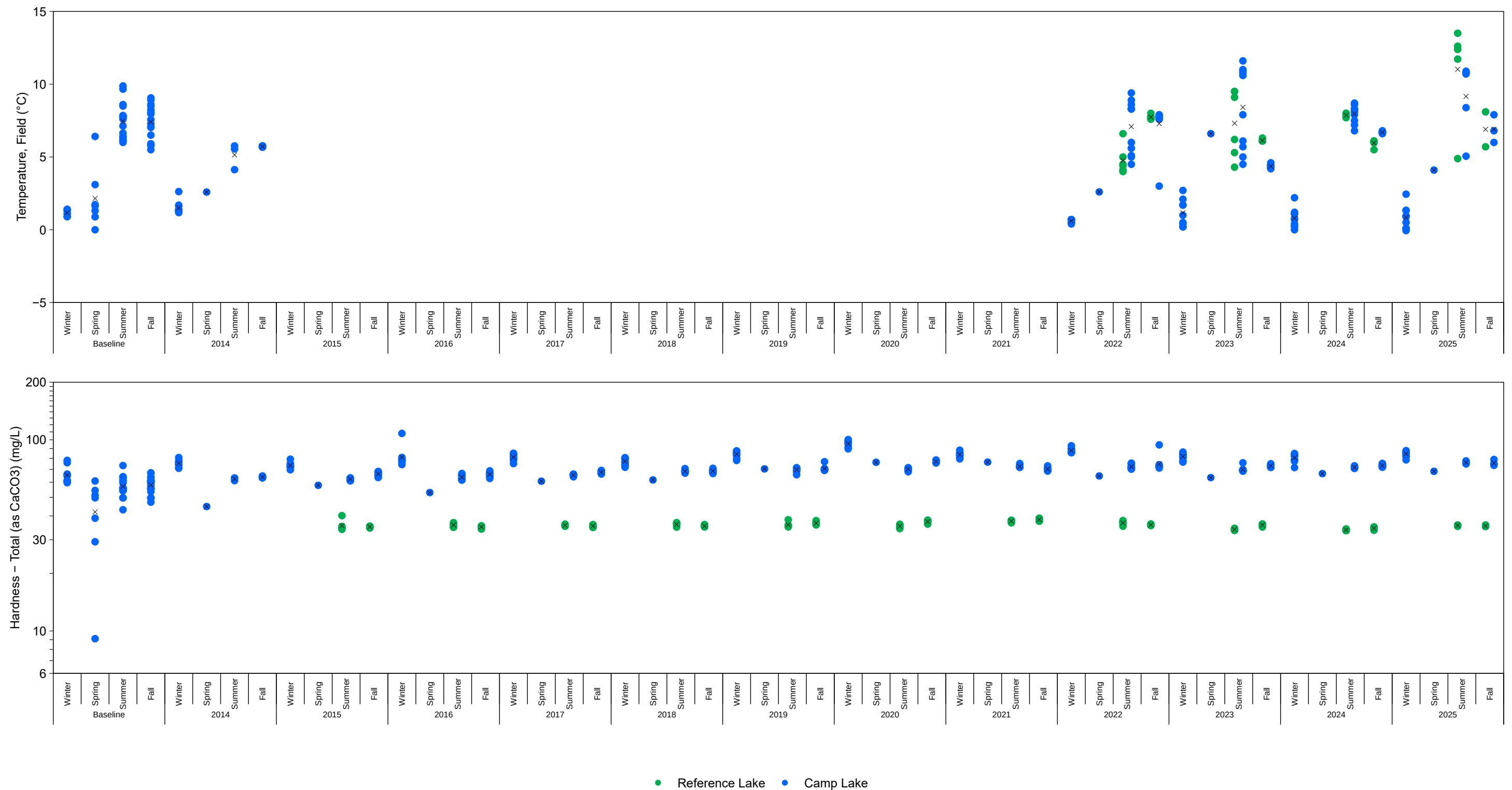


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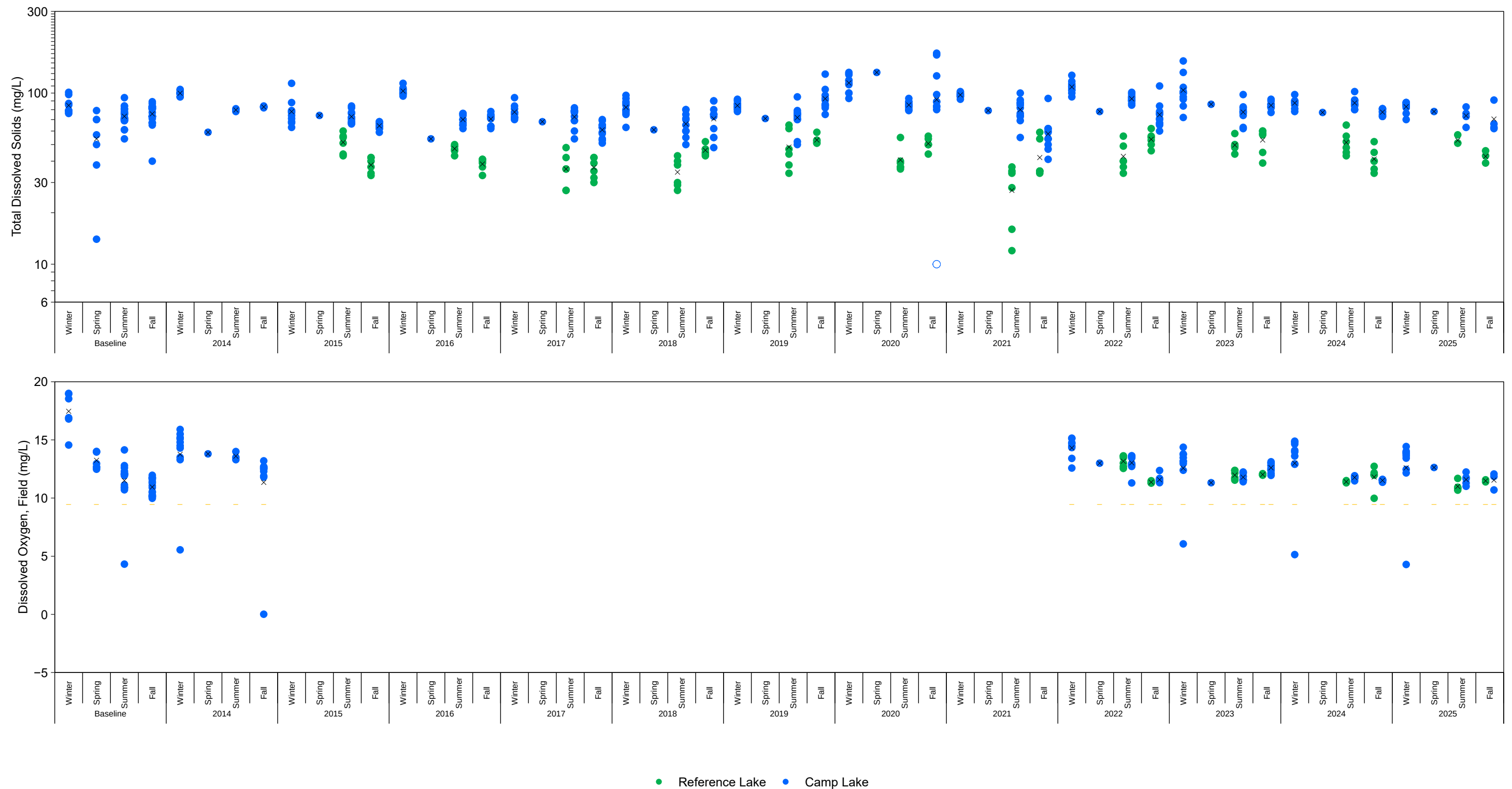


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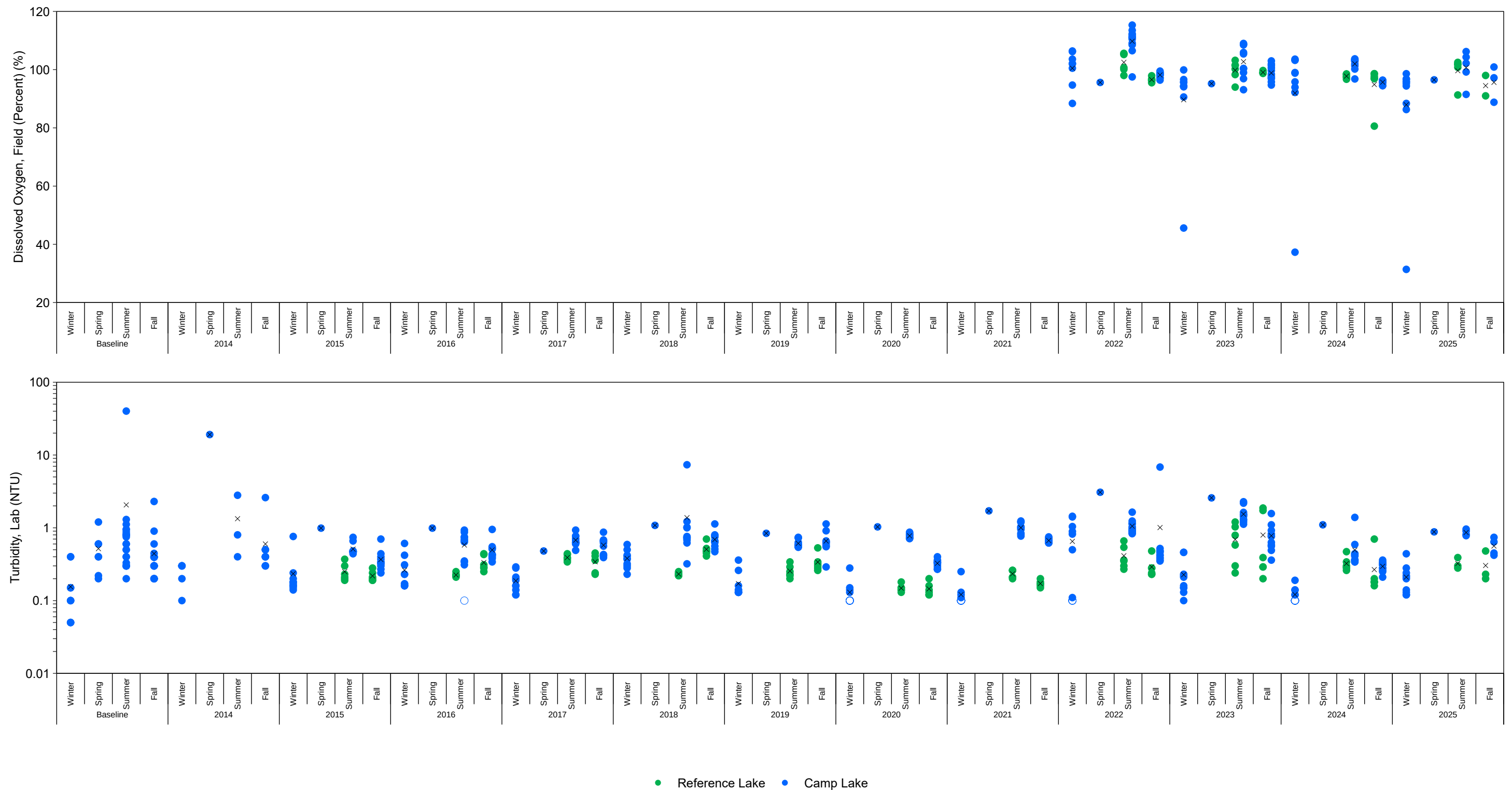


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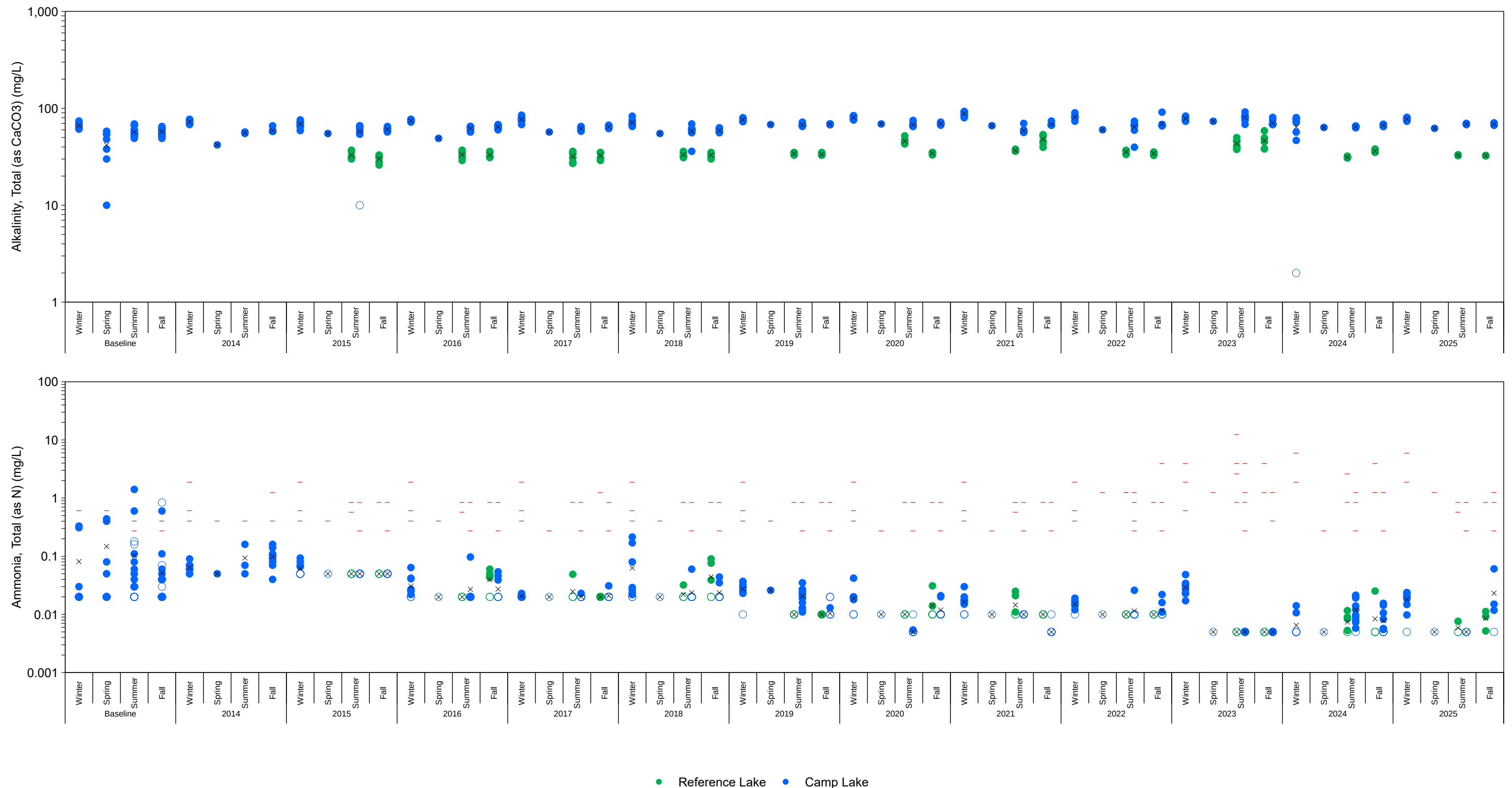


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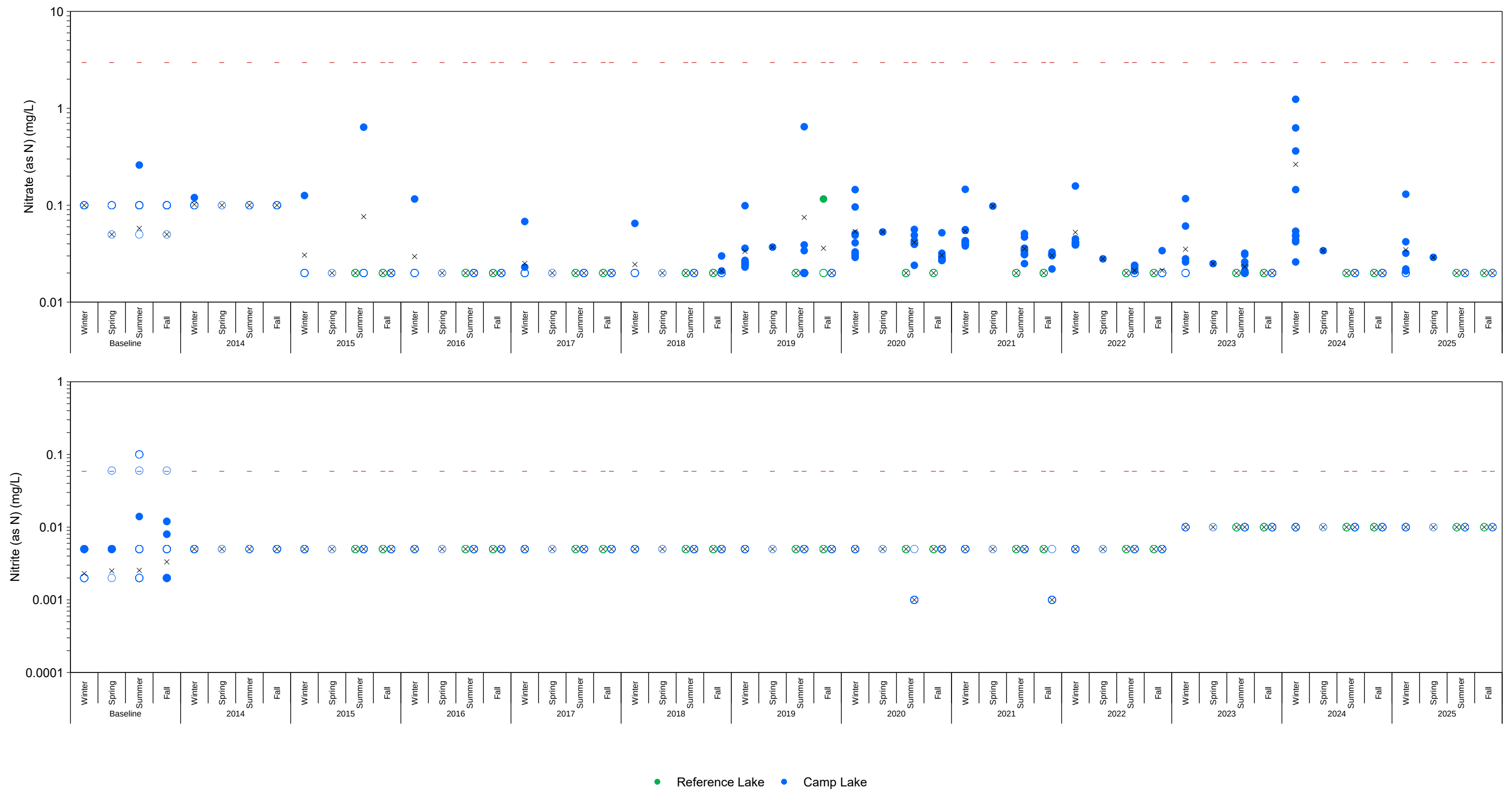


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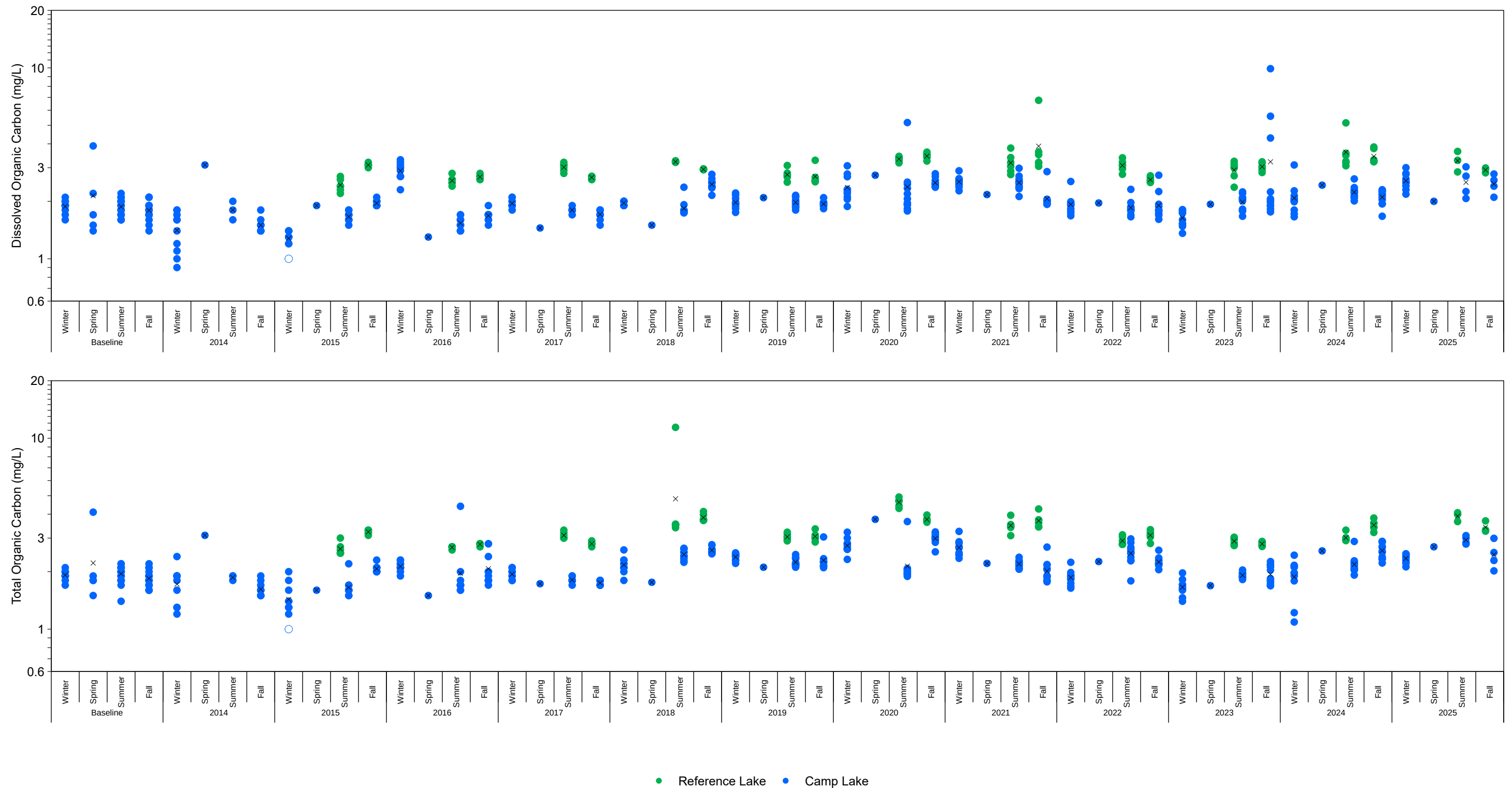


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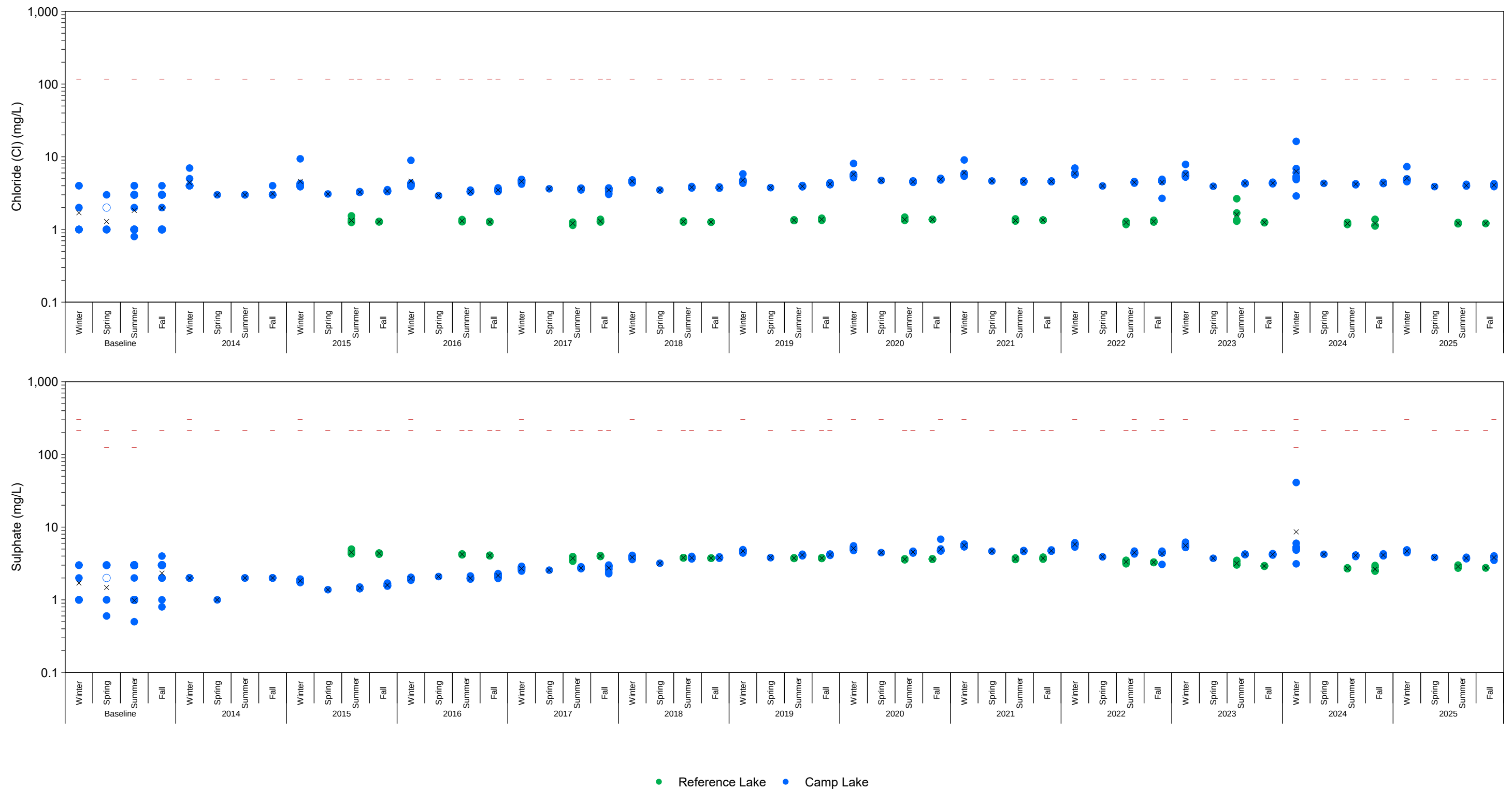


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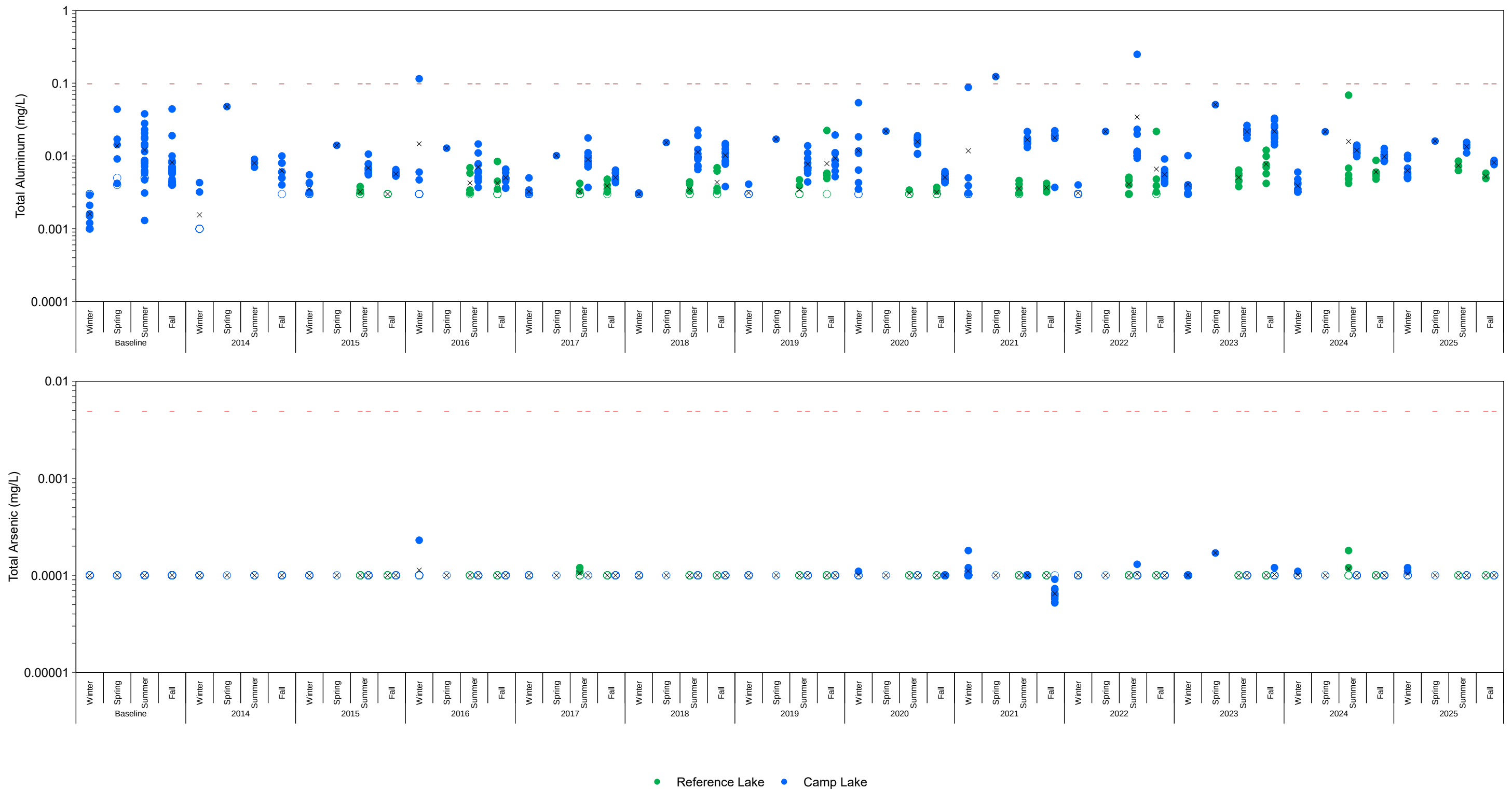


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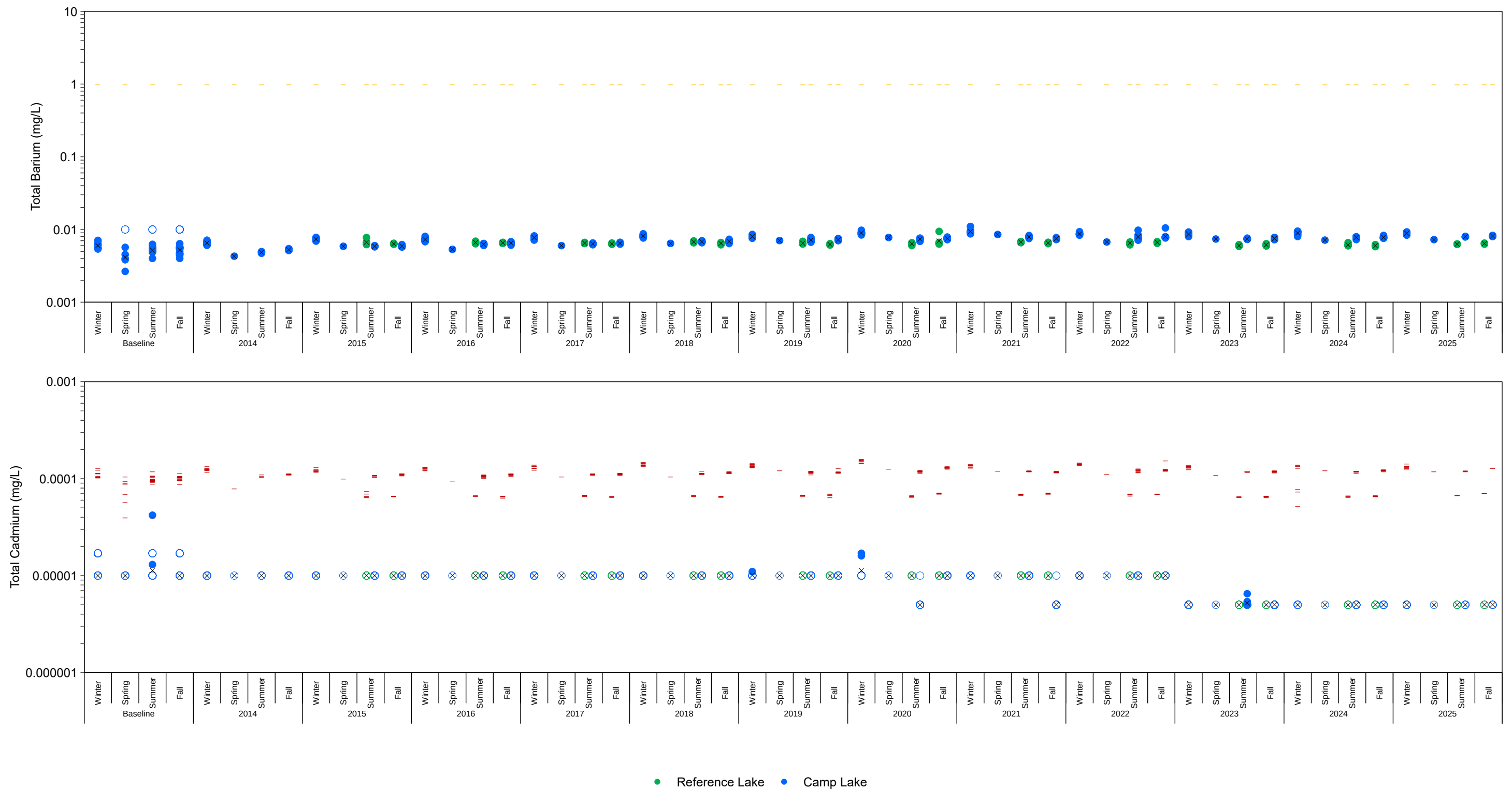


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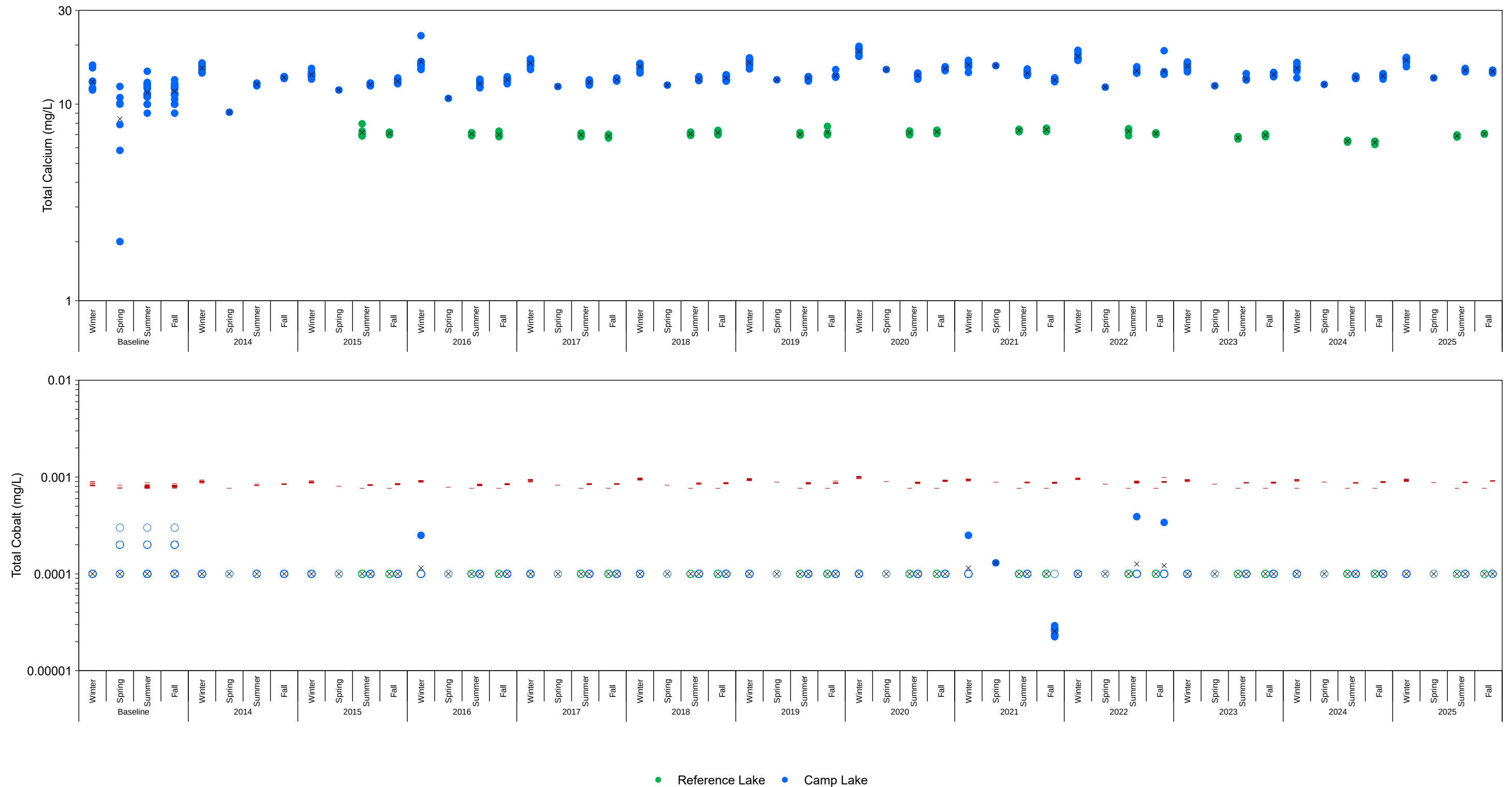


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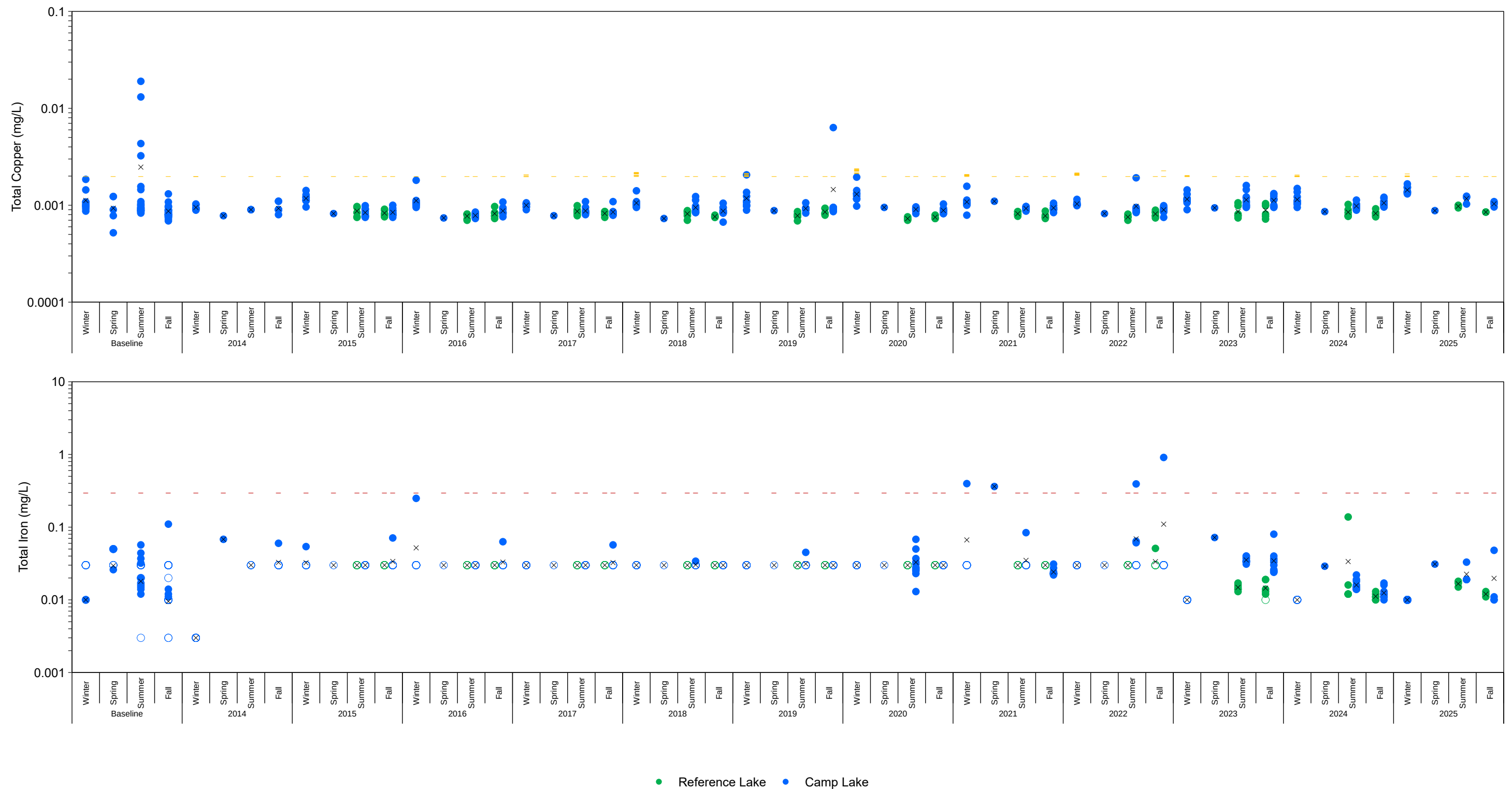


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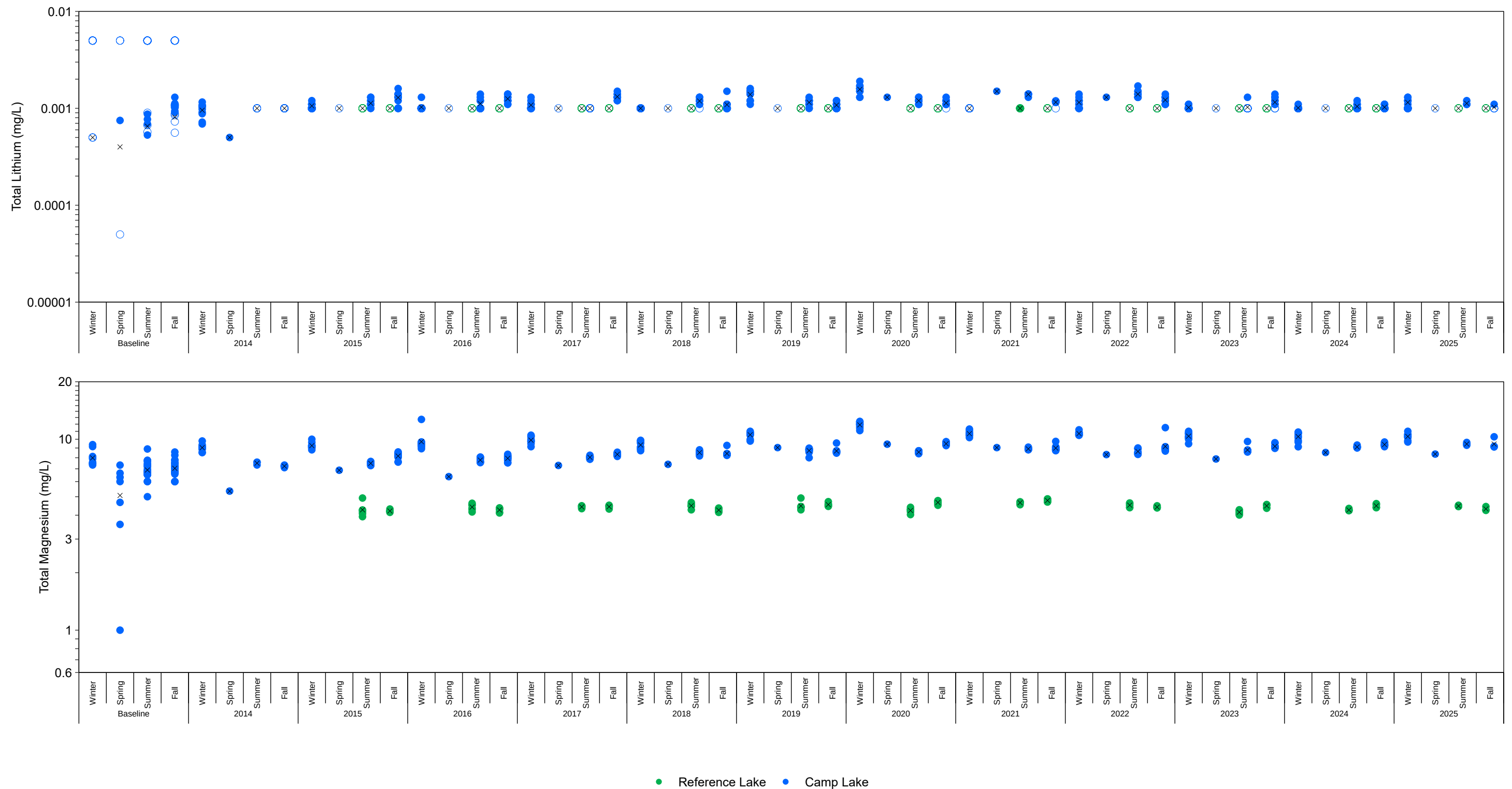


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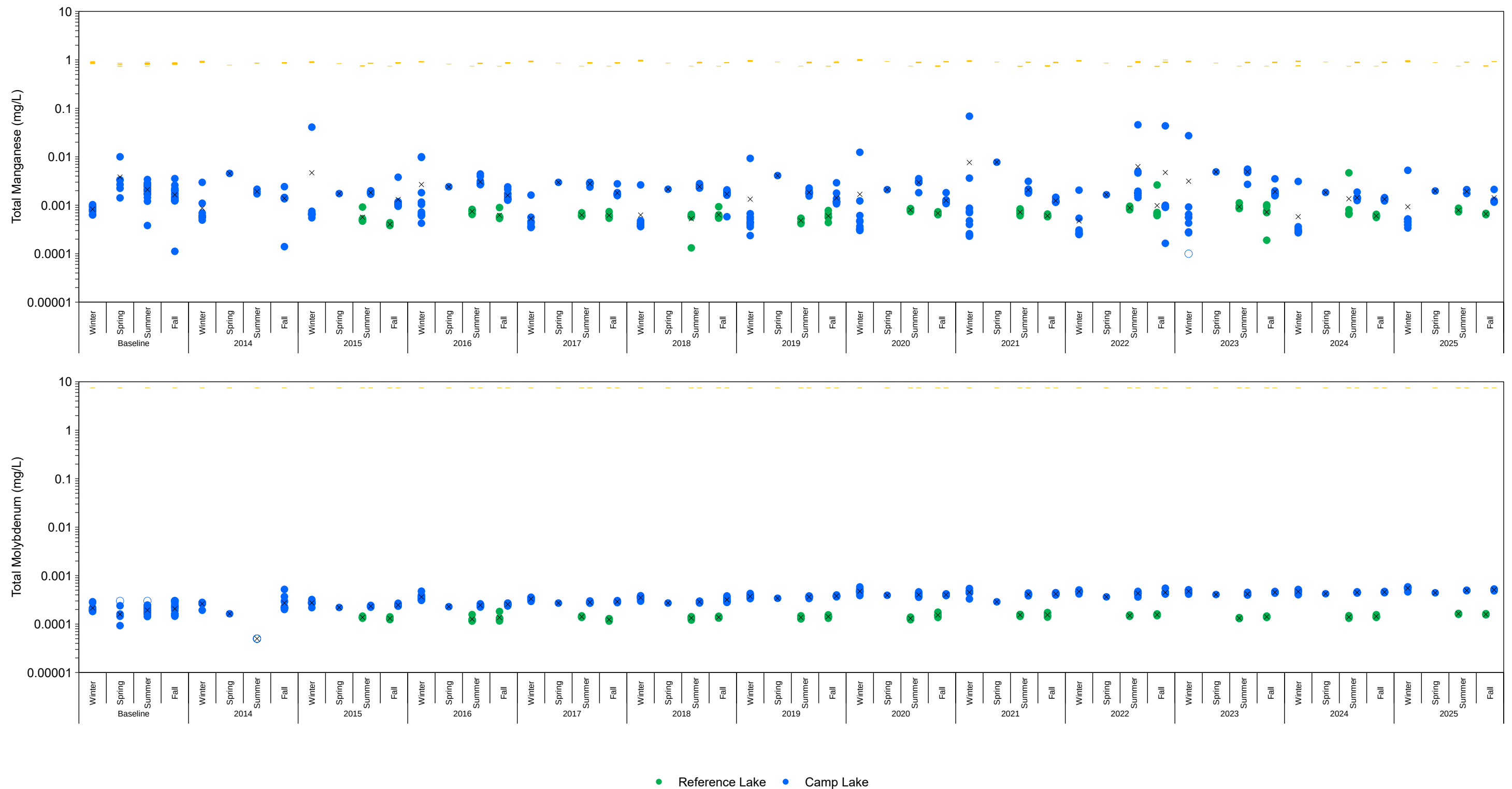


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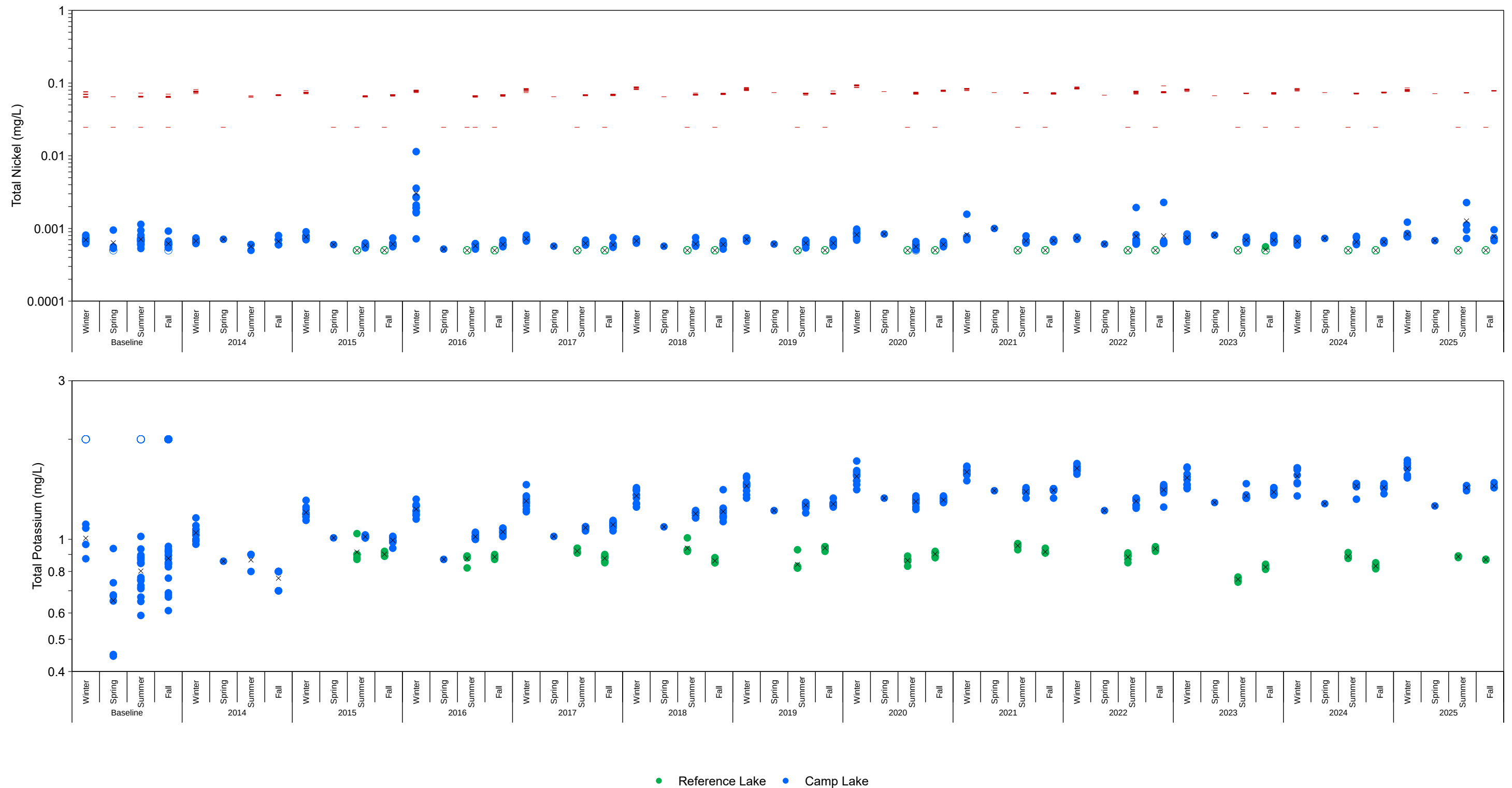


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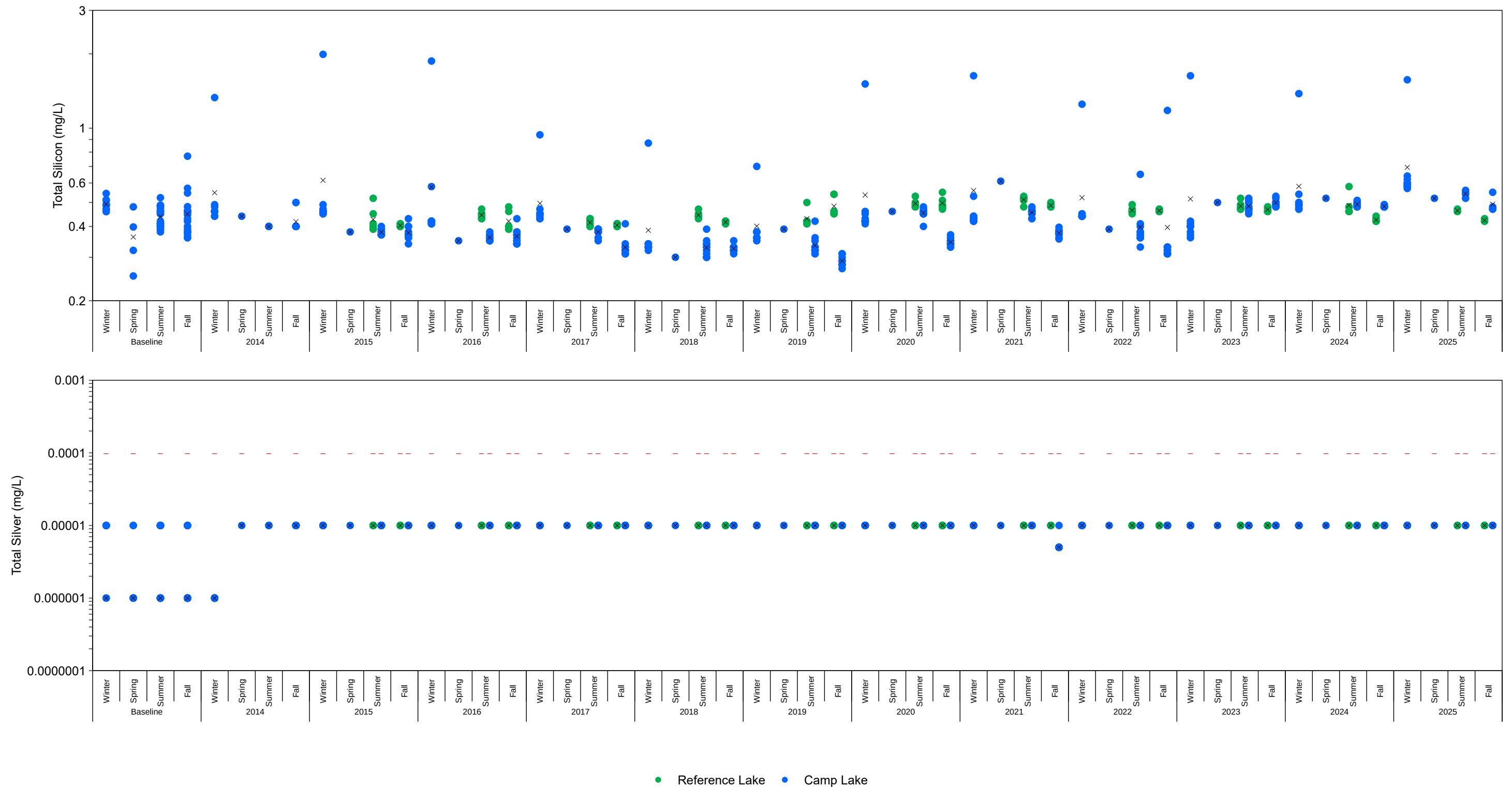


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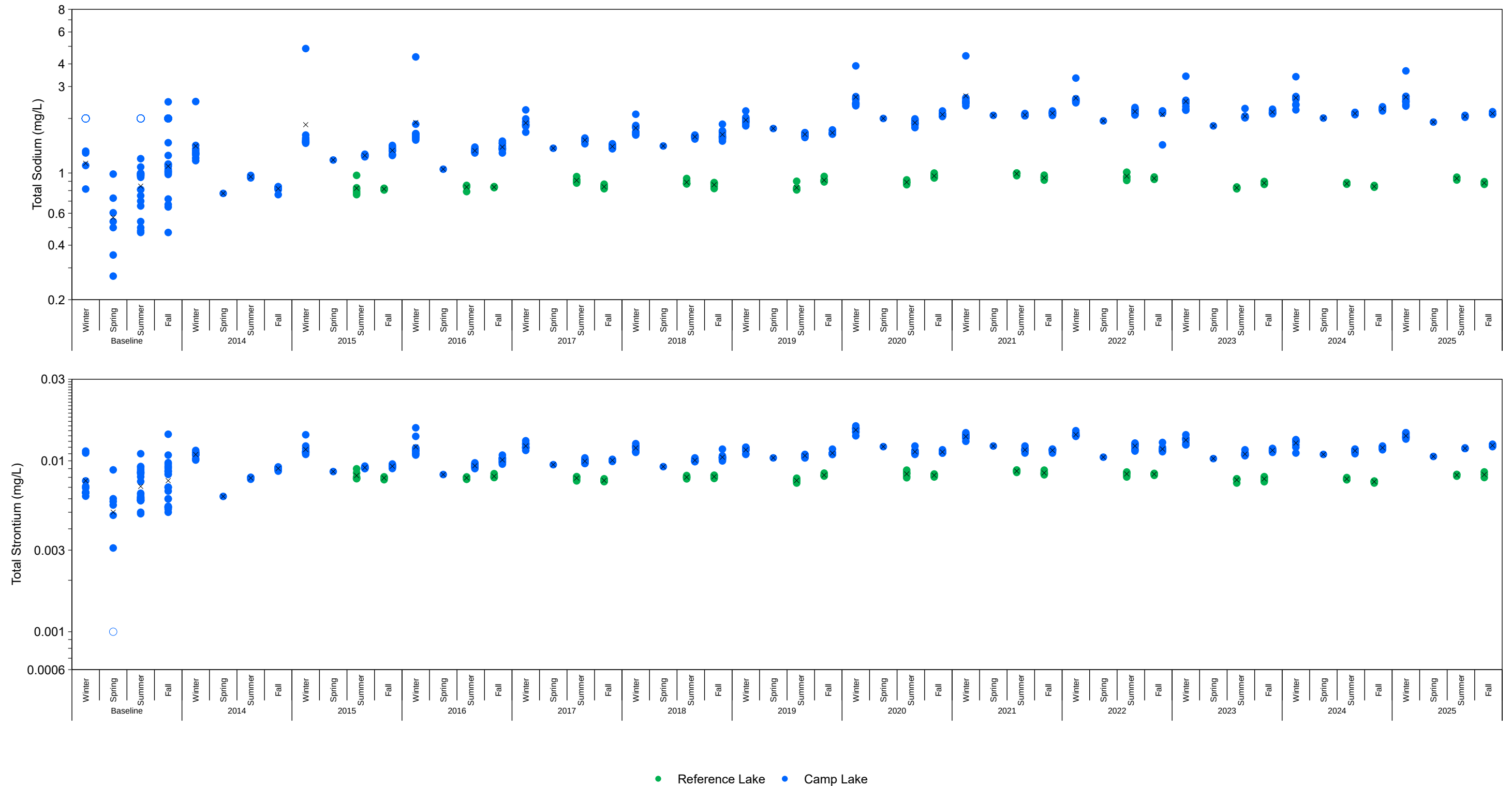


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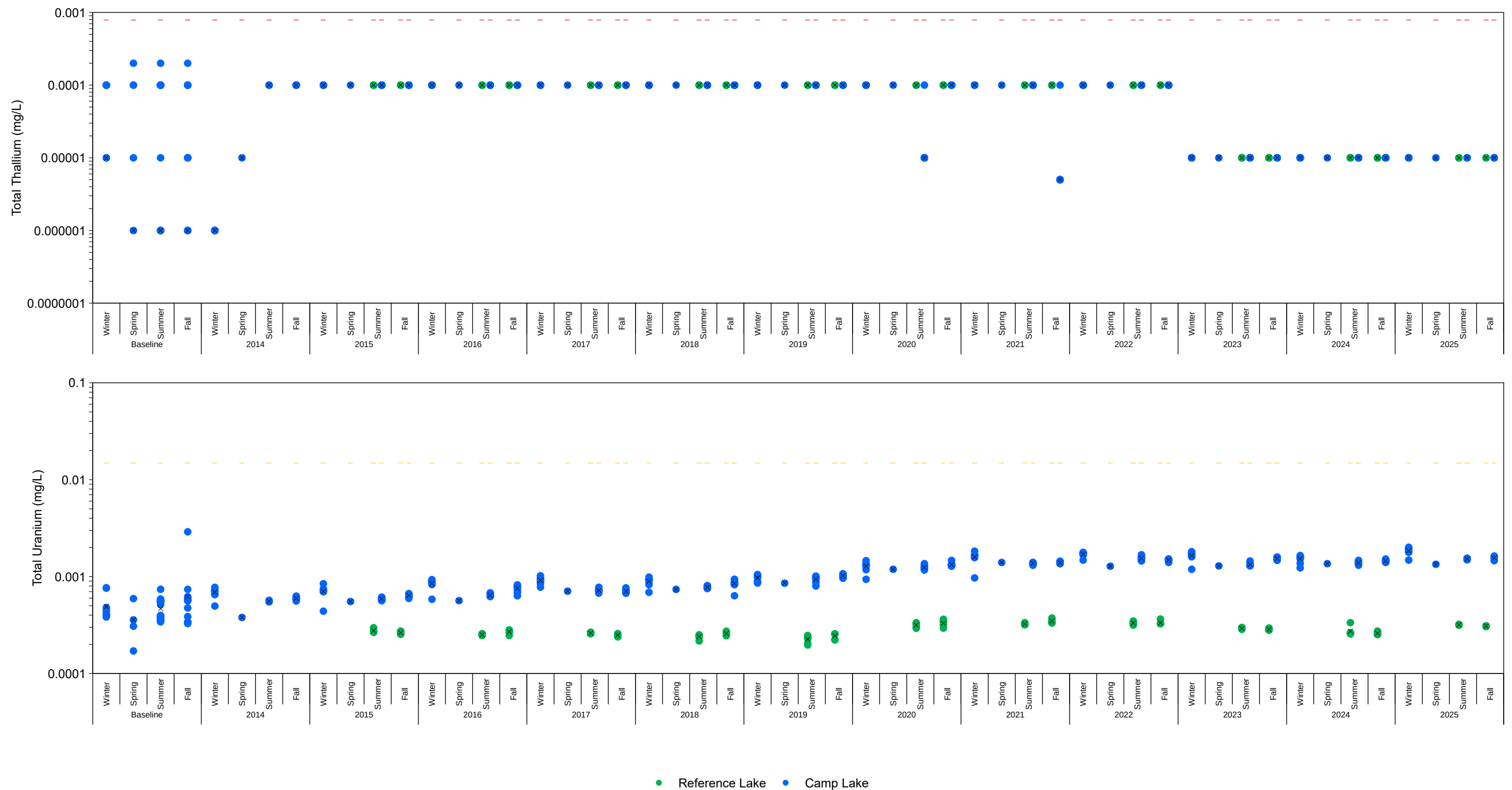


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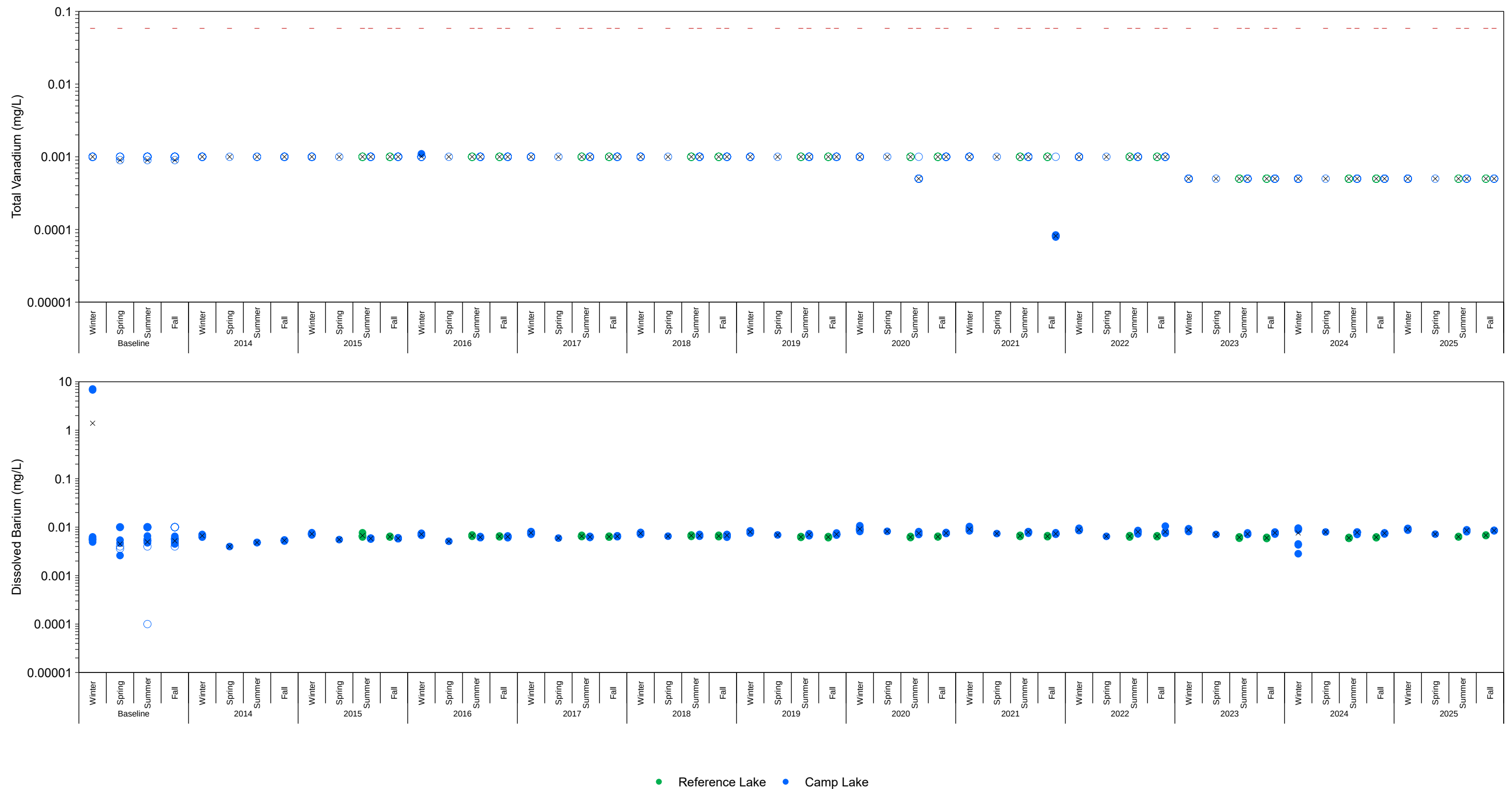


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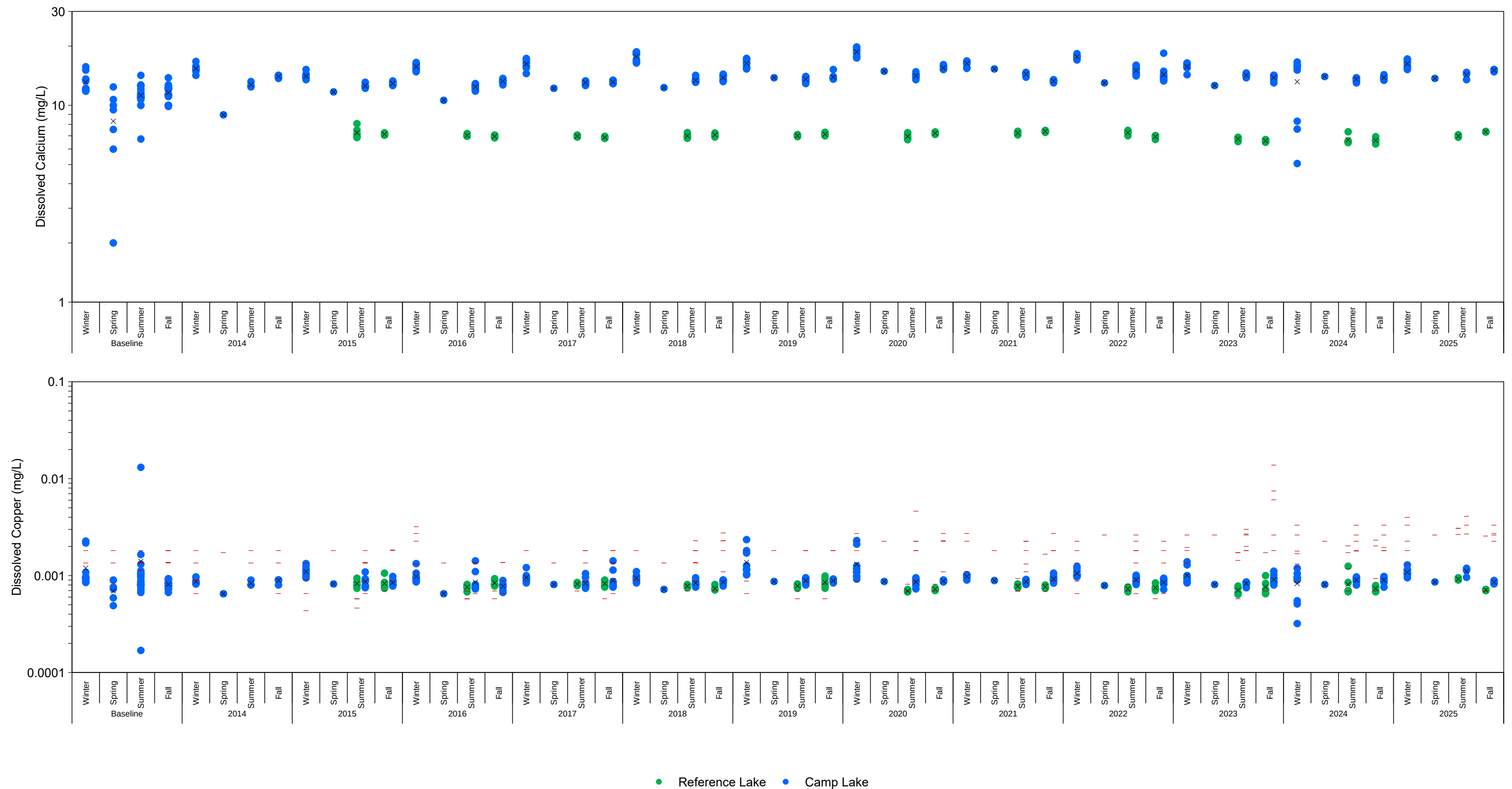


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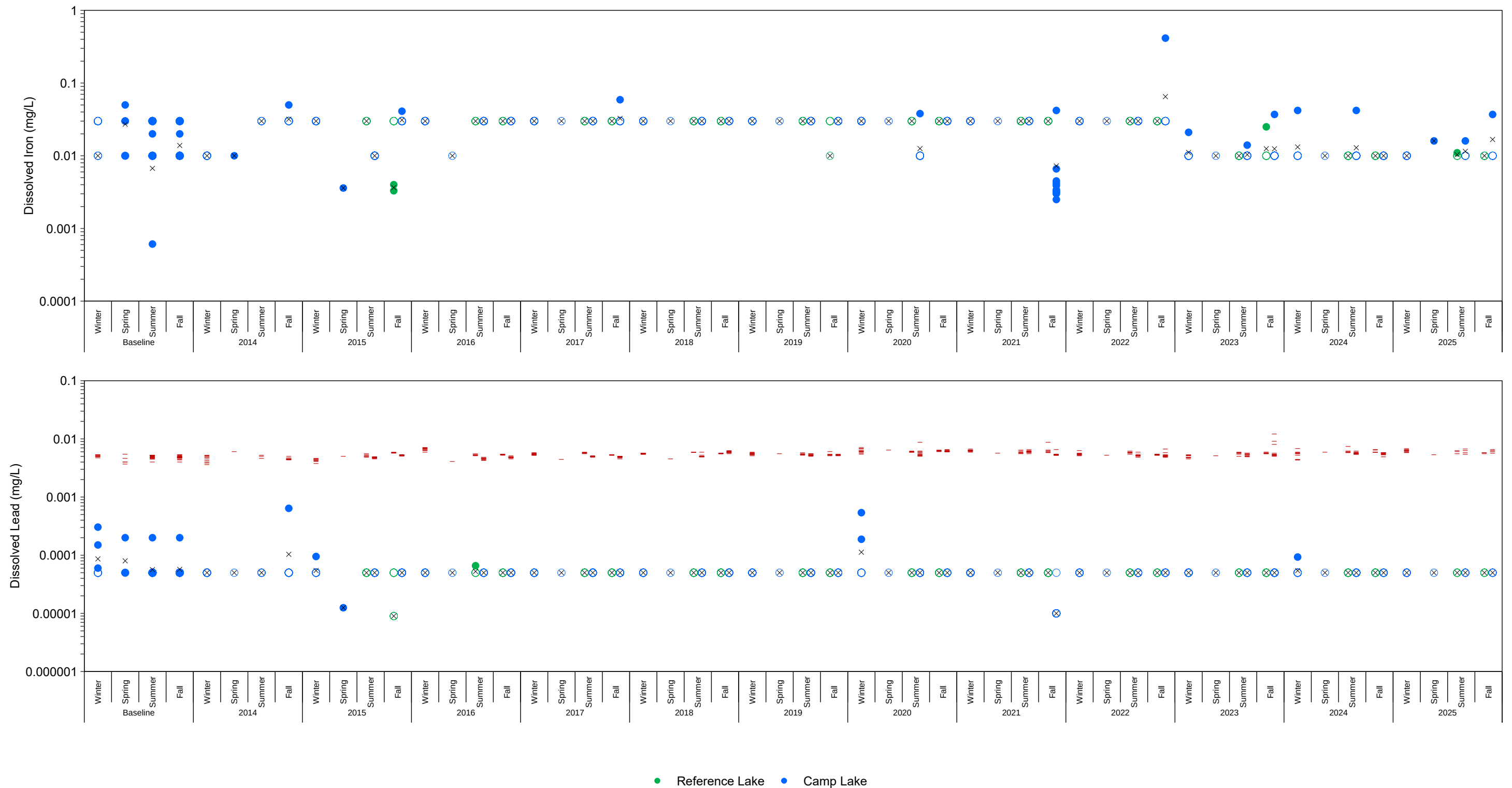


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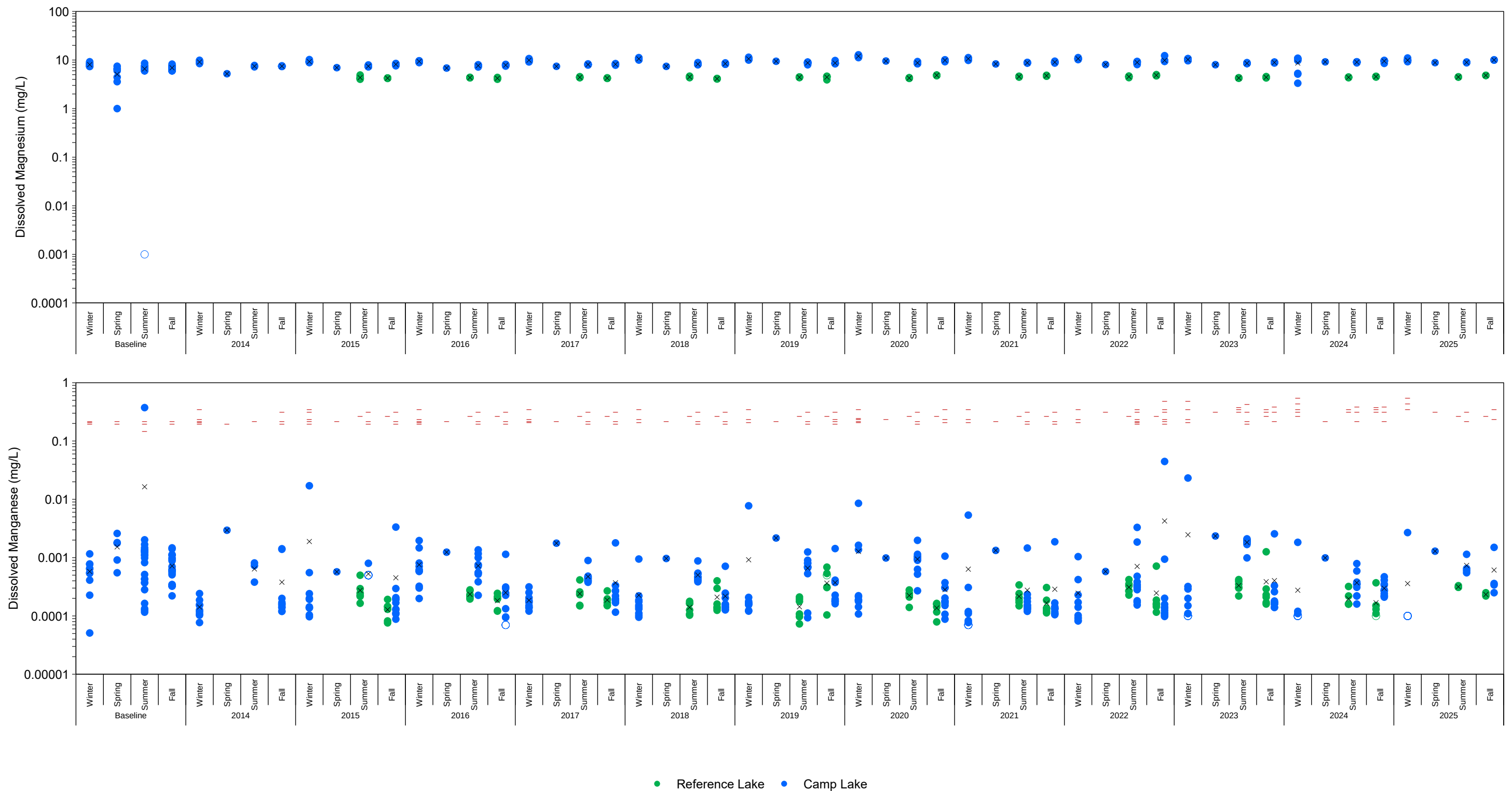


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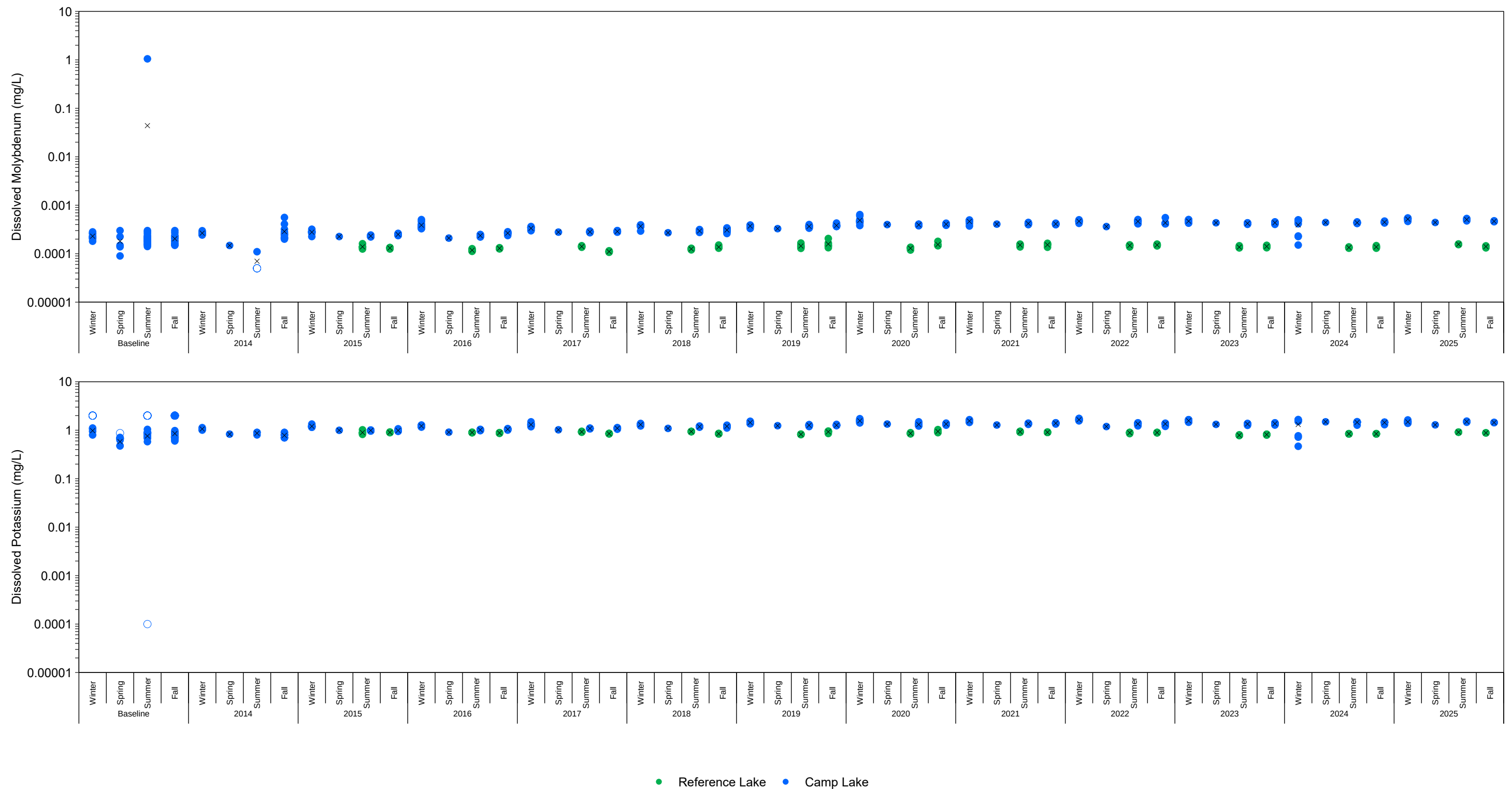


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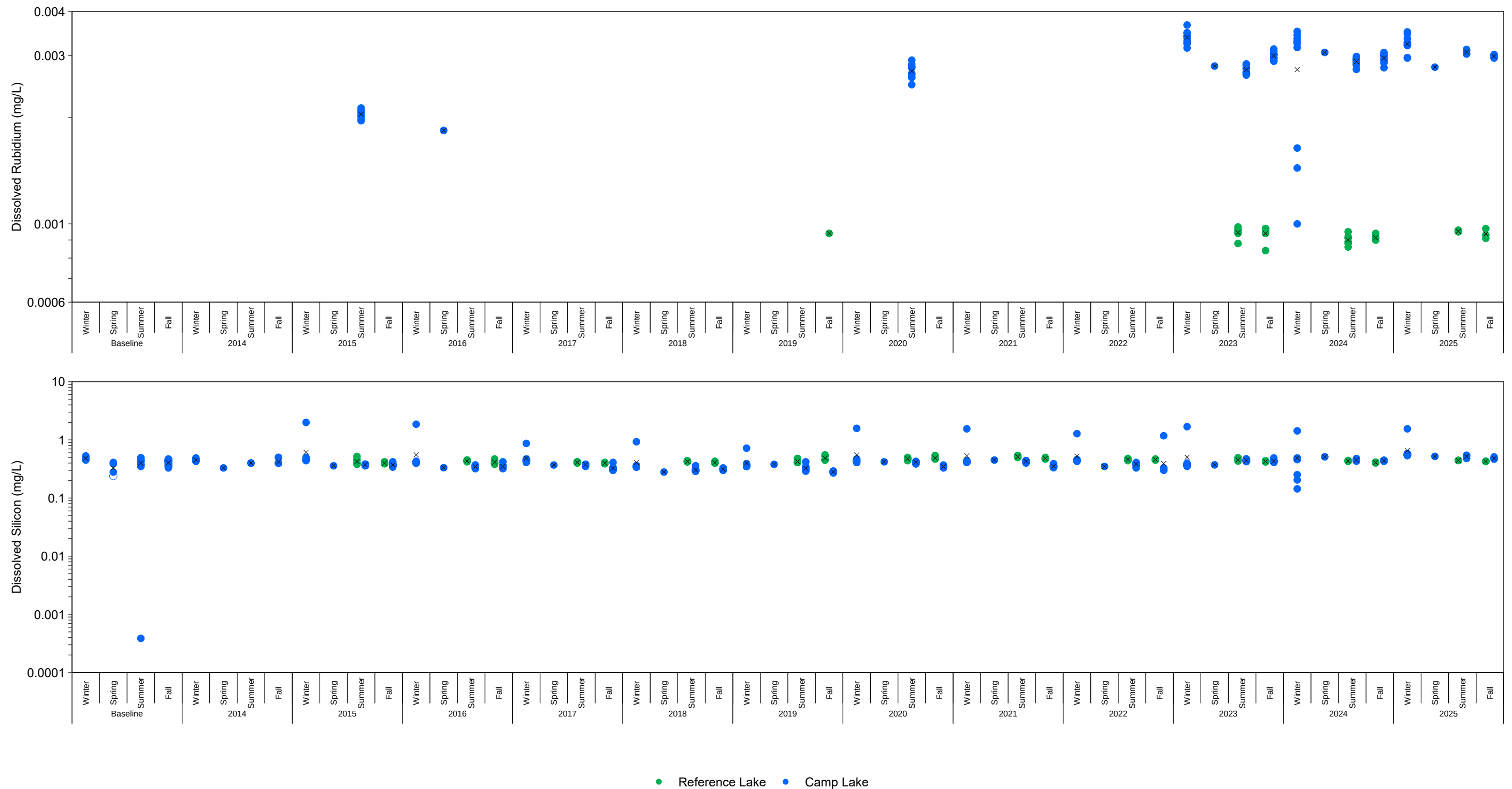


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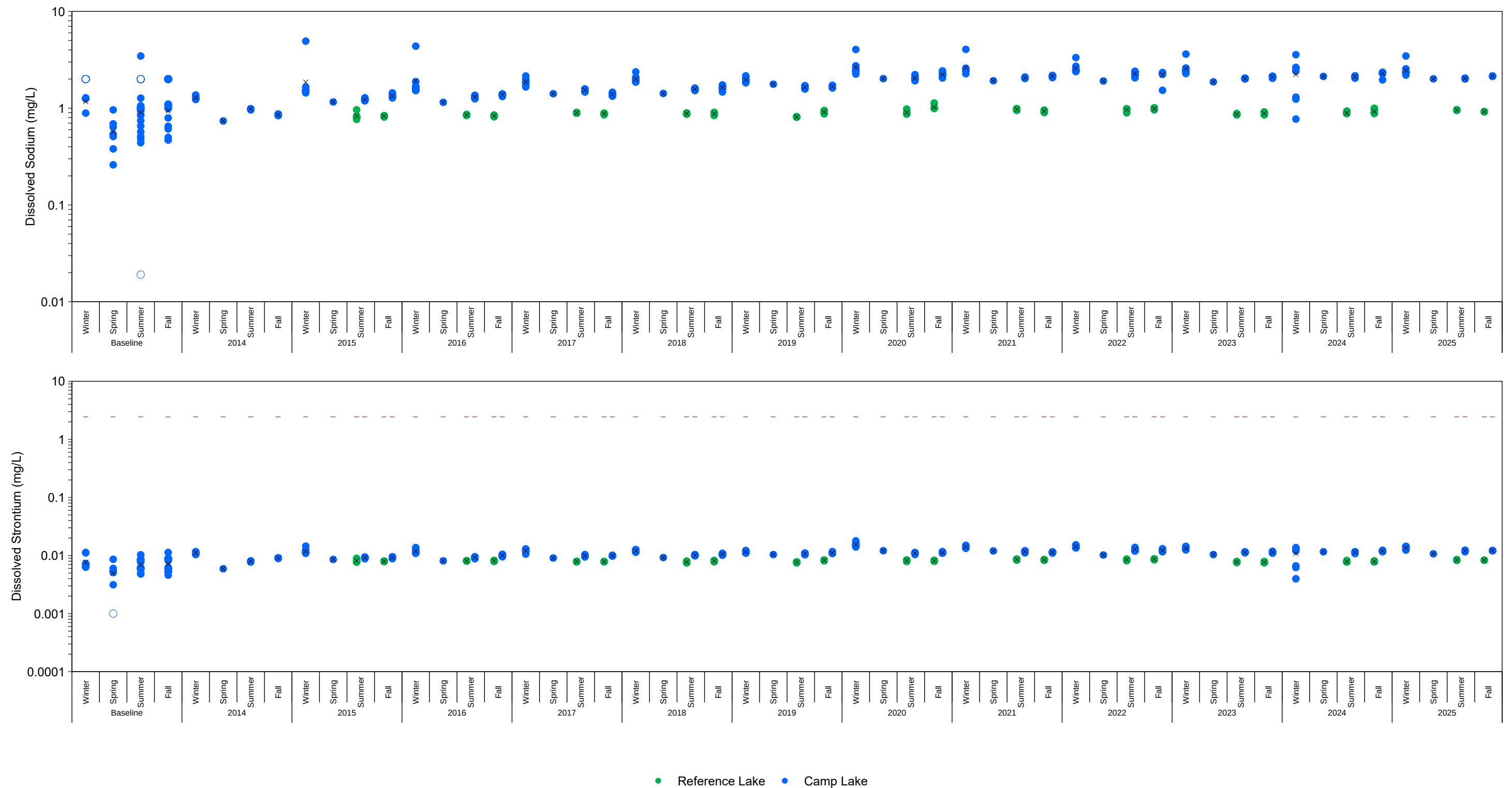


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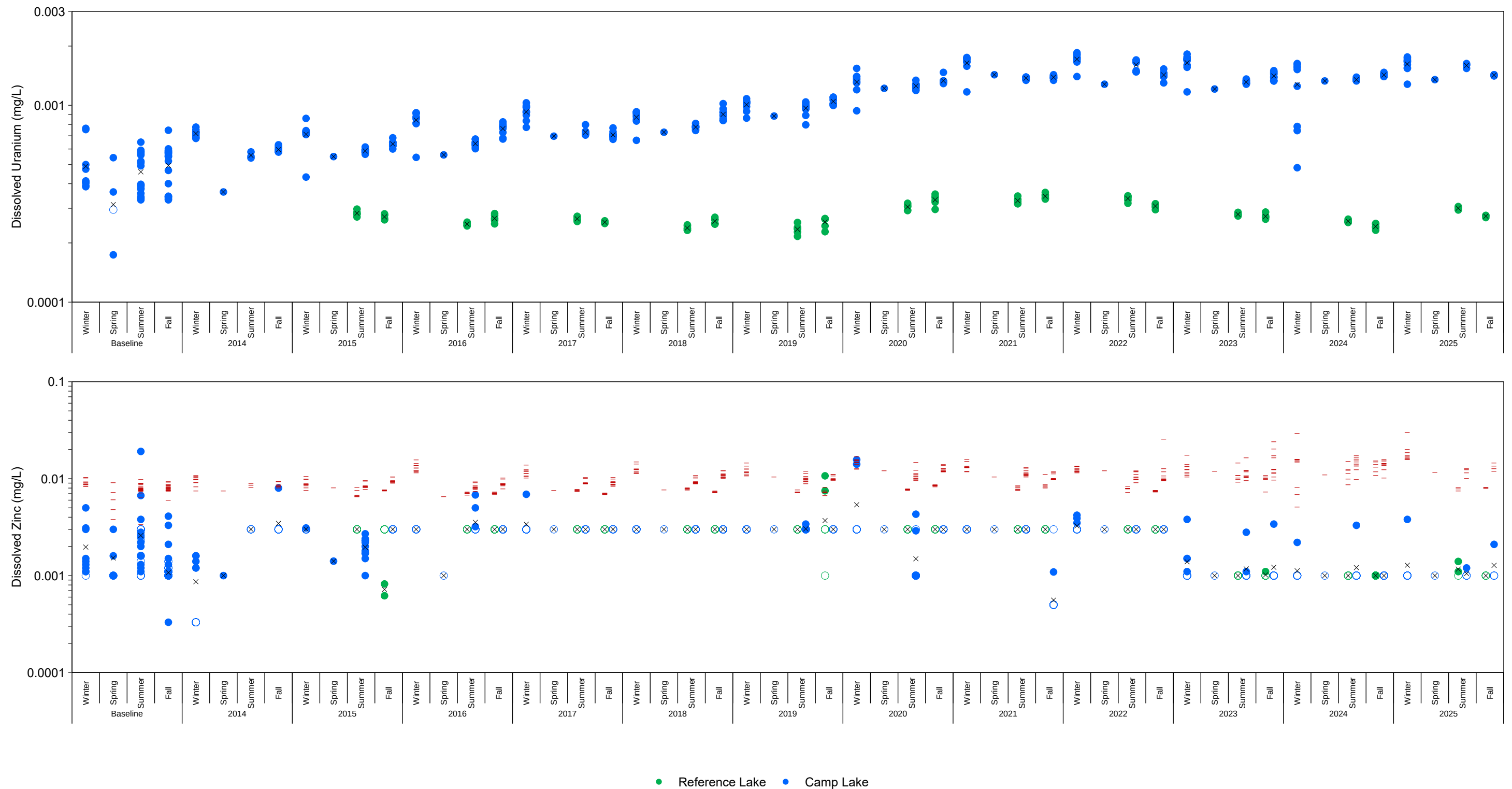


Figure B.5: Temporal Comparisons for Water Chemistry at Camp Lake (JL0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some guidelines and benchmarks are dependent on concurrent hardness, pH ,etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

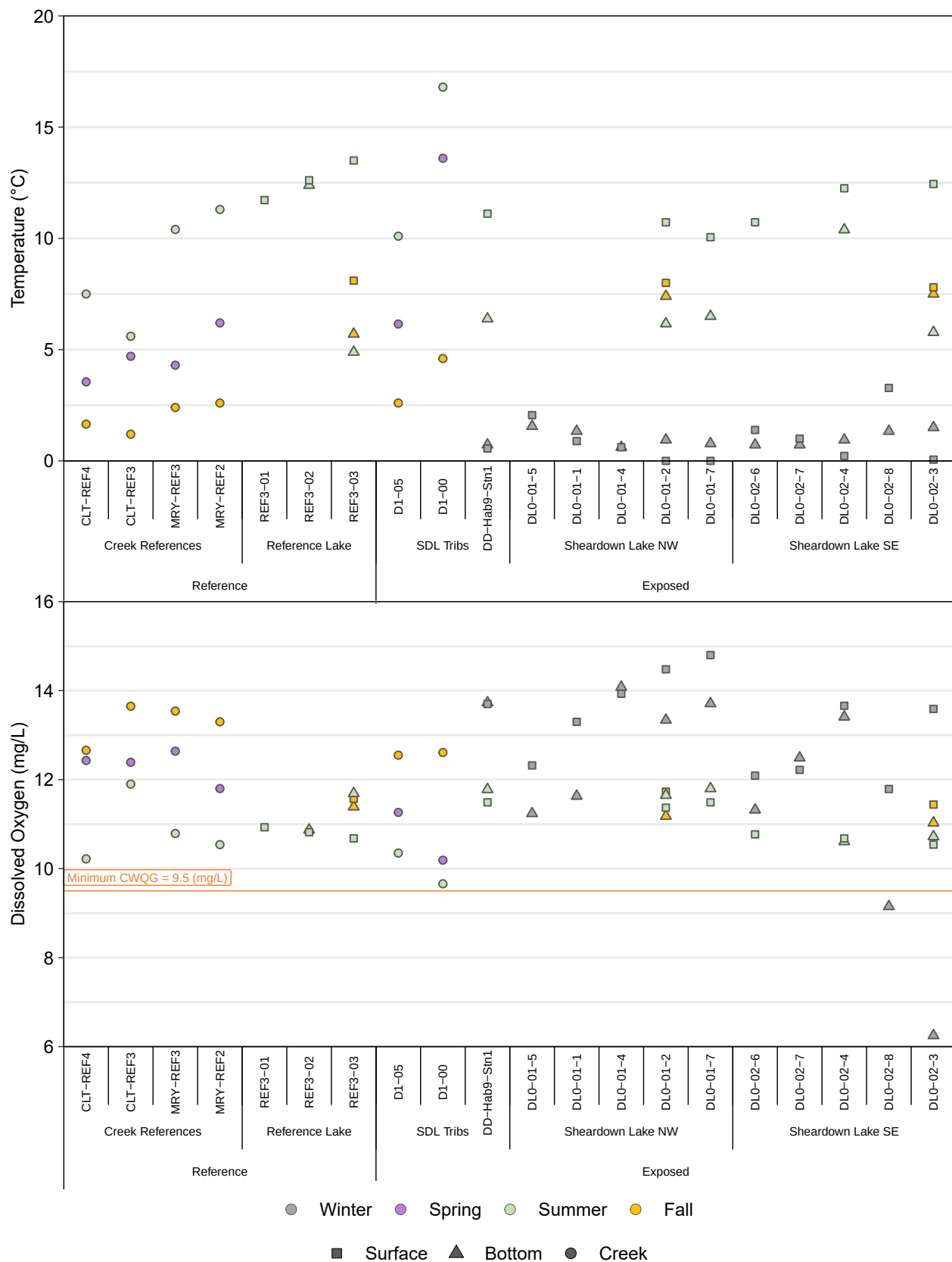


Figure B.6: *In Situ* Water Quality Measured at Sheardown Lake System Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

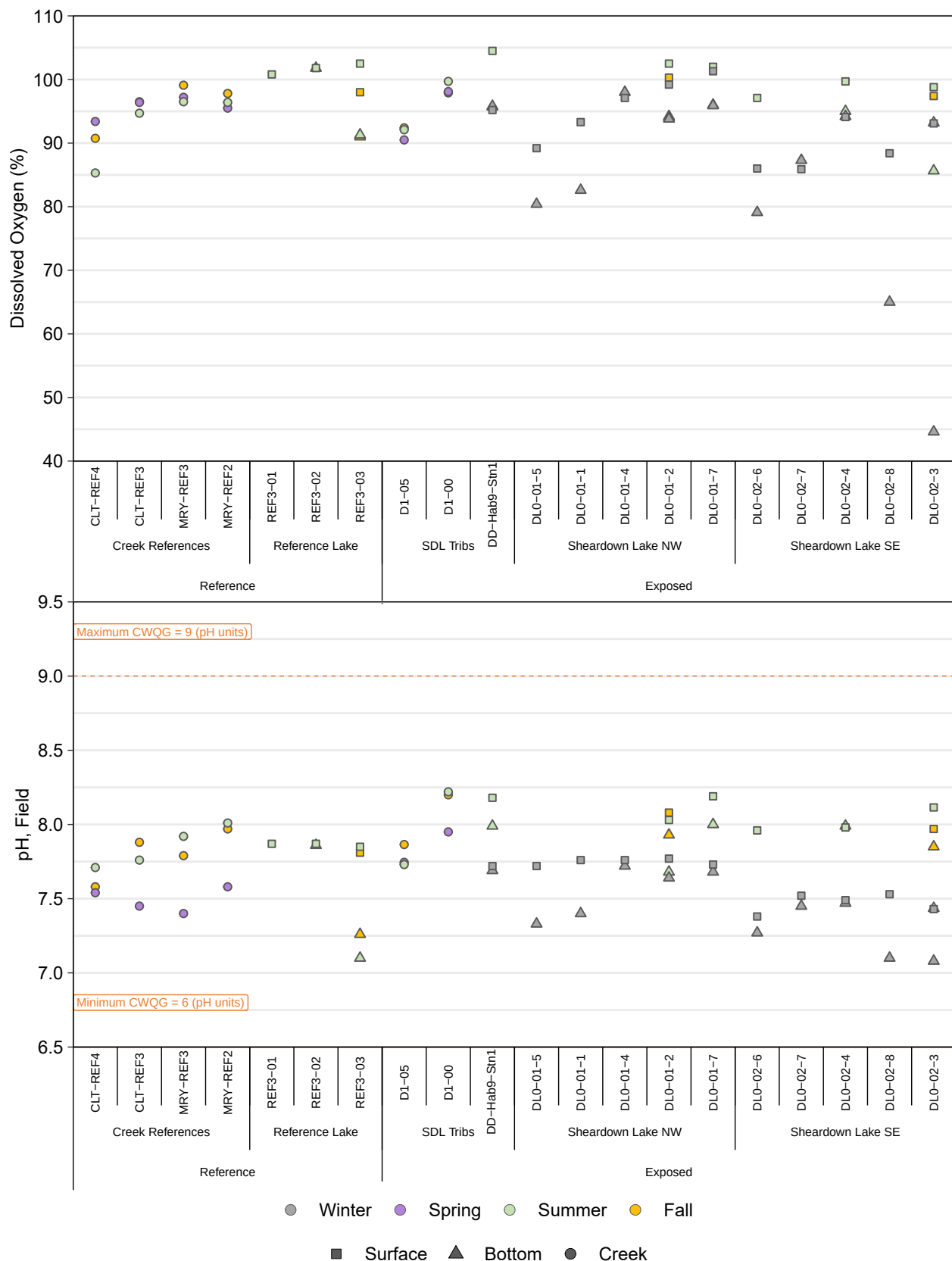


Figure B.6: *In Situ* Water Quality Measured at Sheardown Lake System Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

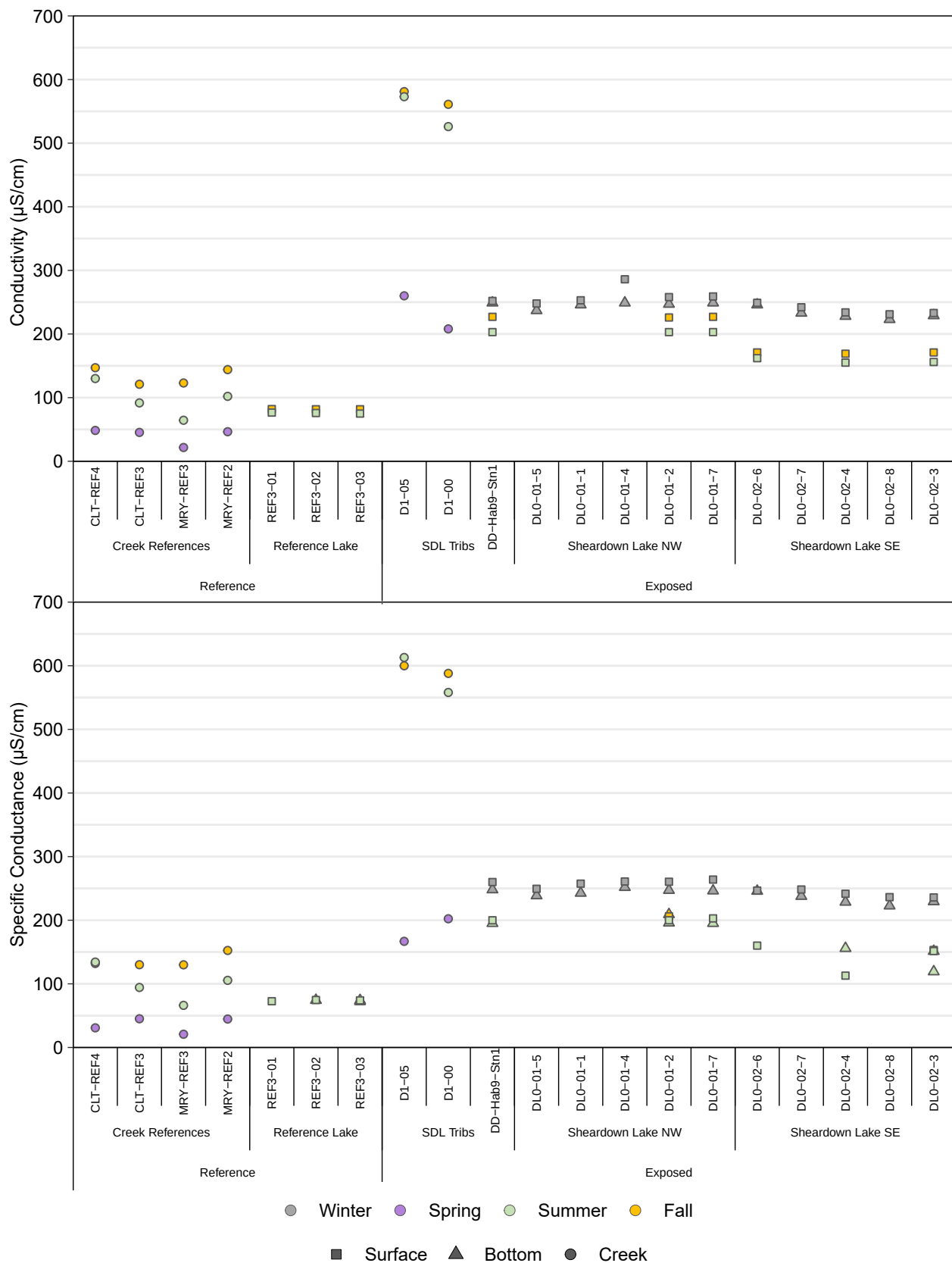


Figure B.6: *In Situ* Water Quality Measured at Sheardown Lake System Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

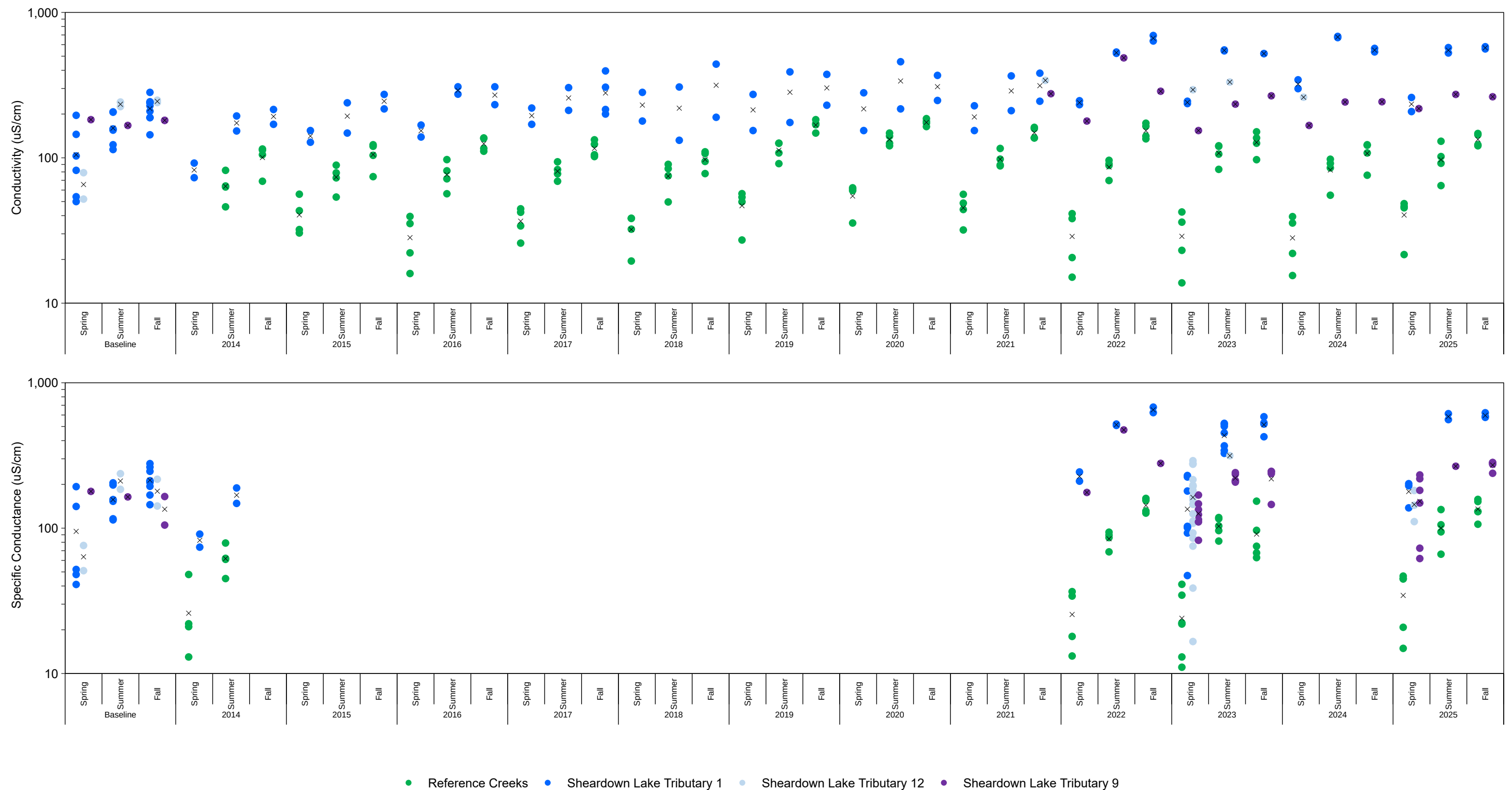


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

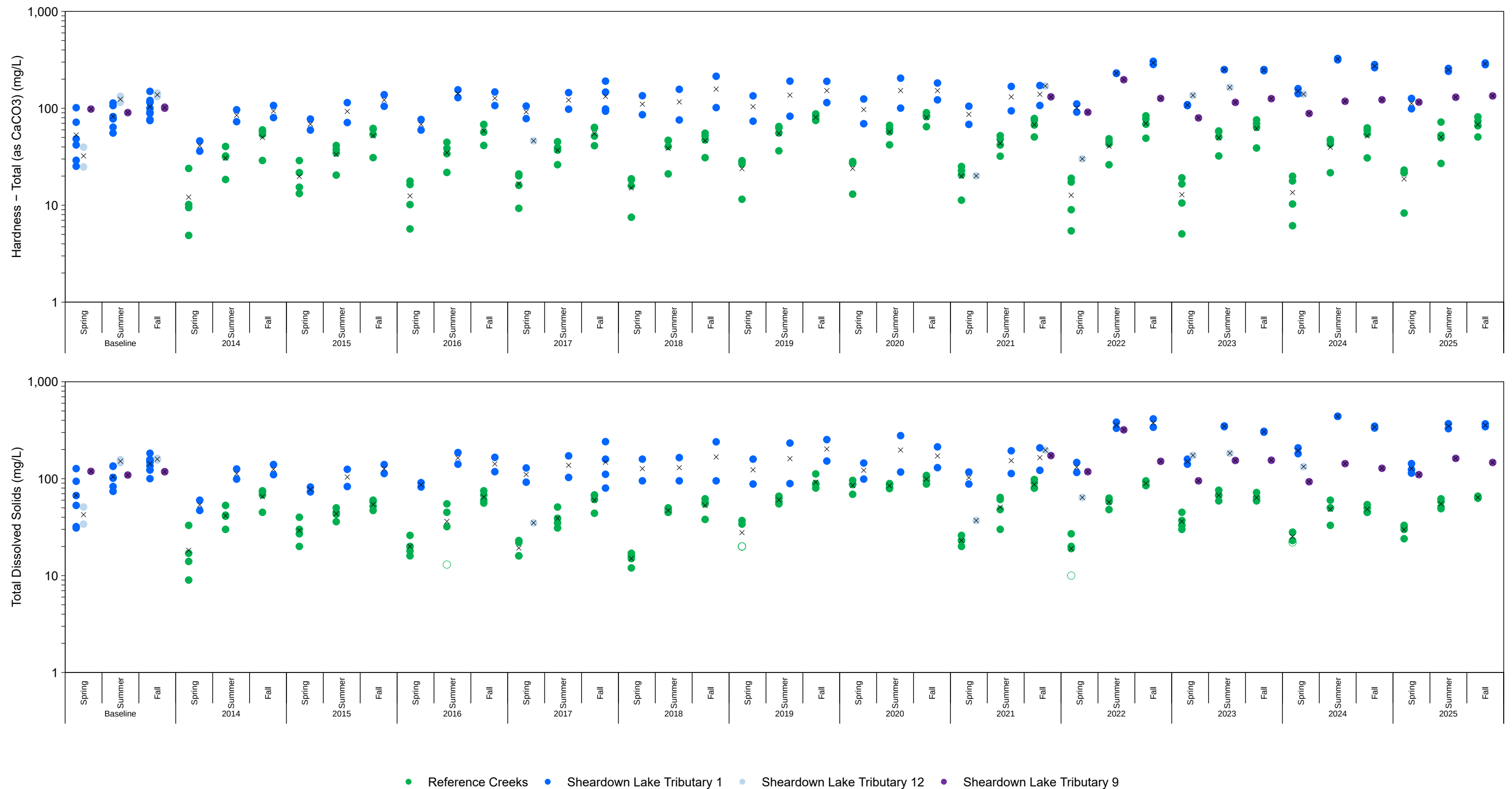


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

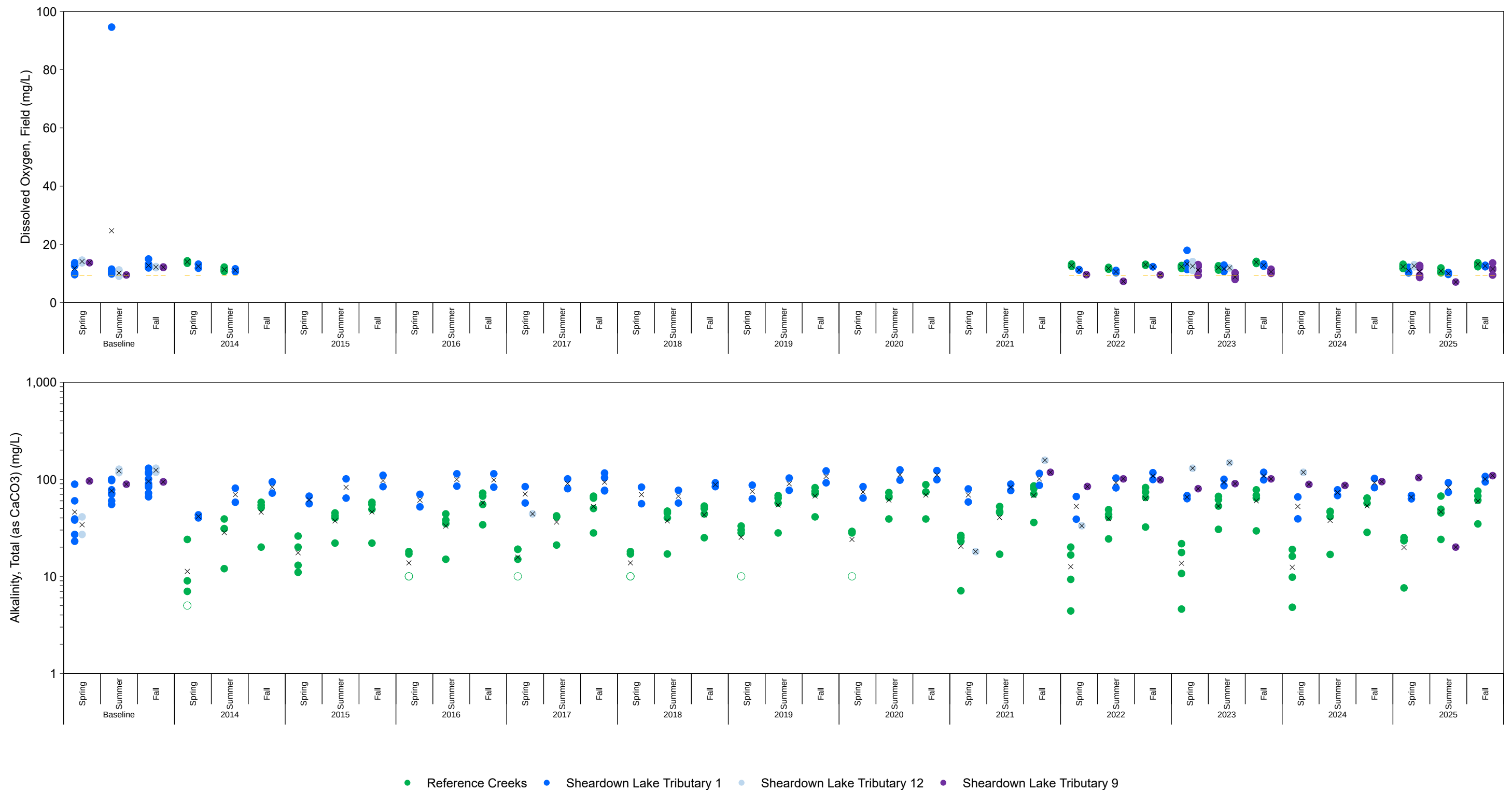


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"'s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

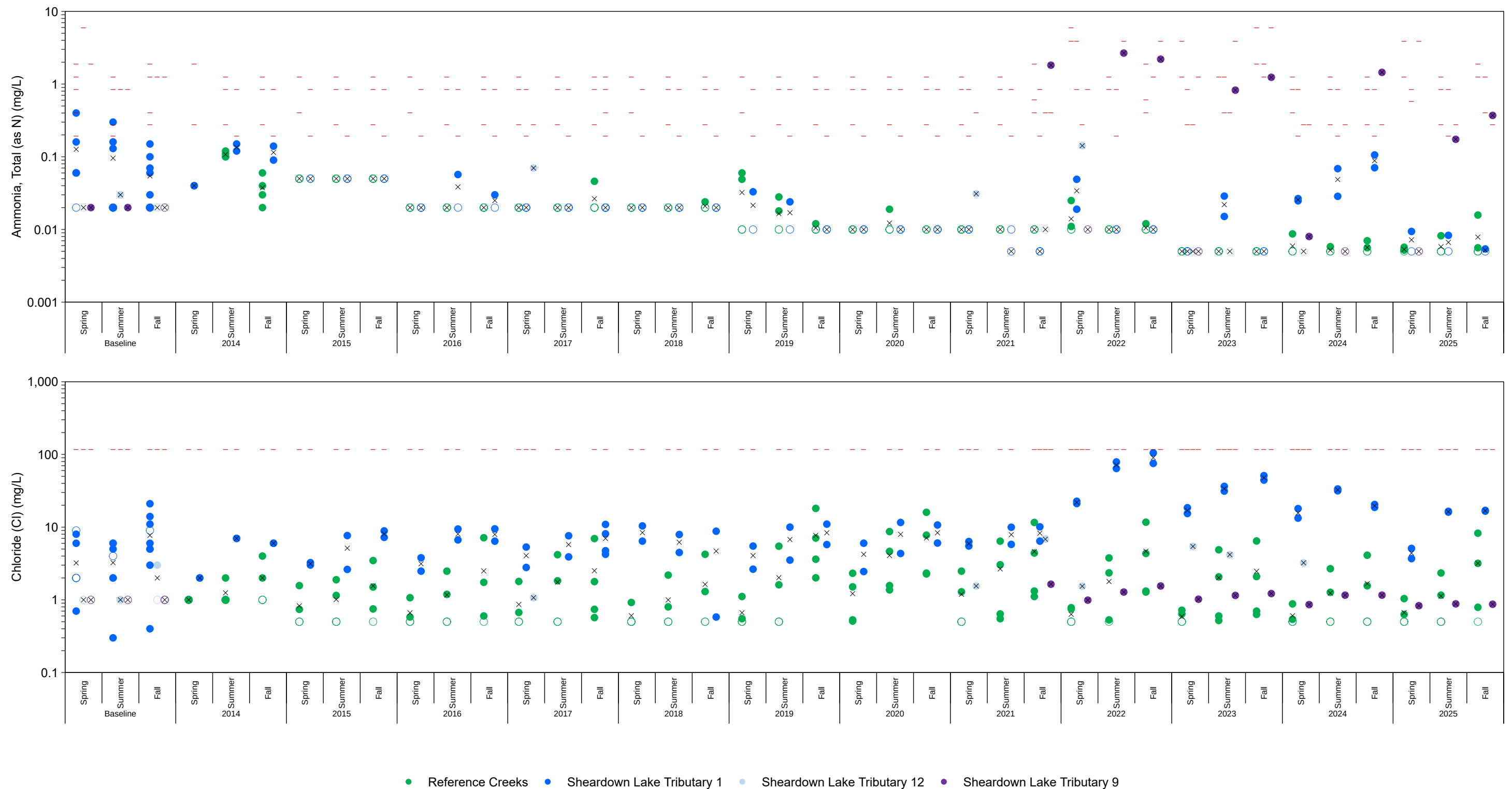


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

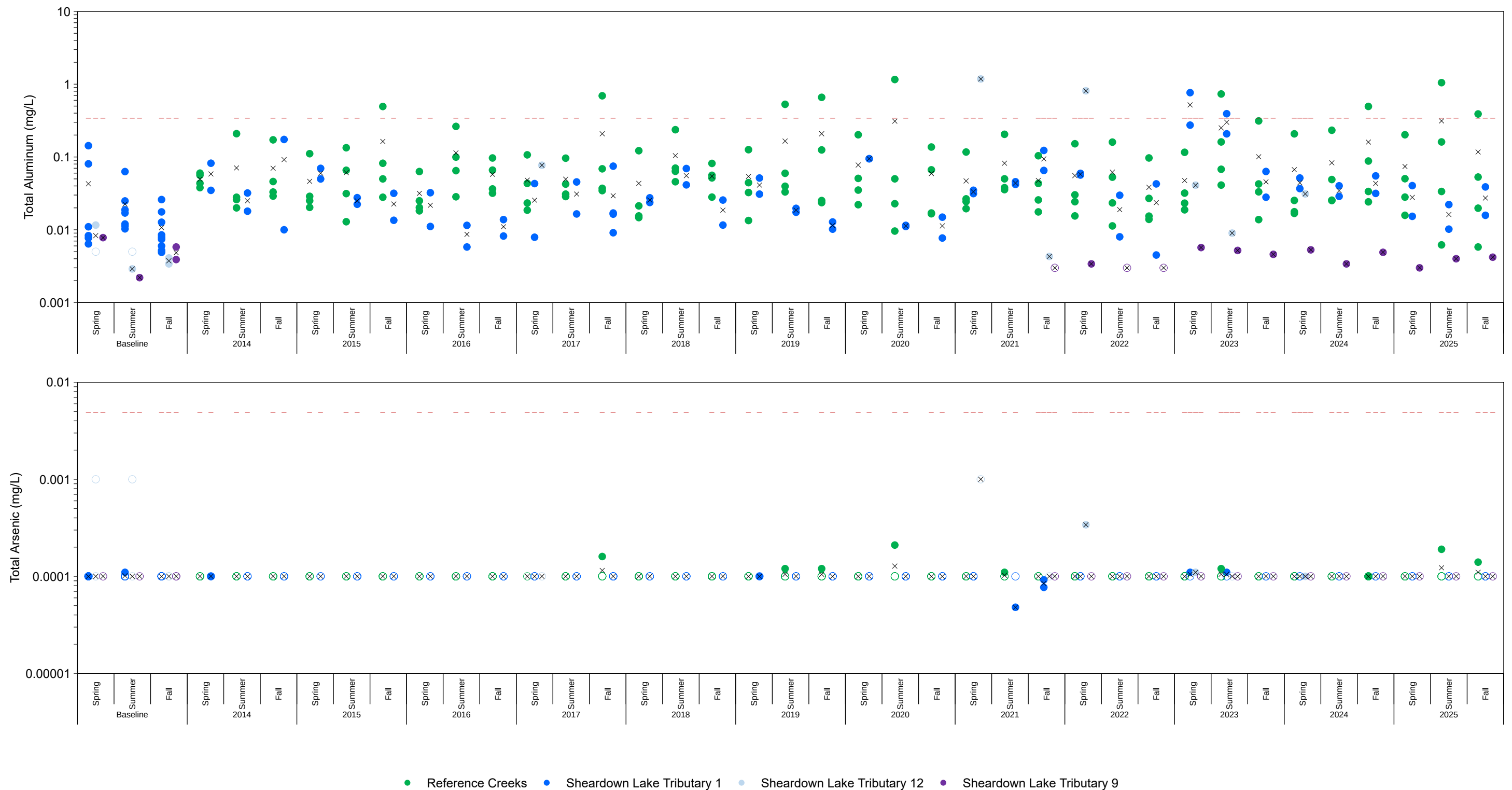


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

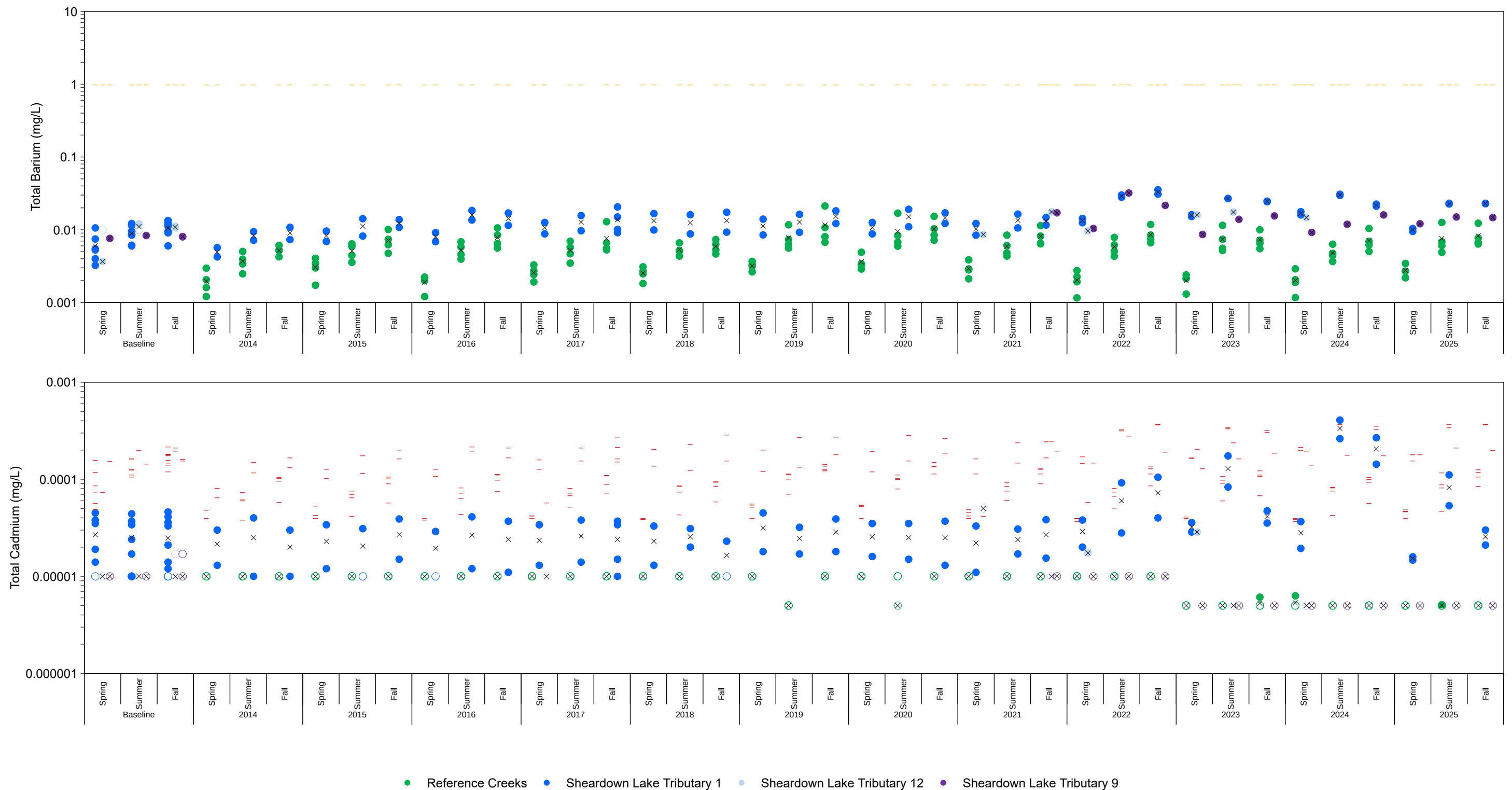


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

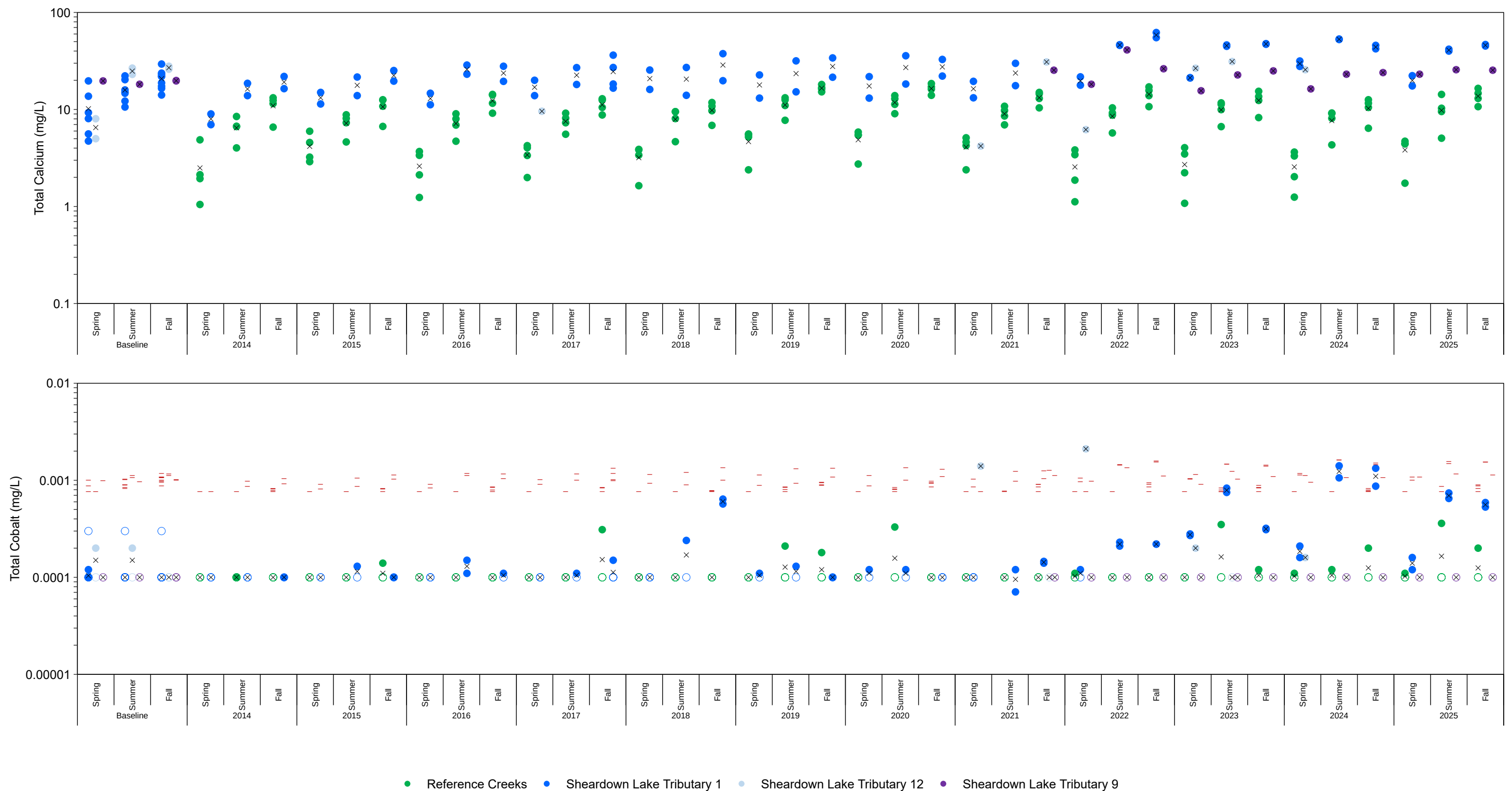


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

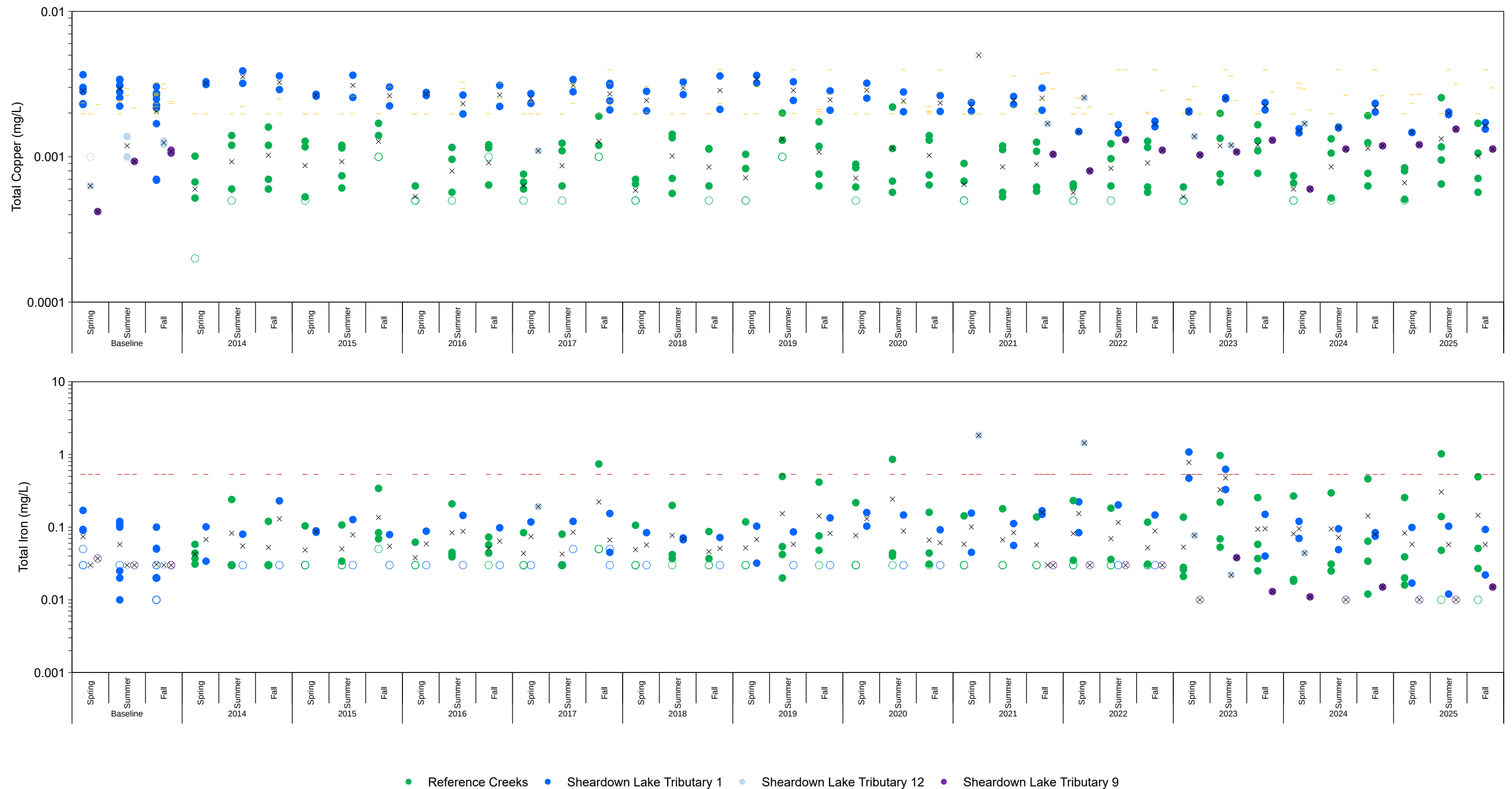


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

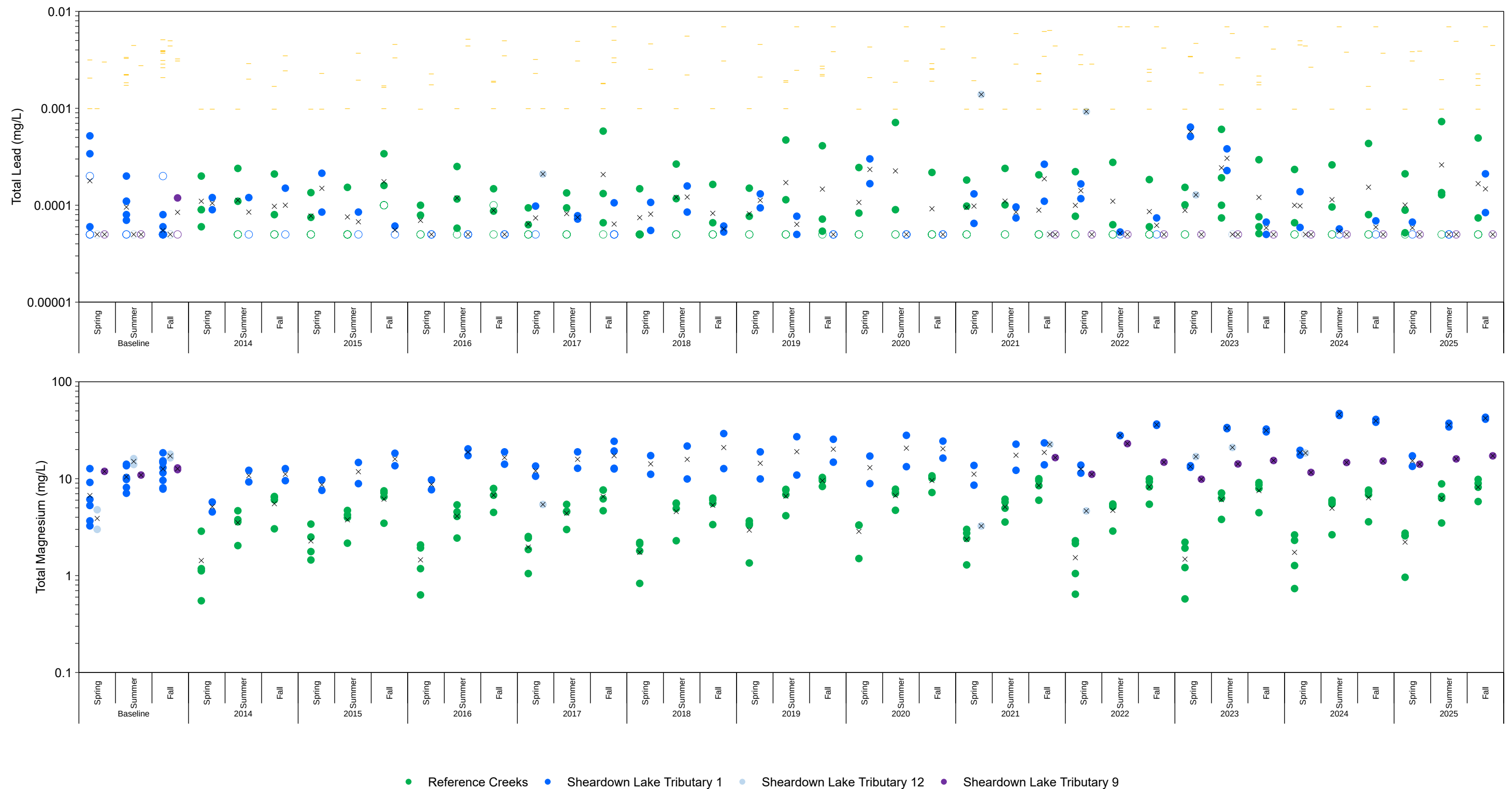


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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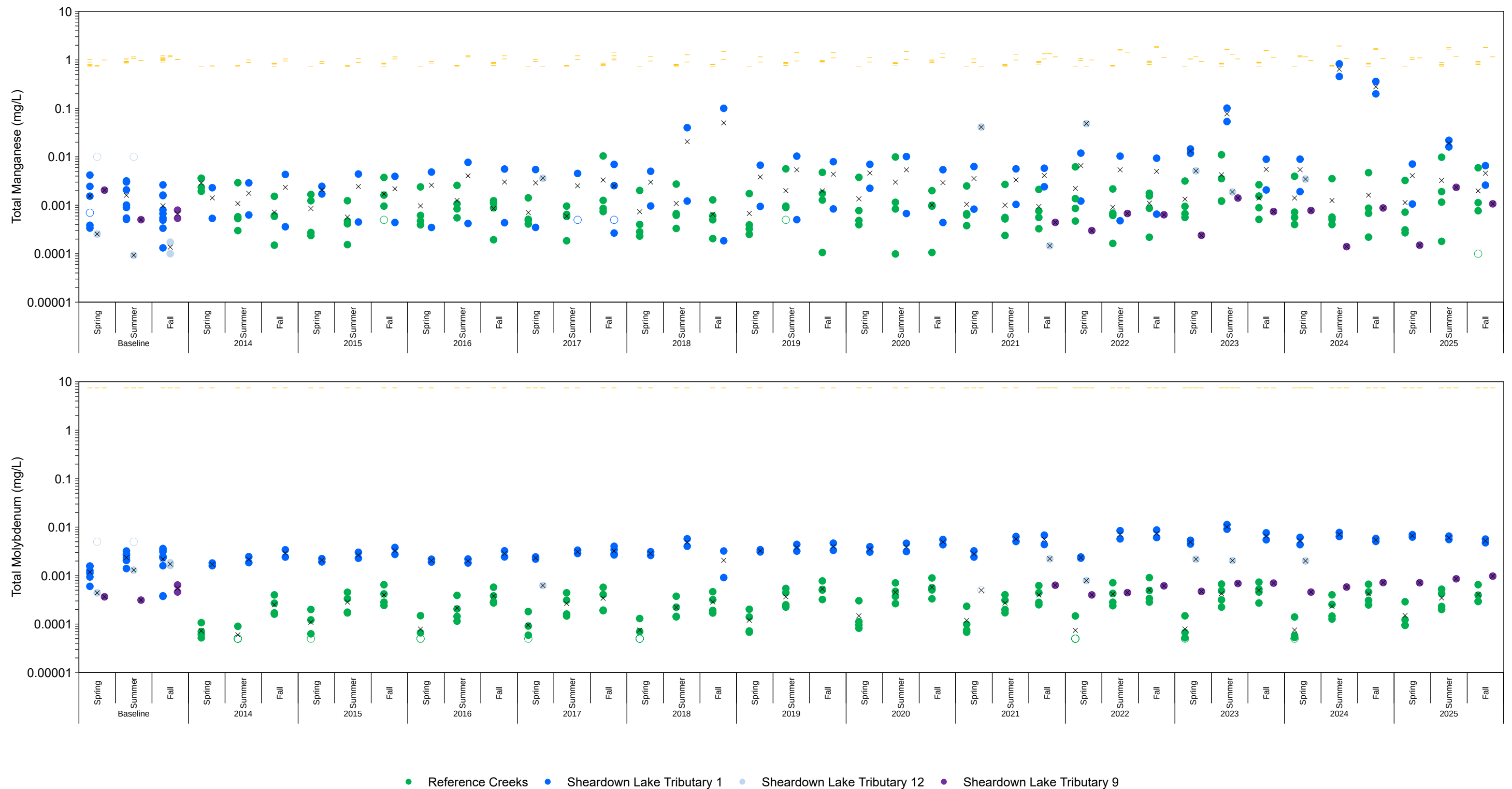


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

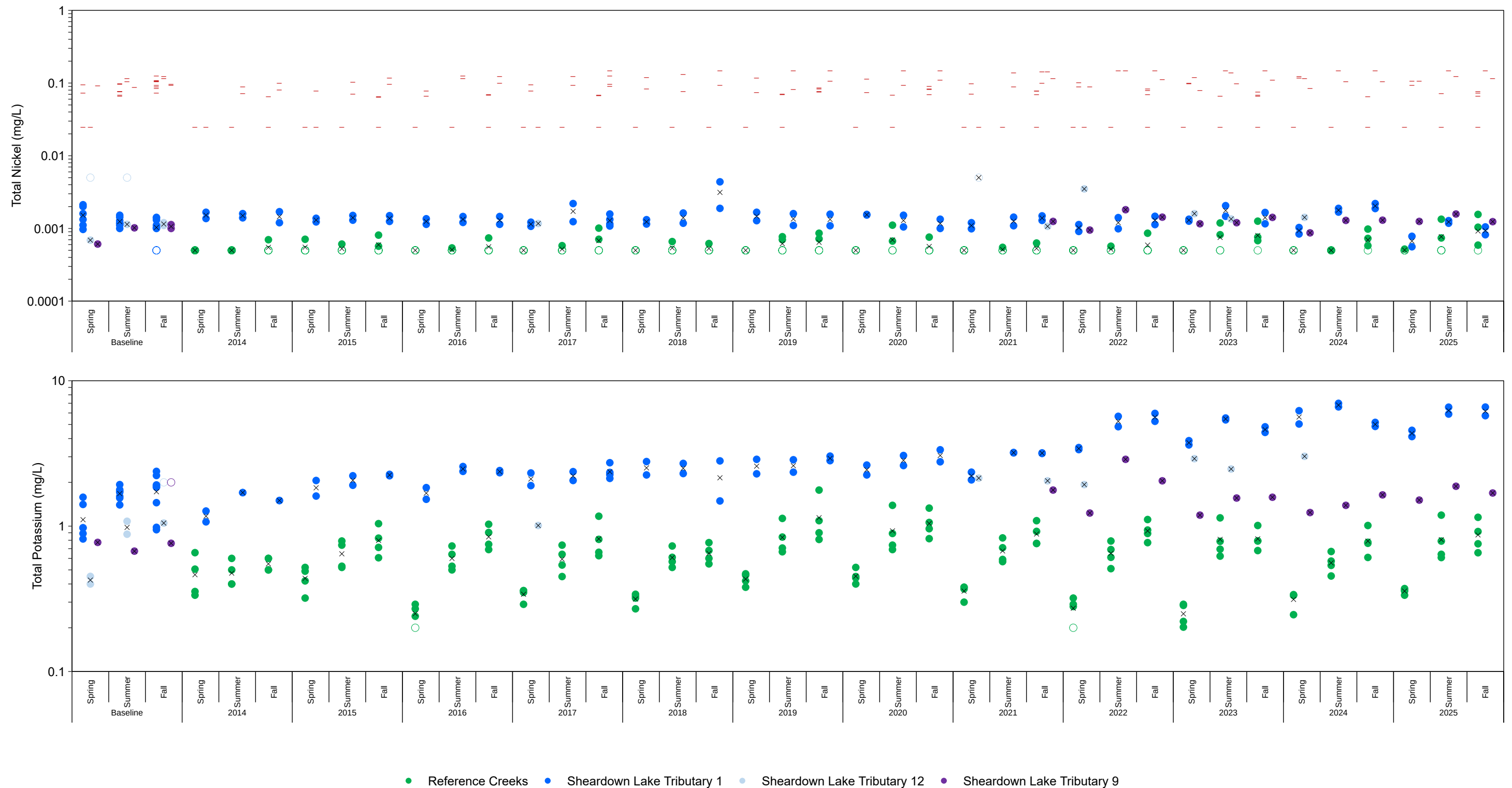


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

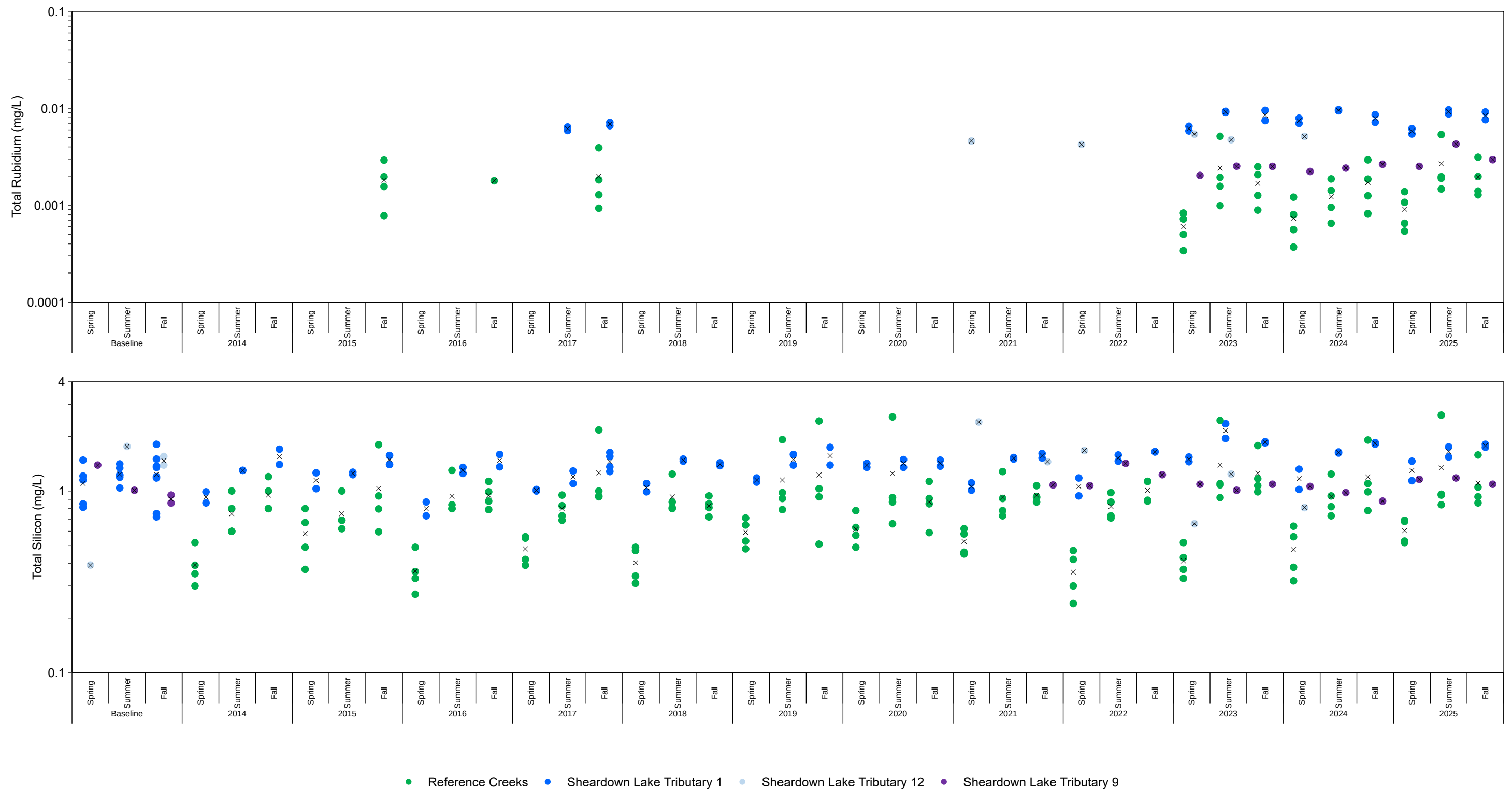


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

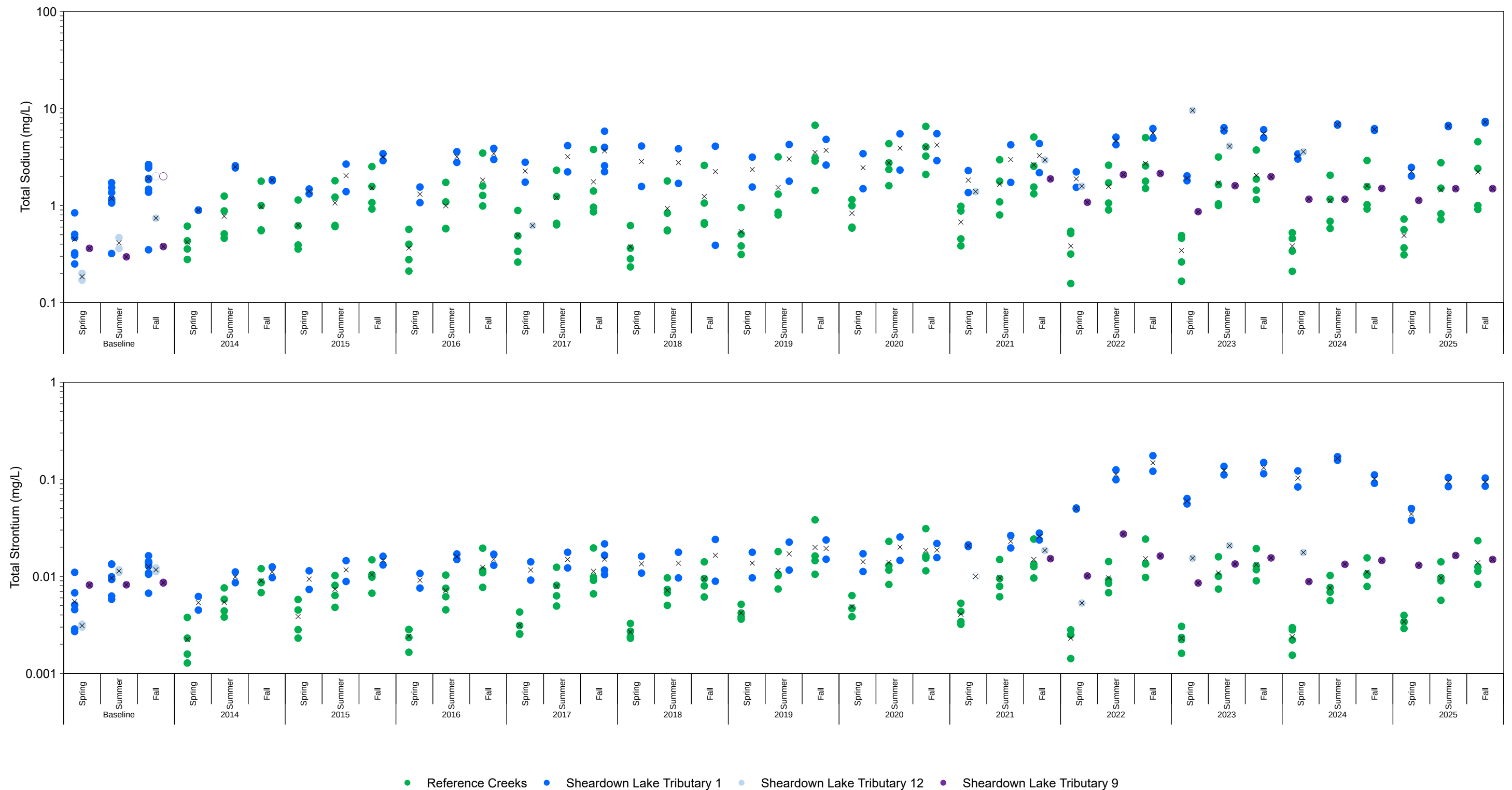


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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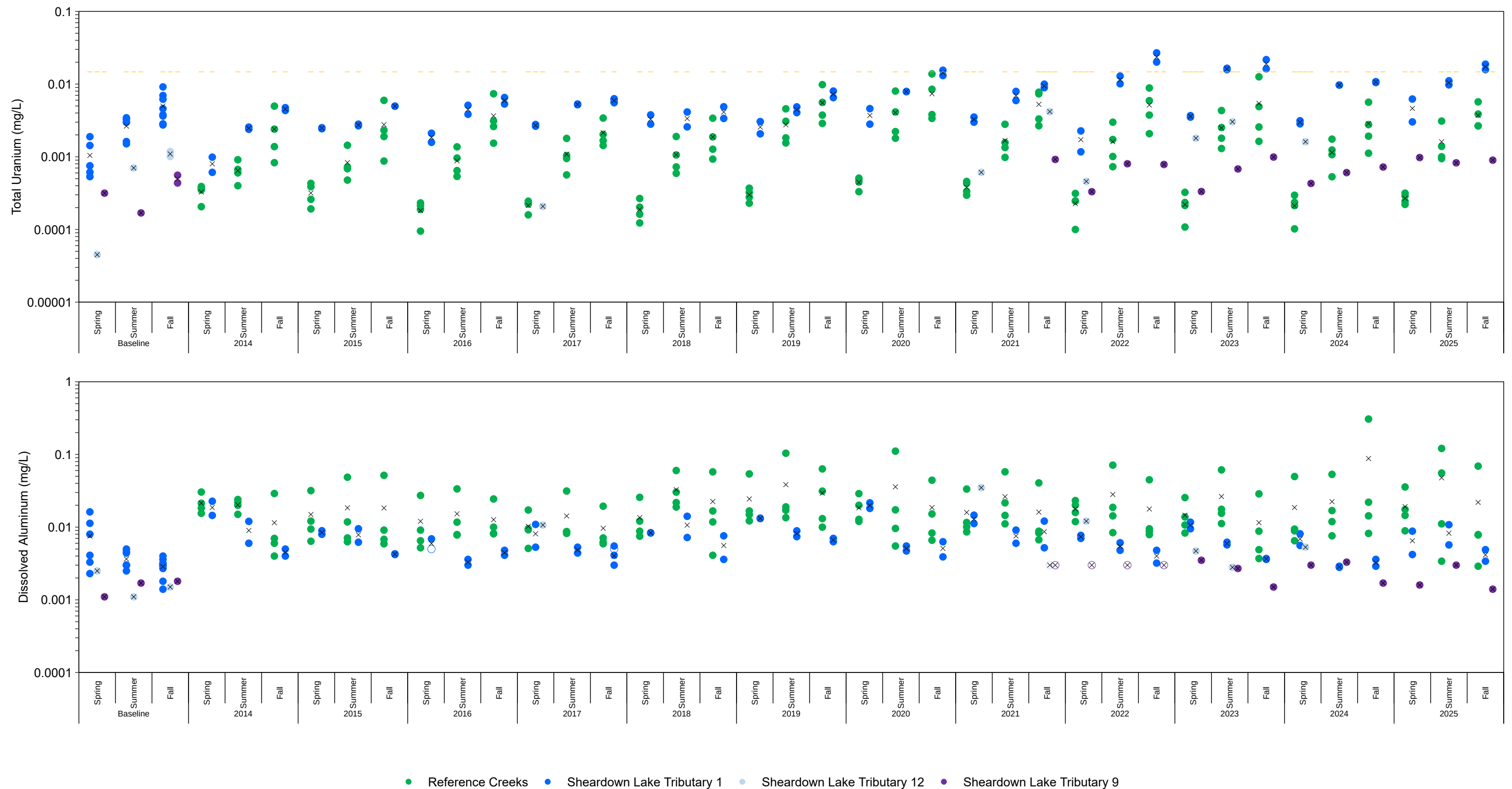


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

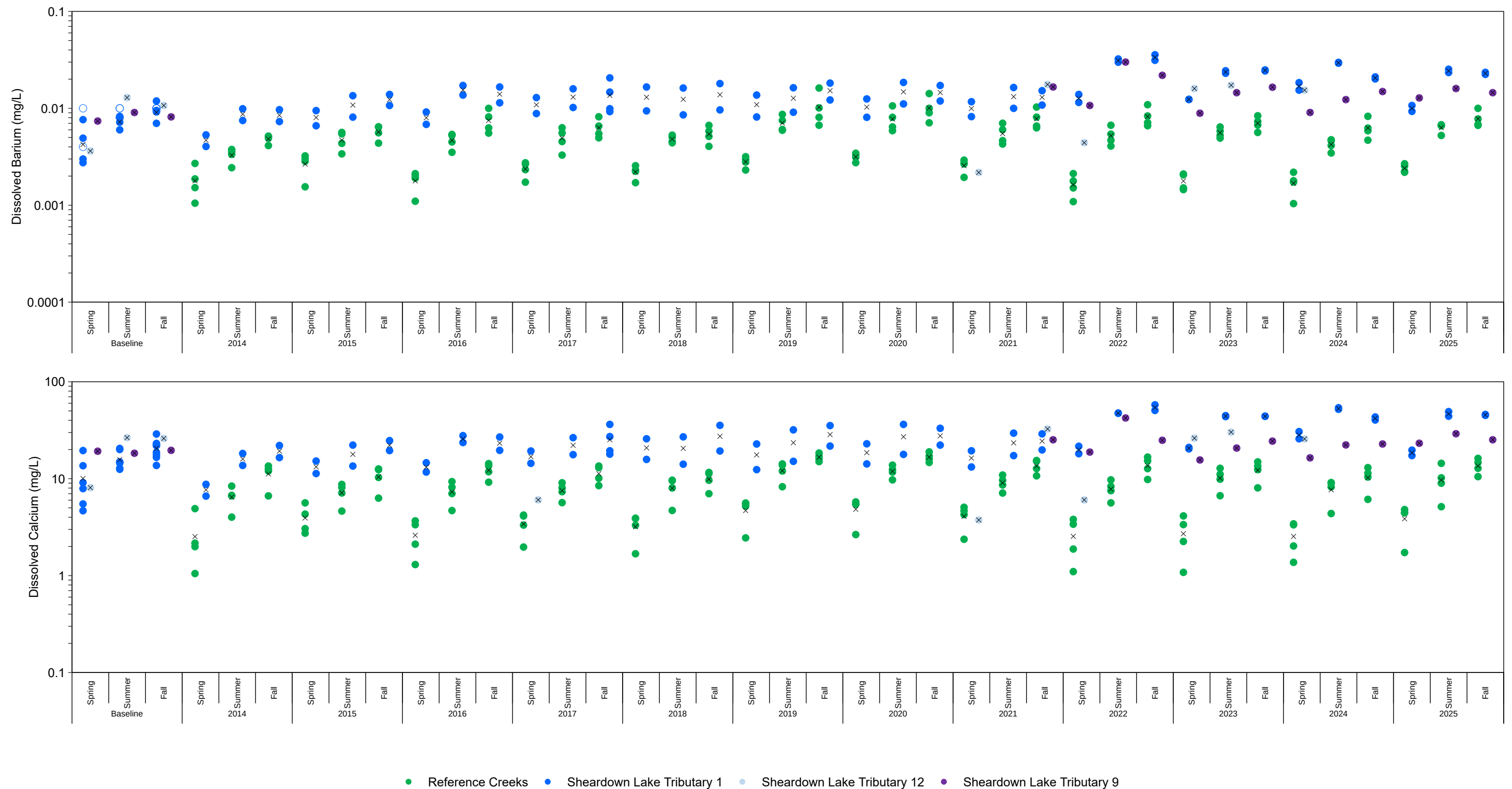


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

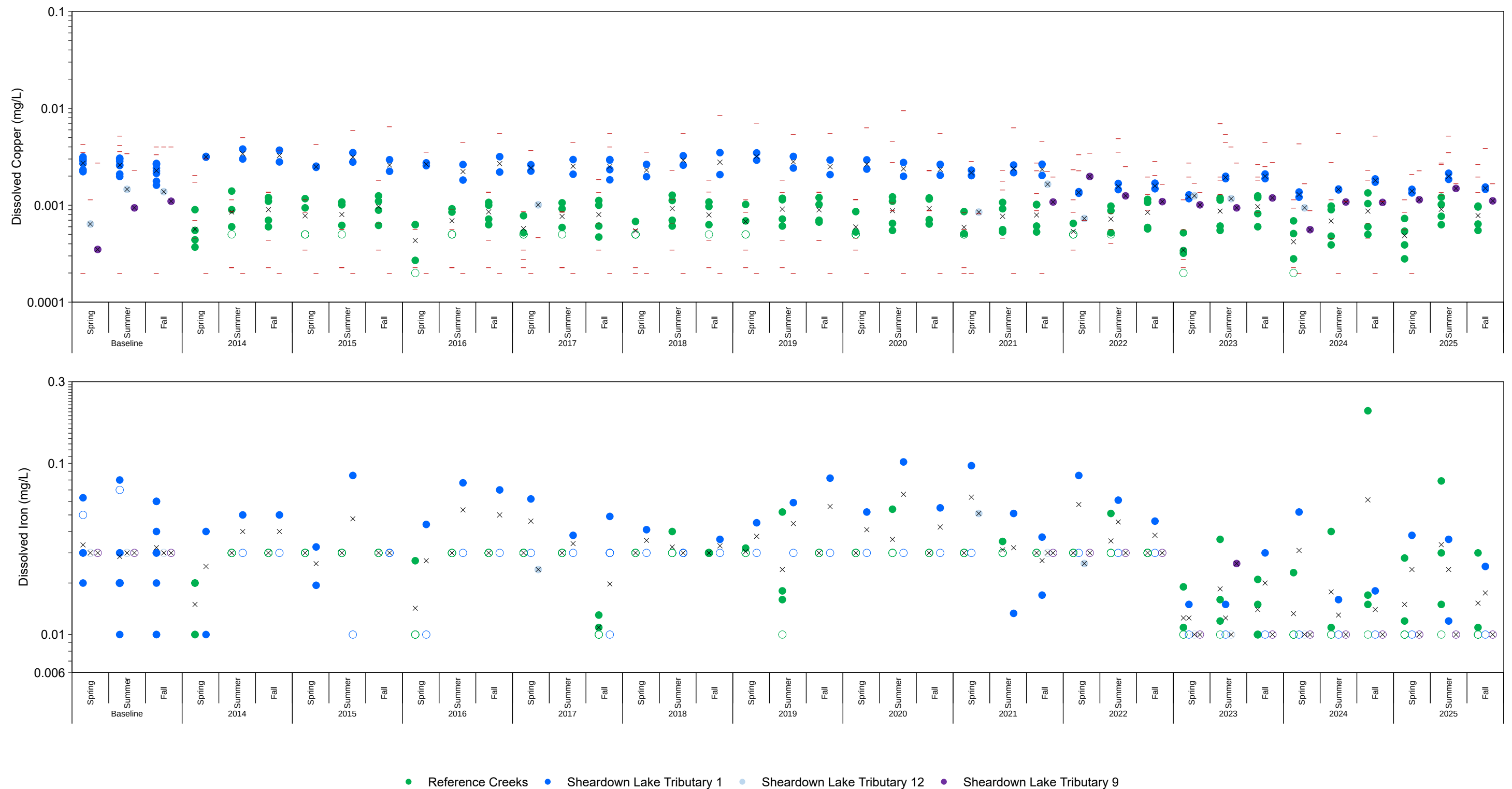


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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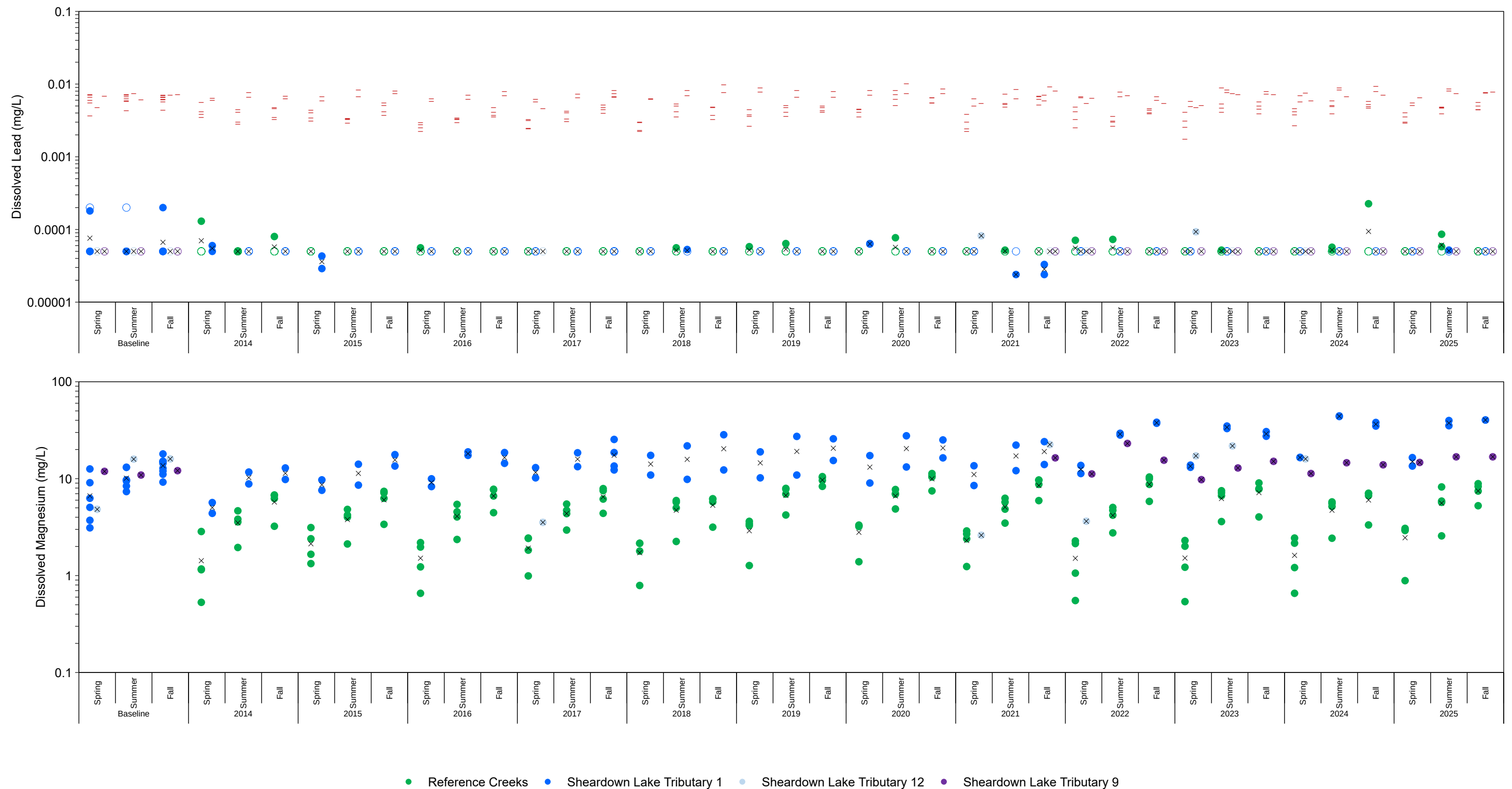


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. Sheardown Lake Tributary 12 (SDLT12/ LDFG-OUT) and Sheardown Lake Tributary 9 (SDLT9/MS-C-G) stations were added to the CREMP in fall 2021. WQG for dissolved oxygen represent lower limits and a range for field pH.

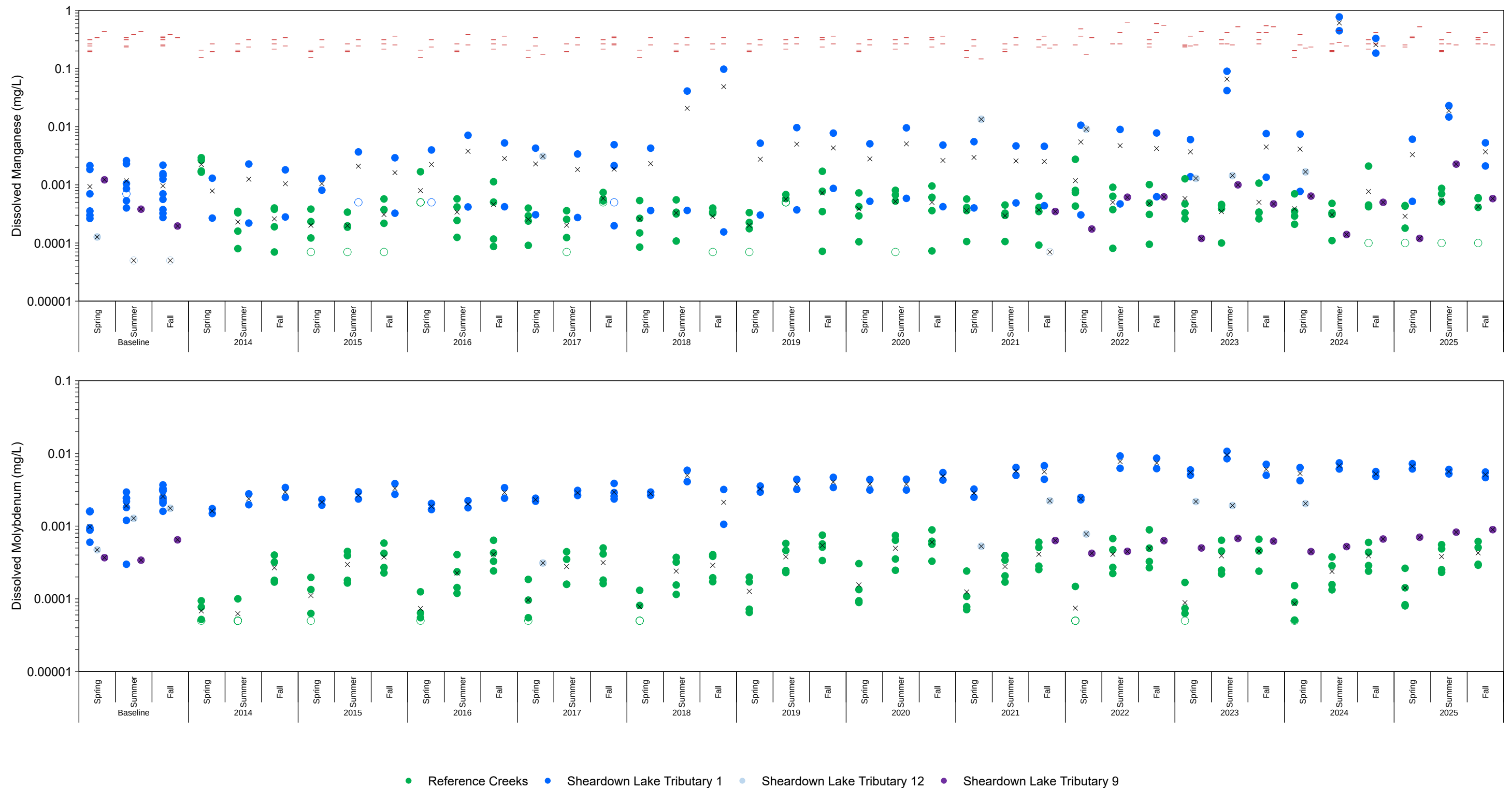


Figure B.7: Temporal Comparisons for Water Chemistry at the Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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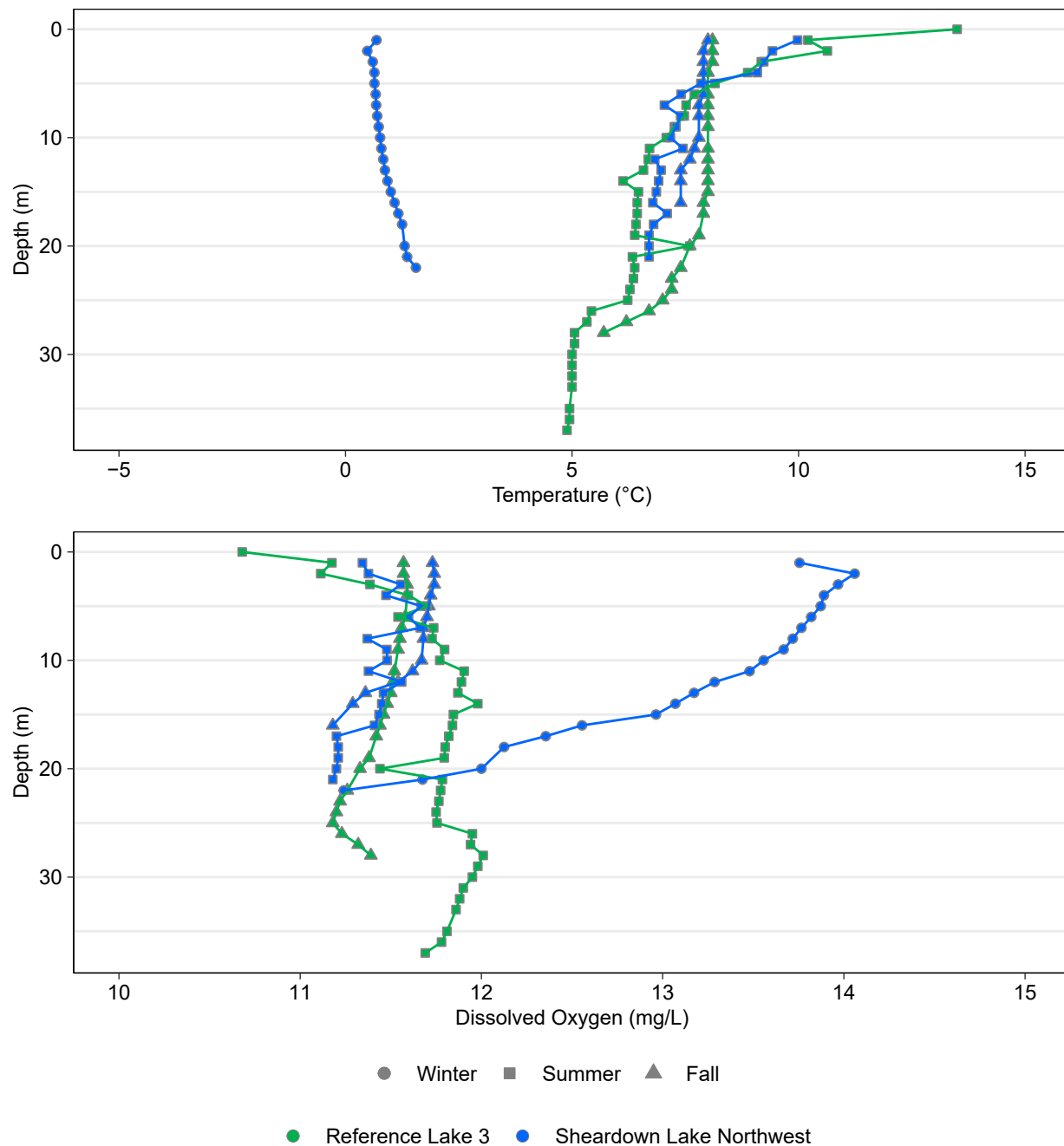


Figure B.8: *In Situ* Water Quality Profile Measurements at Sheardown Lake Northwest (DL0) and Reference Lake 3 (REF-03) During Spring, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

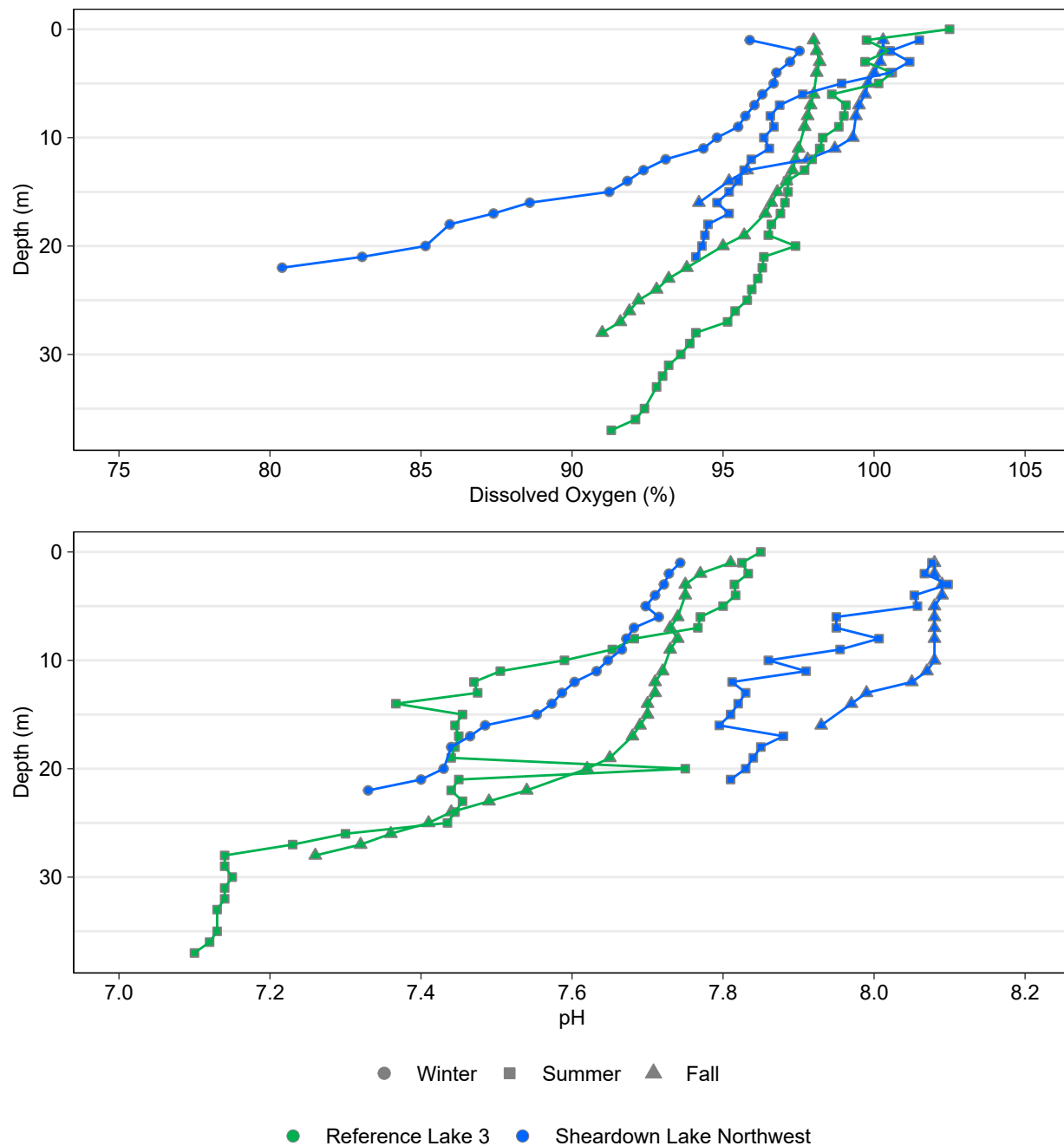


Figure B.8: *In Situ* Water Quality Profile Measurements at Sheardown Lake Northwest (DL0) and Reference Lake 3 (REF-03) During Spring, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

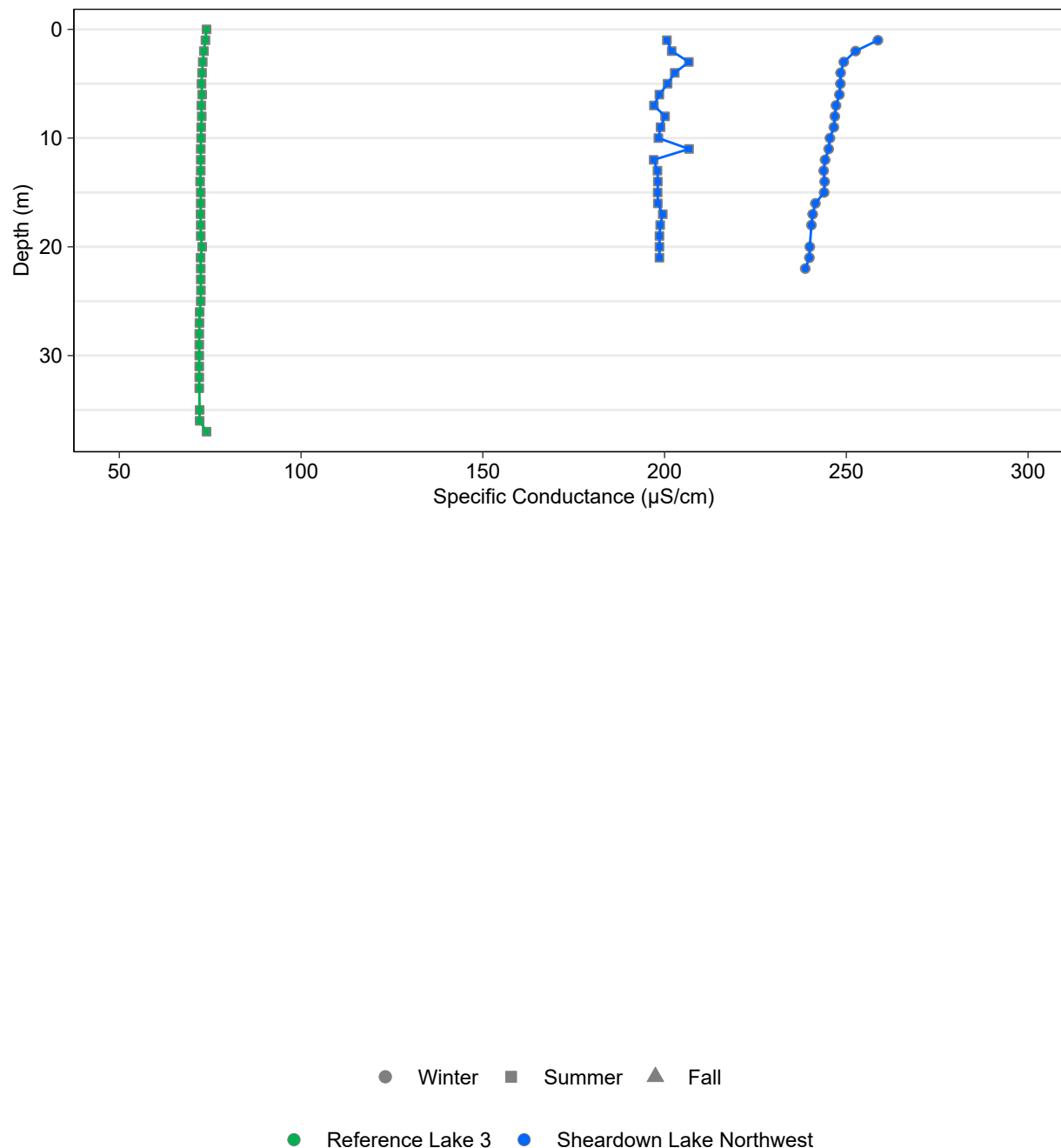


Figure B.8: *In Situ* Water Quality Profile Measurements at Sheardown Lake Northwest (DL0) and Reference Lake 3 (REF-03) During Spring, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

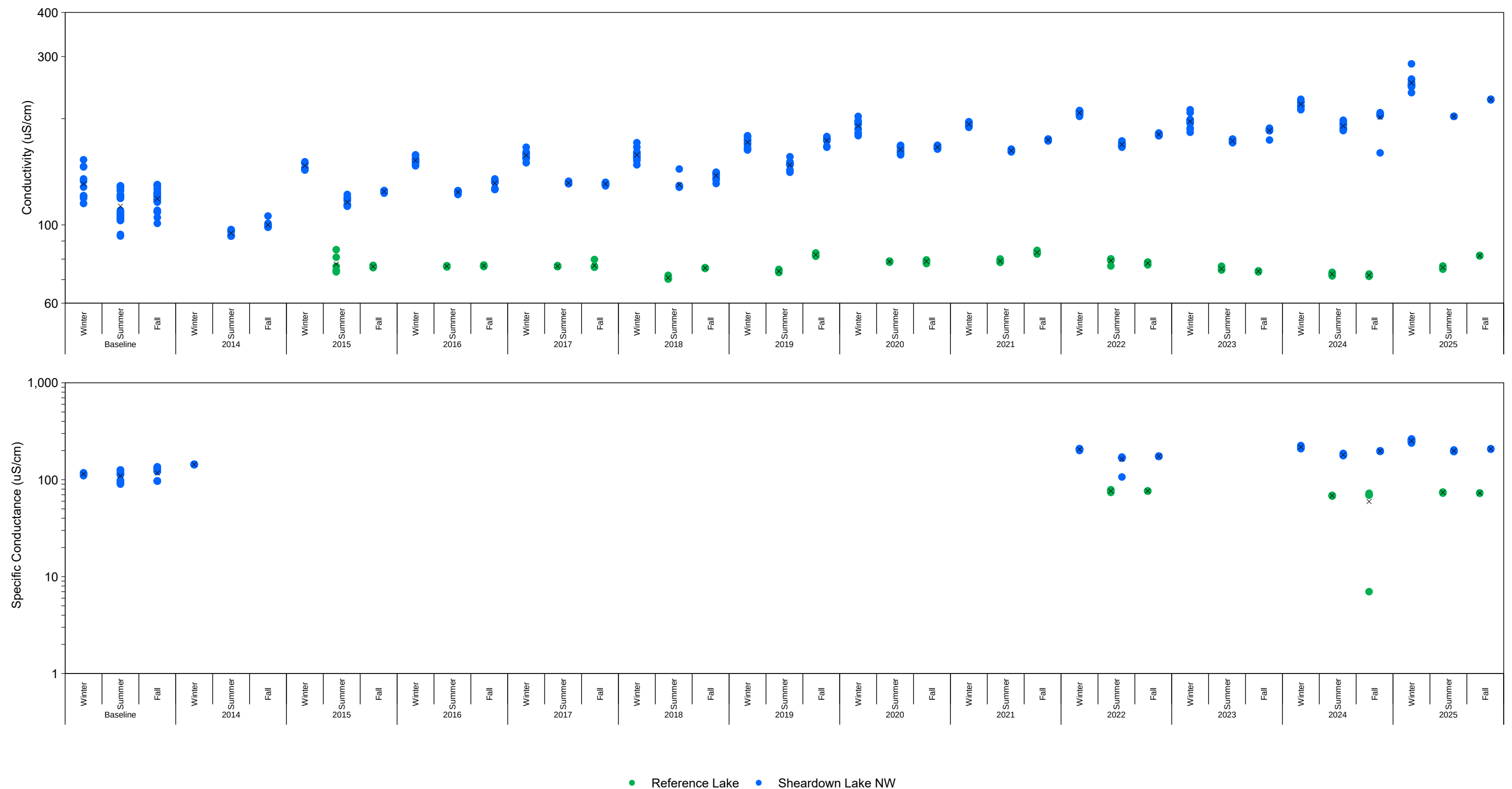


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

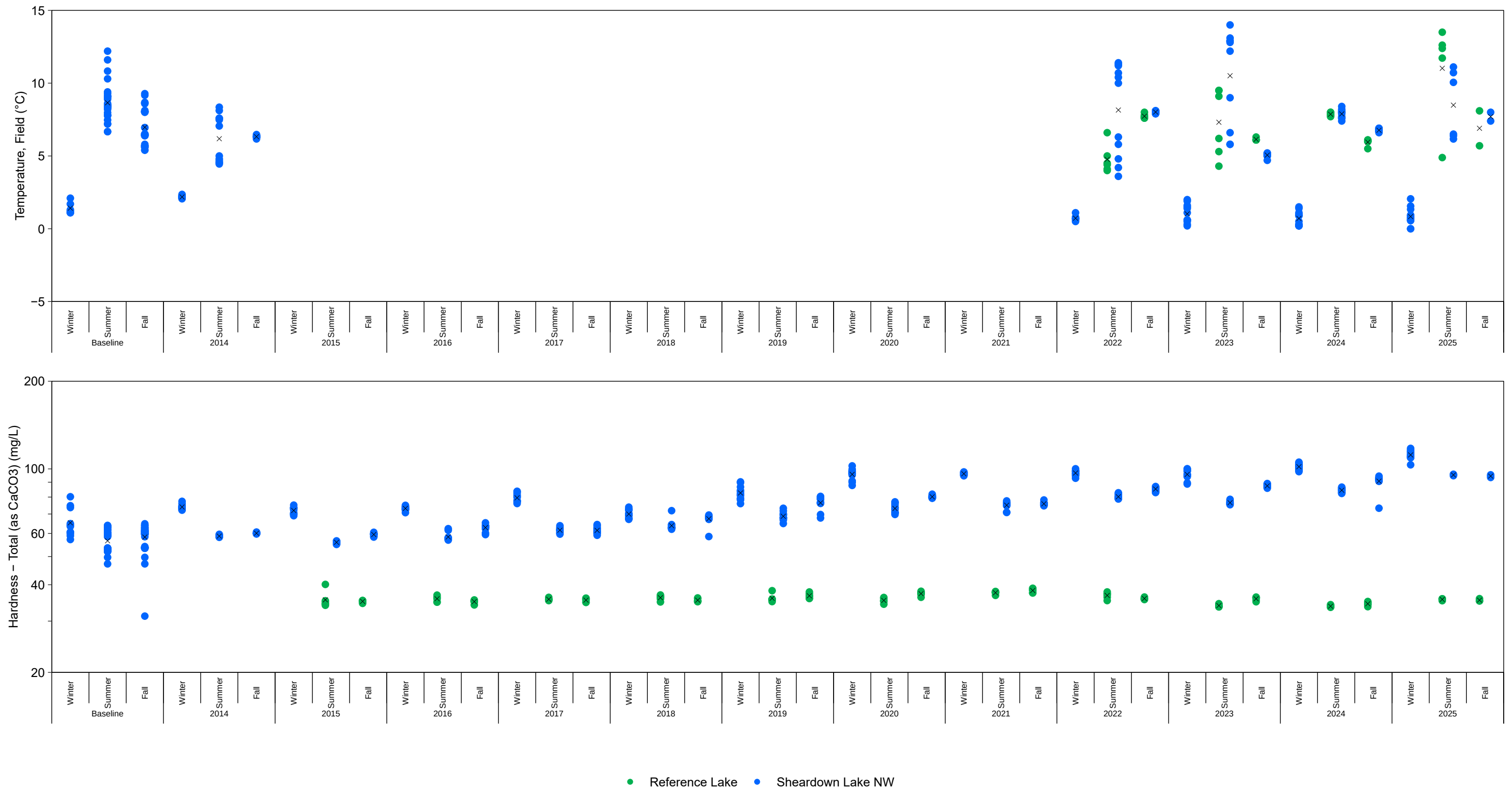


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

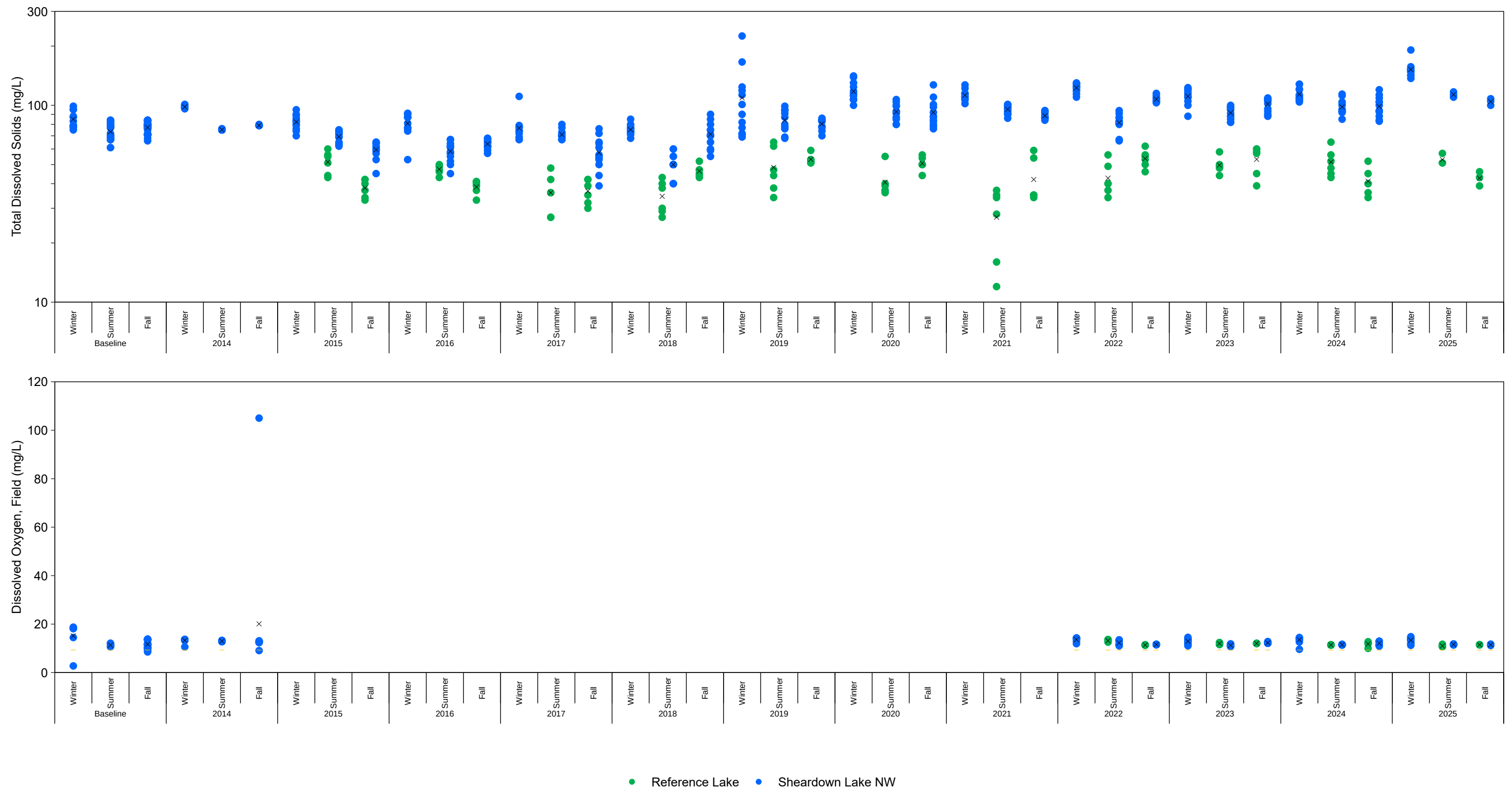


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

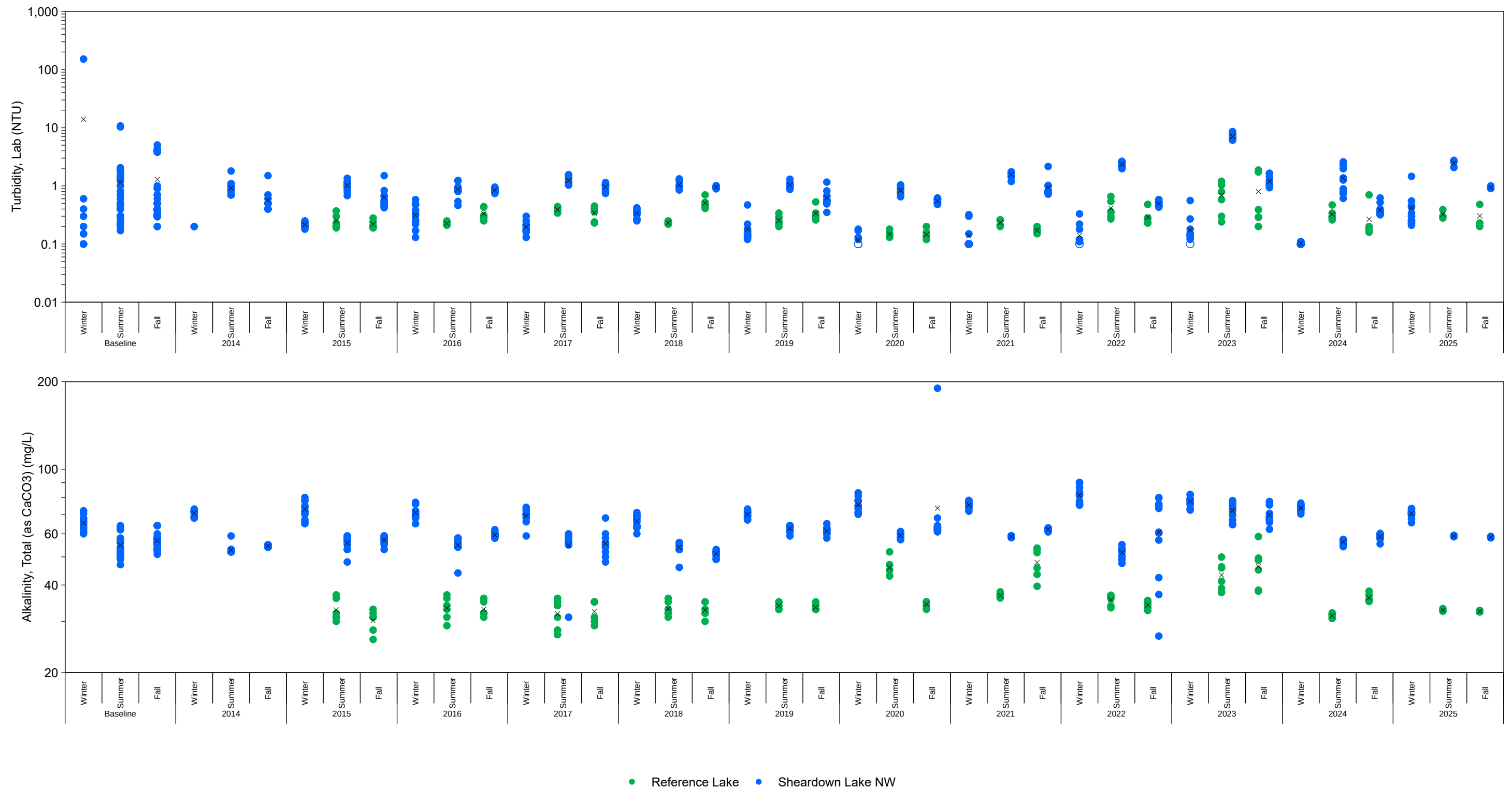


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

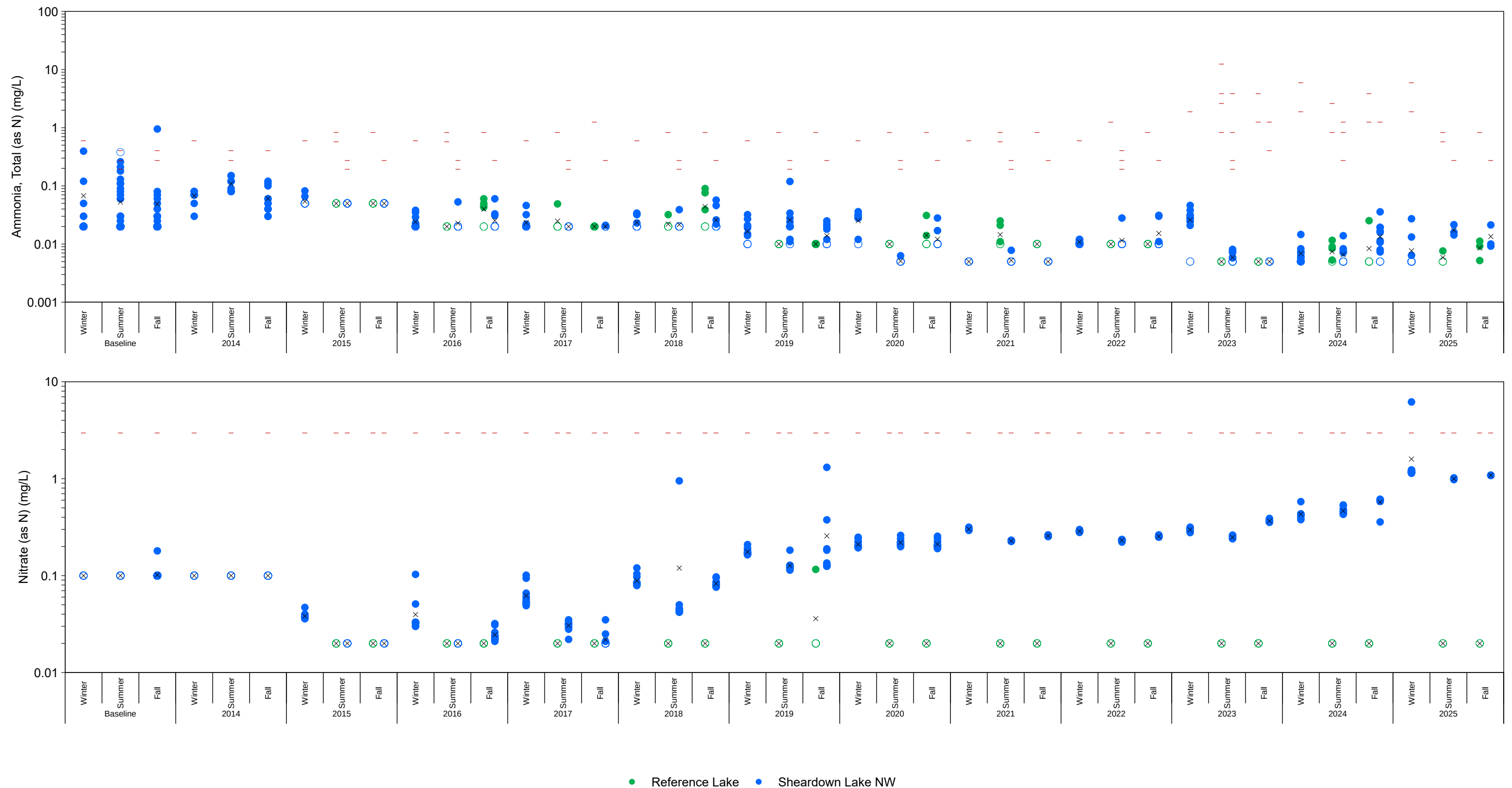


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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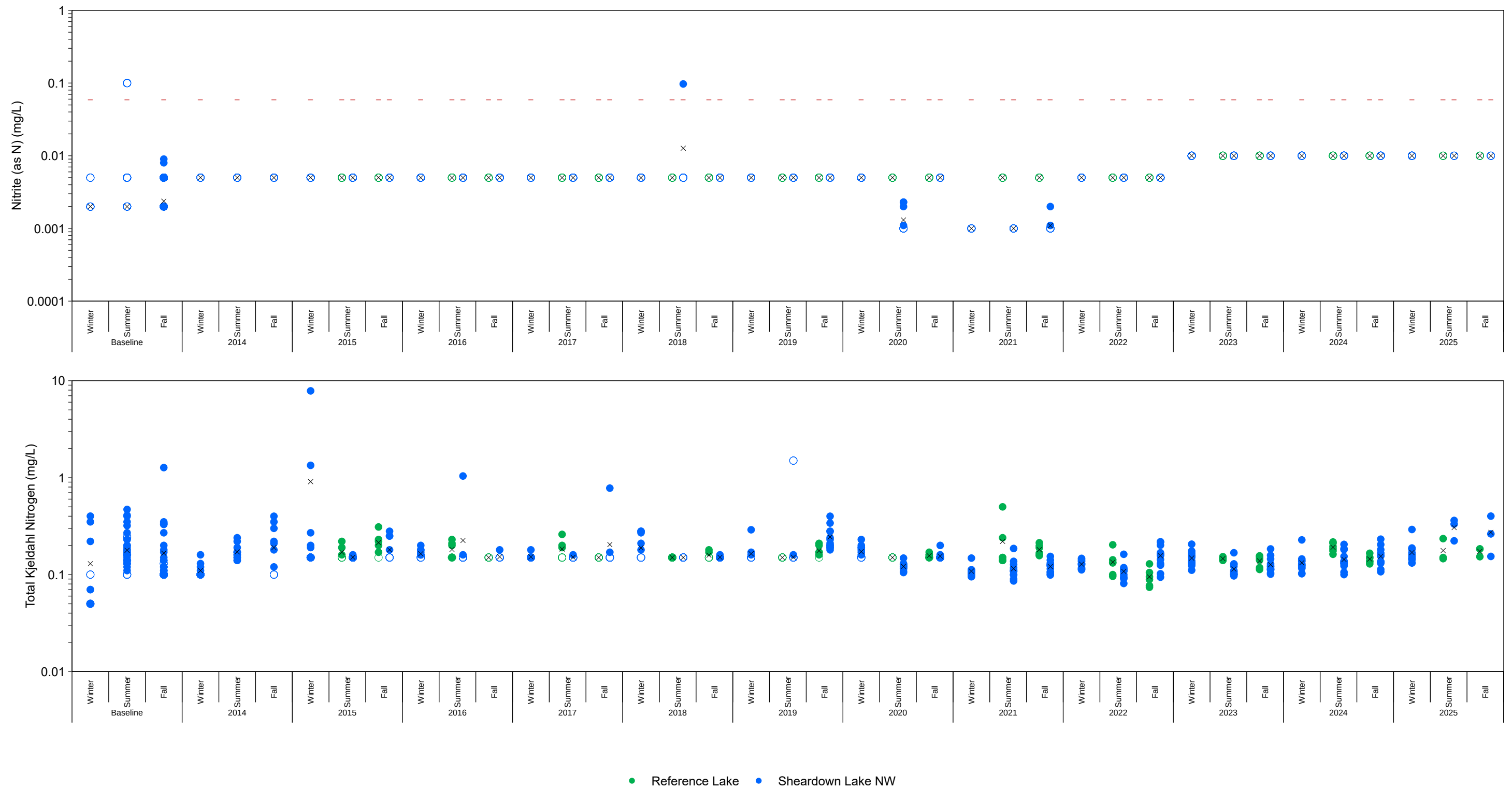


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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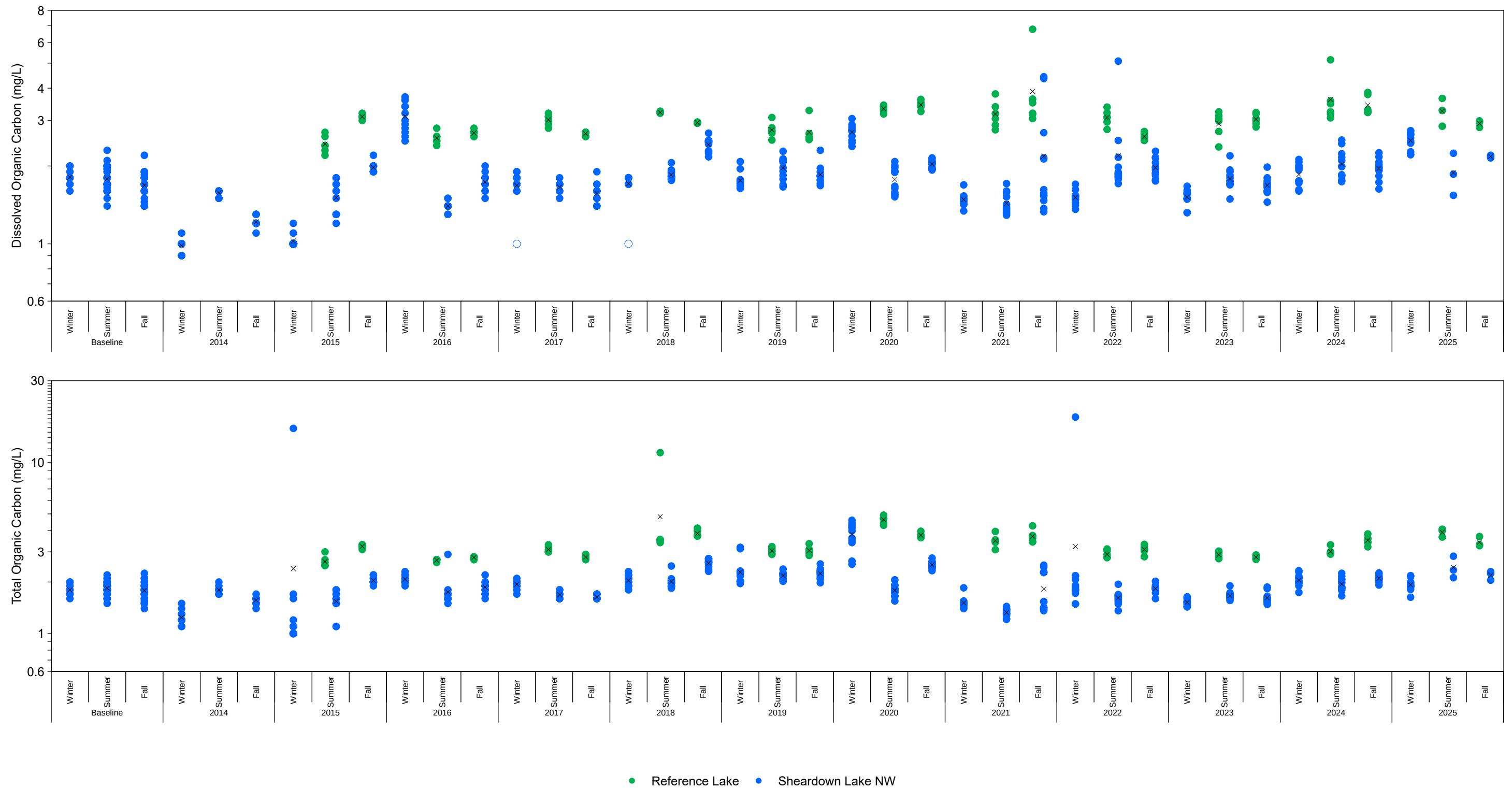


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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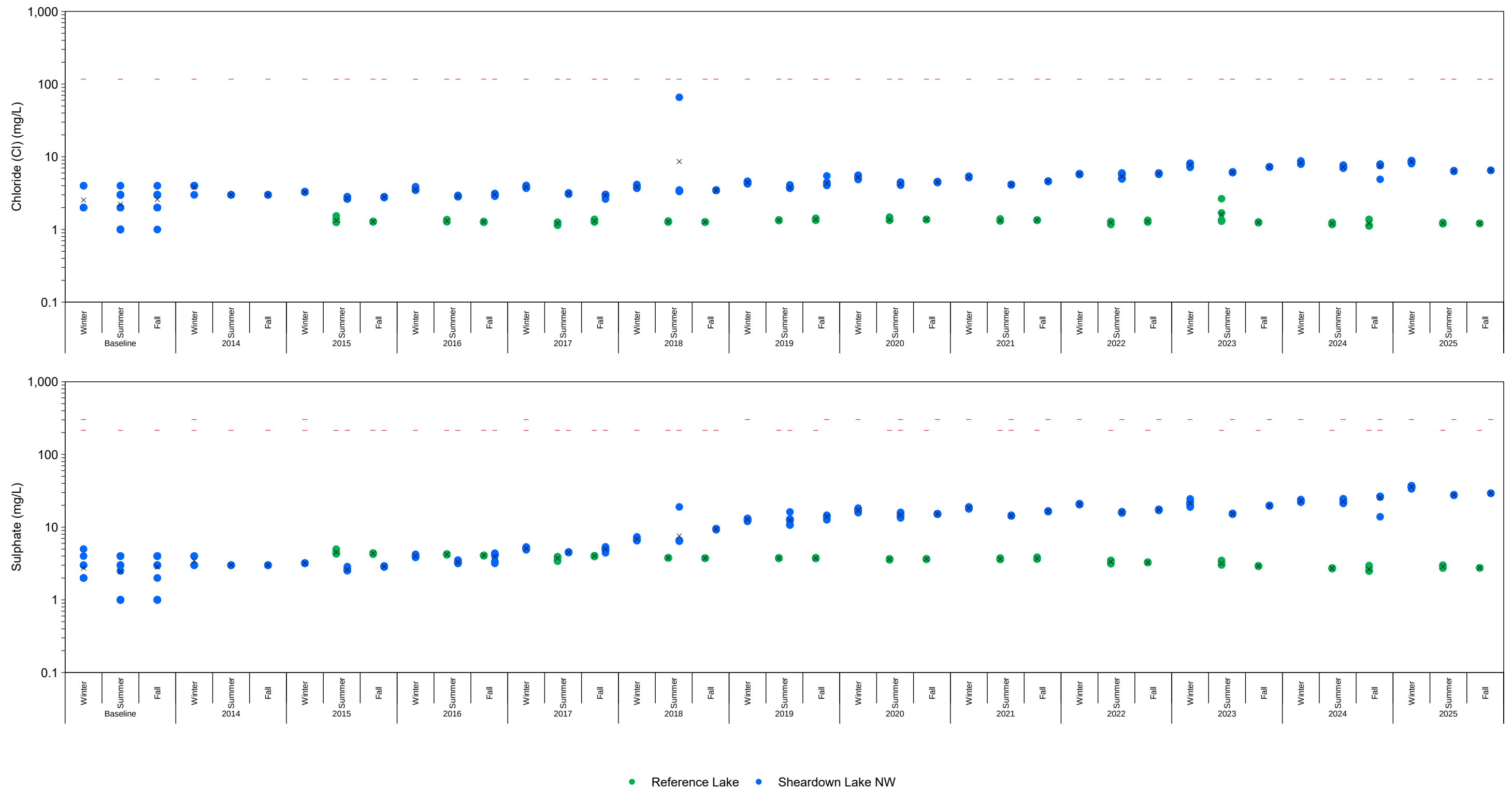


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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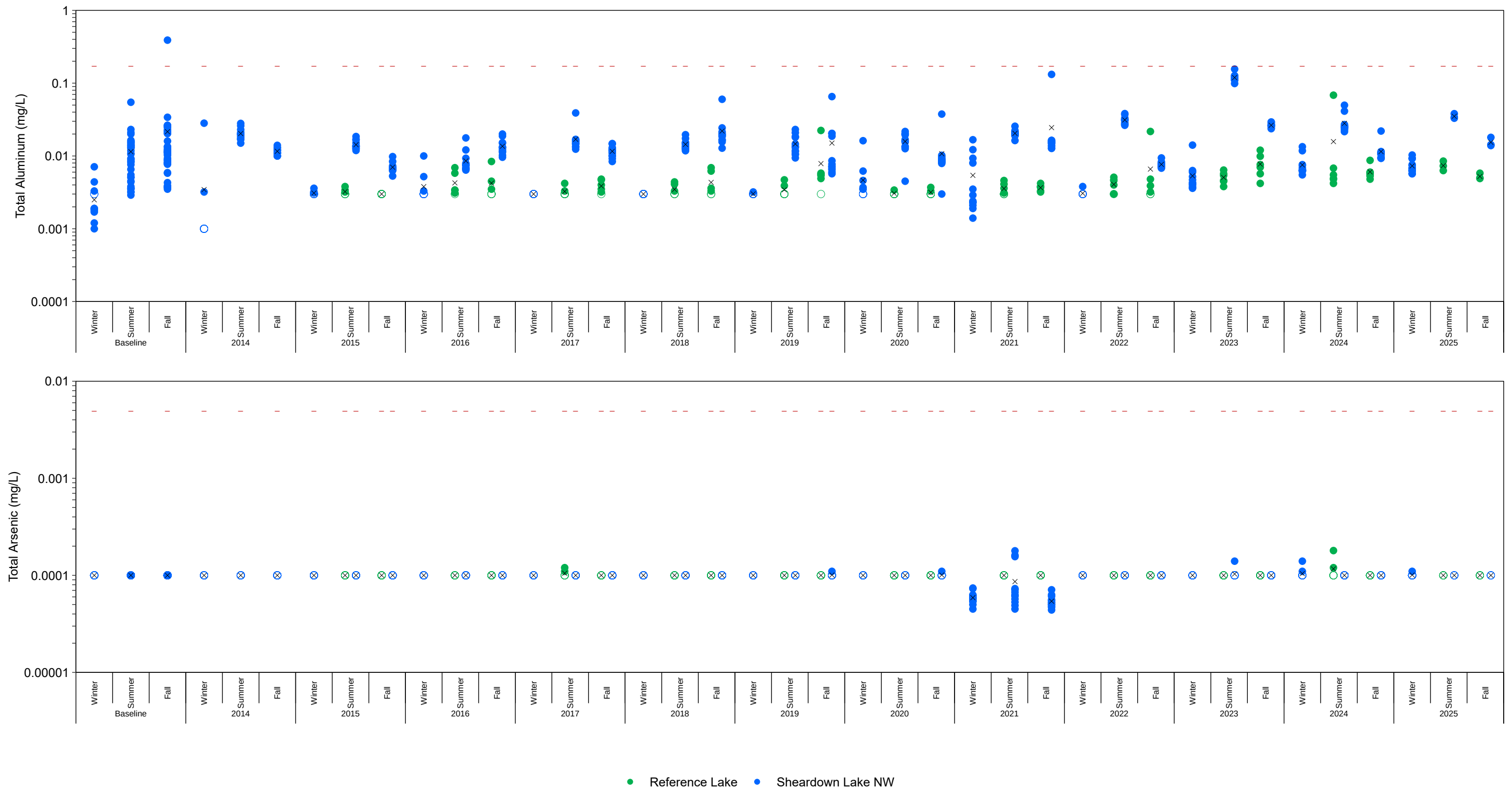


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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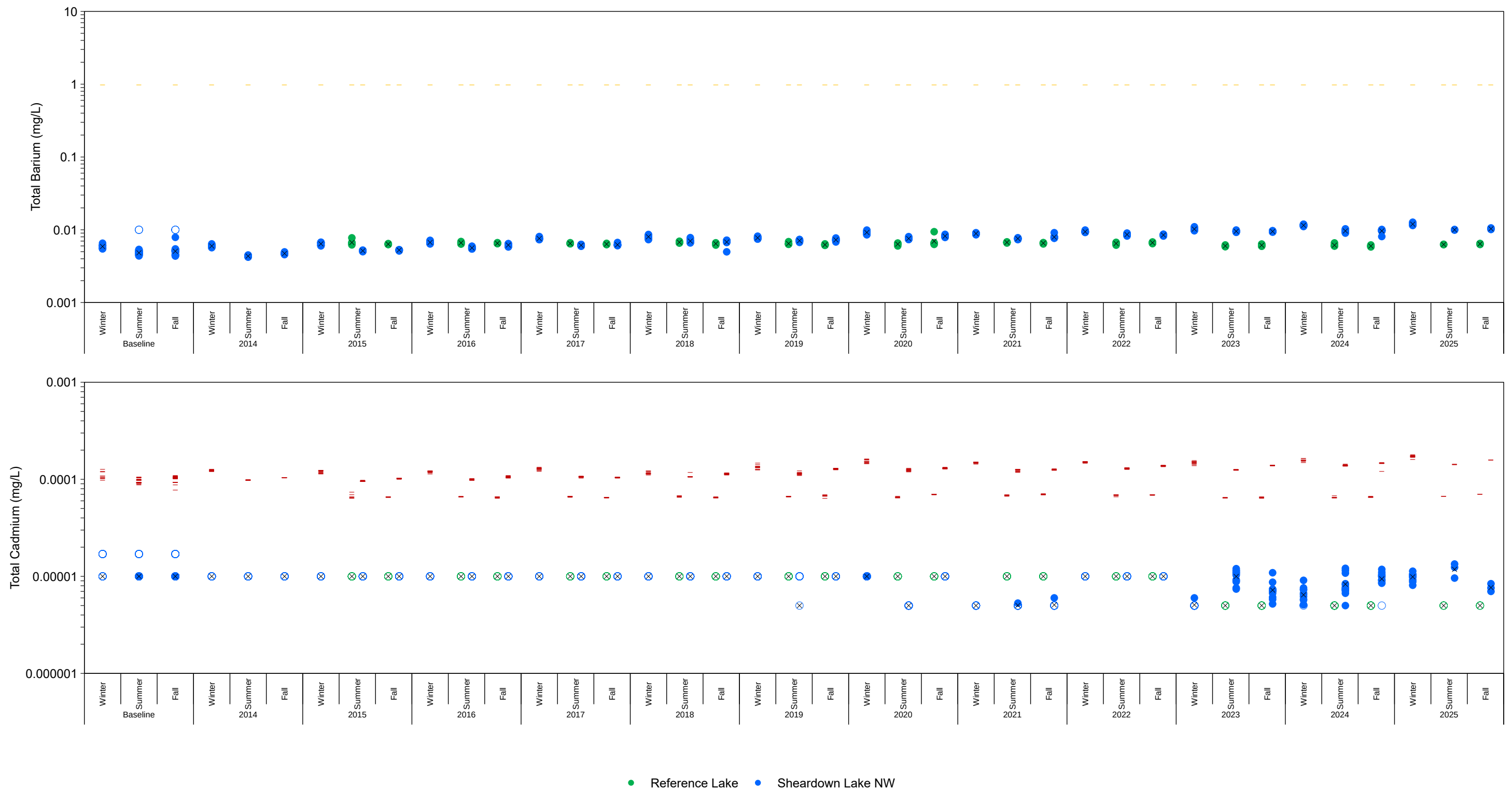


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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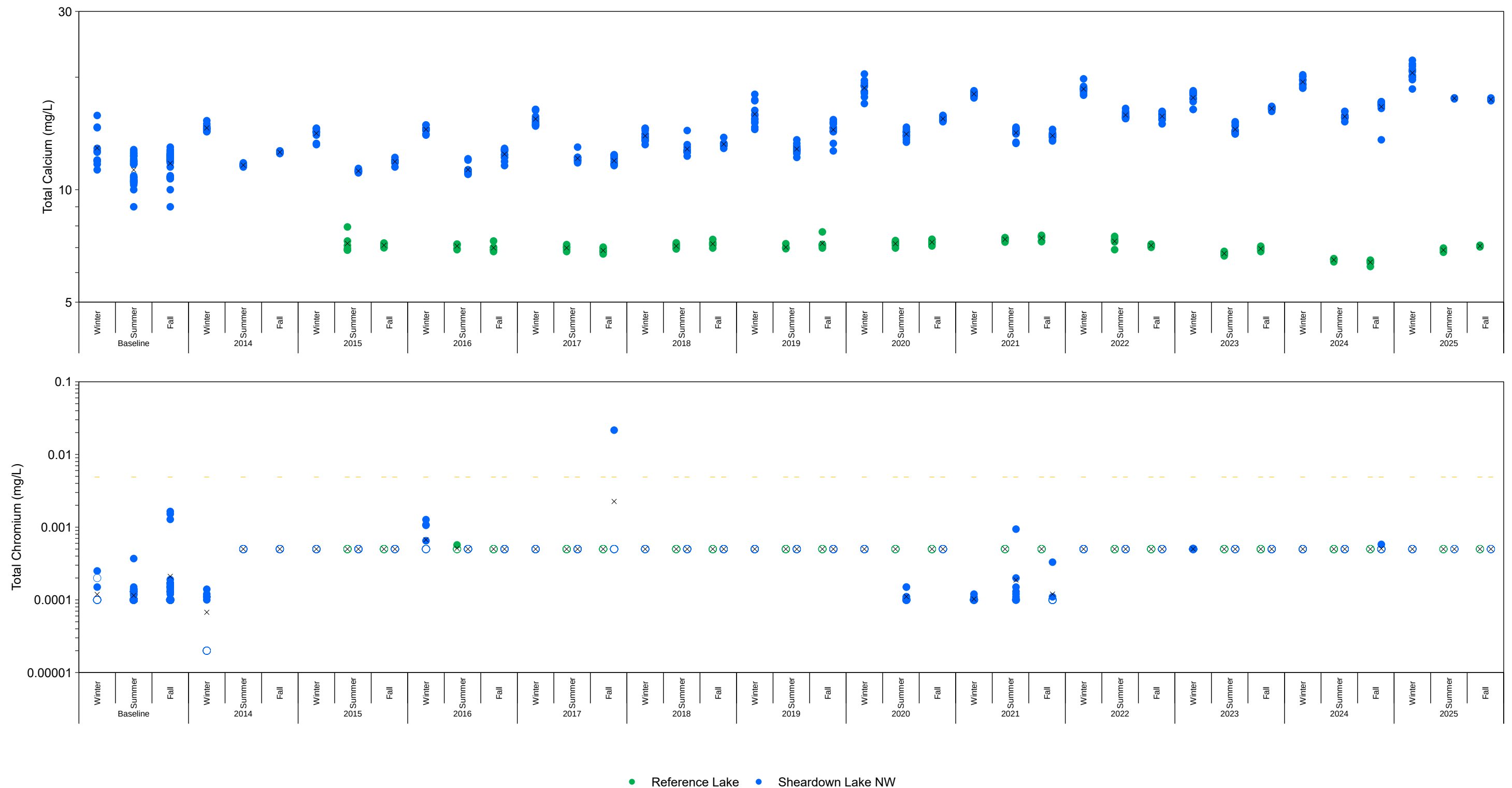


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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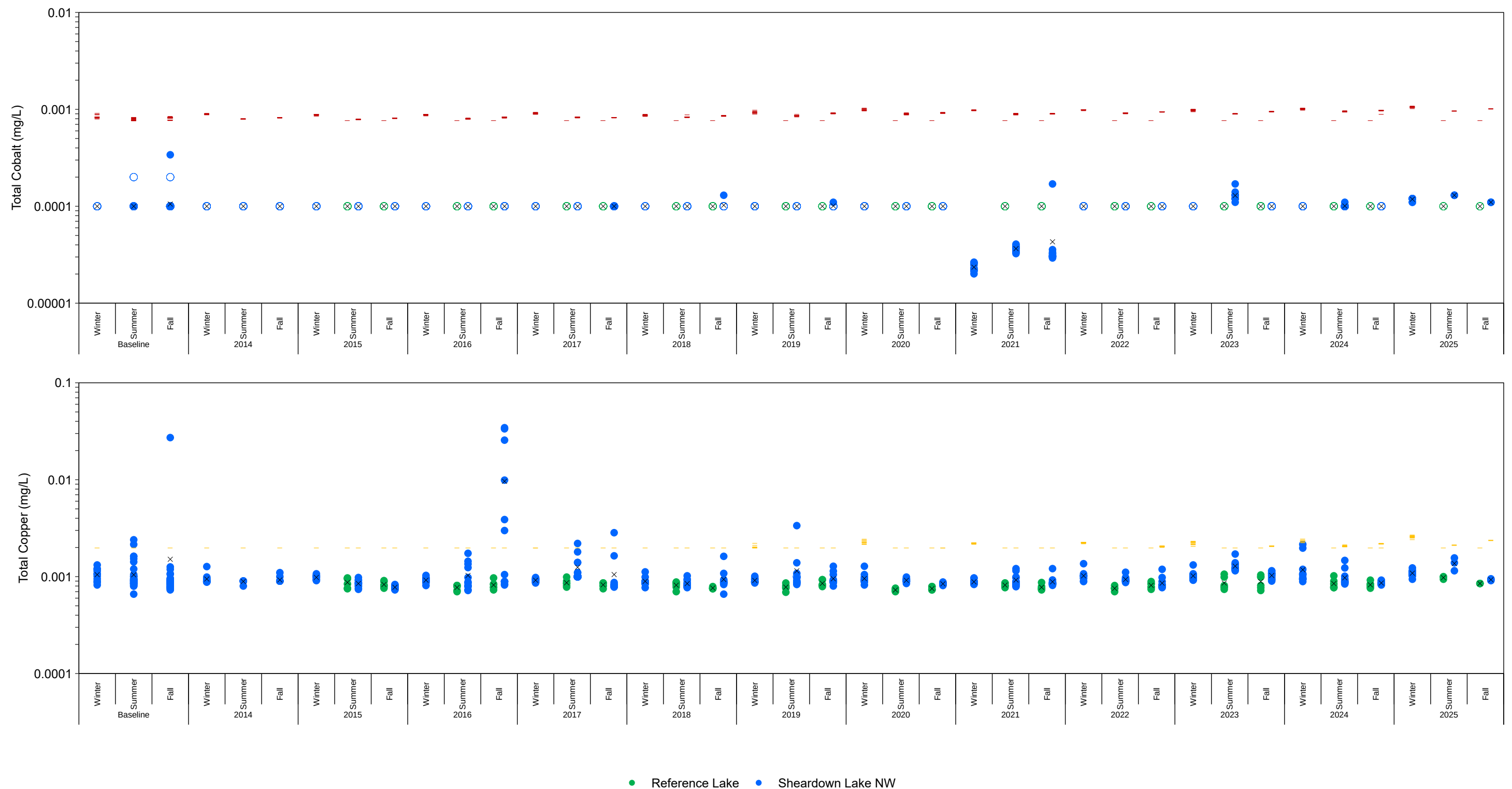


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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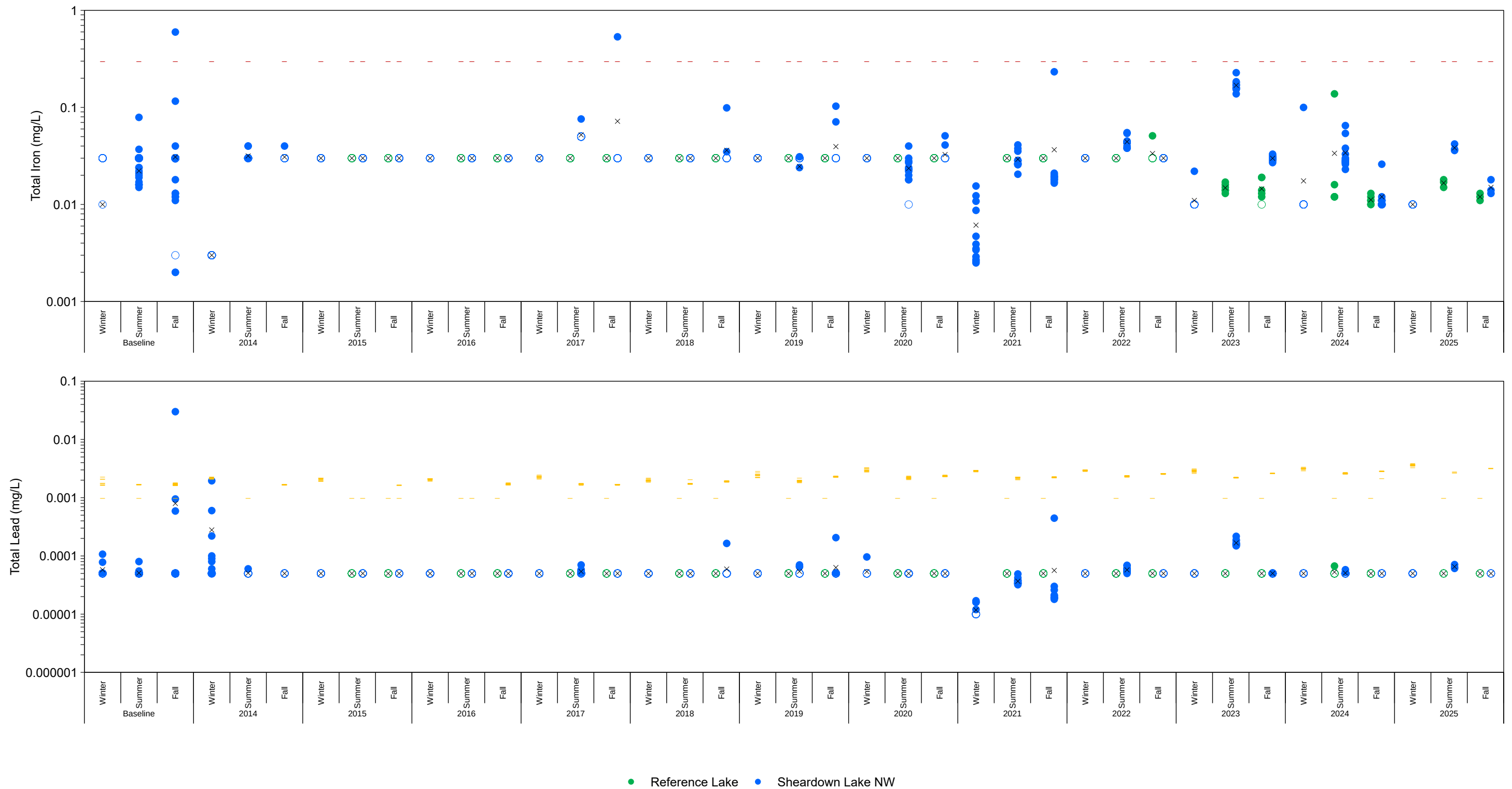


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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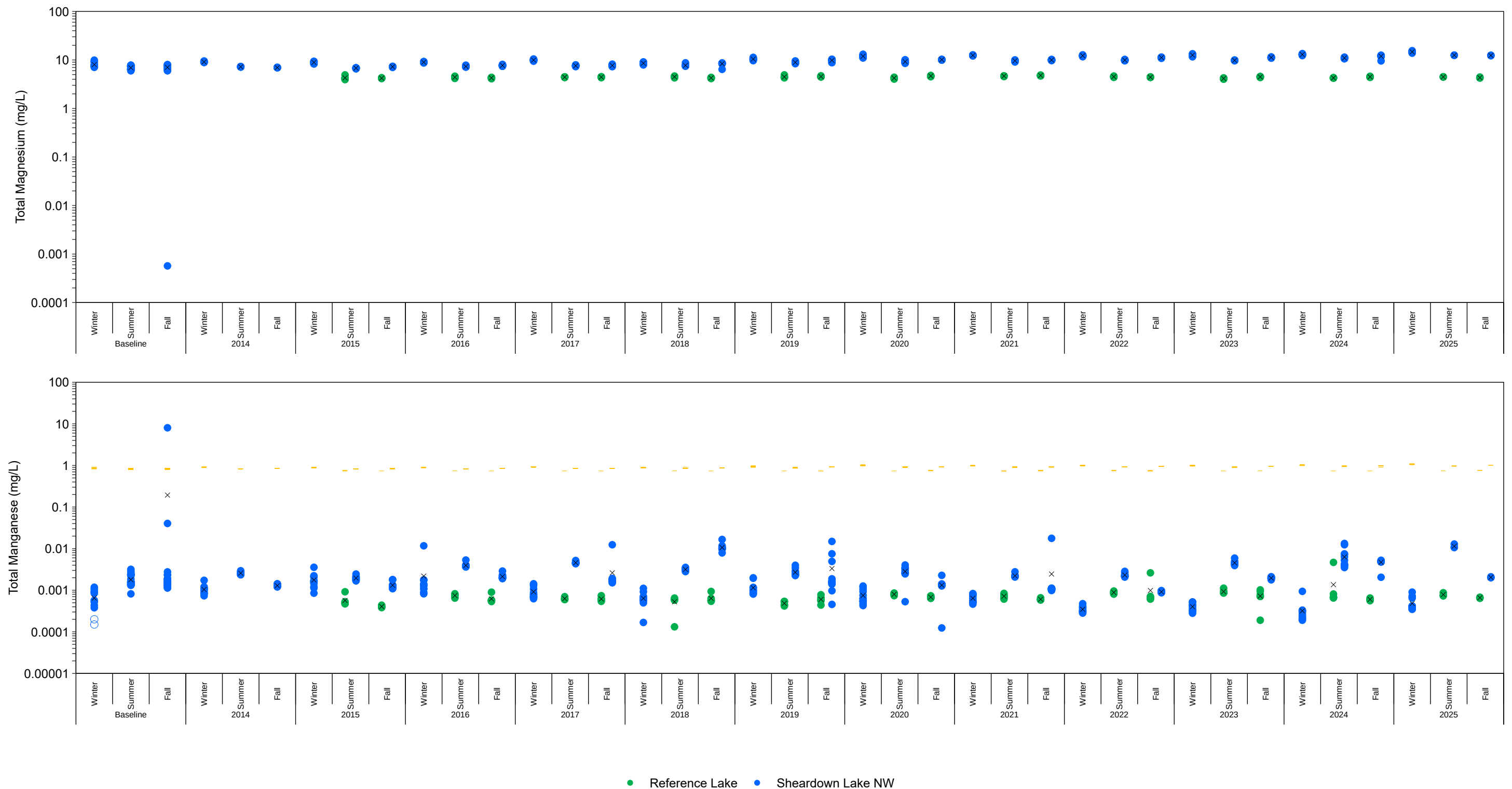


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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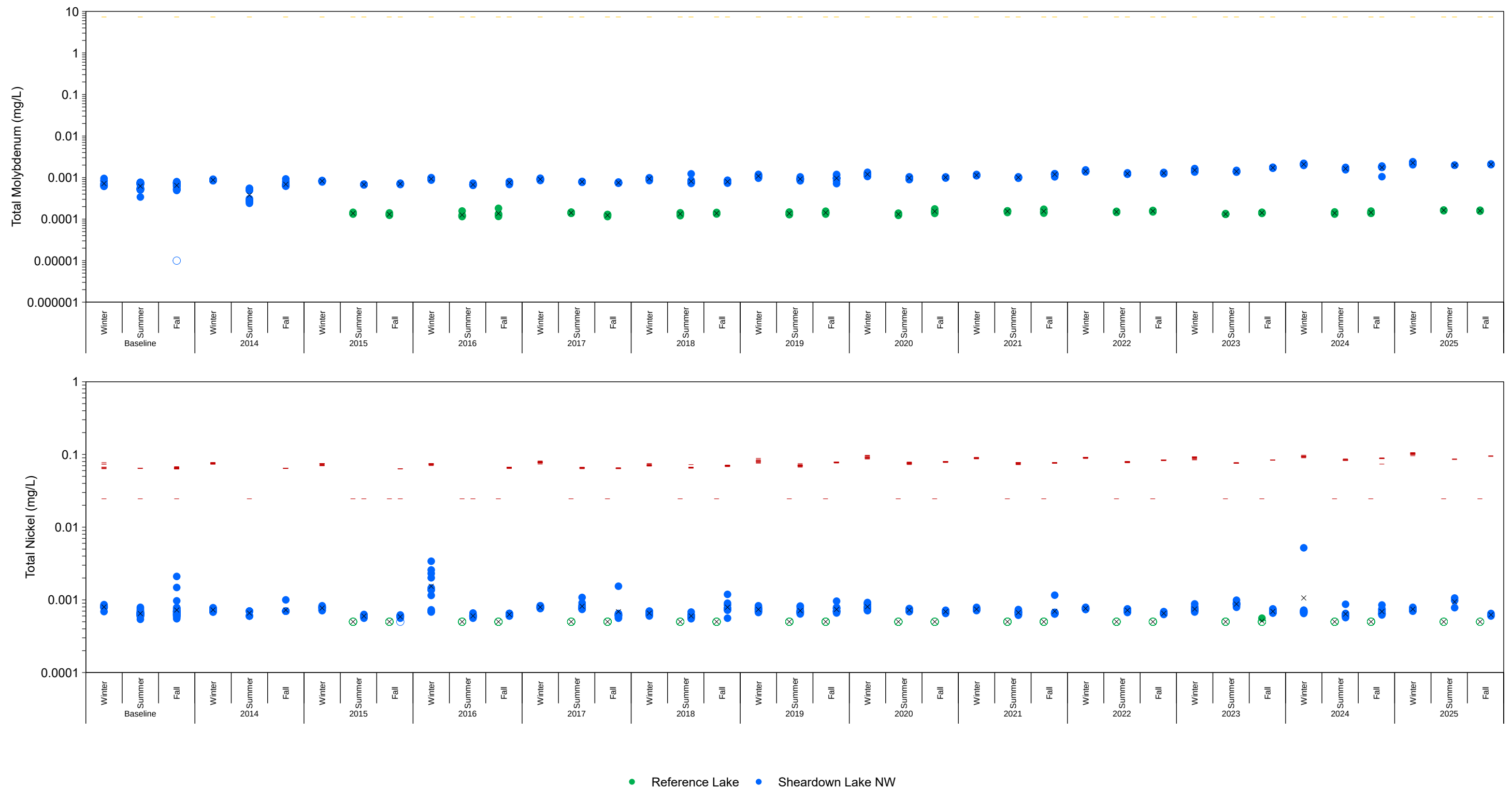


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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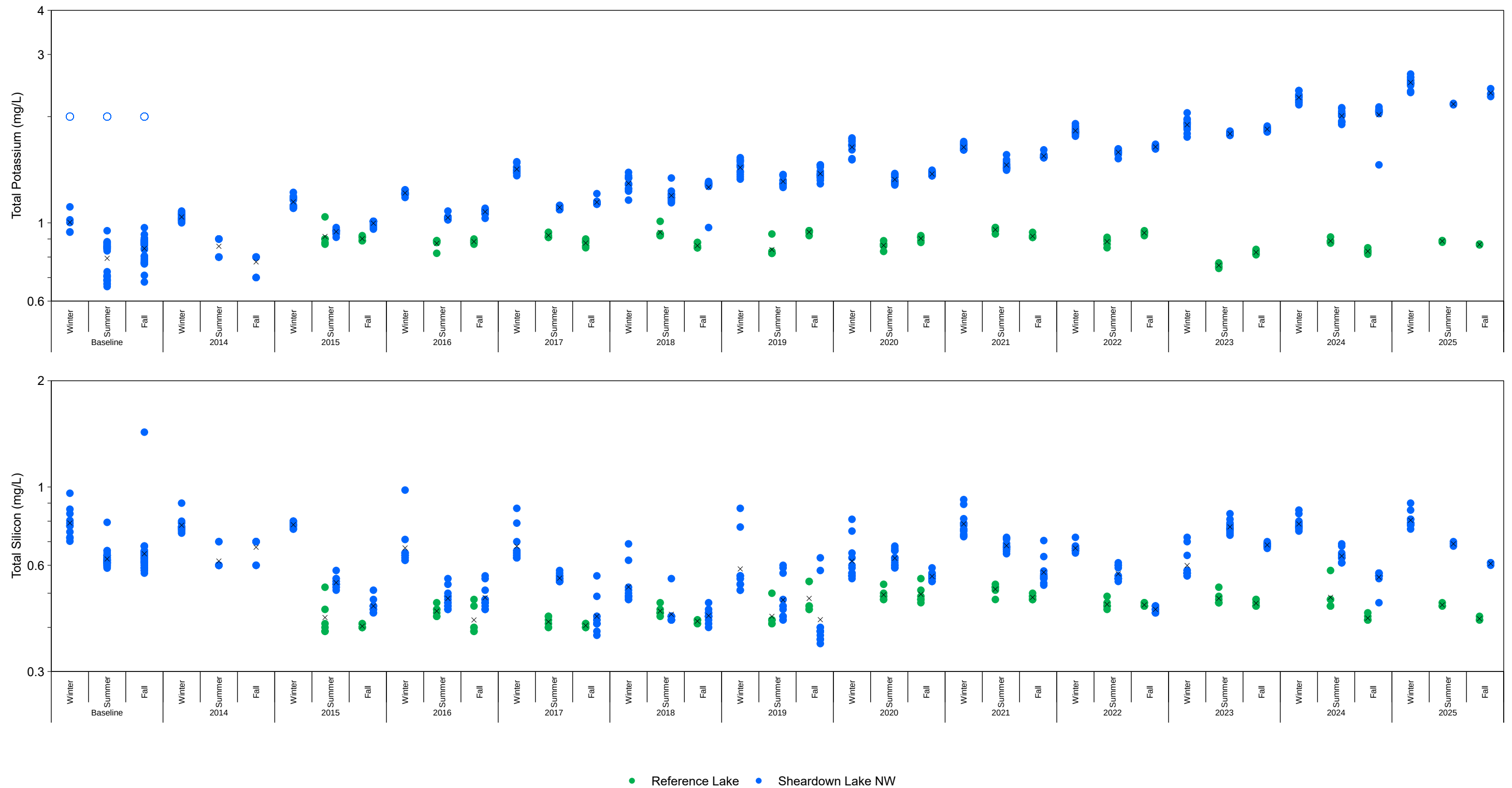


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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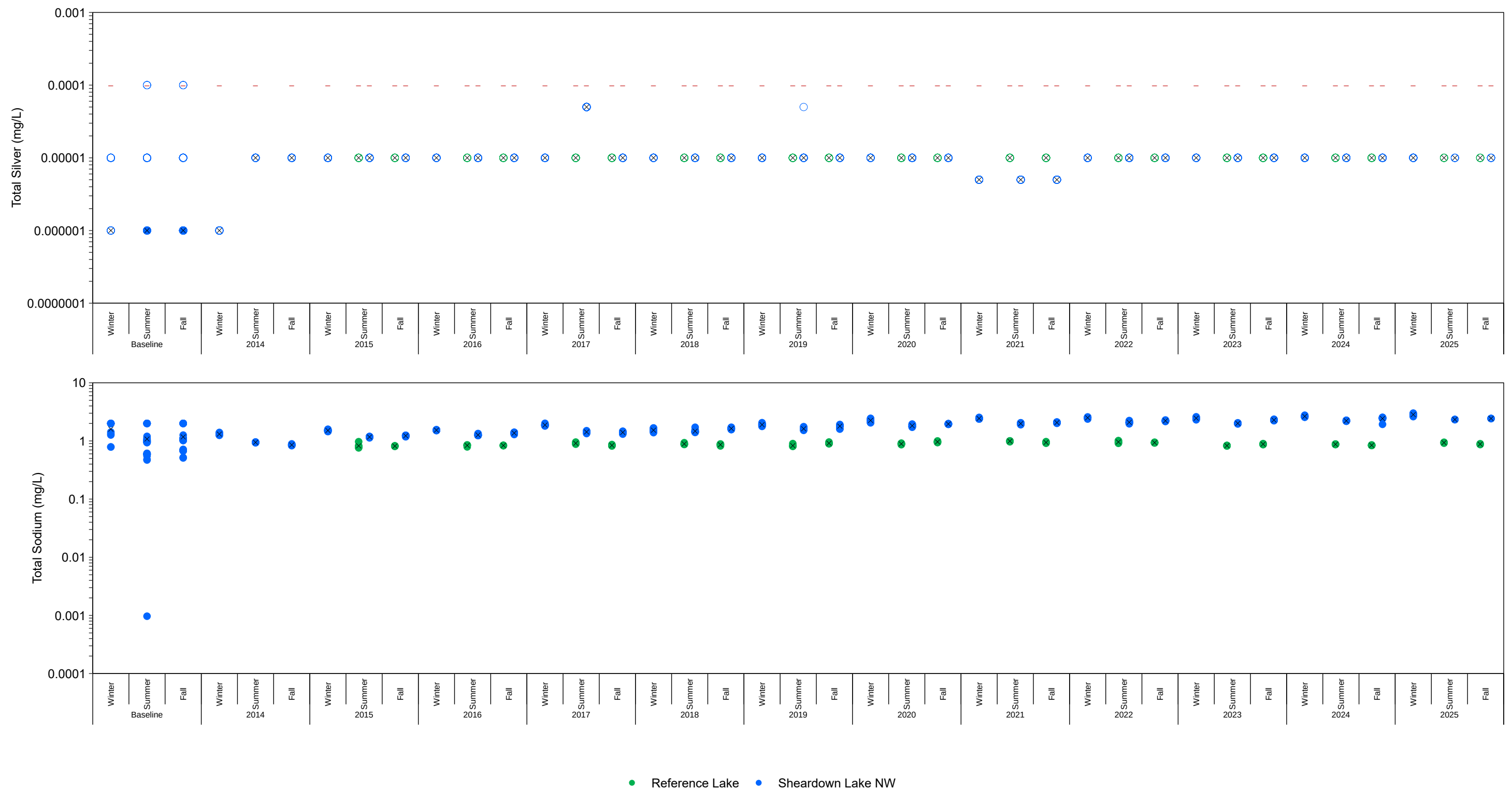


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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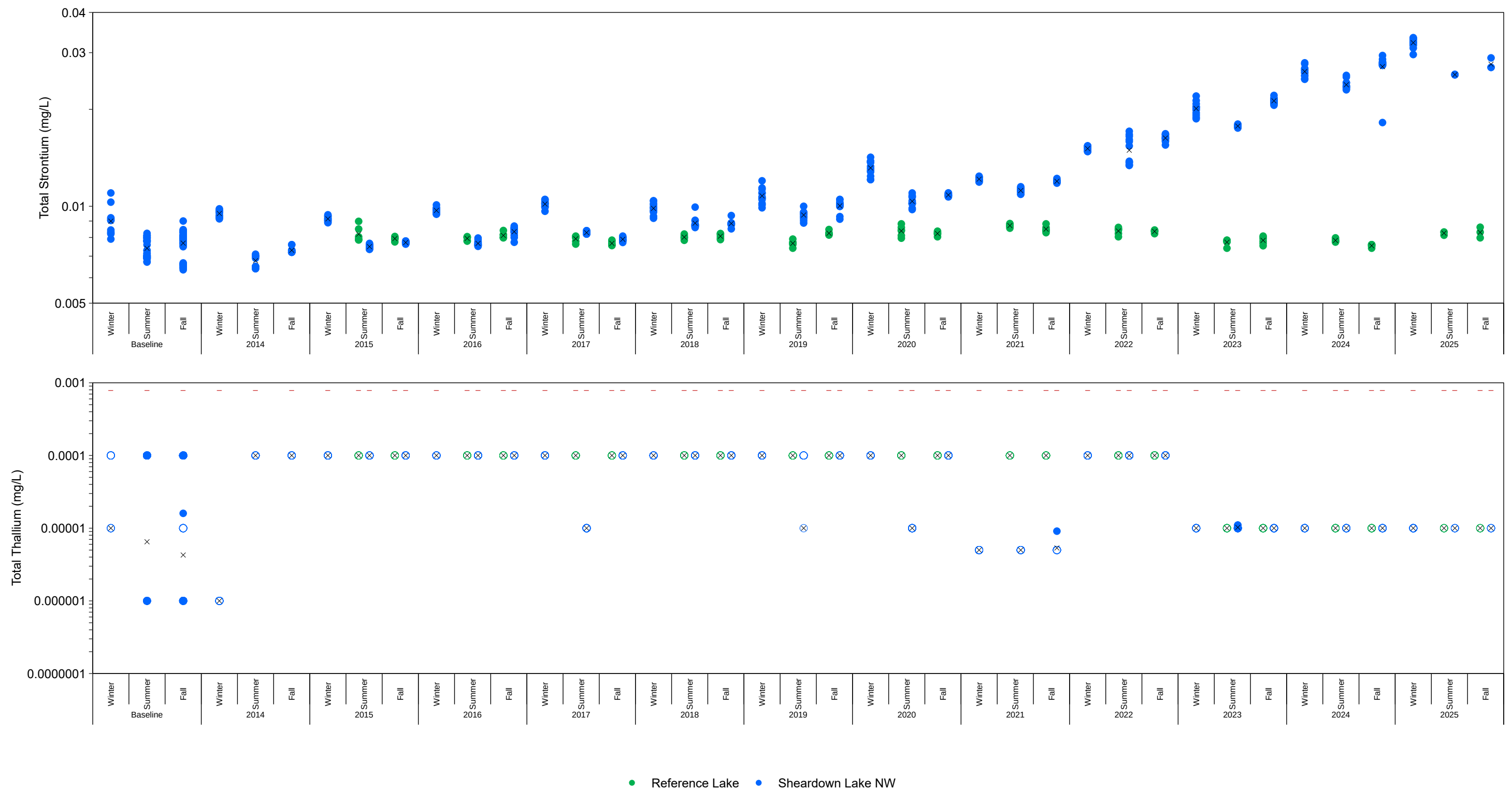


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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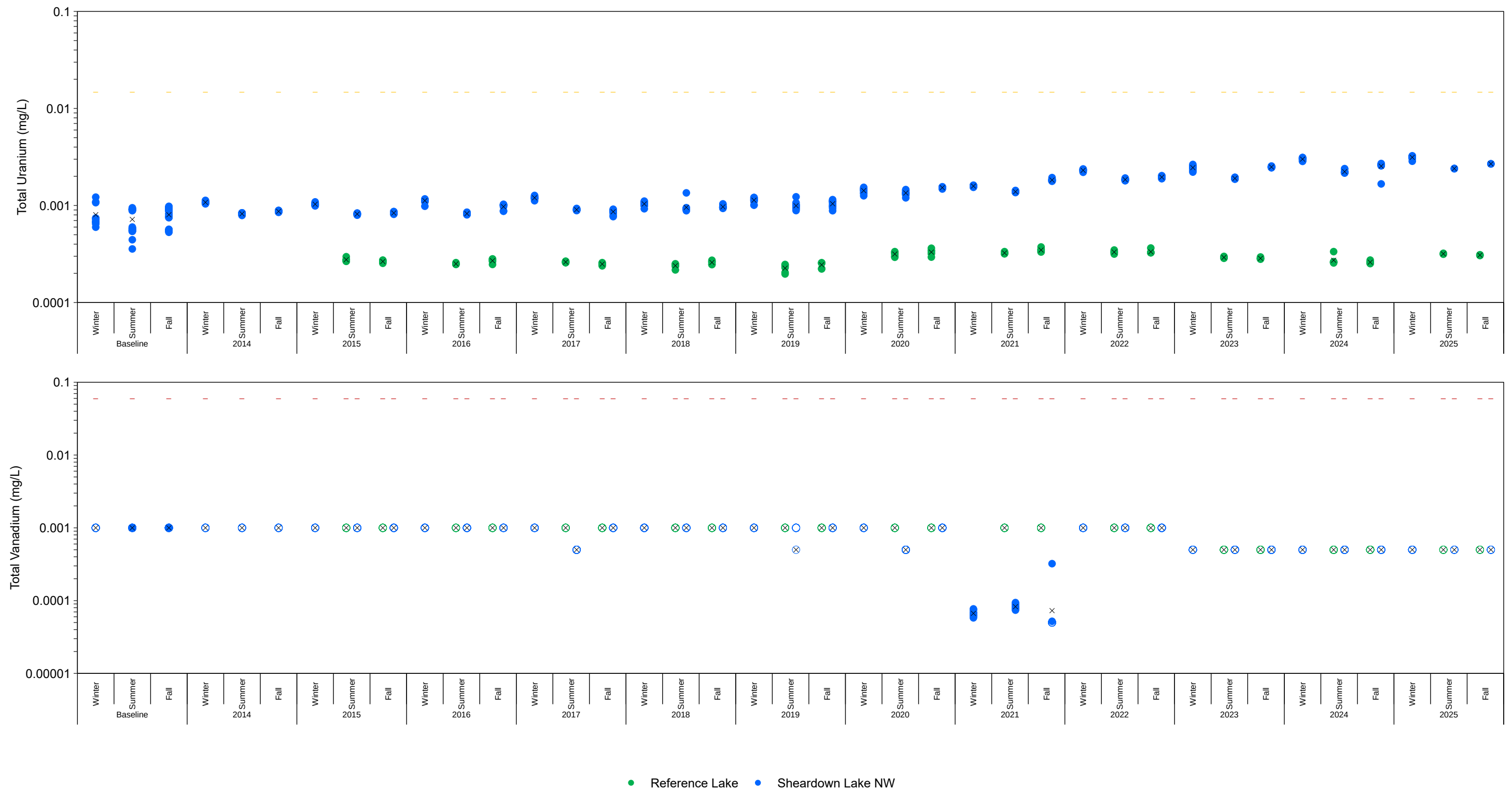


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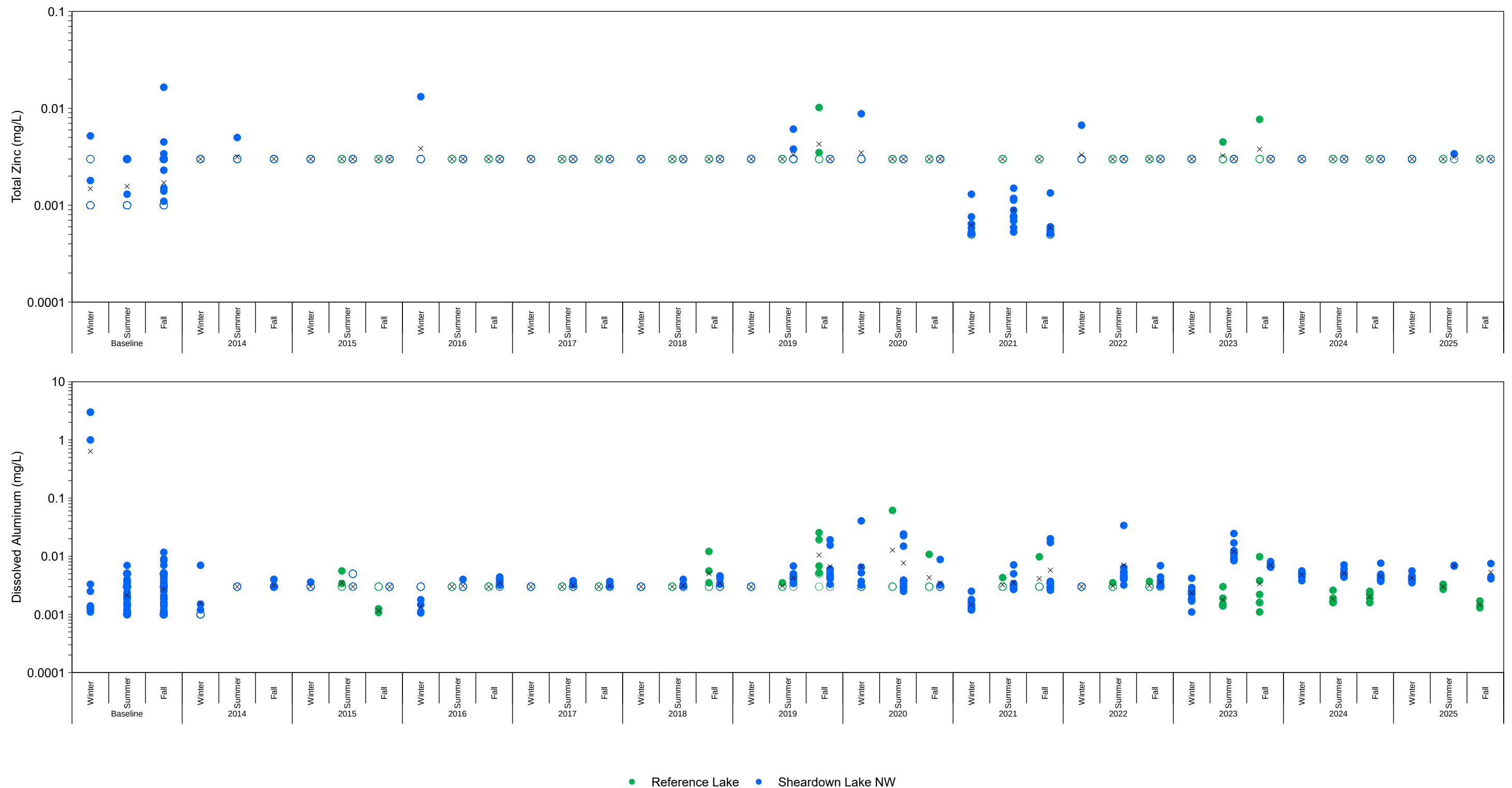


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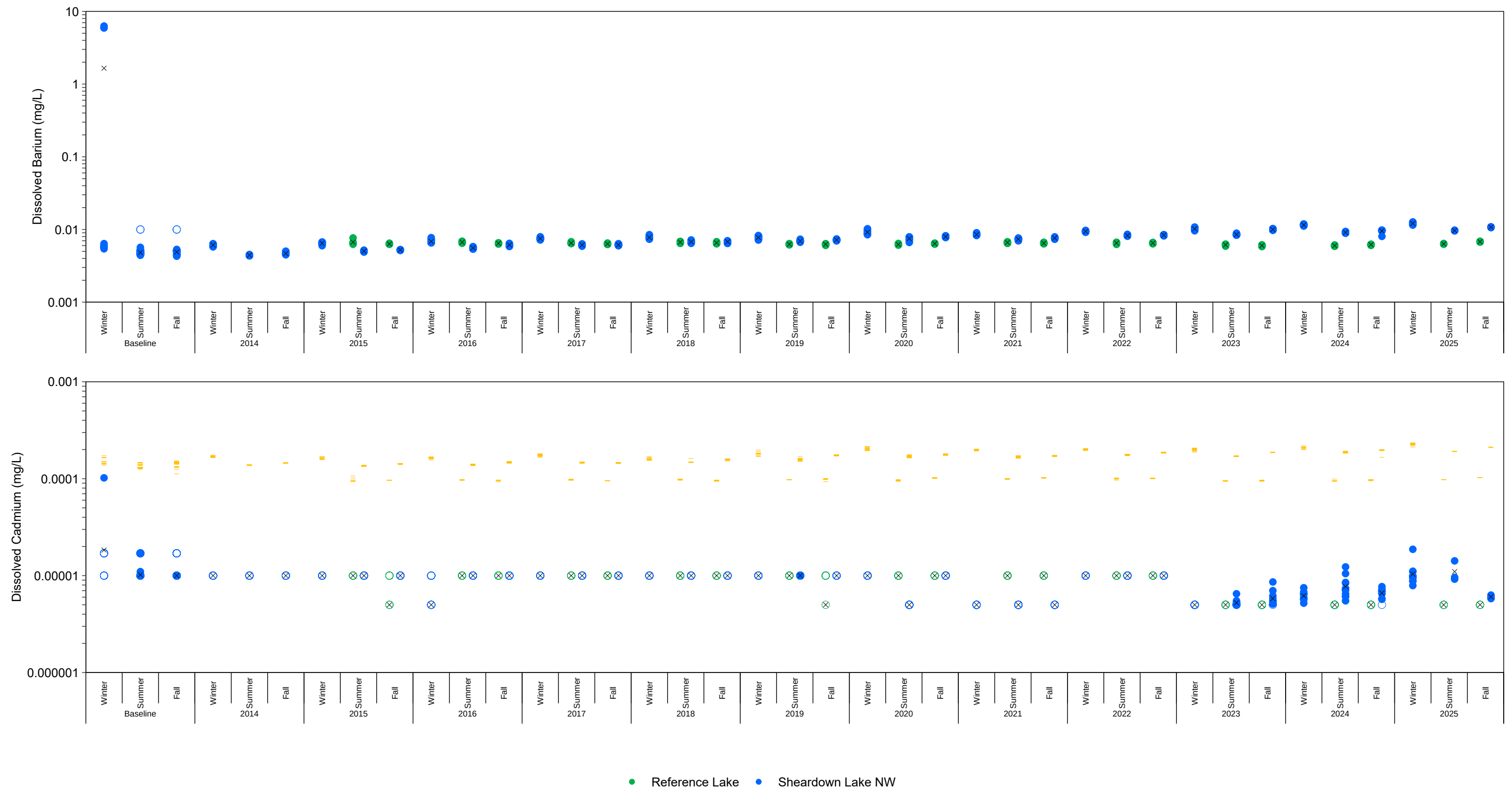


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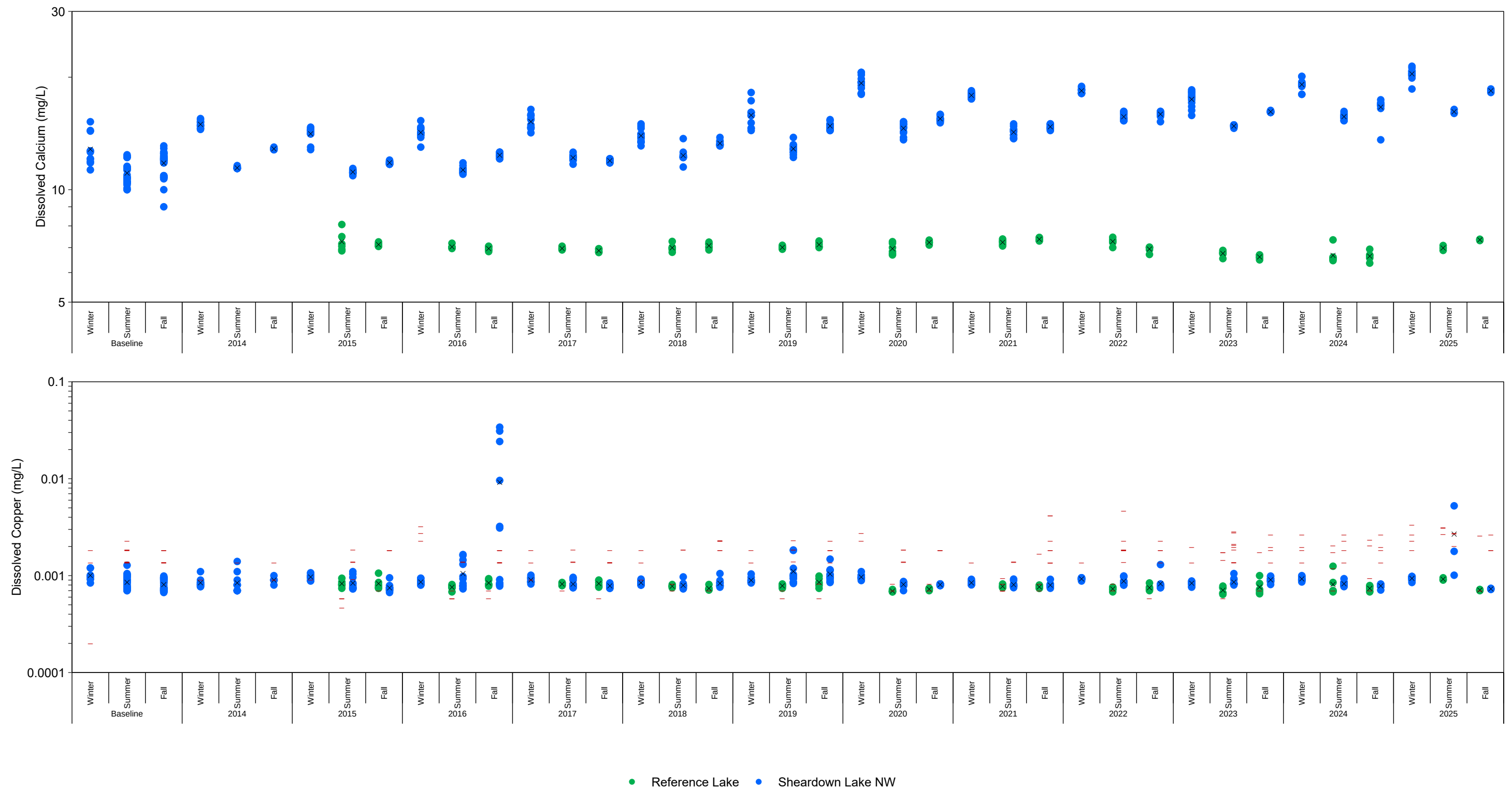


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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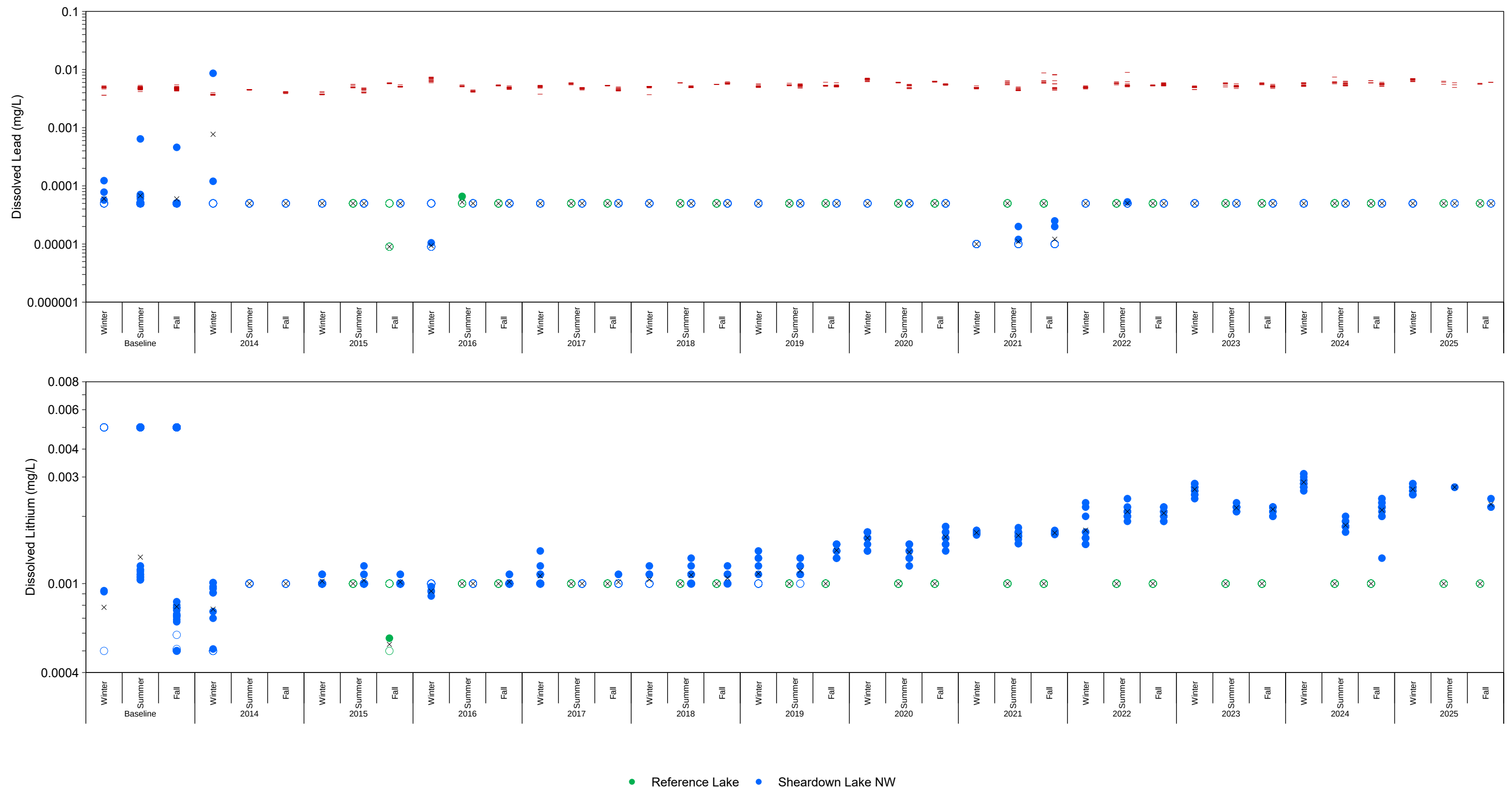


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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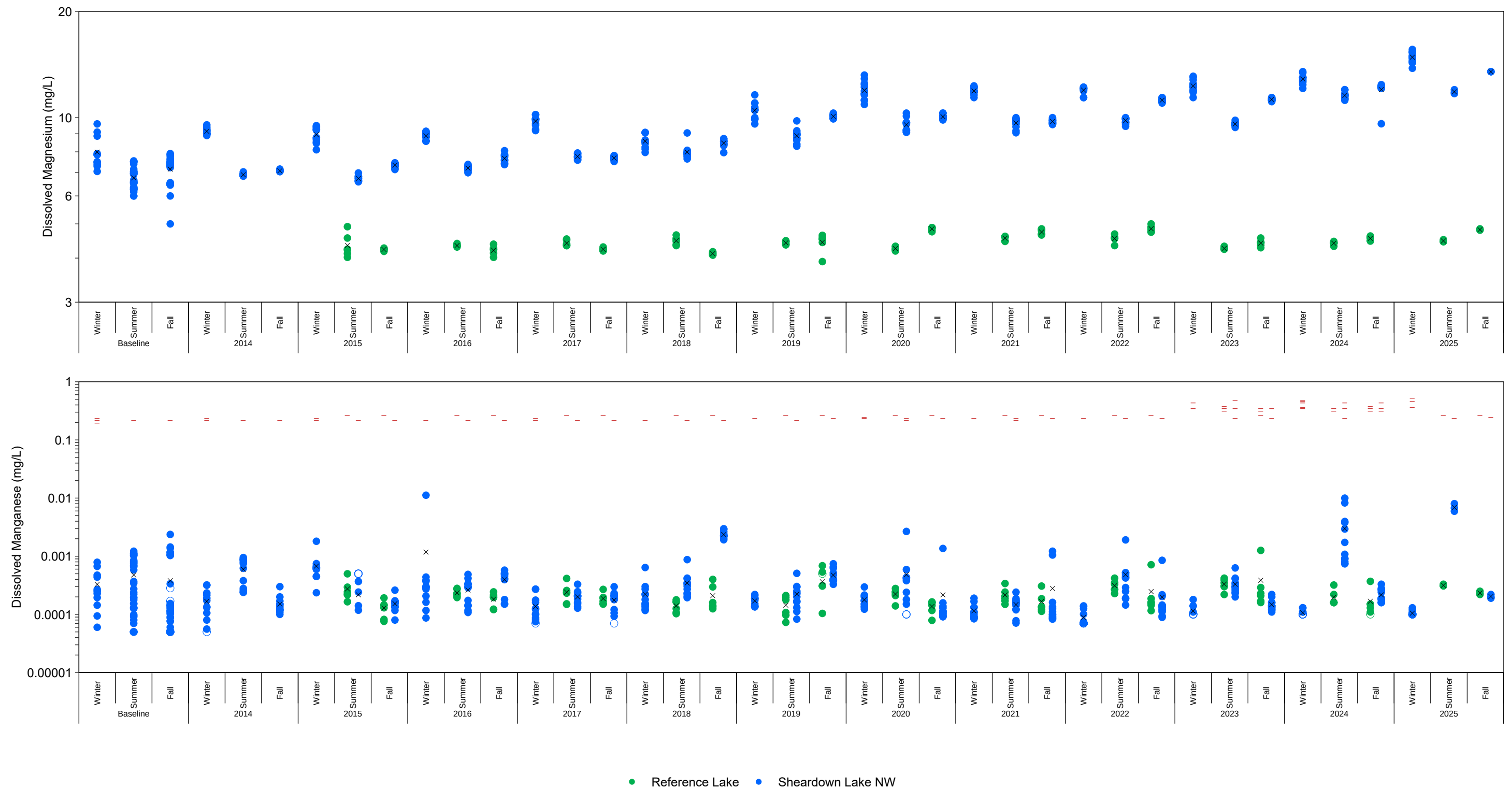


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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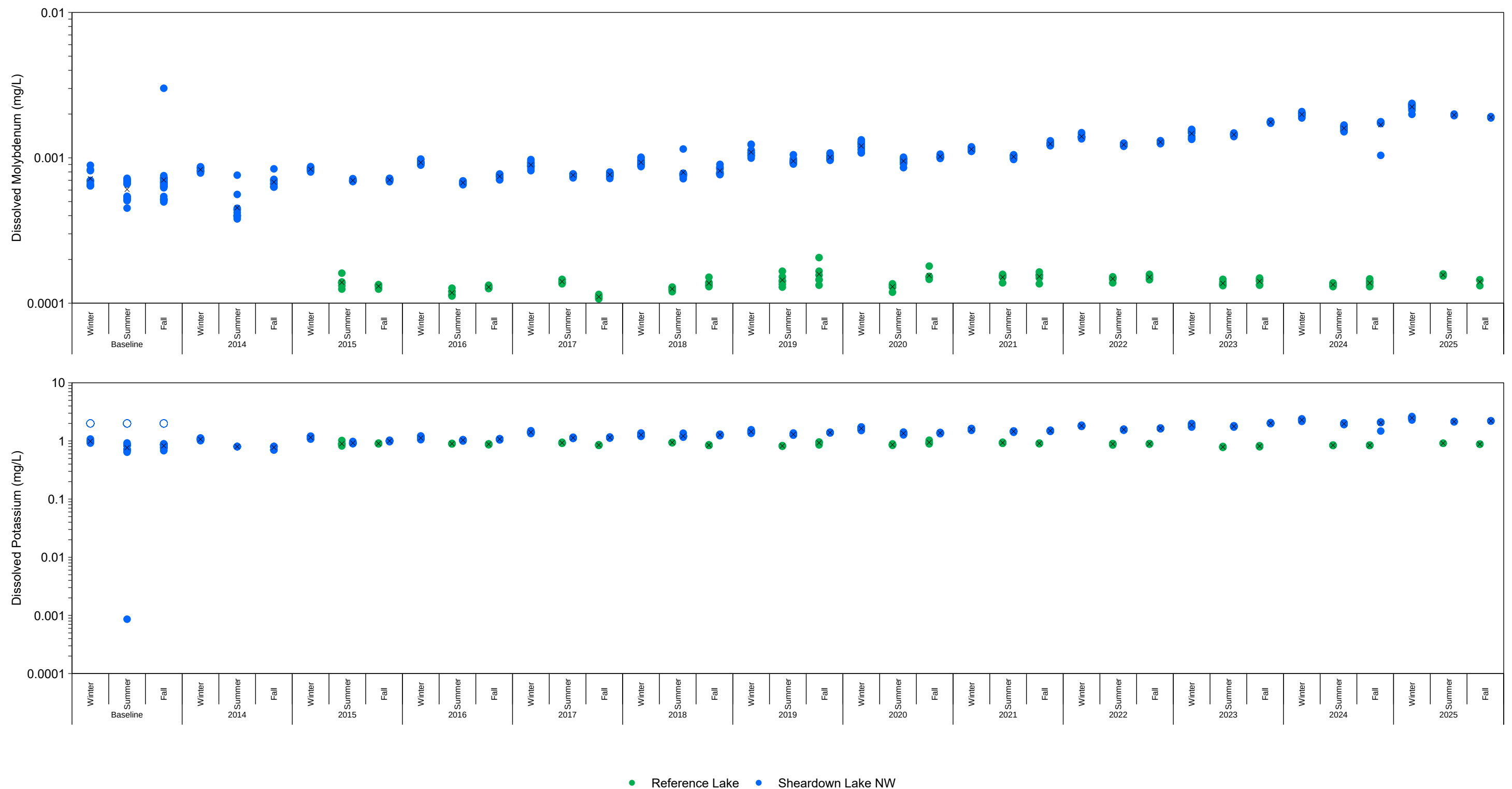


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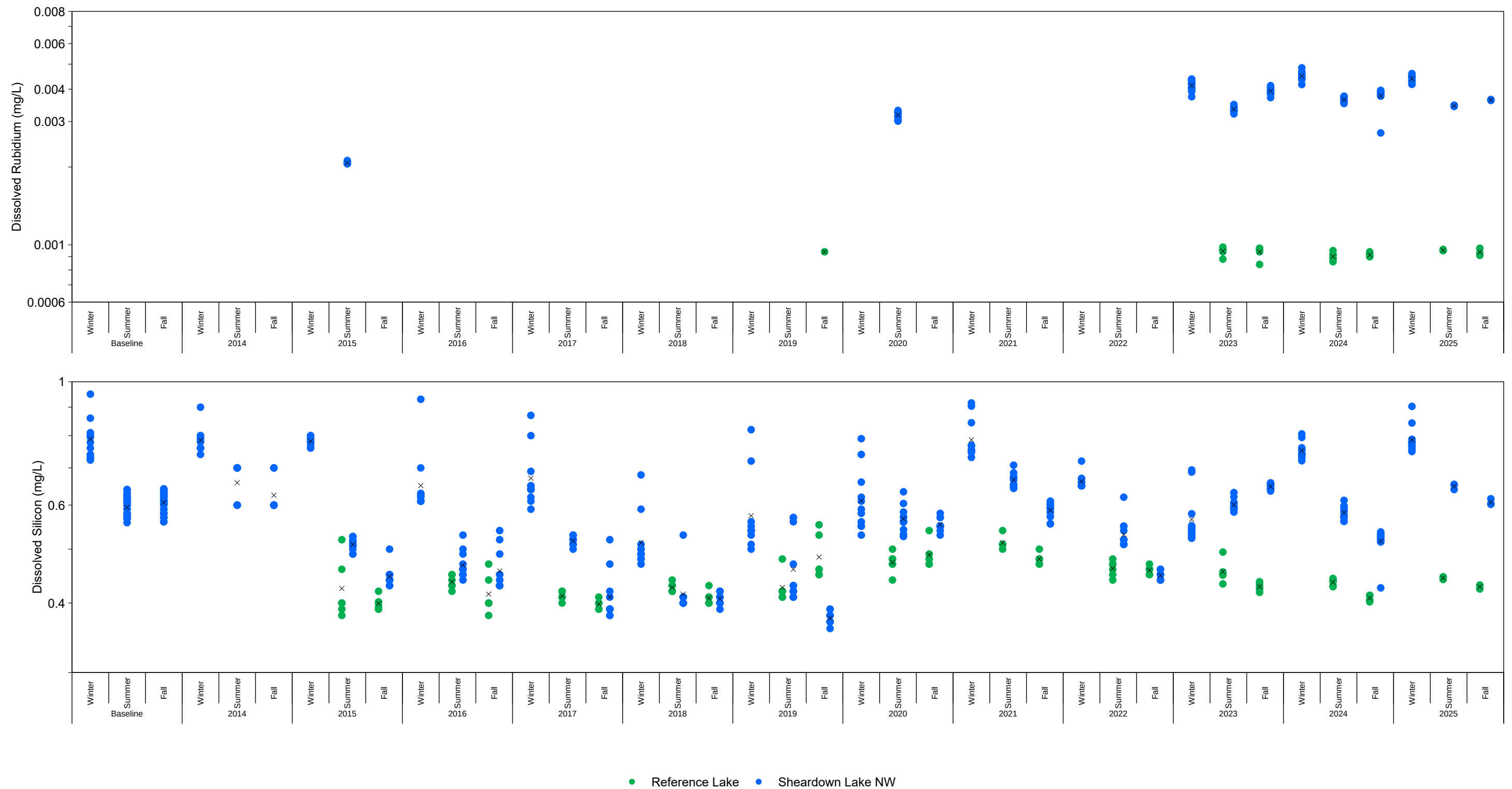


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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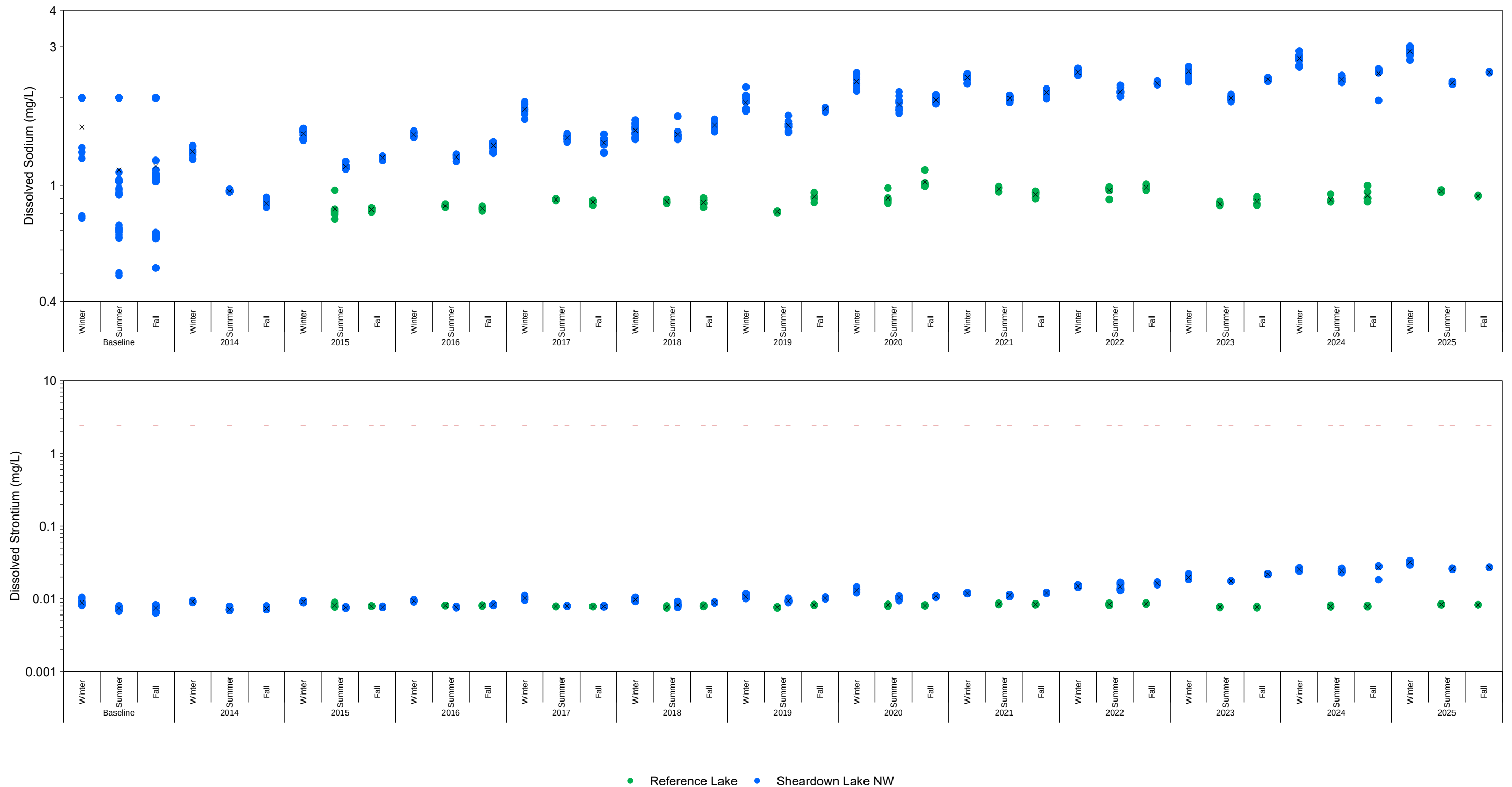


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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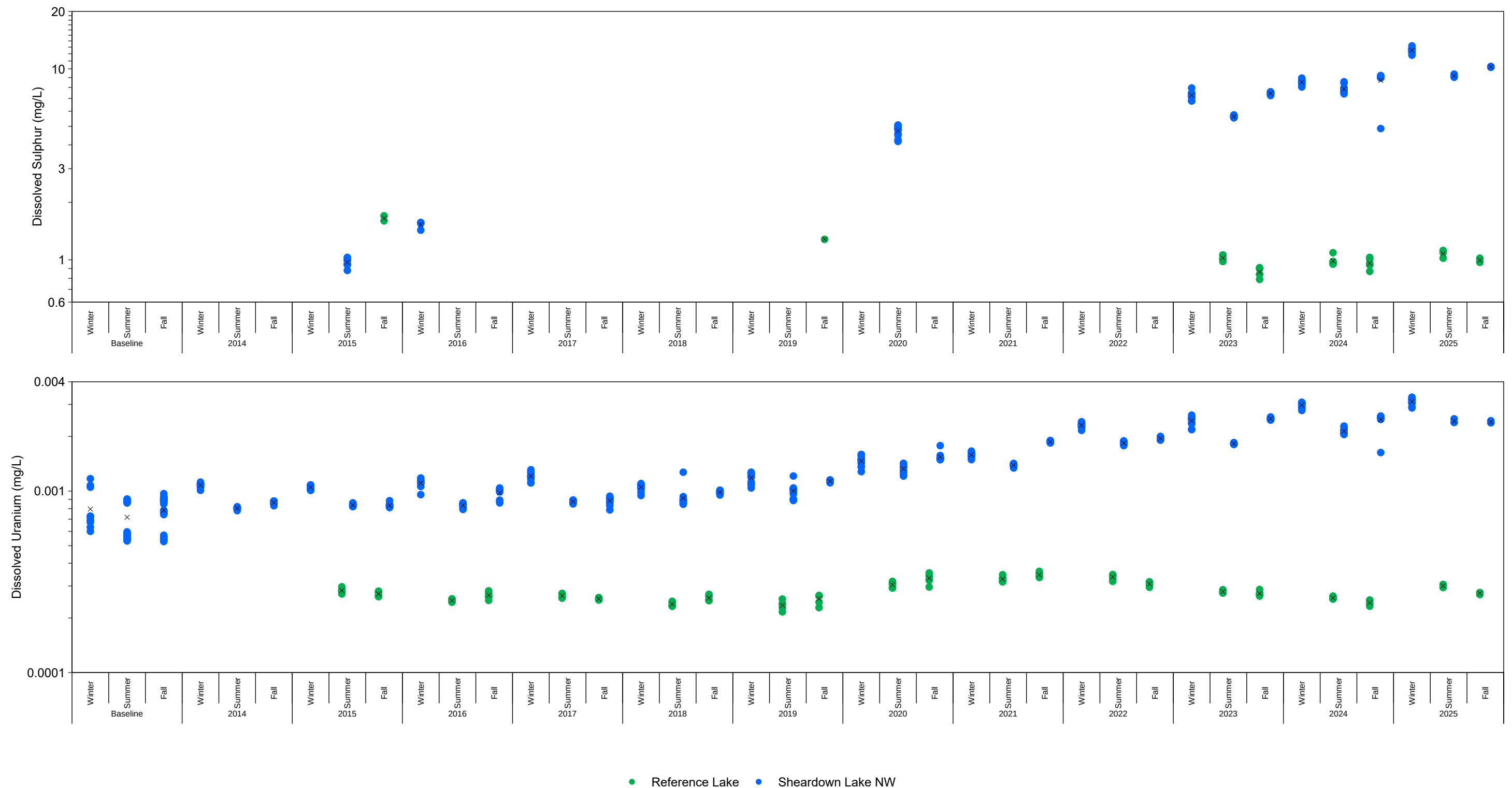


Figure B.9: Temporal Comparisons for Water Chemistry at Sheardown Lake NW (DL0-01) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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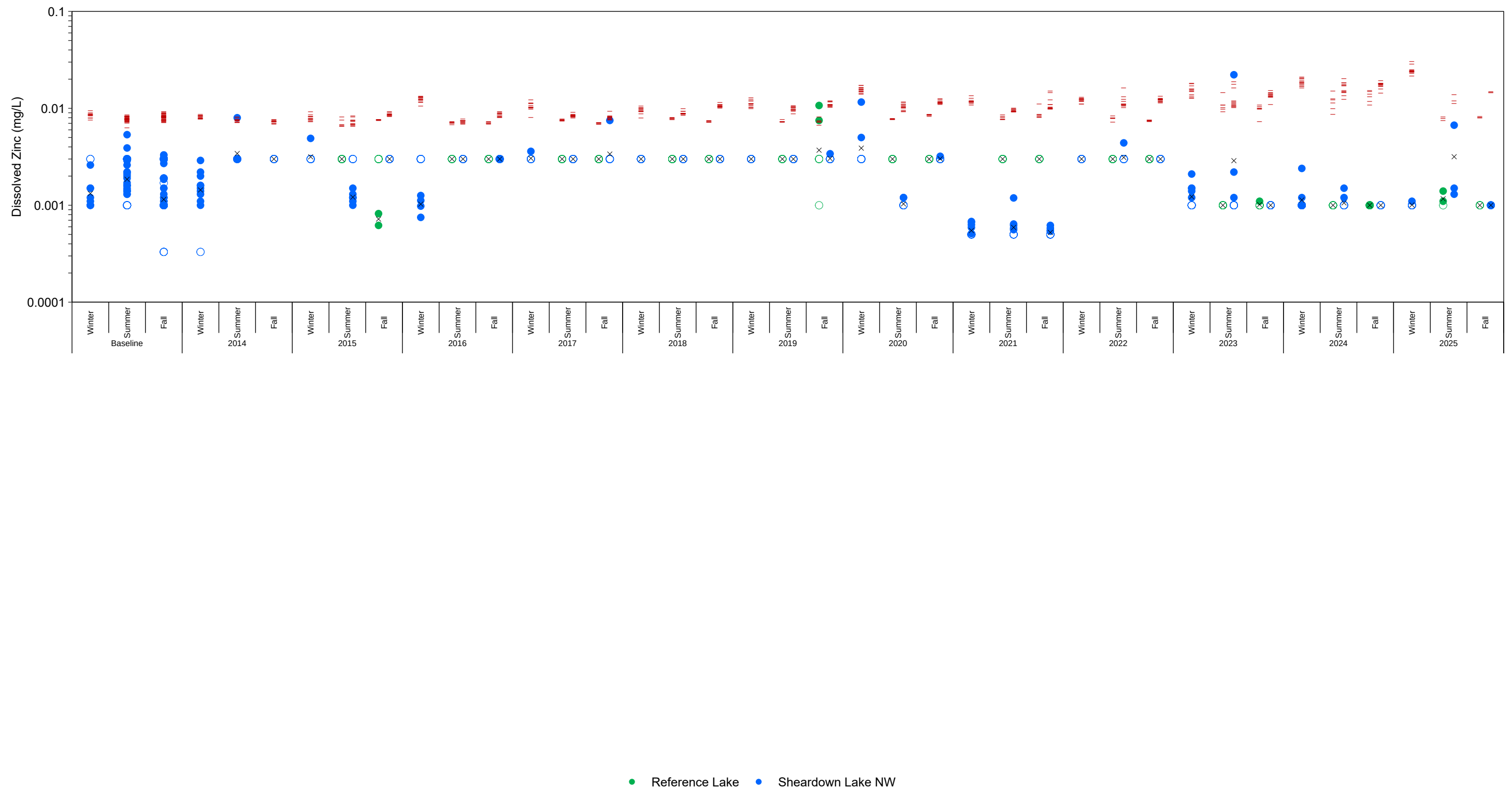


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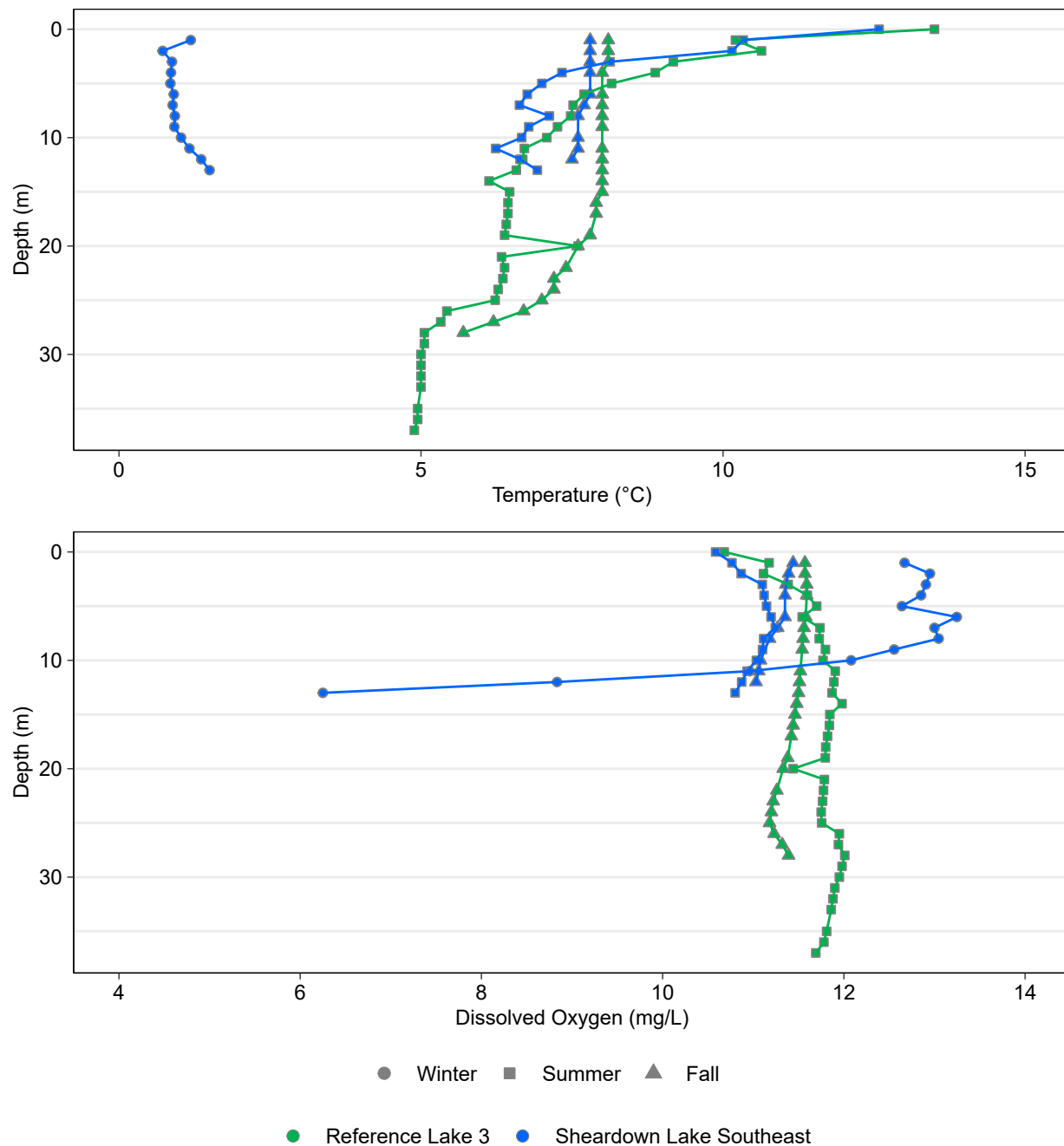


Figure B.10: *In Situ* Water Quality Profile Measurements at Sheardown Lake Southeast (SE; DL0-02) and Reference Lake (REF-03) During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

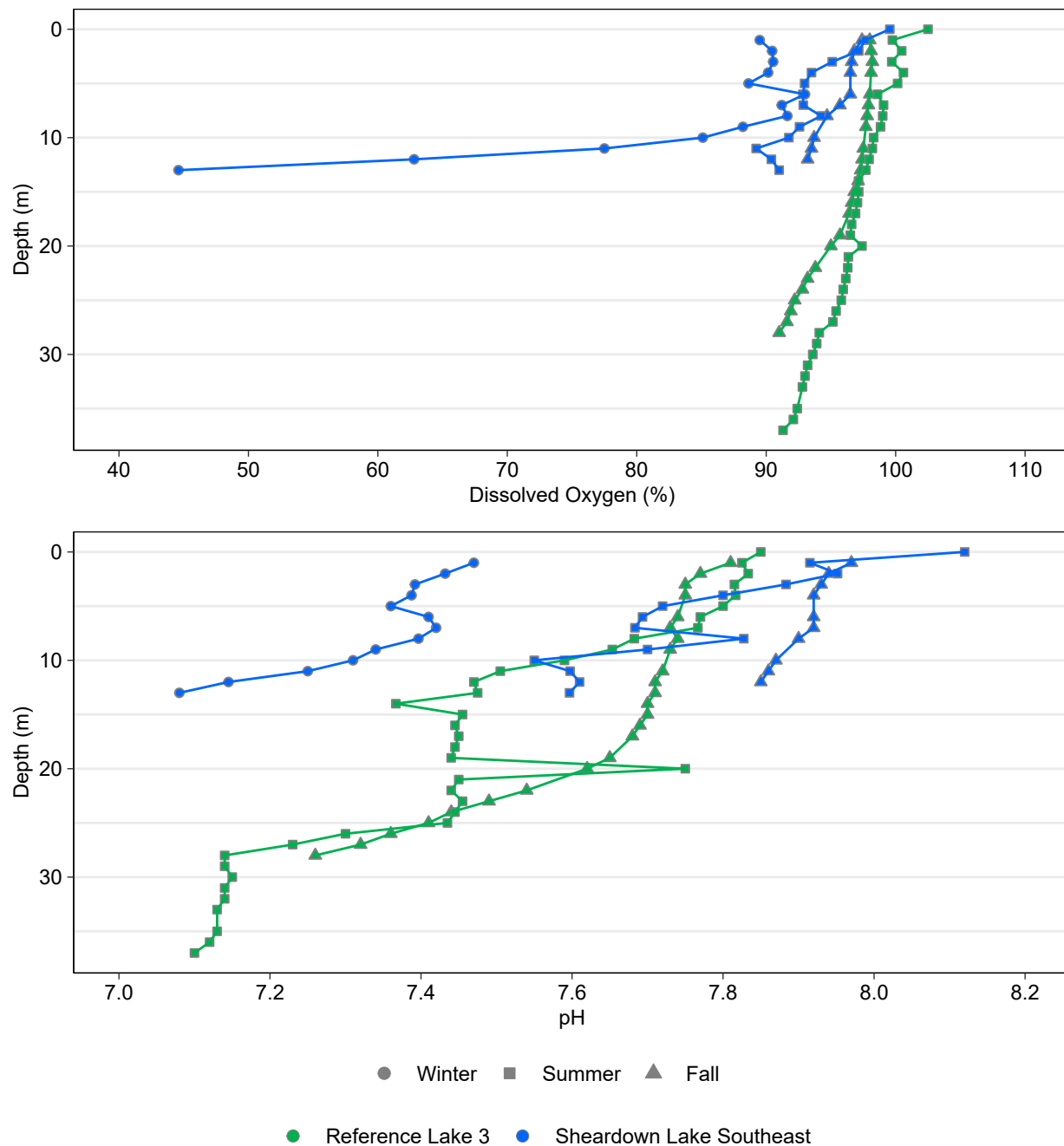


Figure B.10: *In Situ* Water Quality Profile Measurements at Sheardown Lake Southeast (SE; DL0-02) and Reference Lake (REF-03) During Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

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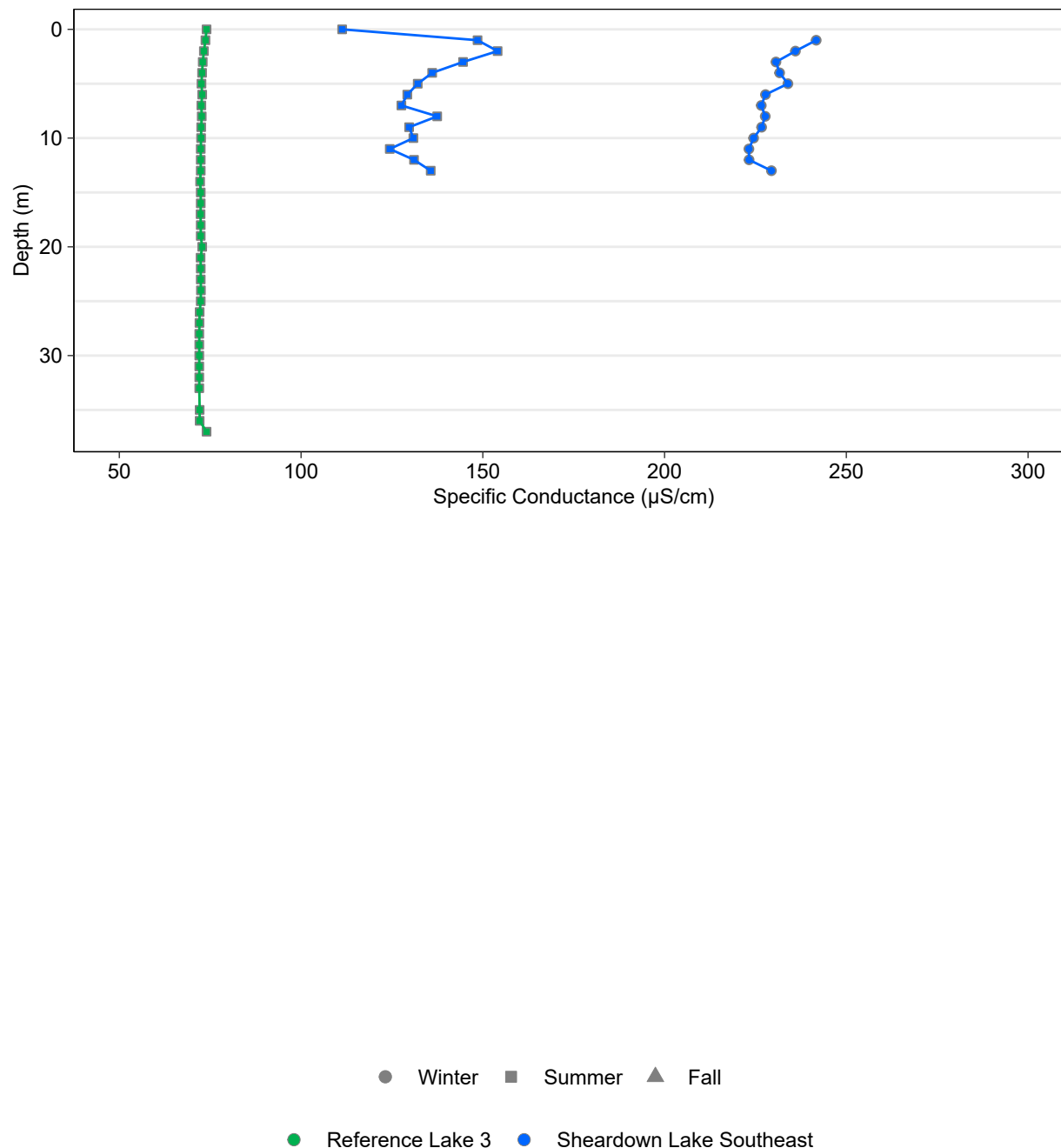


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Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

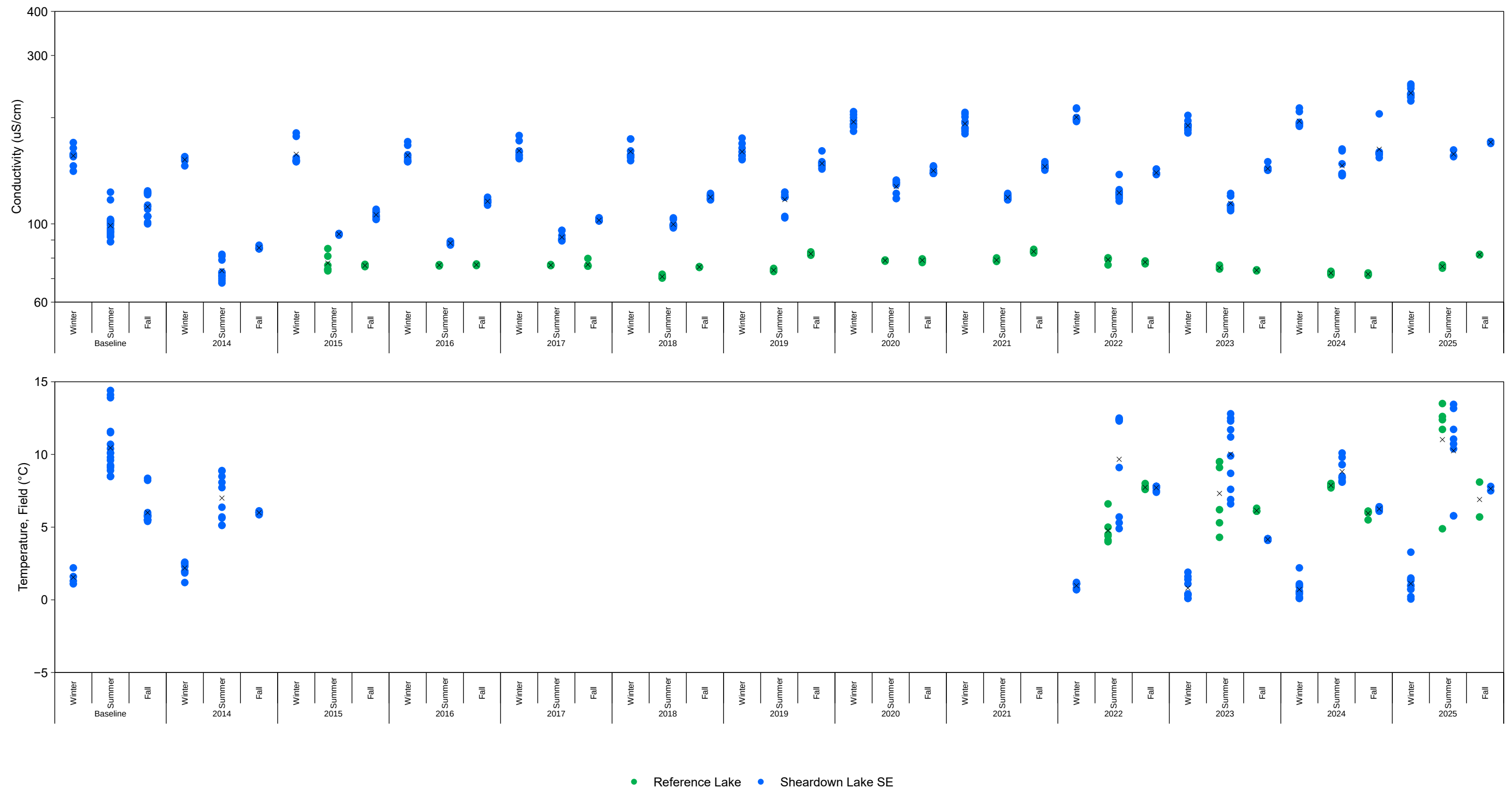


Figure B.11: Temporal Comparisons for Water Chemistry at Sheardown Lake SE (DL0-02) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

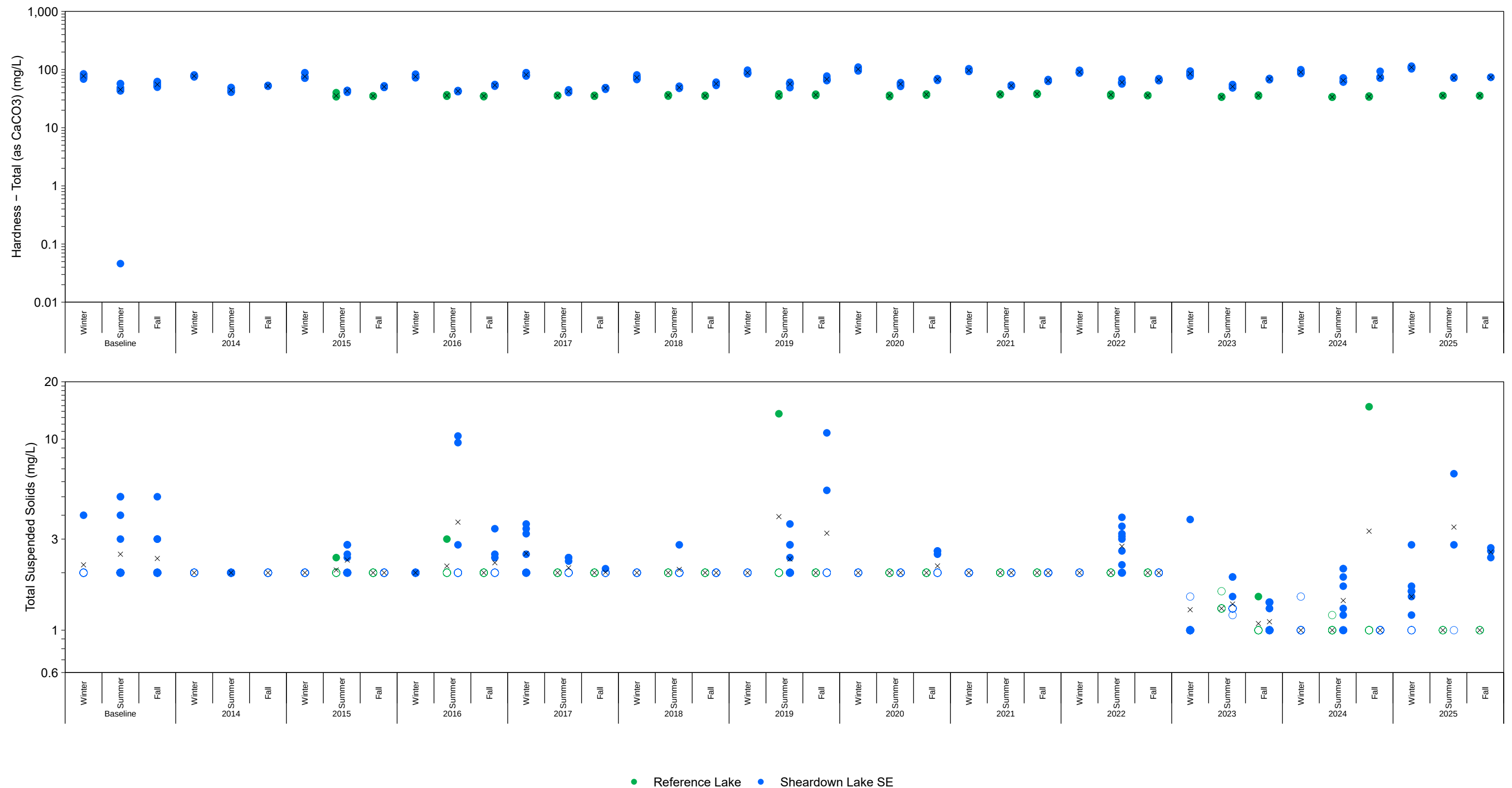


Figure B.11: Temporal Comparisons for Water Chemistry at Sheardown Lake SE (DL0-02) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

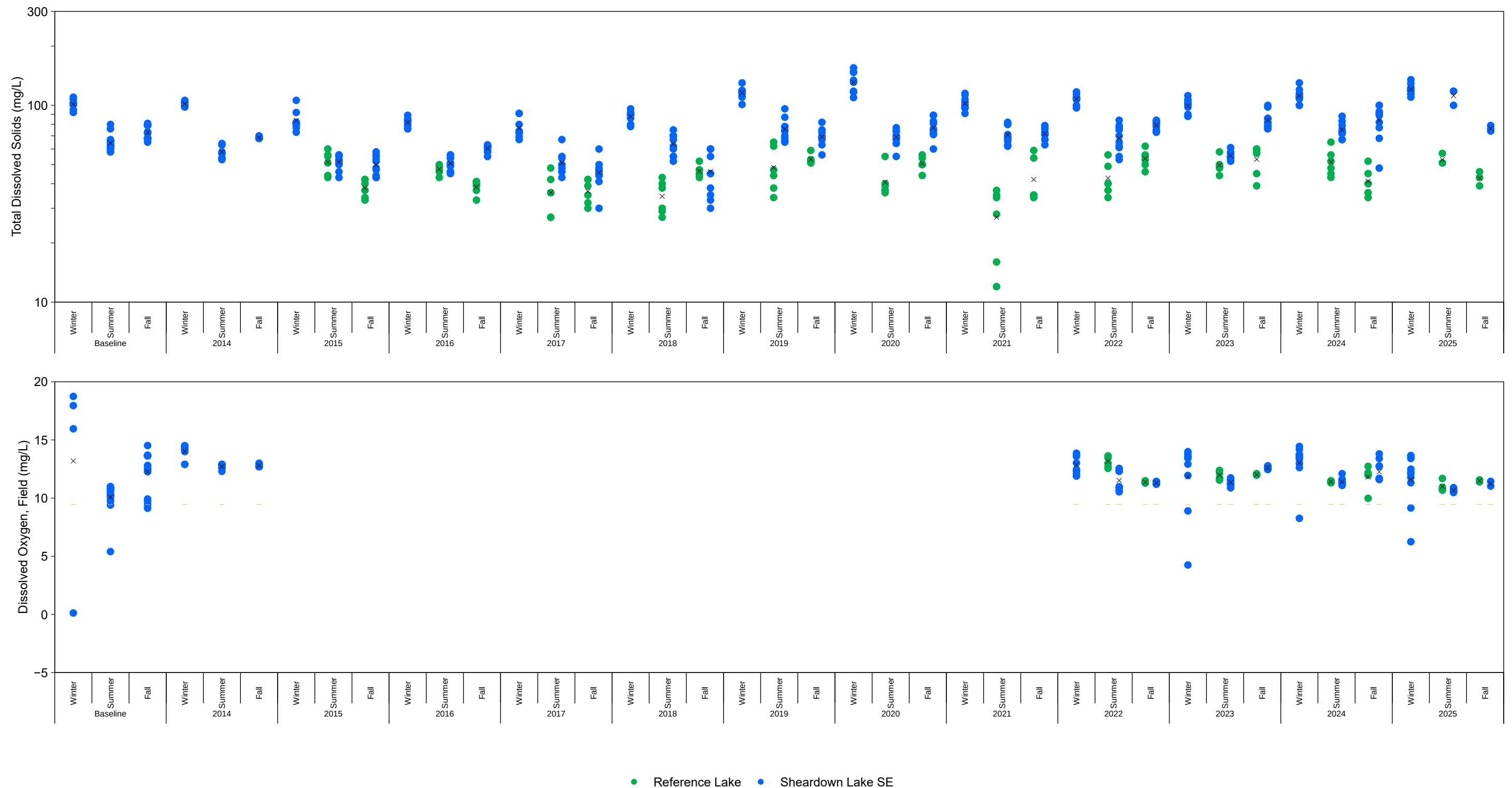


Figure B.11: Temporal Comparisons for Water Chemistry at Sheardown Lake SE (DL0-02) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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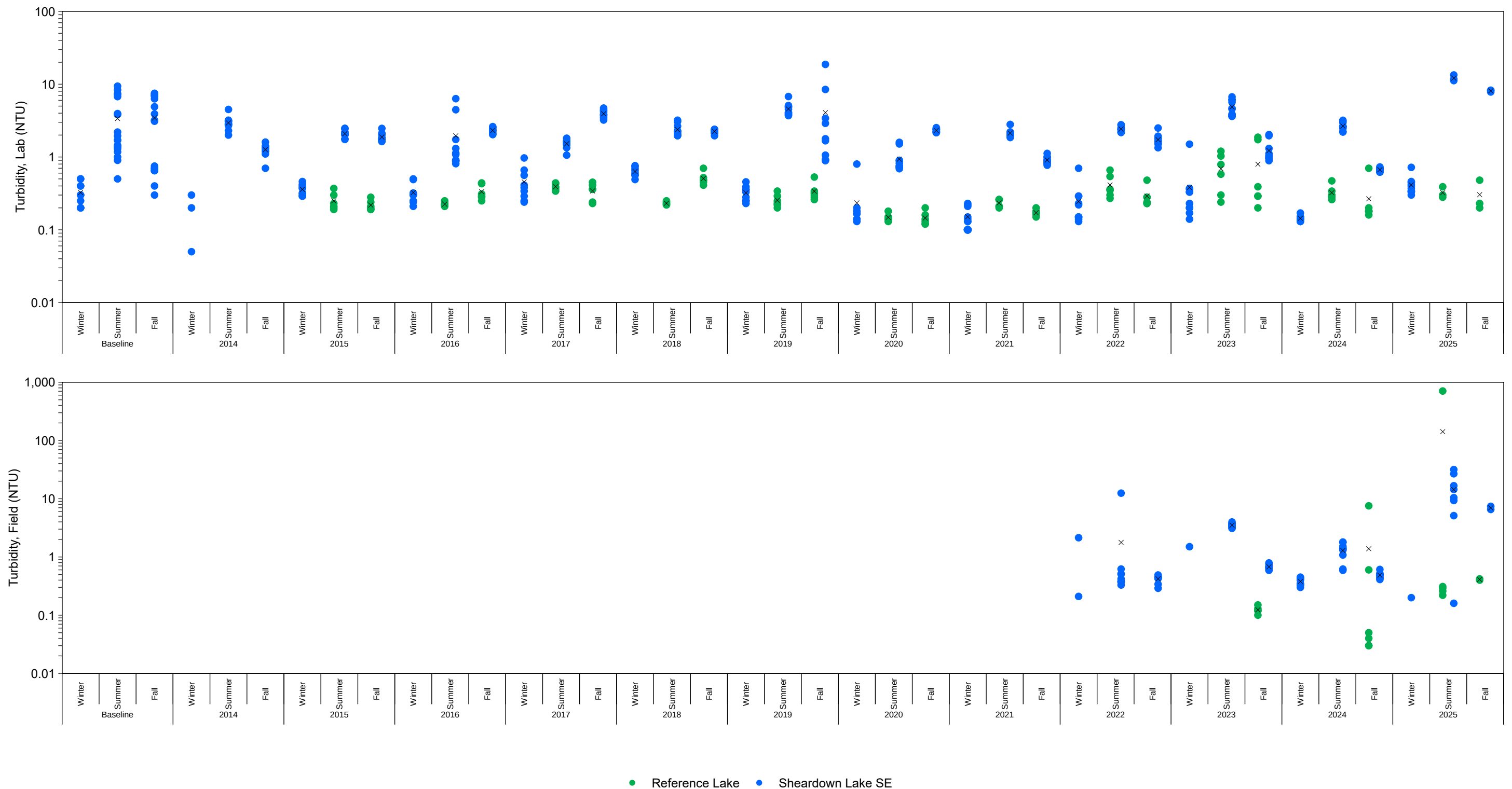


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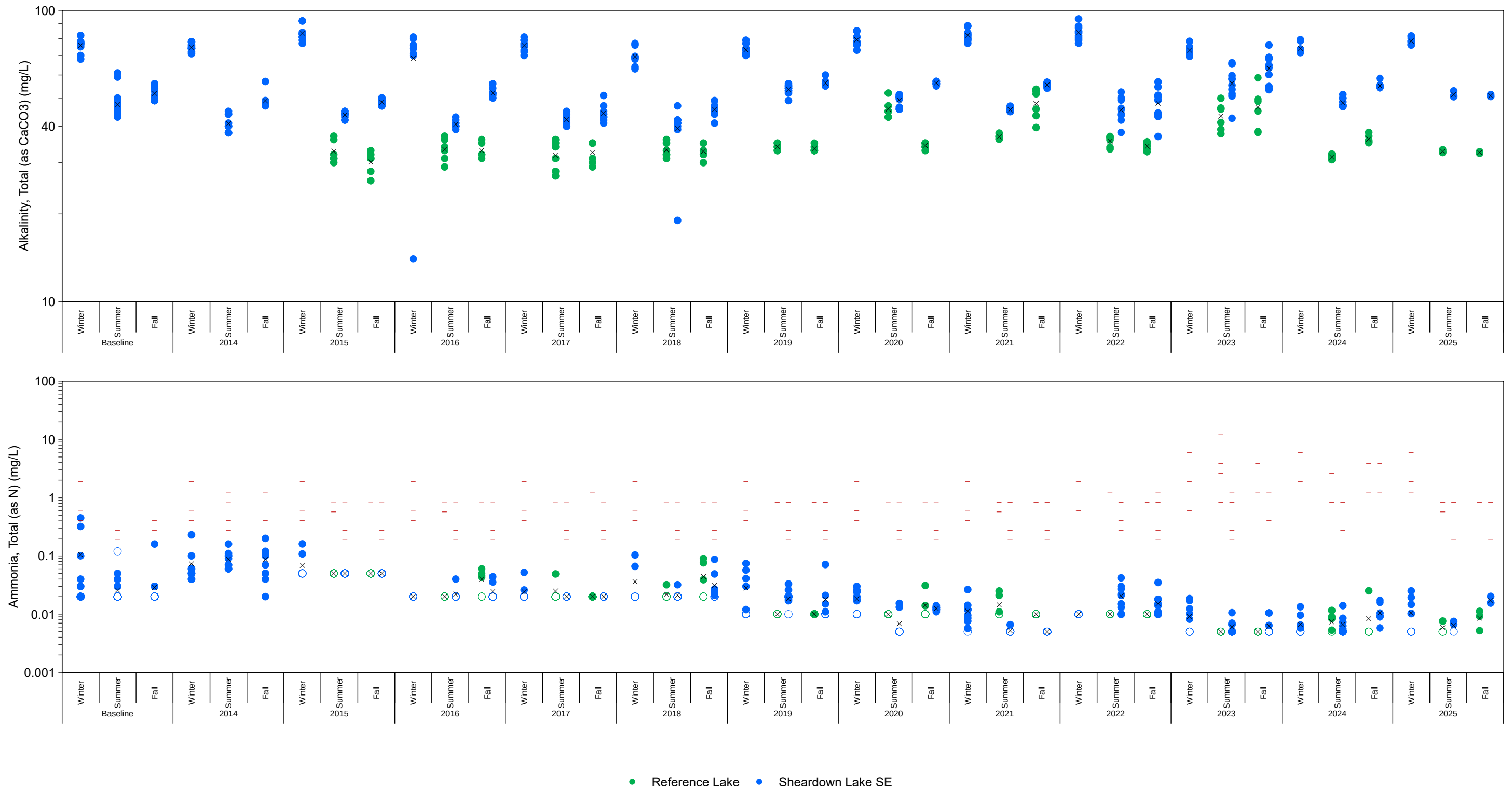


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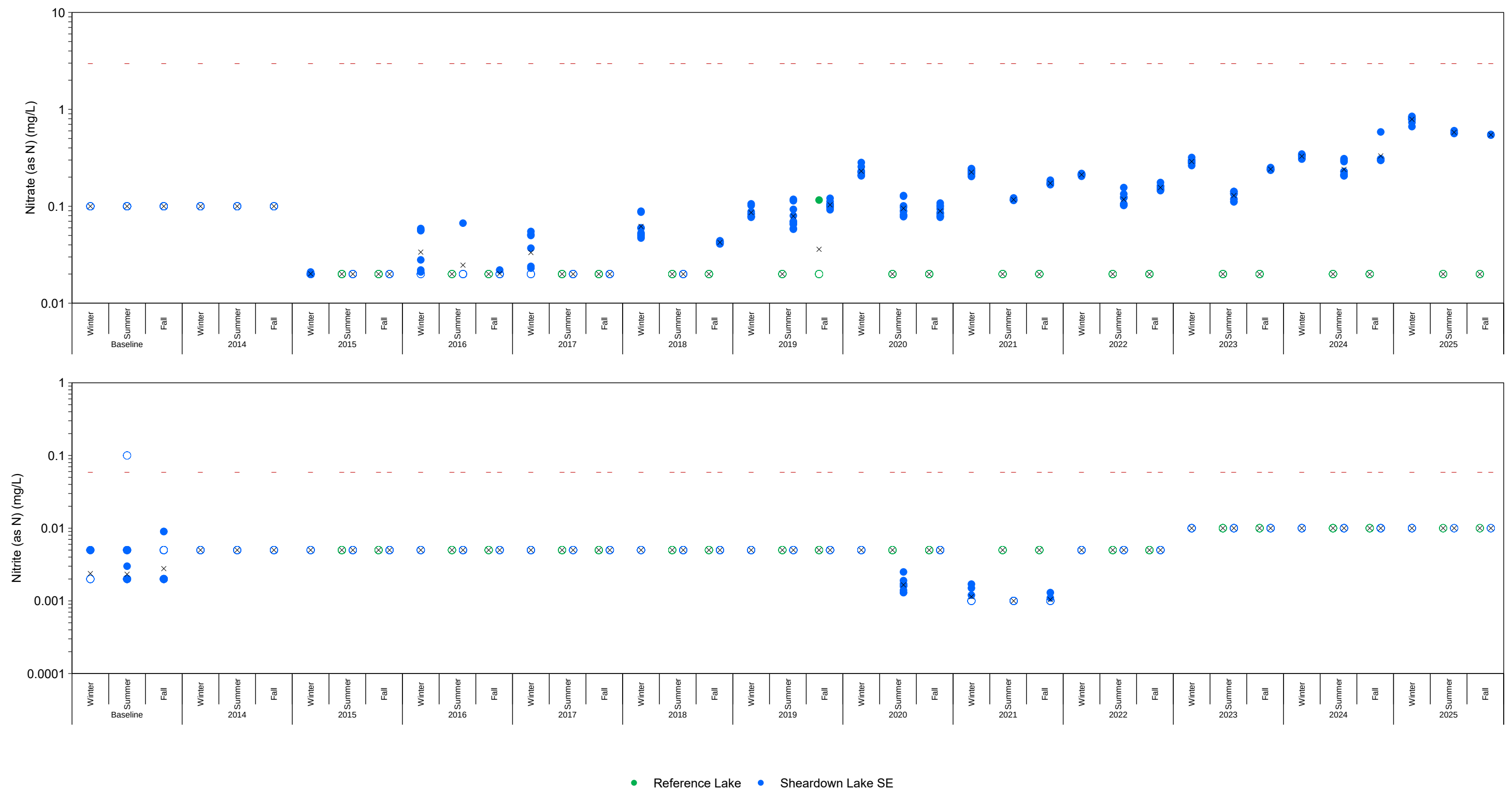


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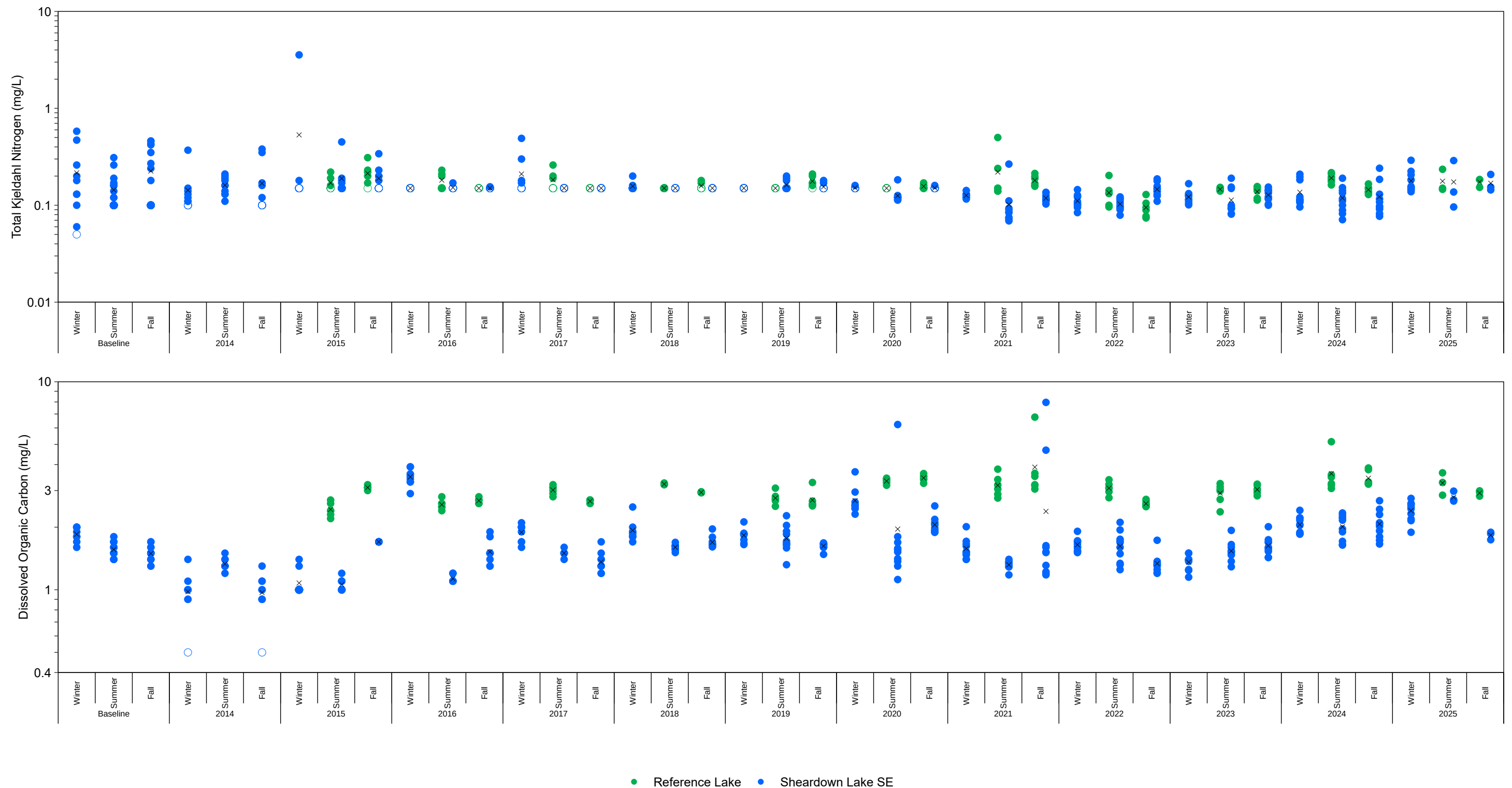


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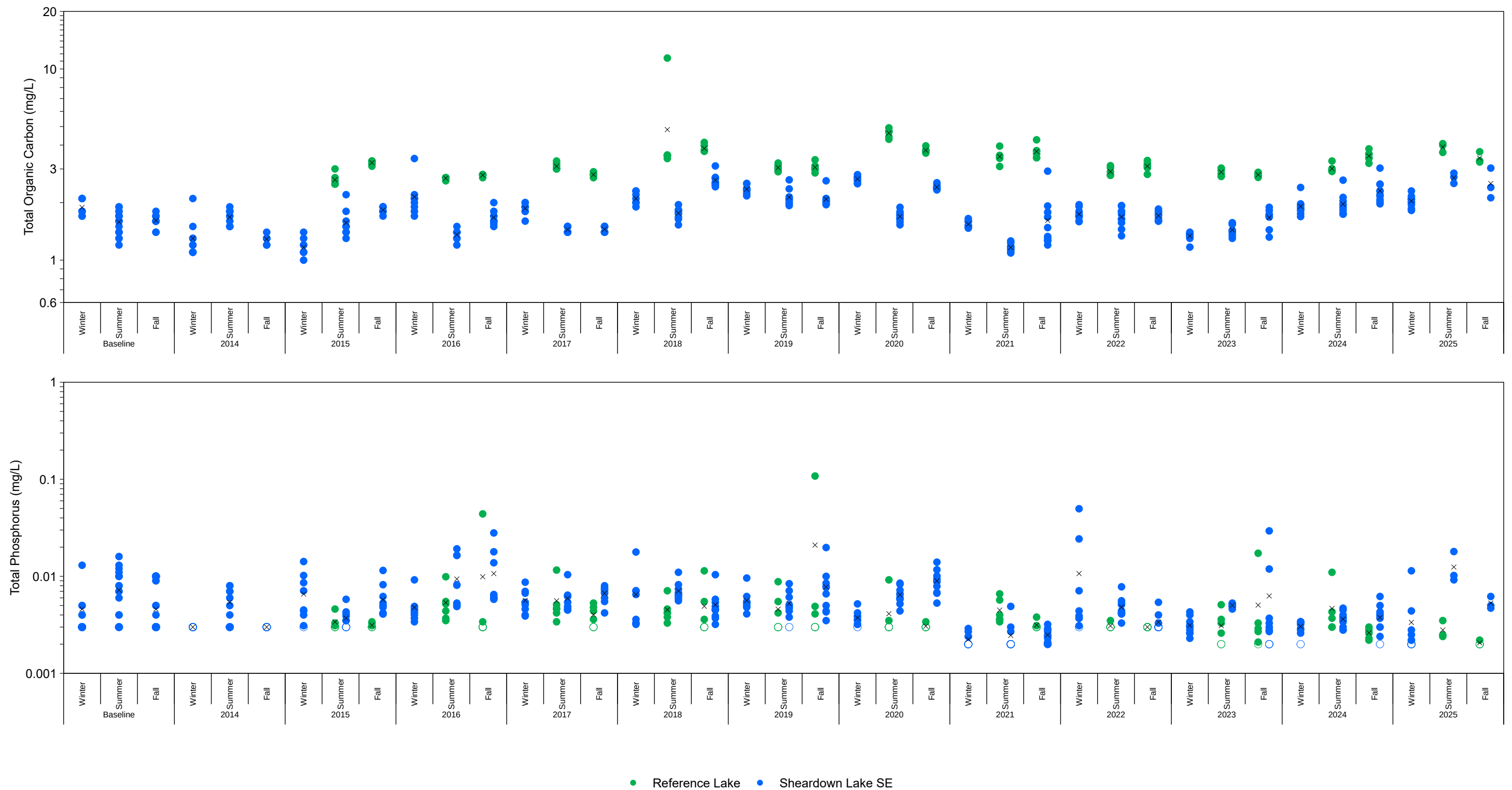


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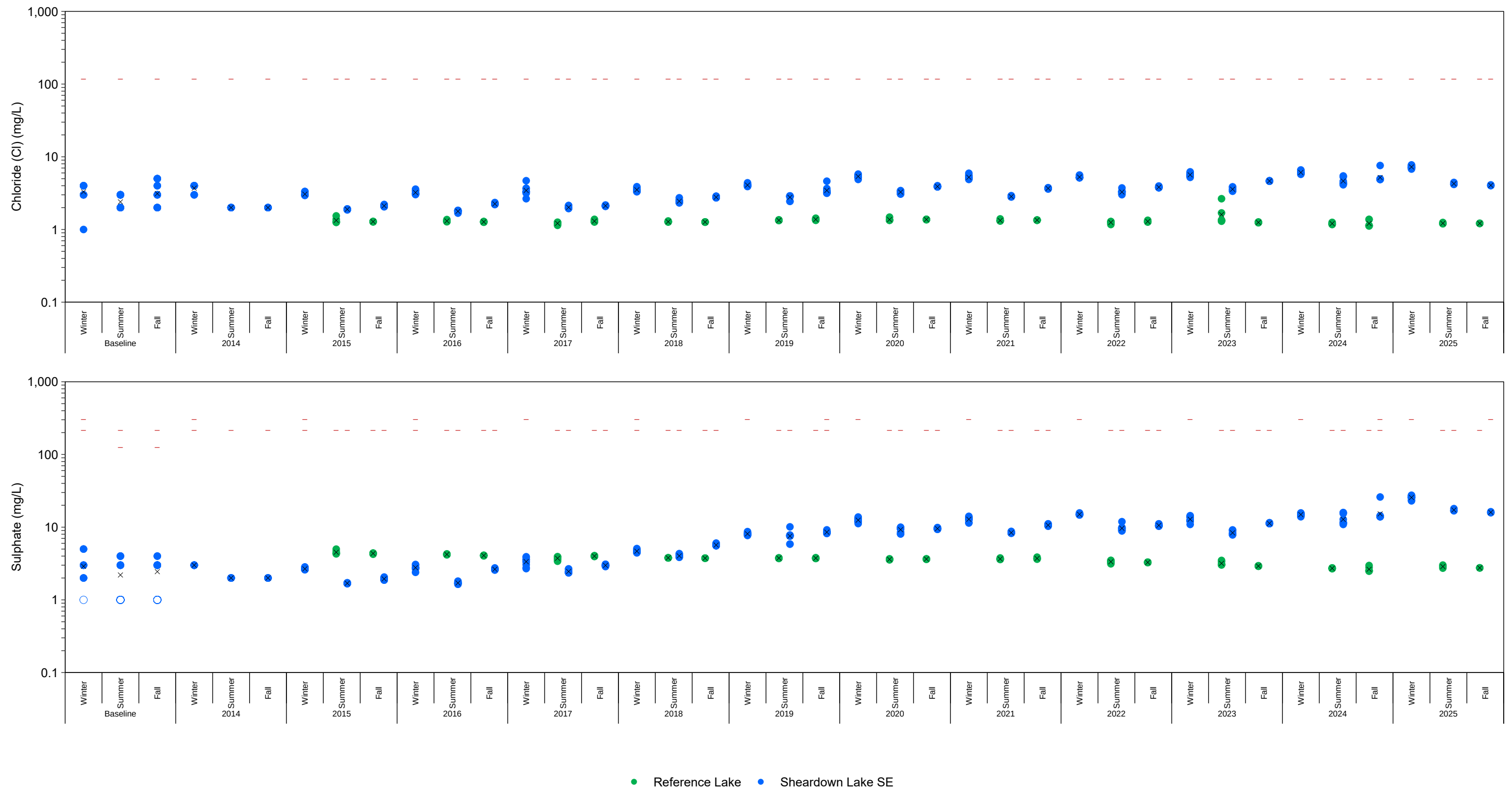


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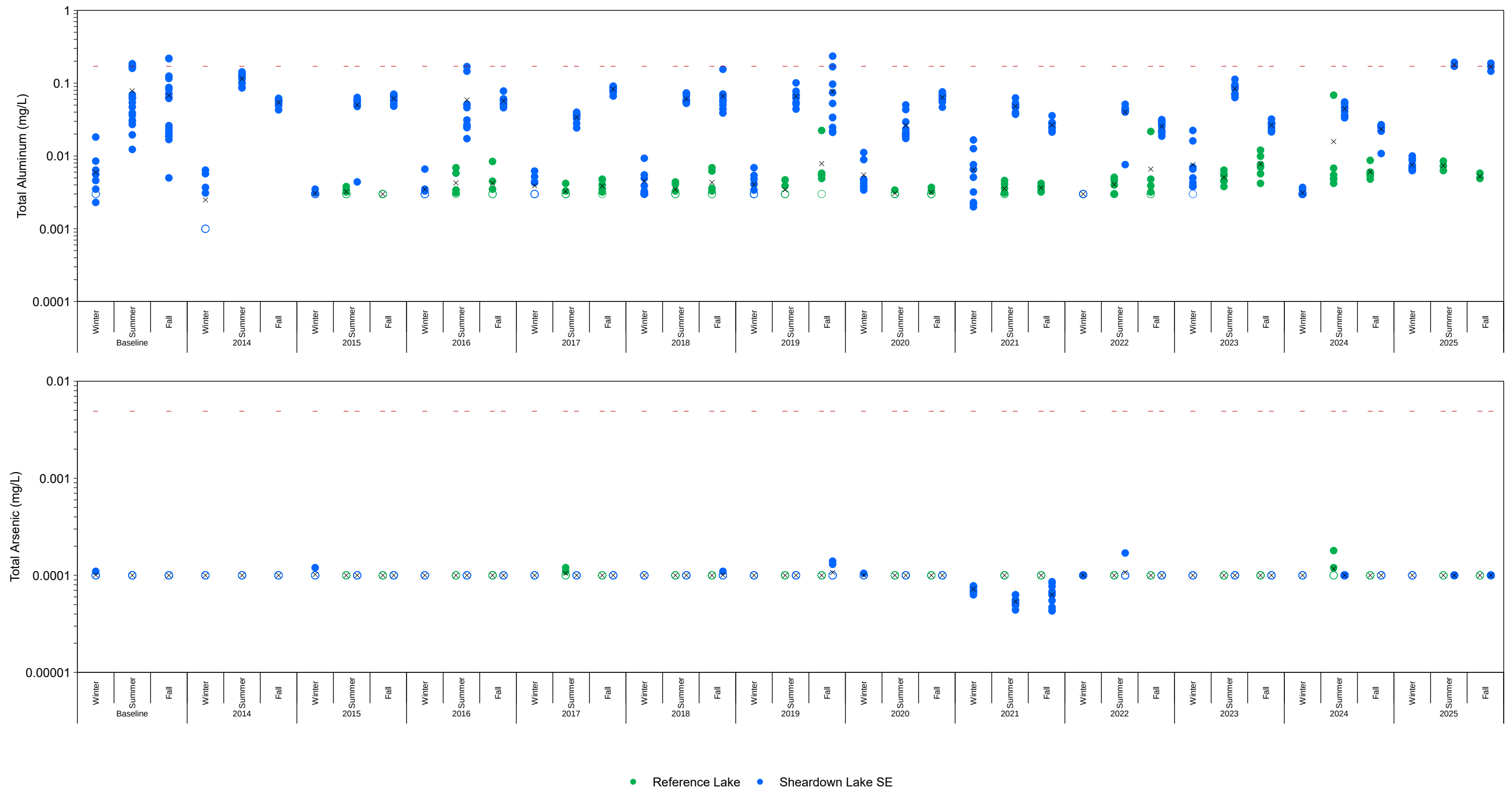


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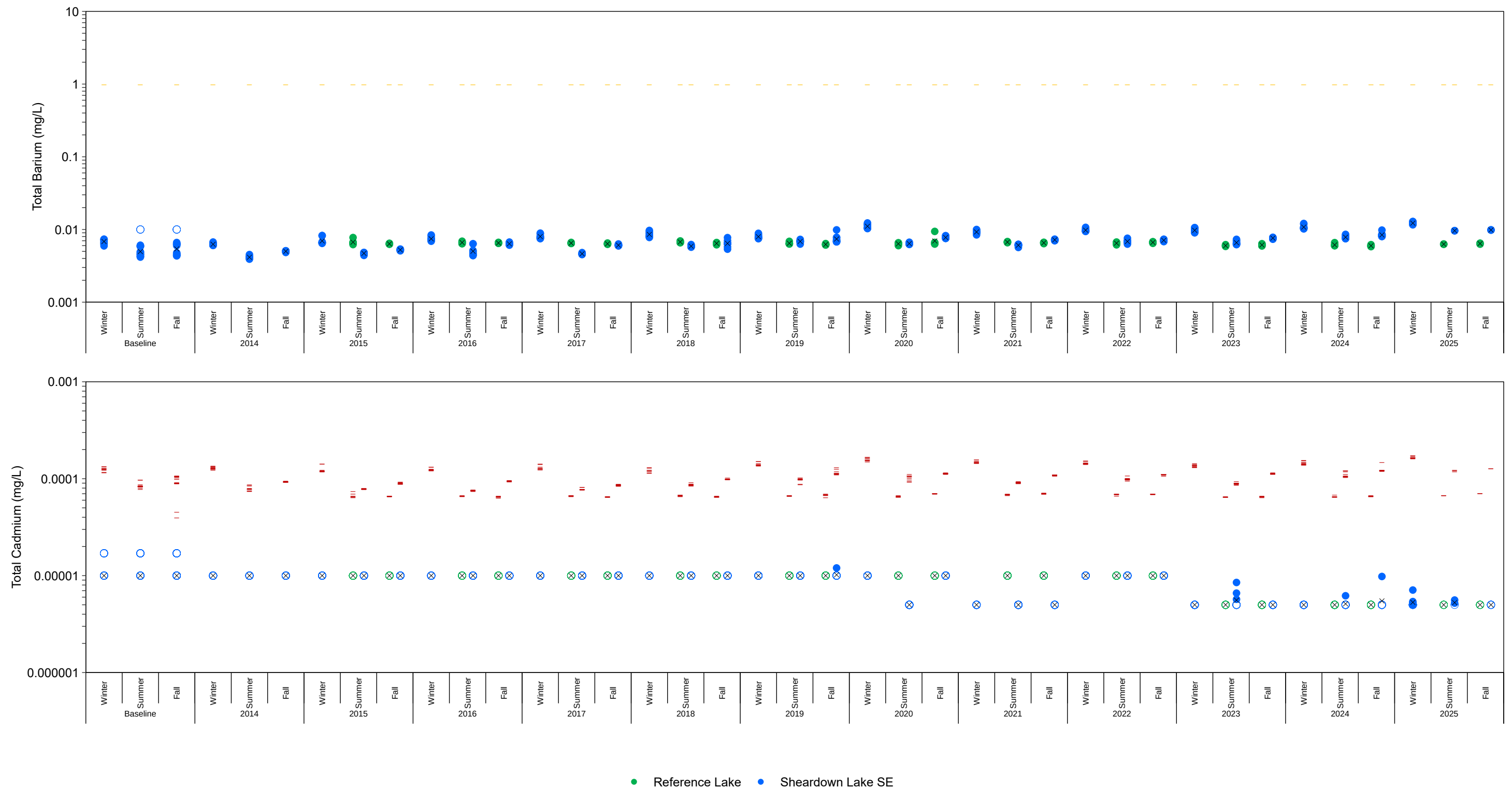


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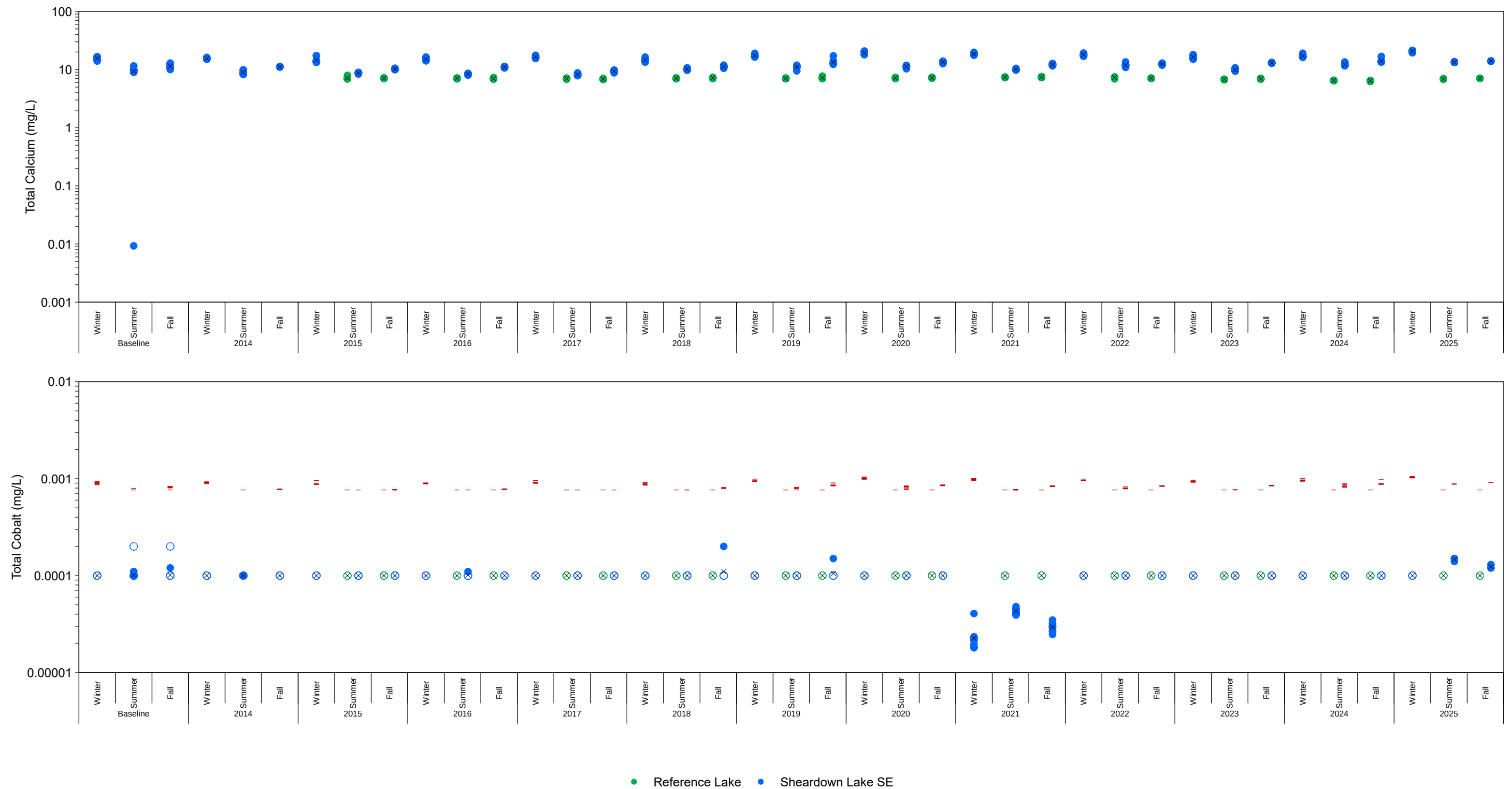


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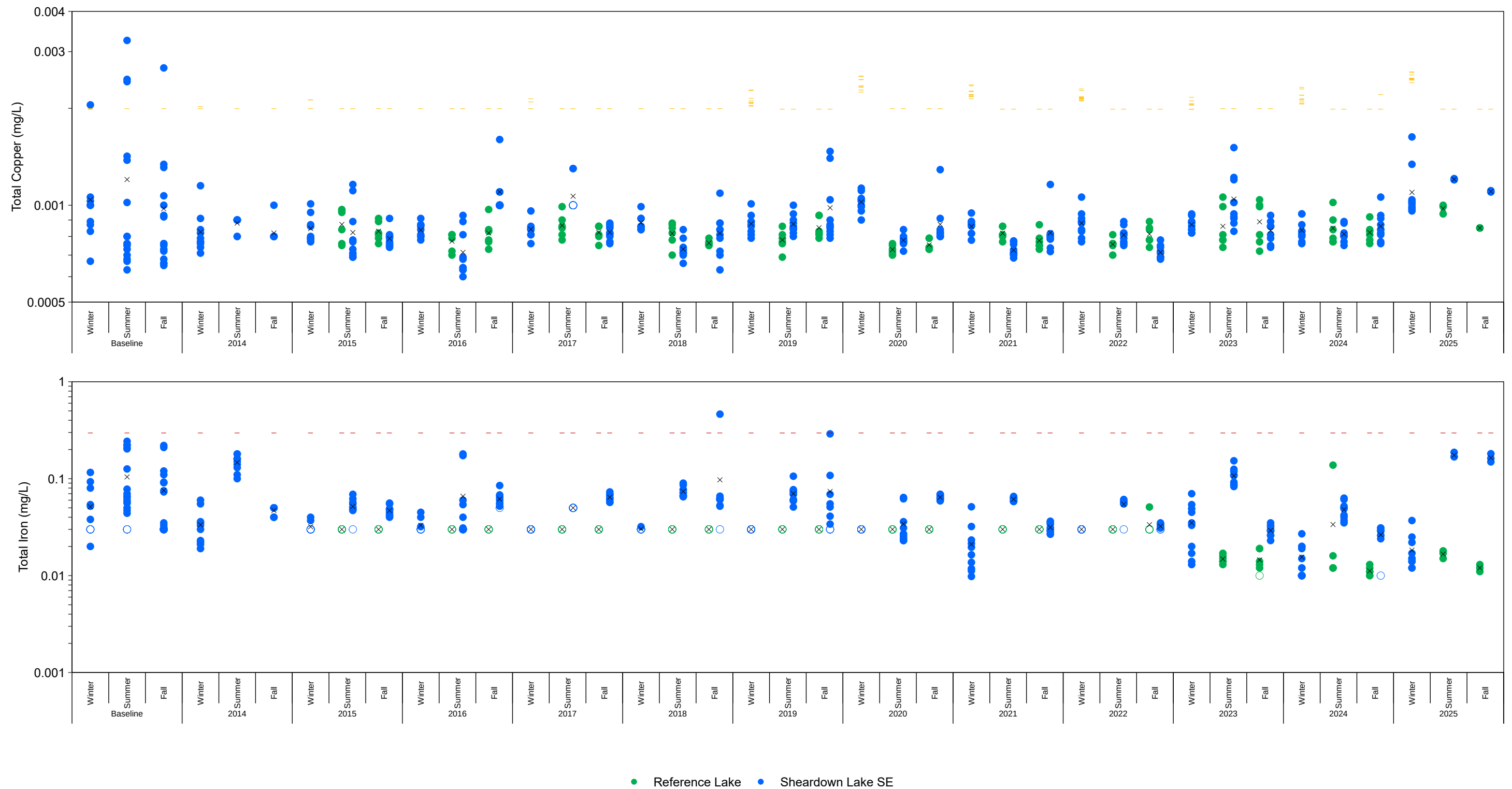


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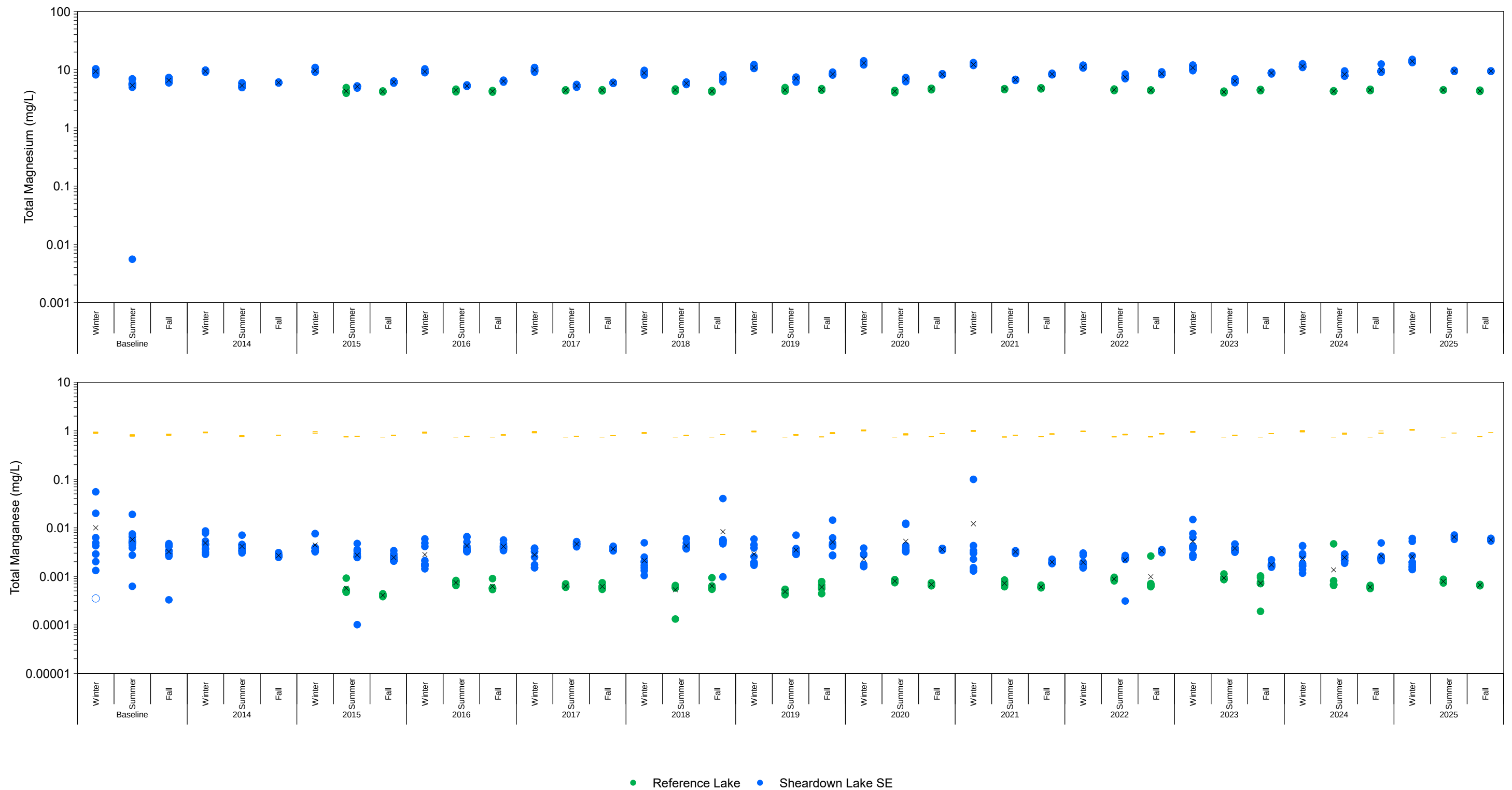


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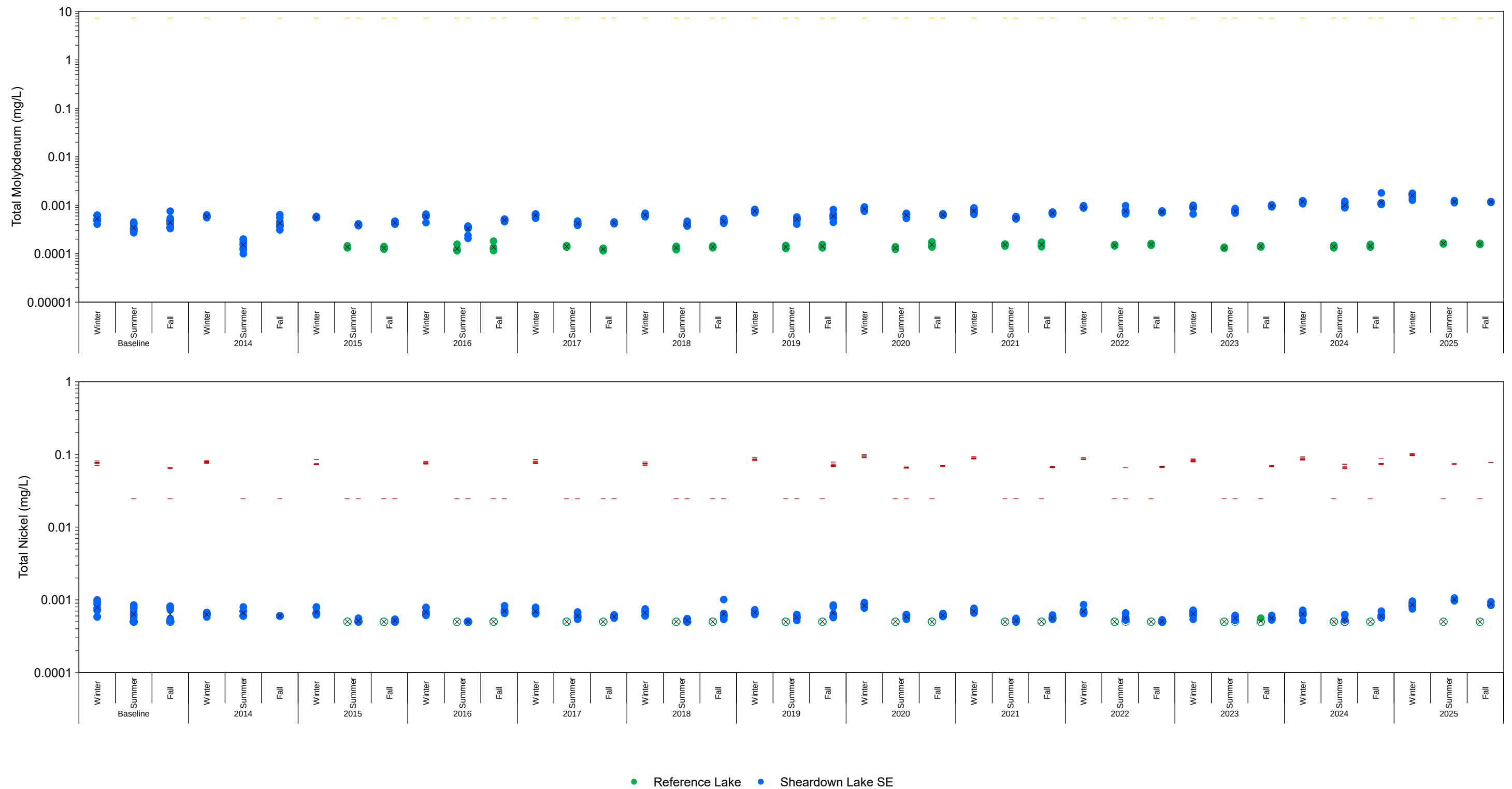


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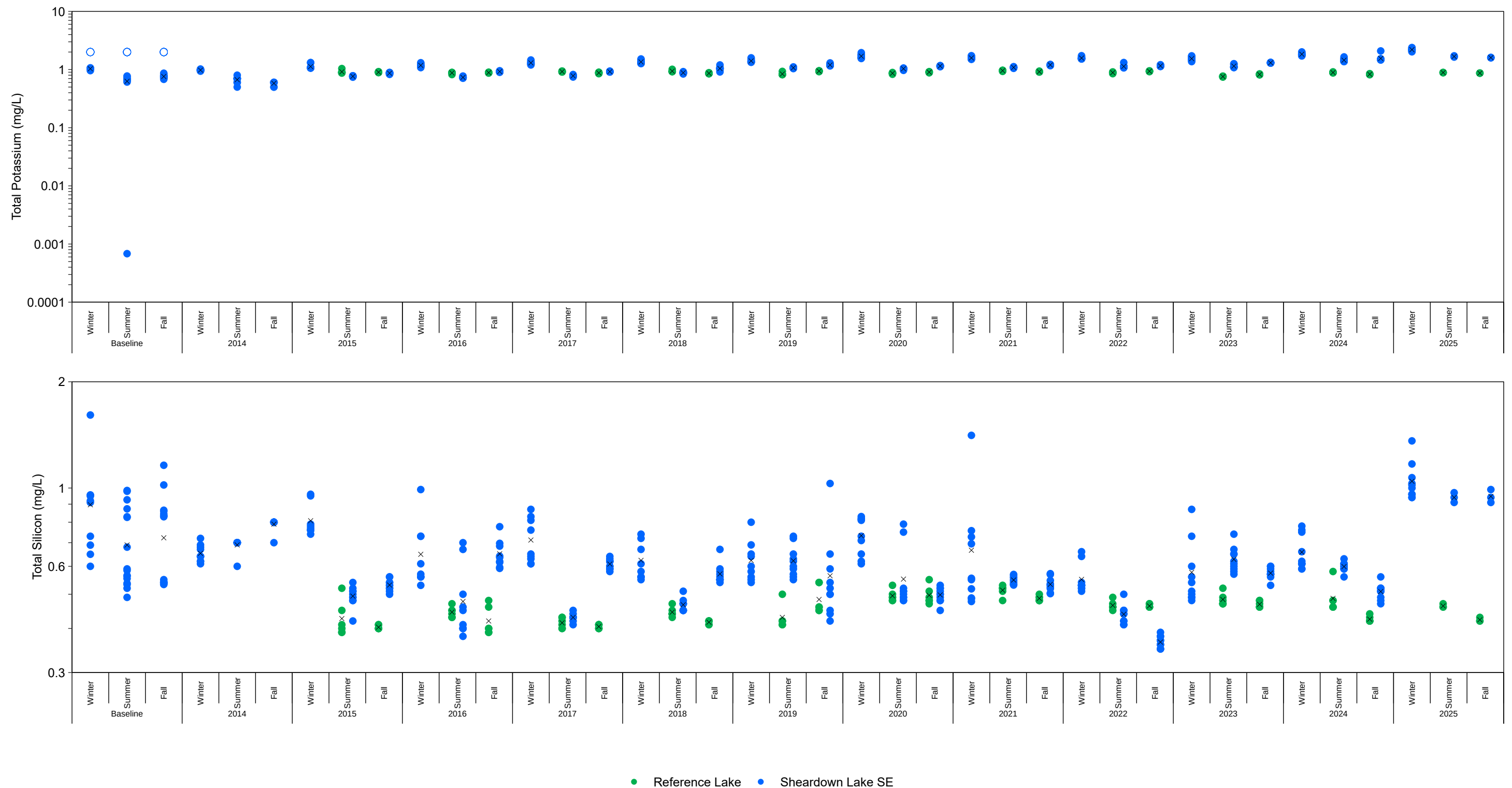


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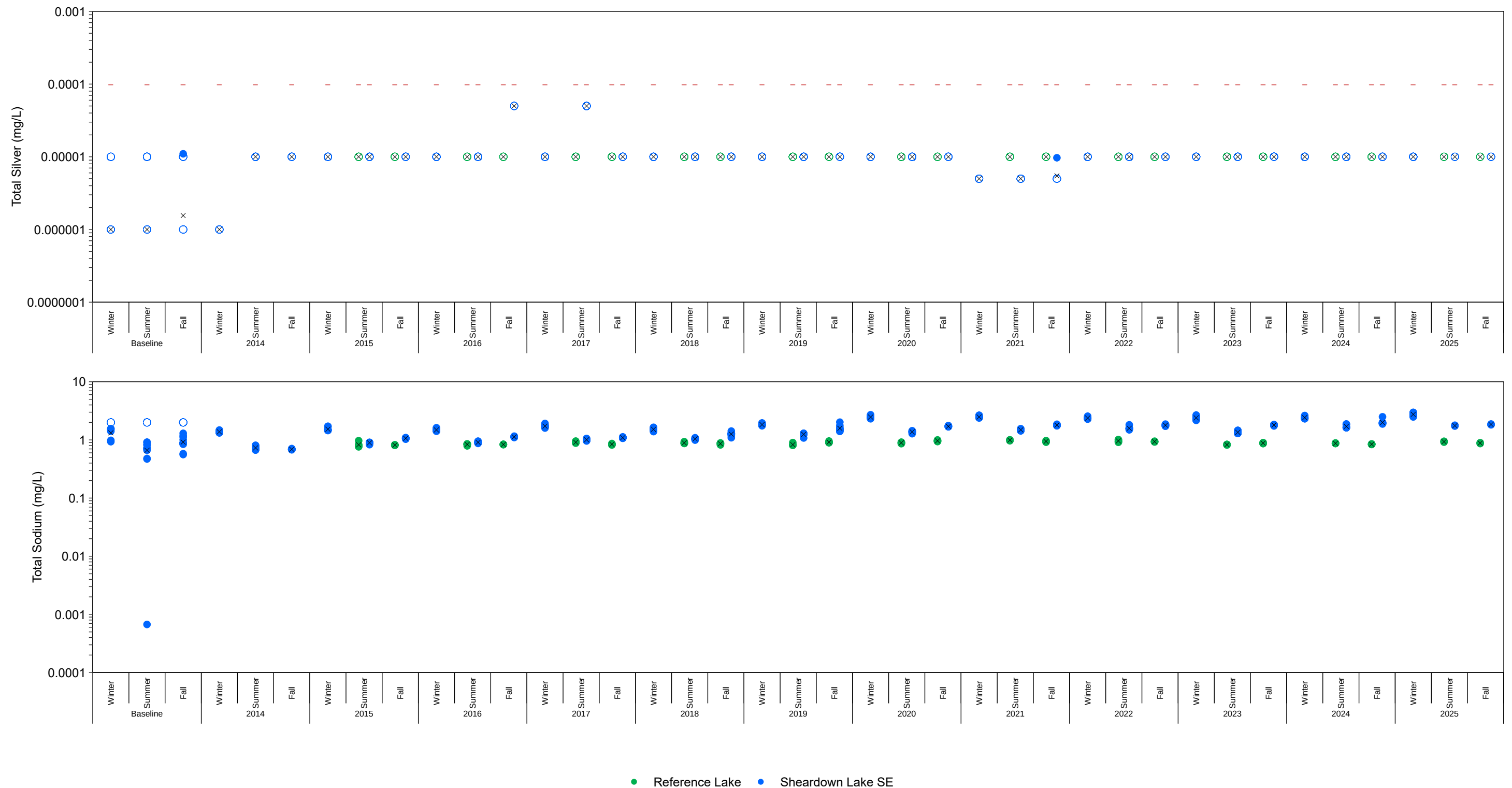


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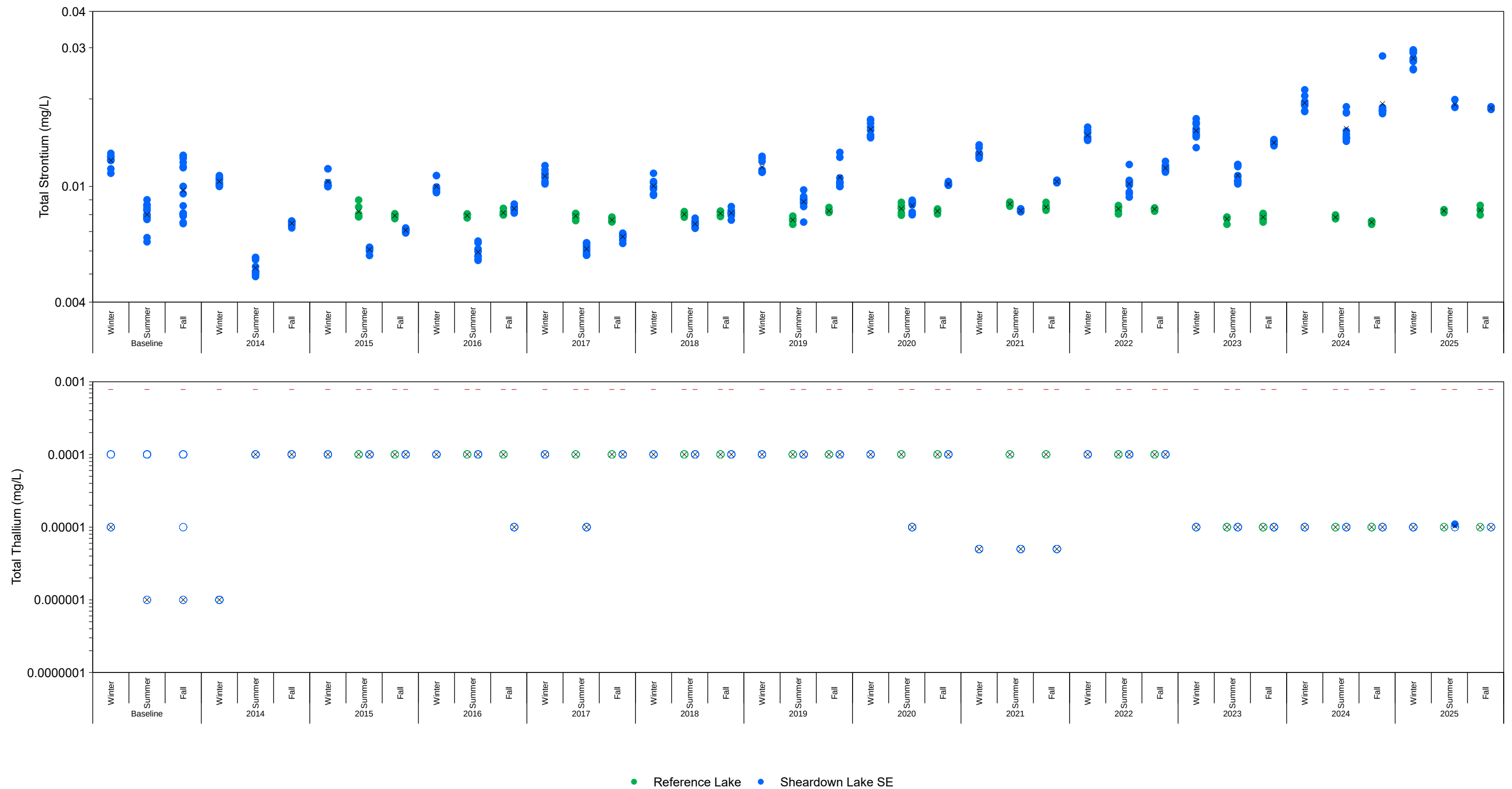


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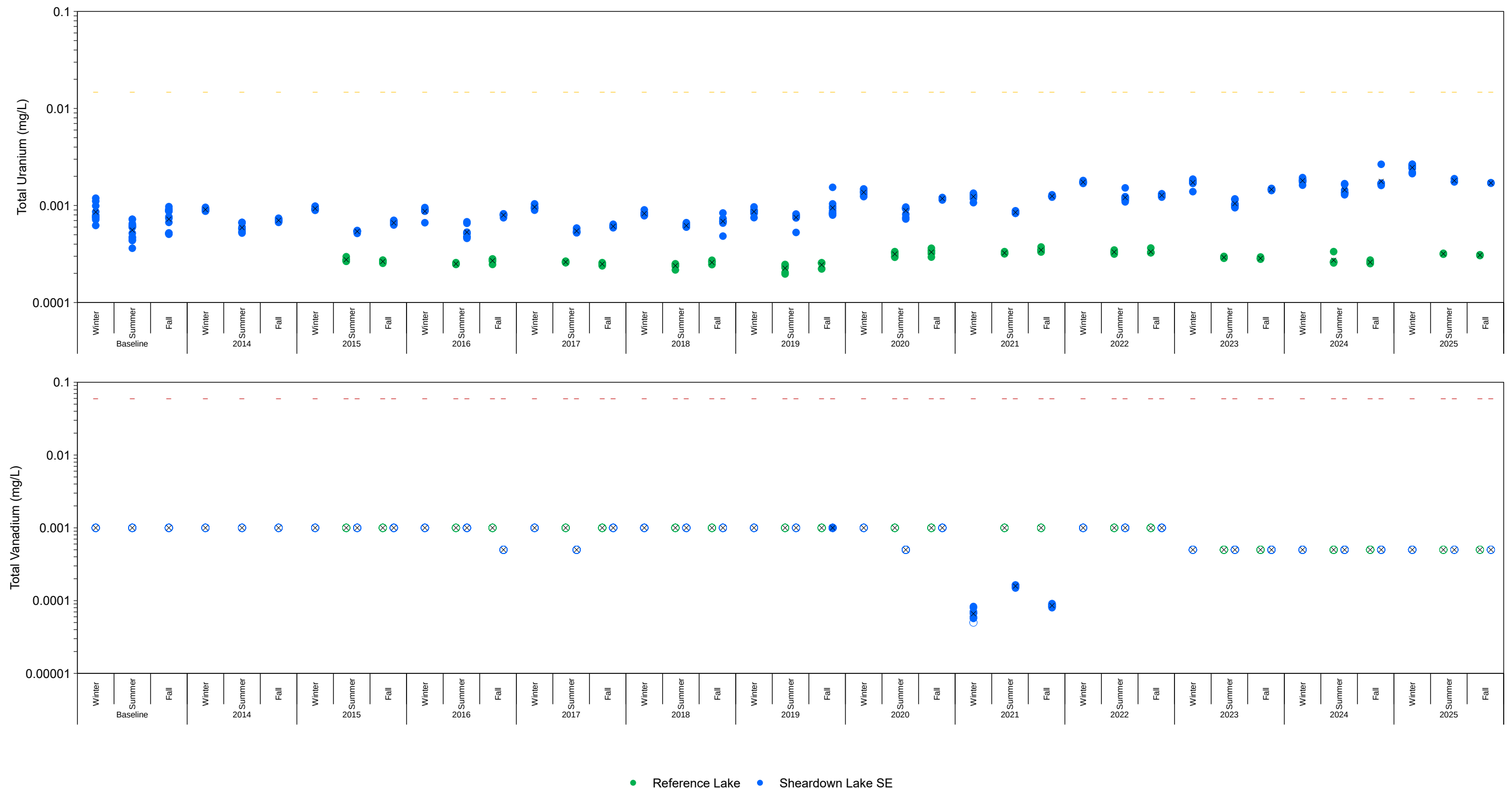


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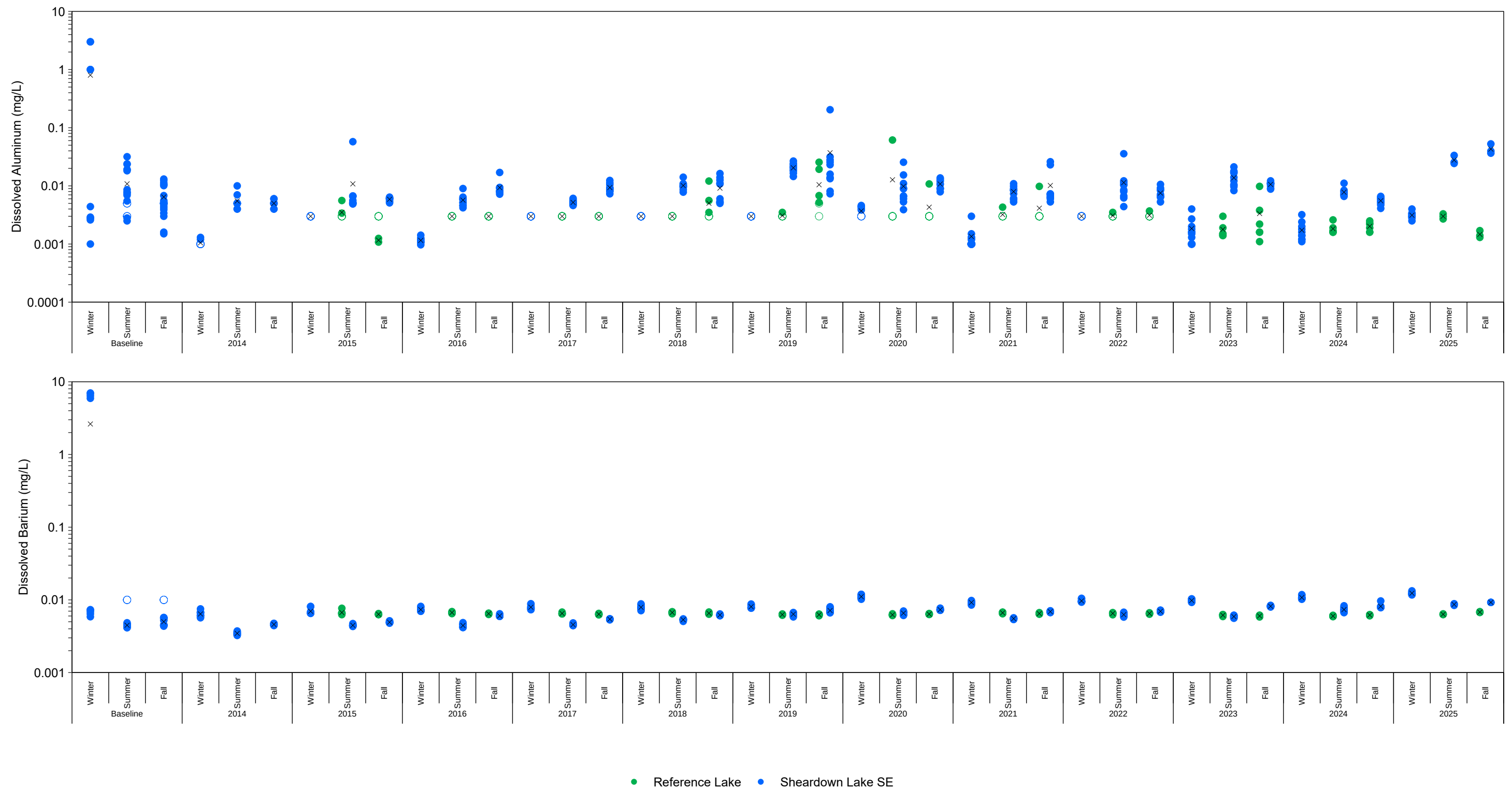


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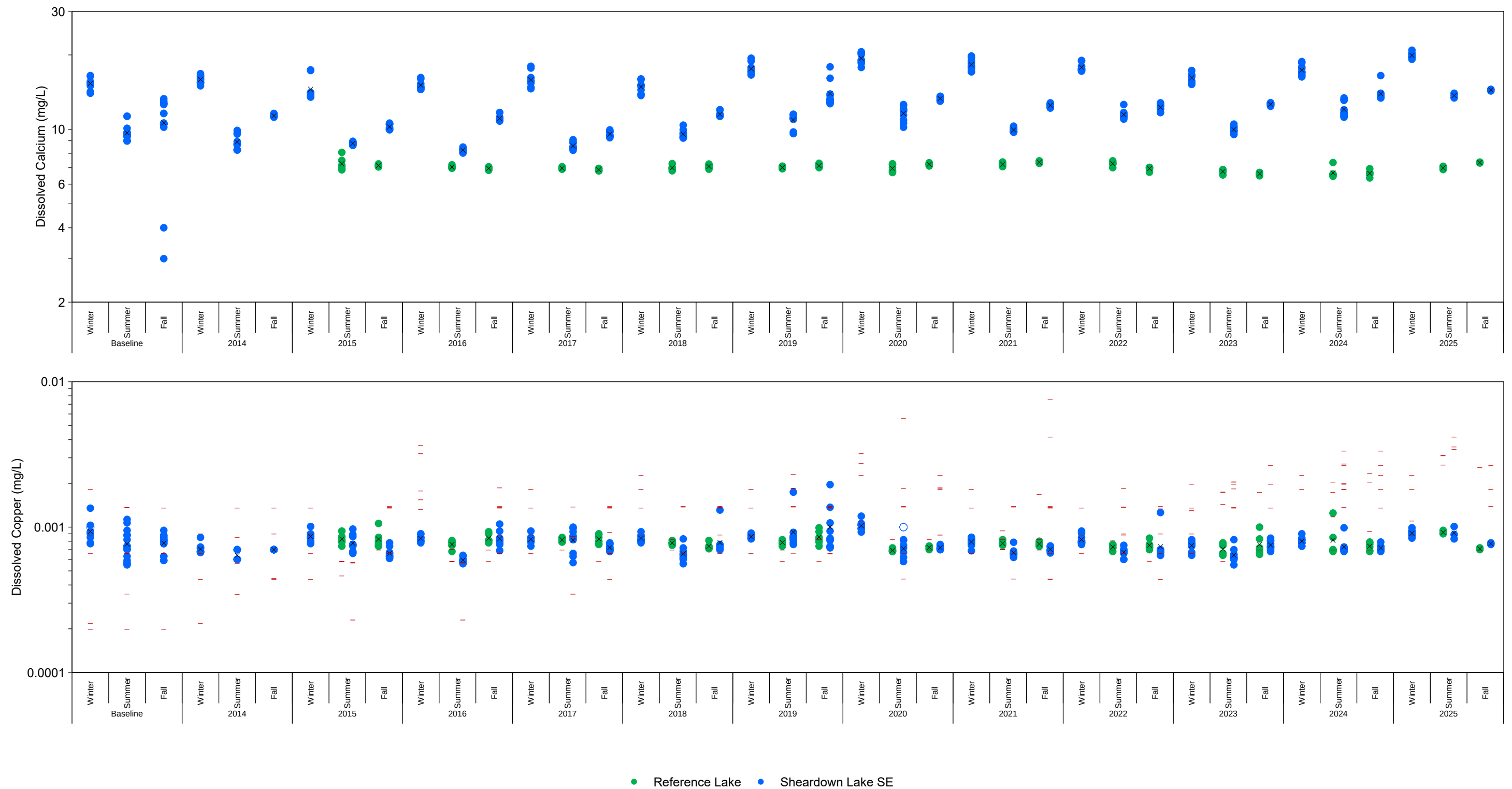


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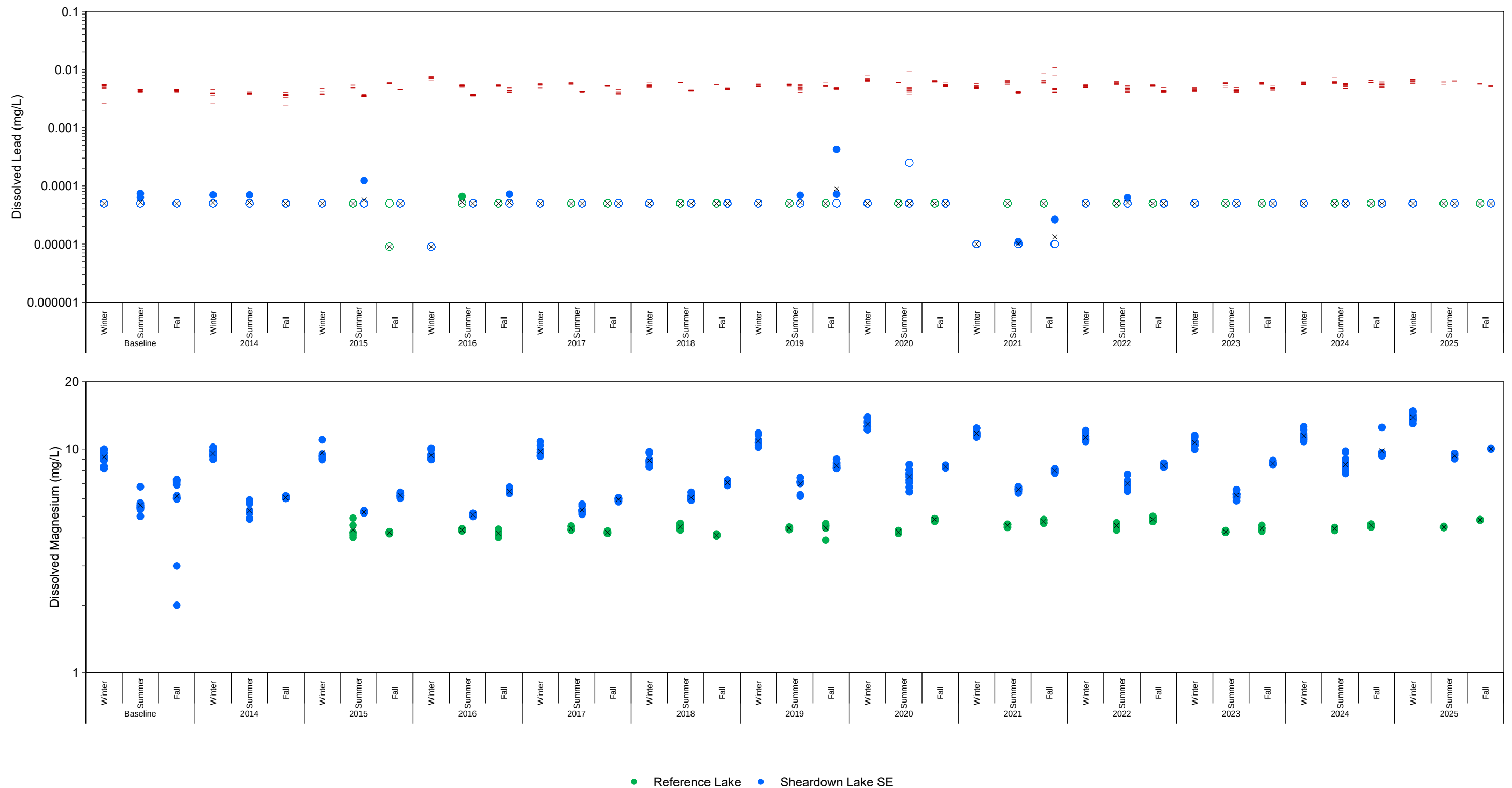


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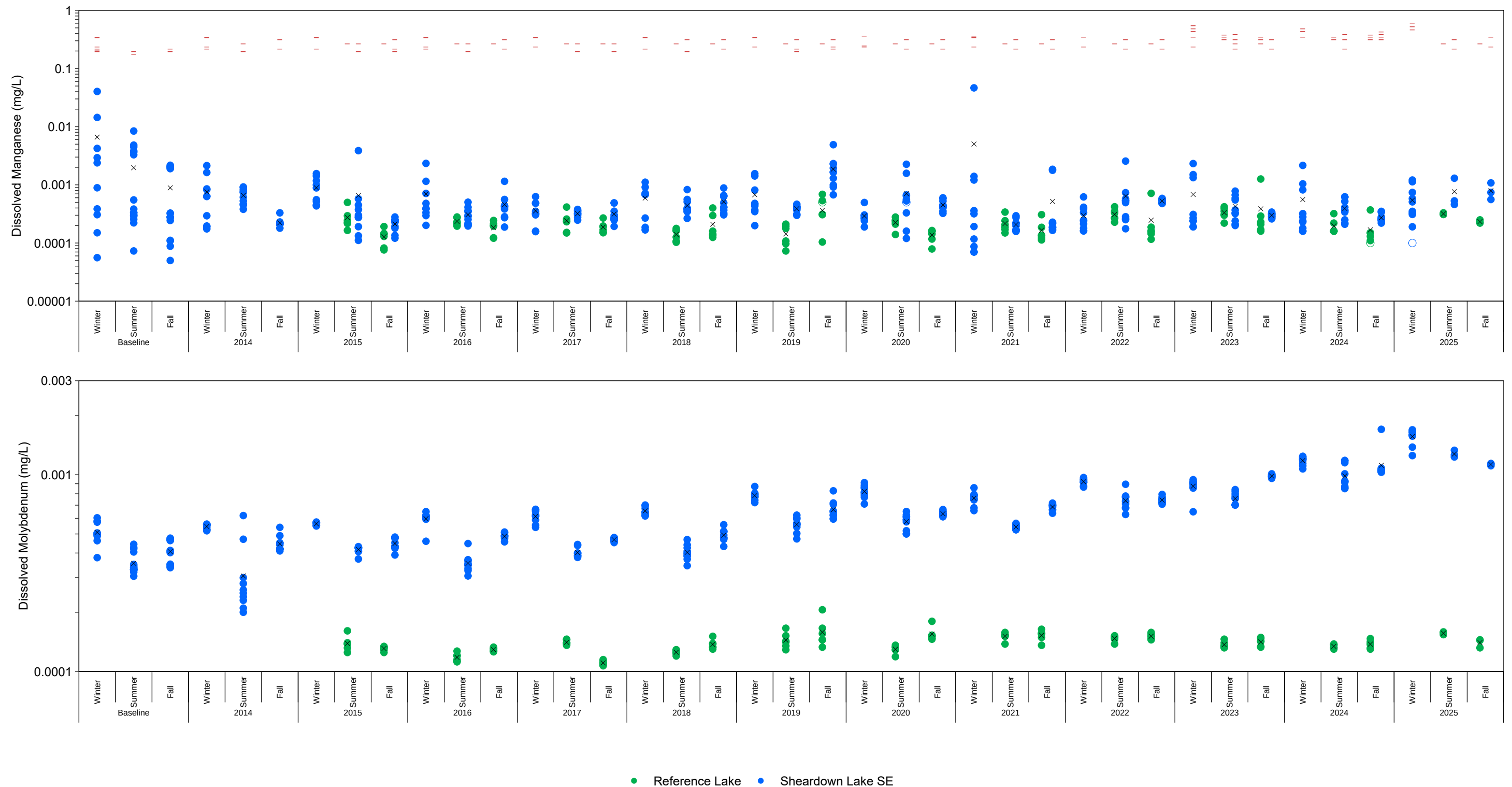


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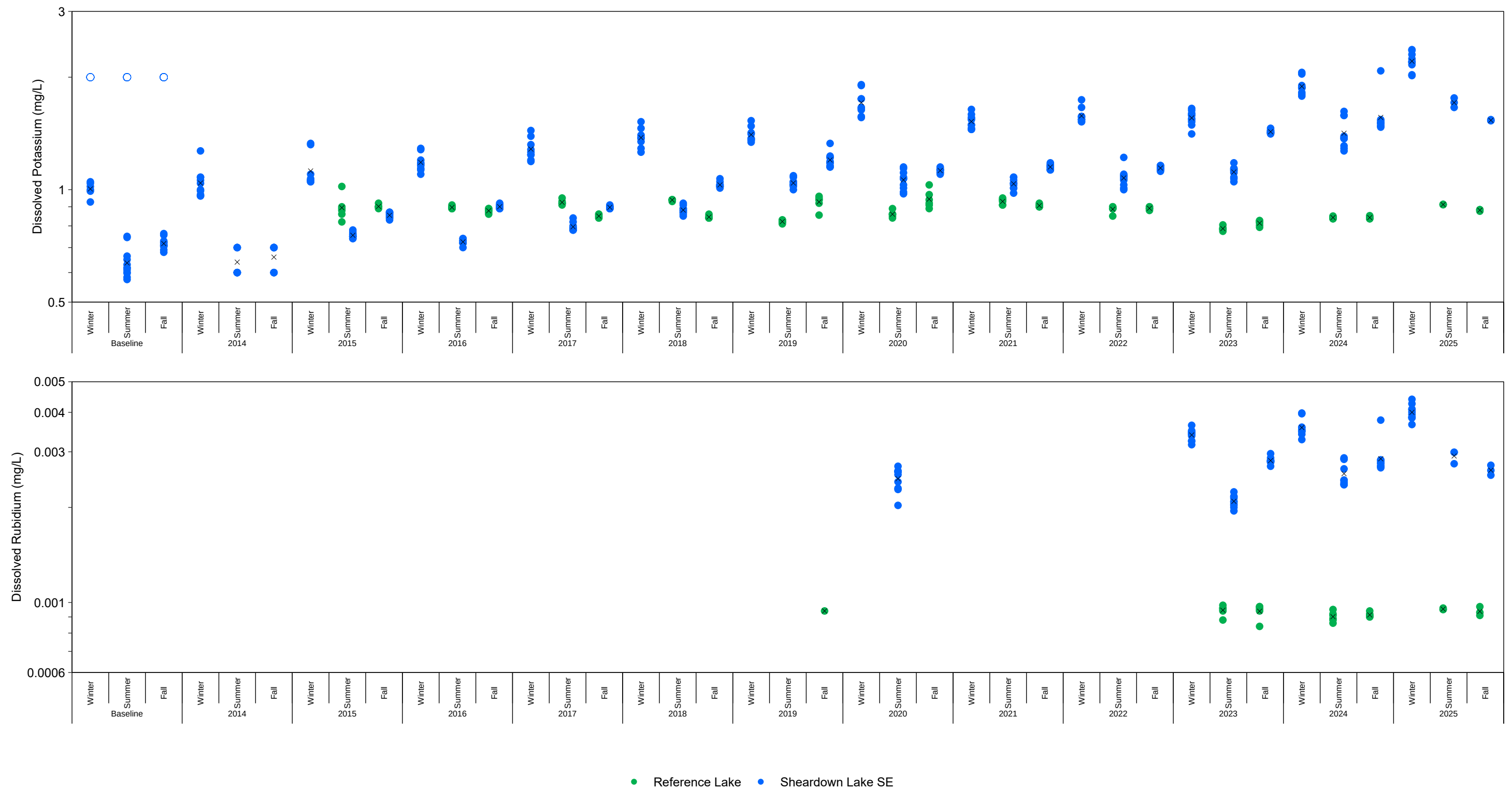


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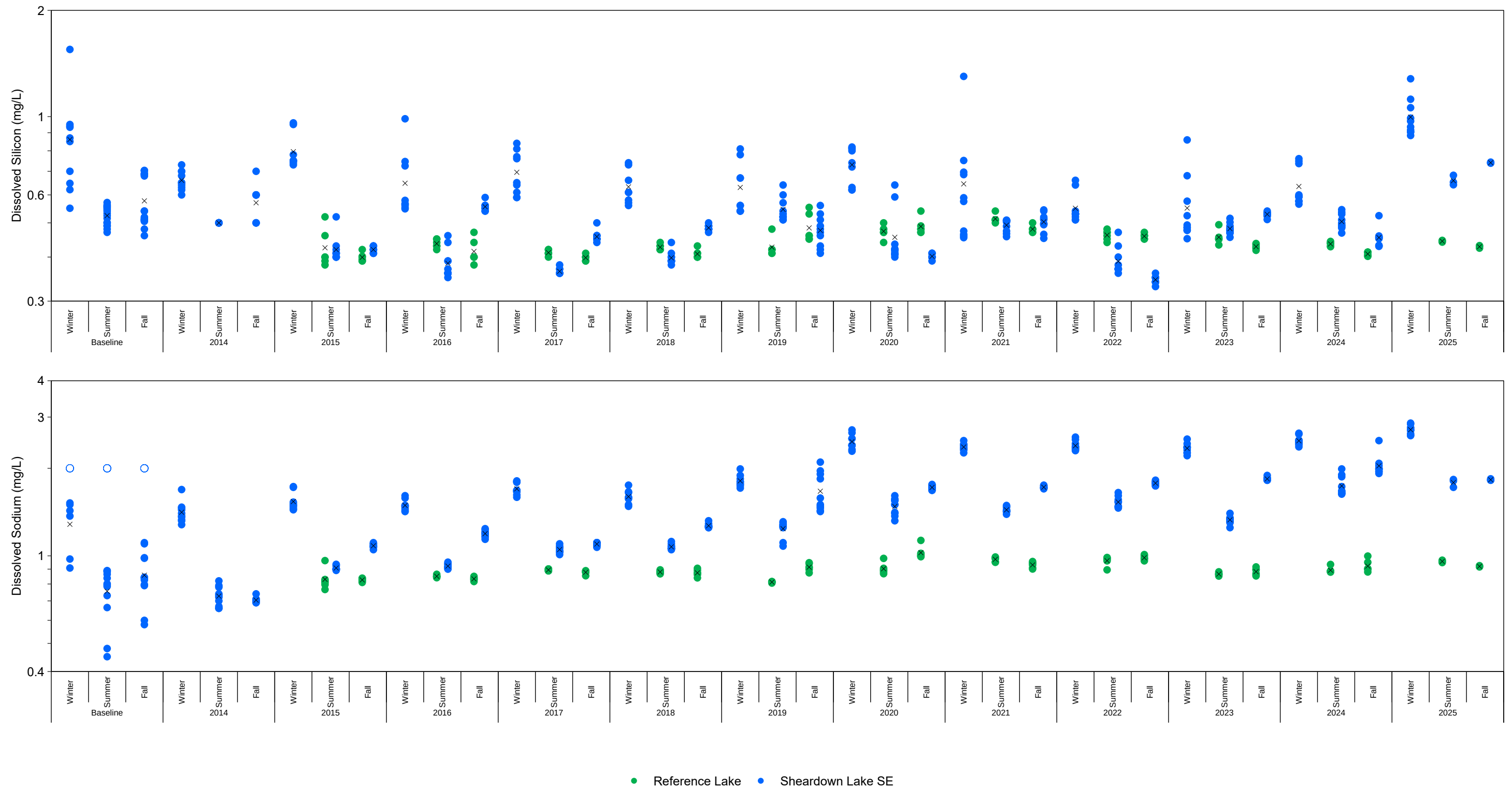


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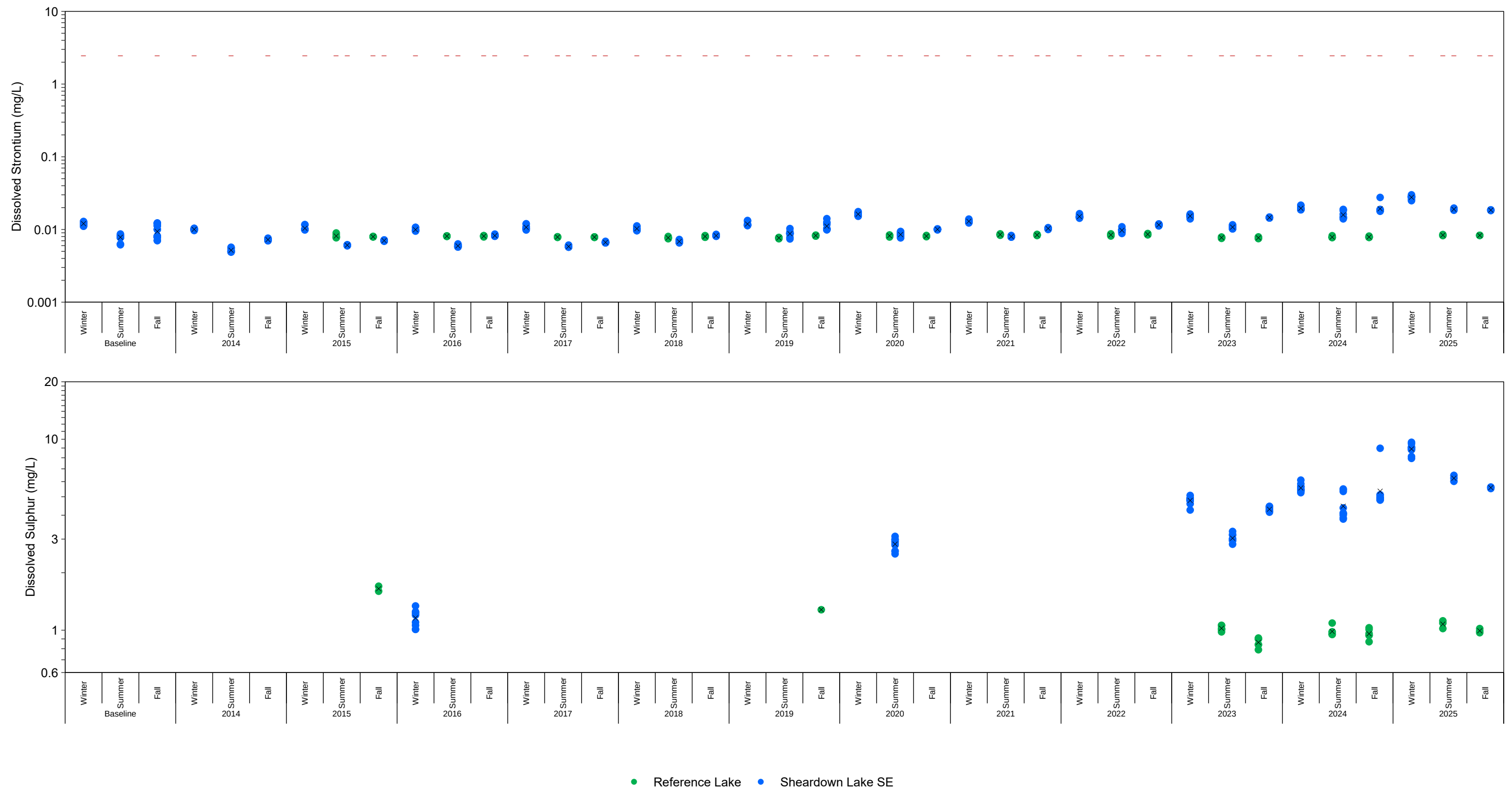


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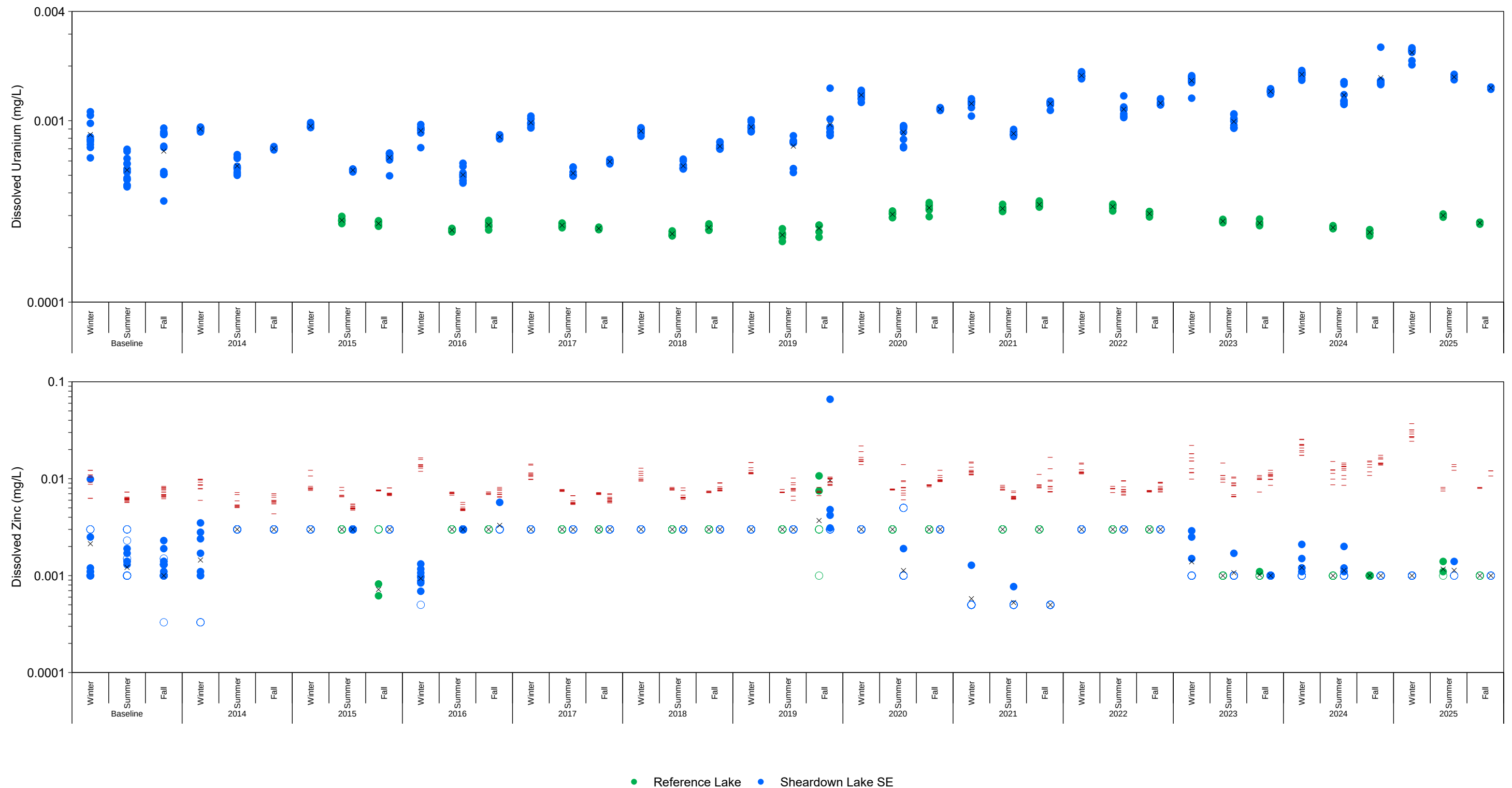


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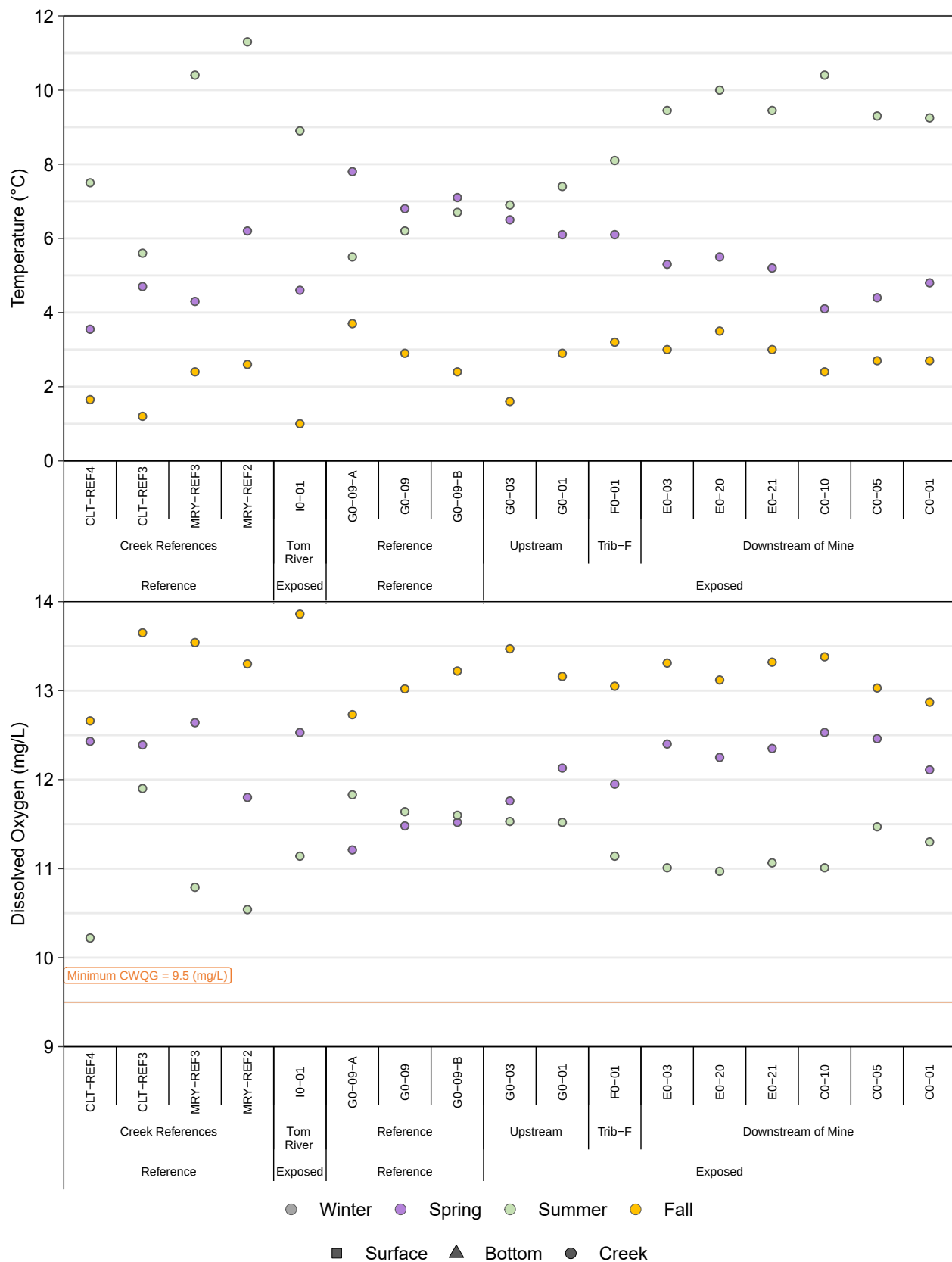


Figure B.12: *In Situ* Water Quality Measured at Mary River Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

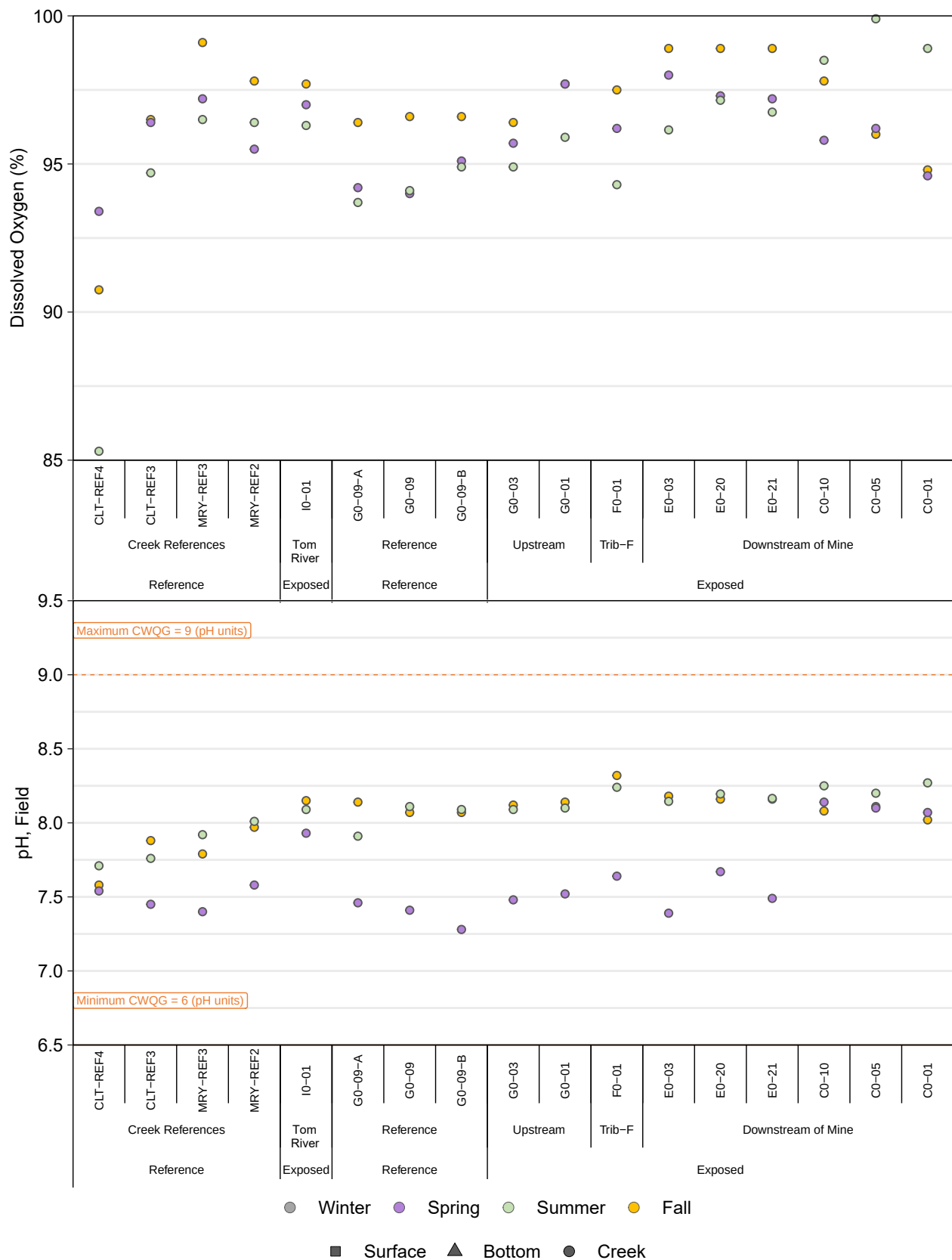


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Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

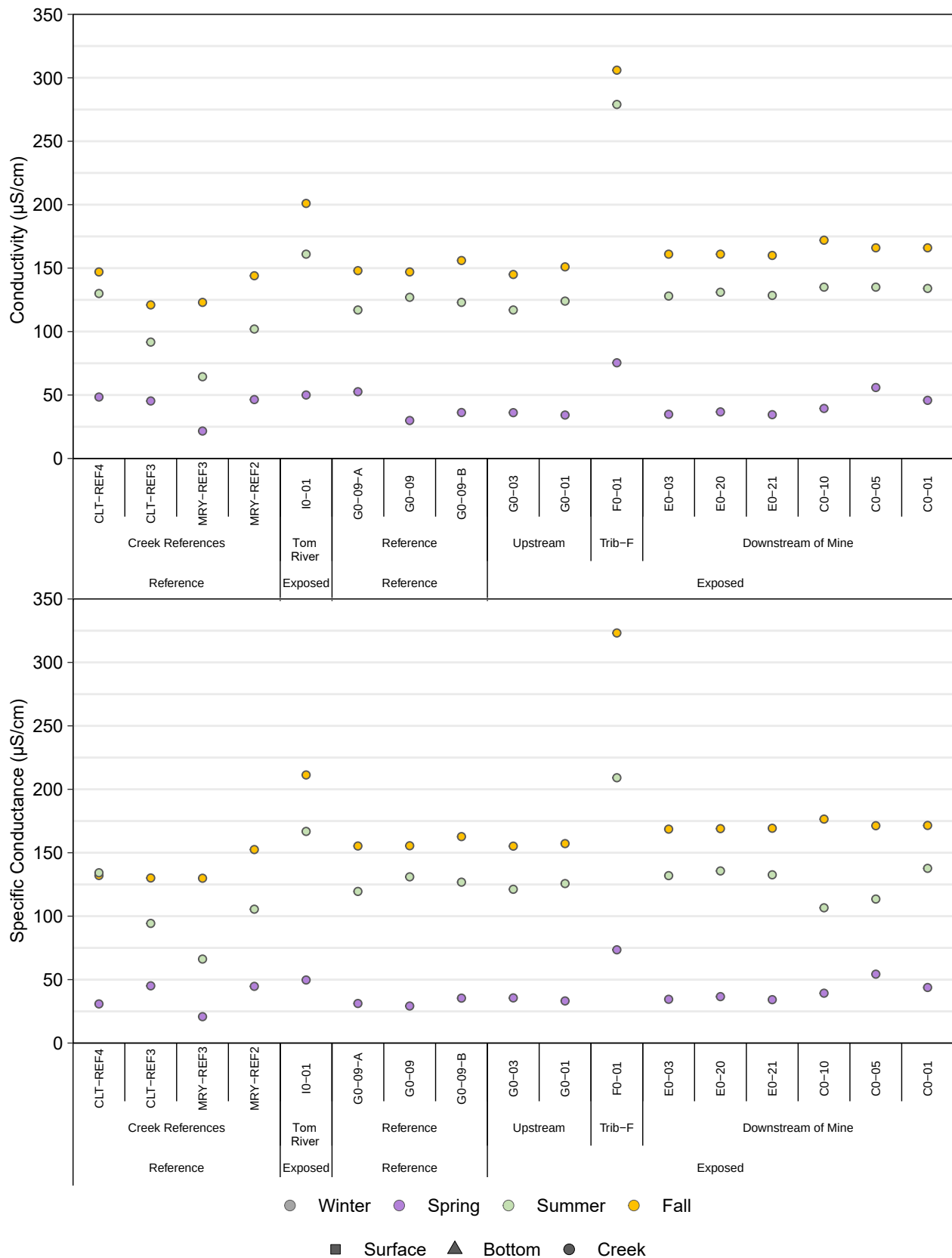


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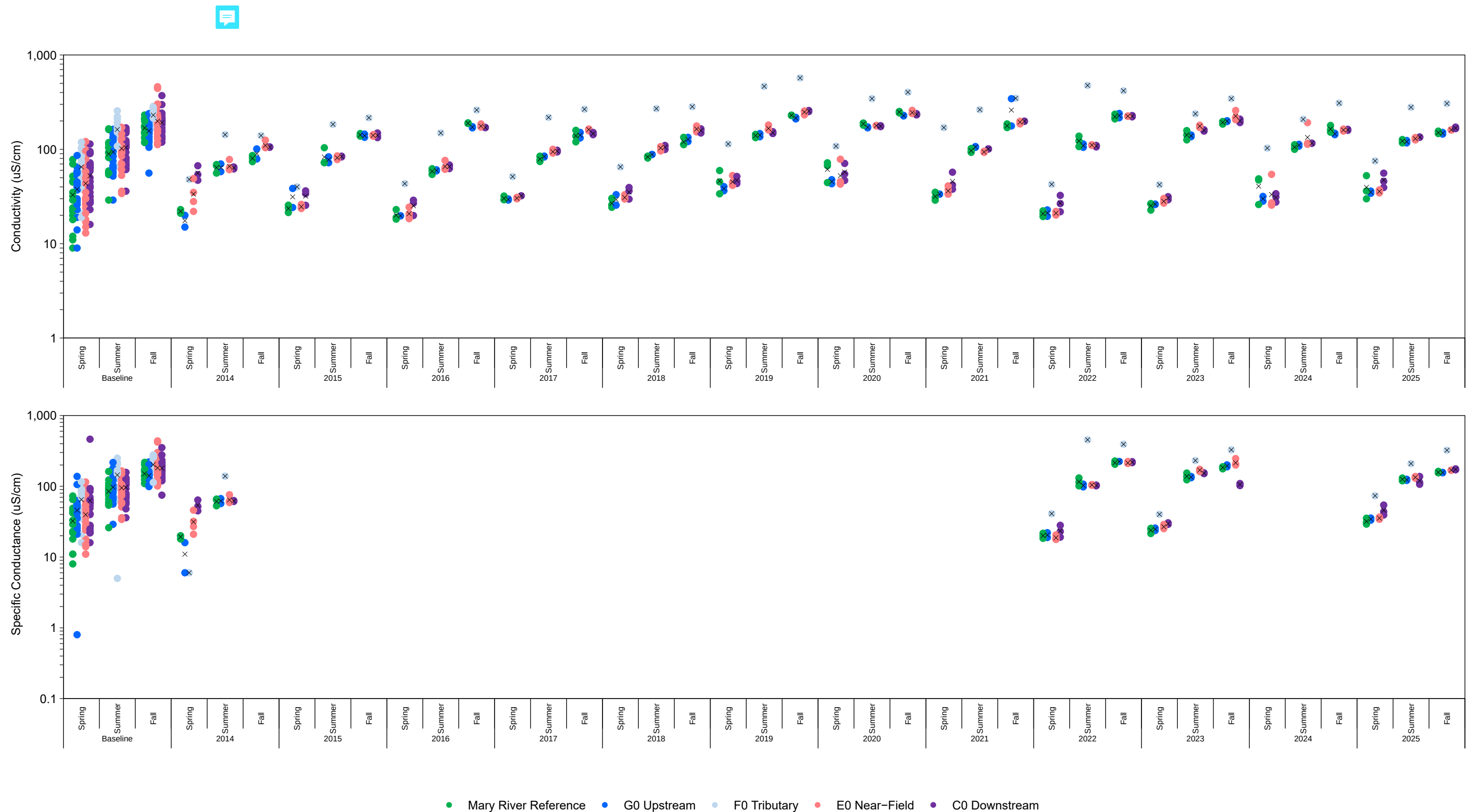


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

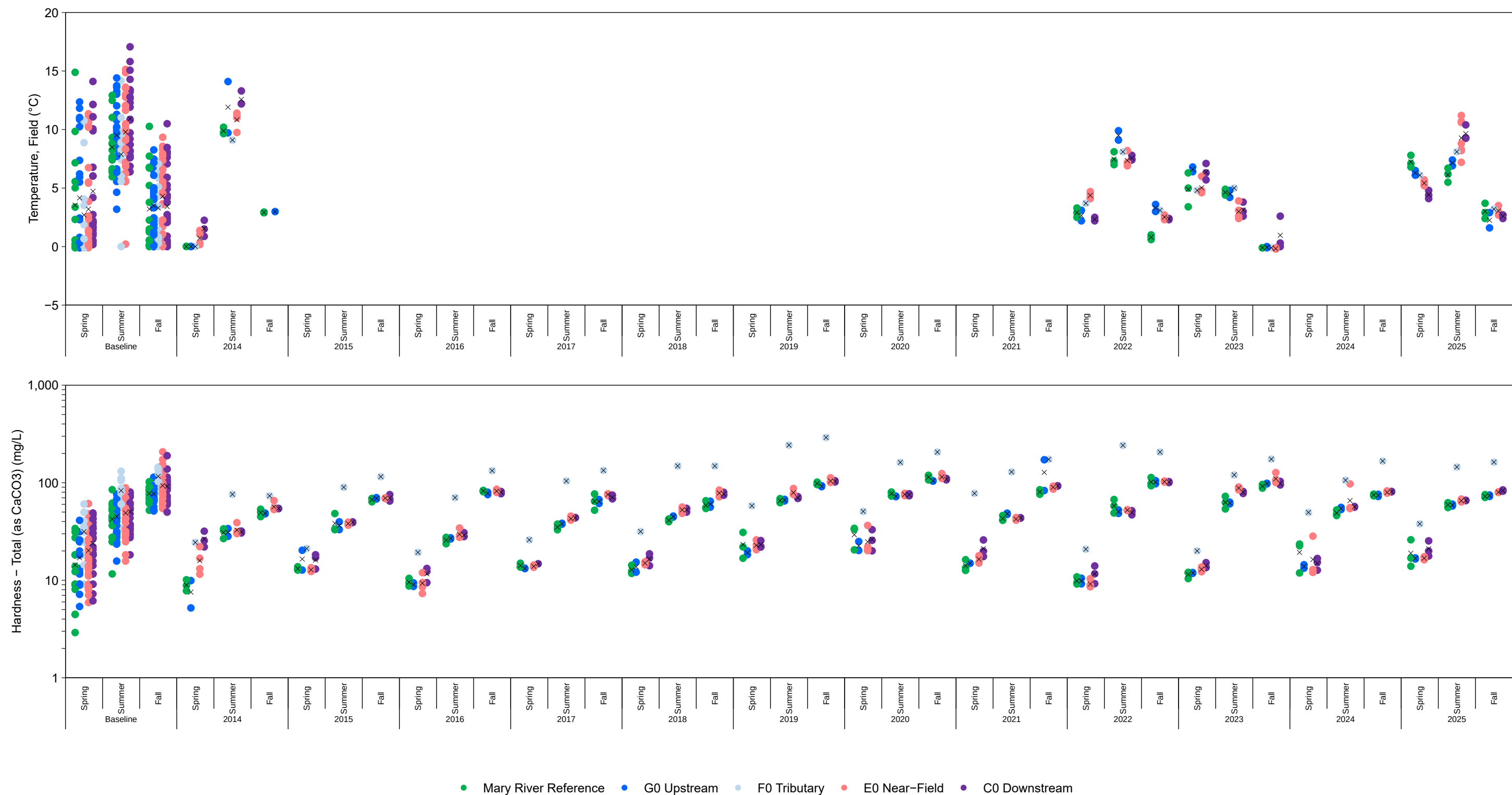


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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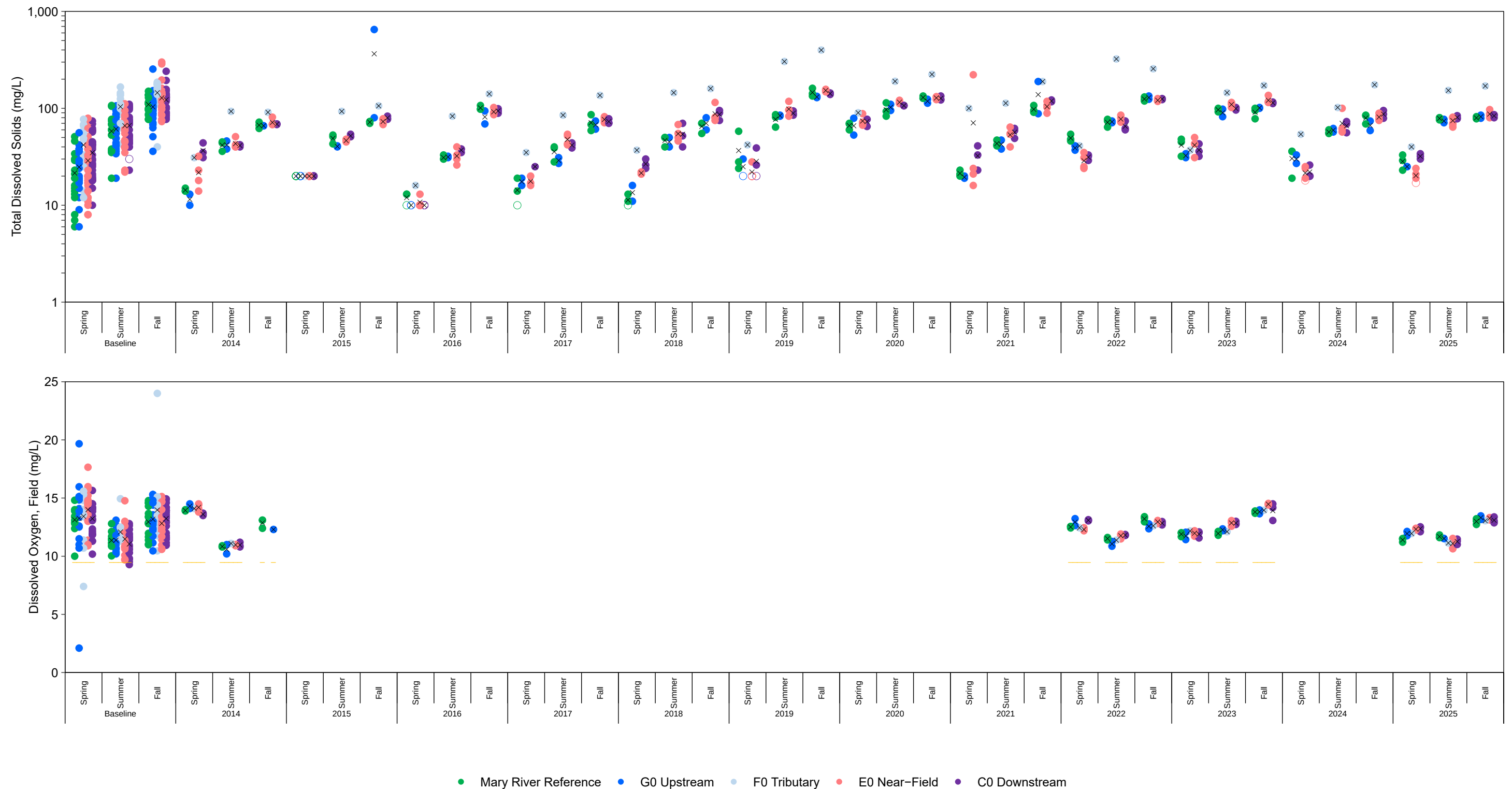


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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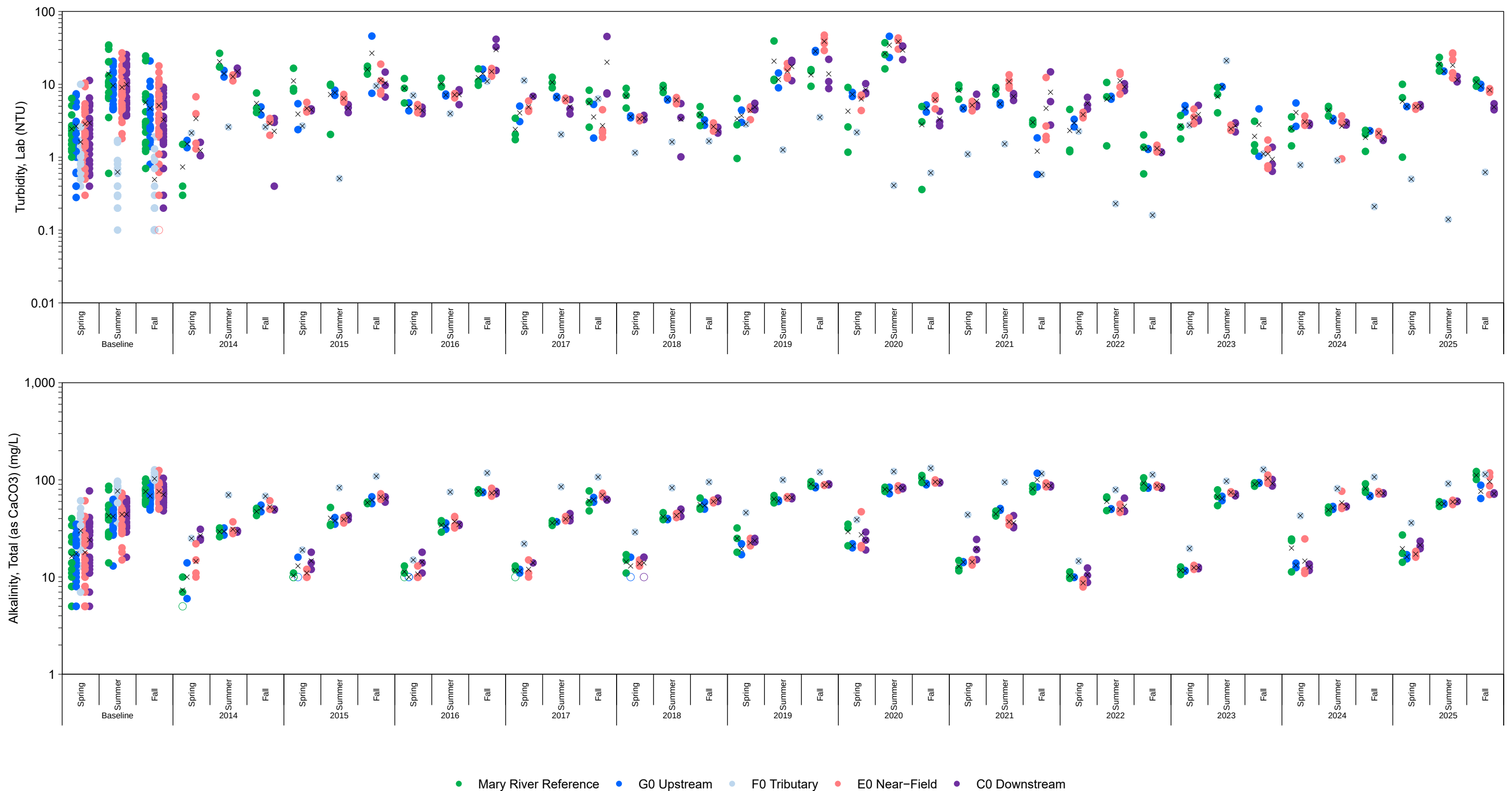


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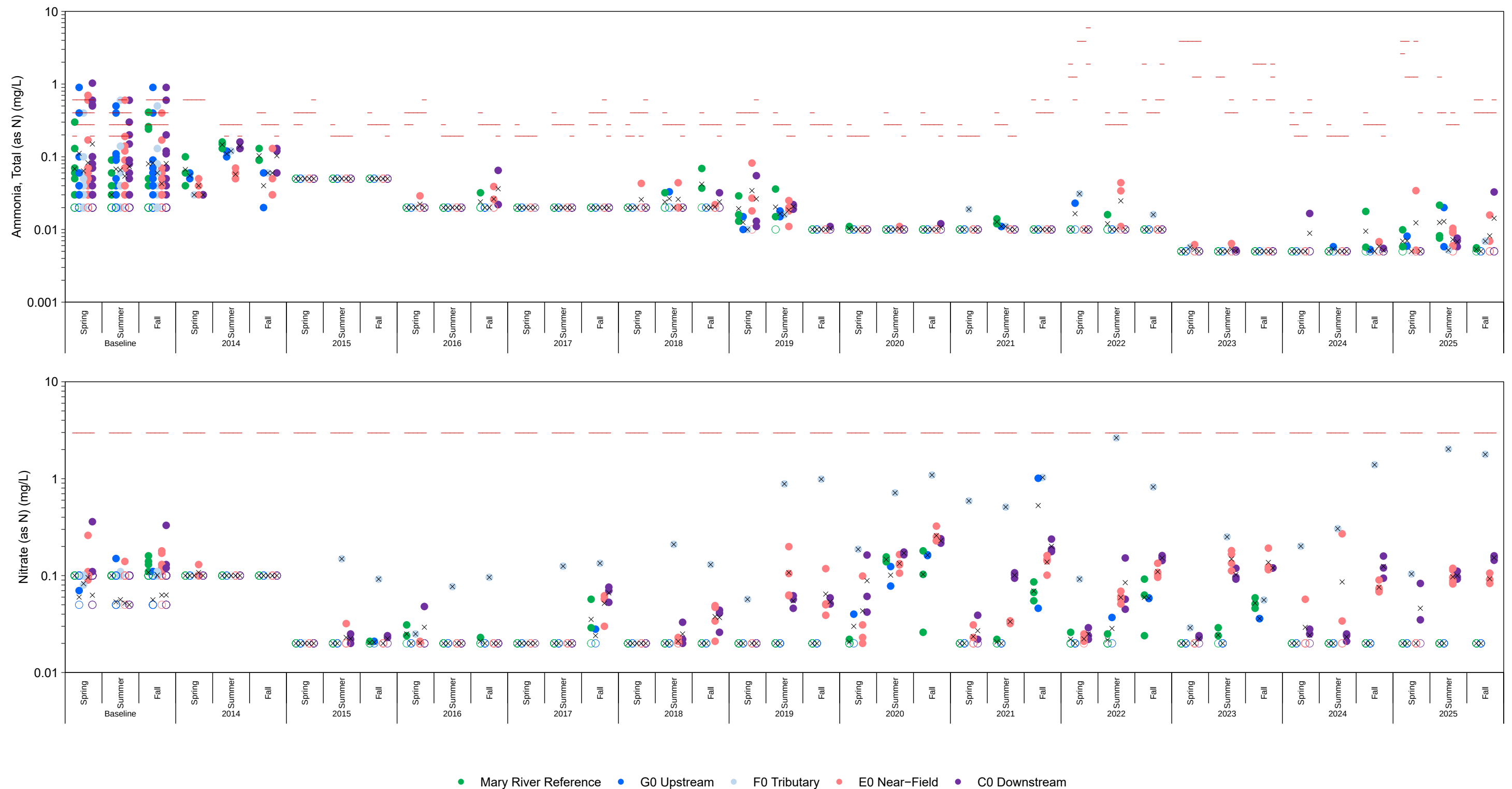


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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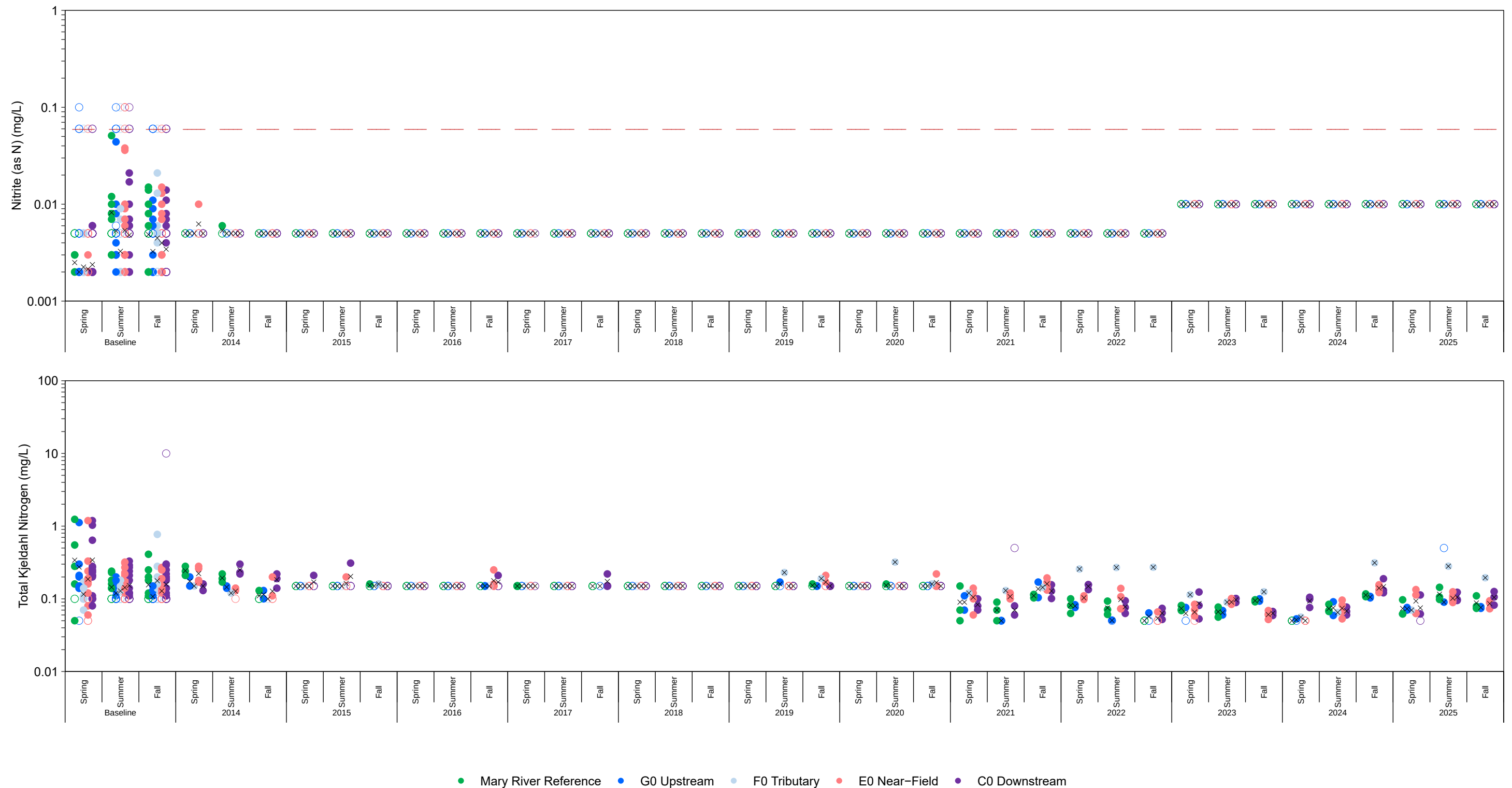


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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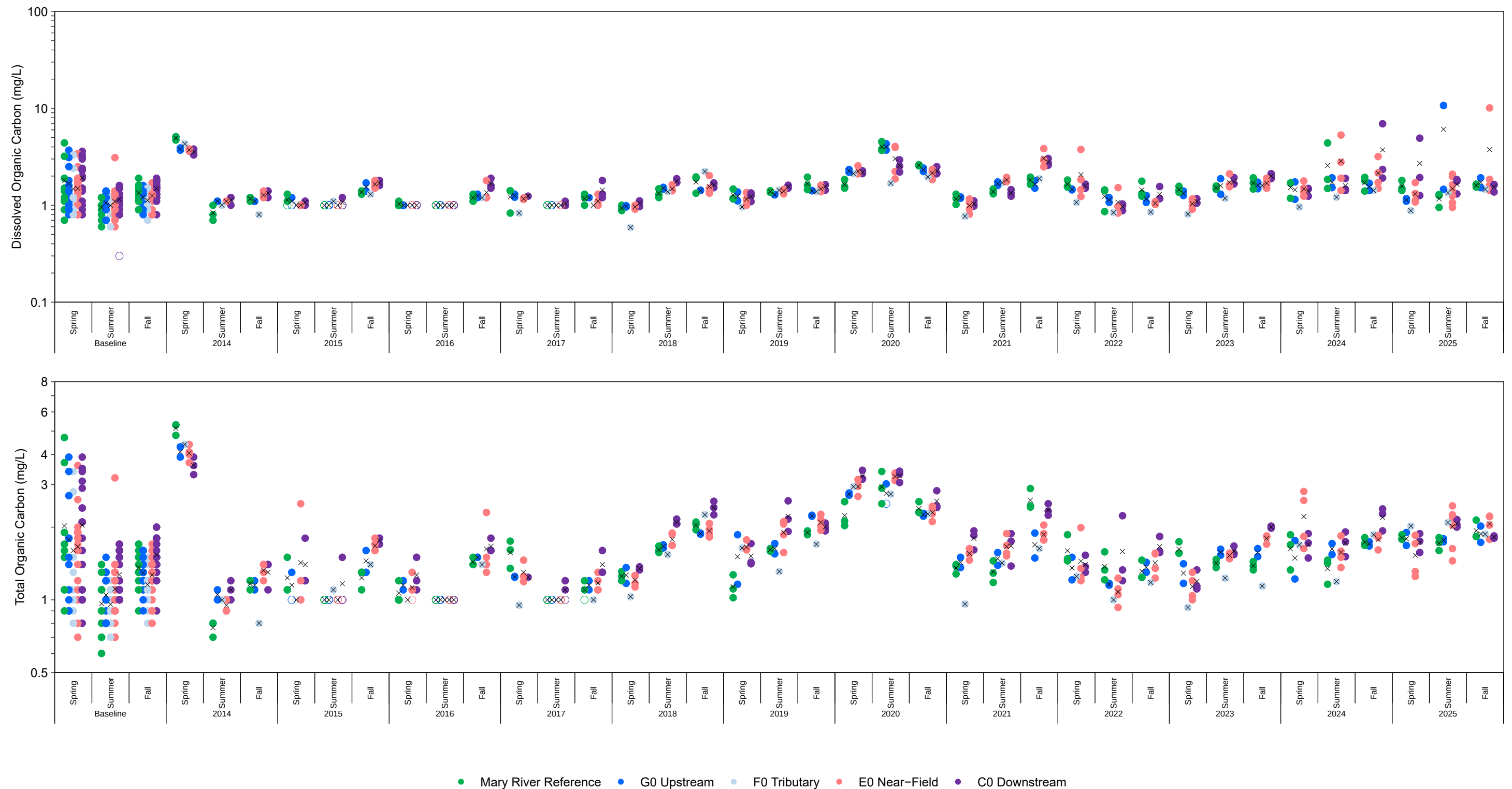


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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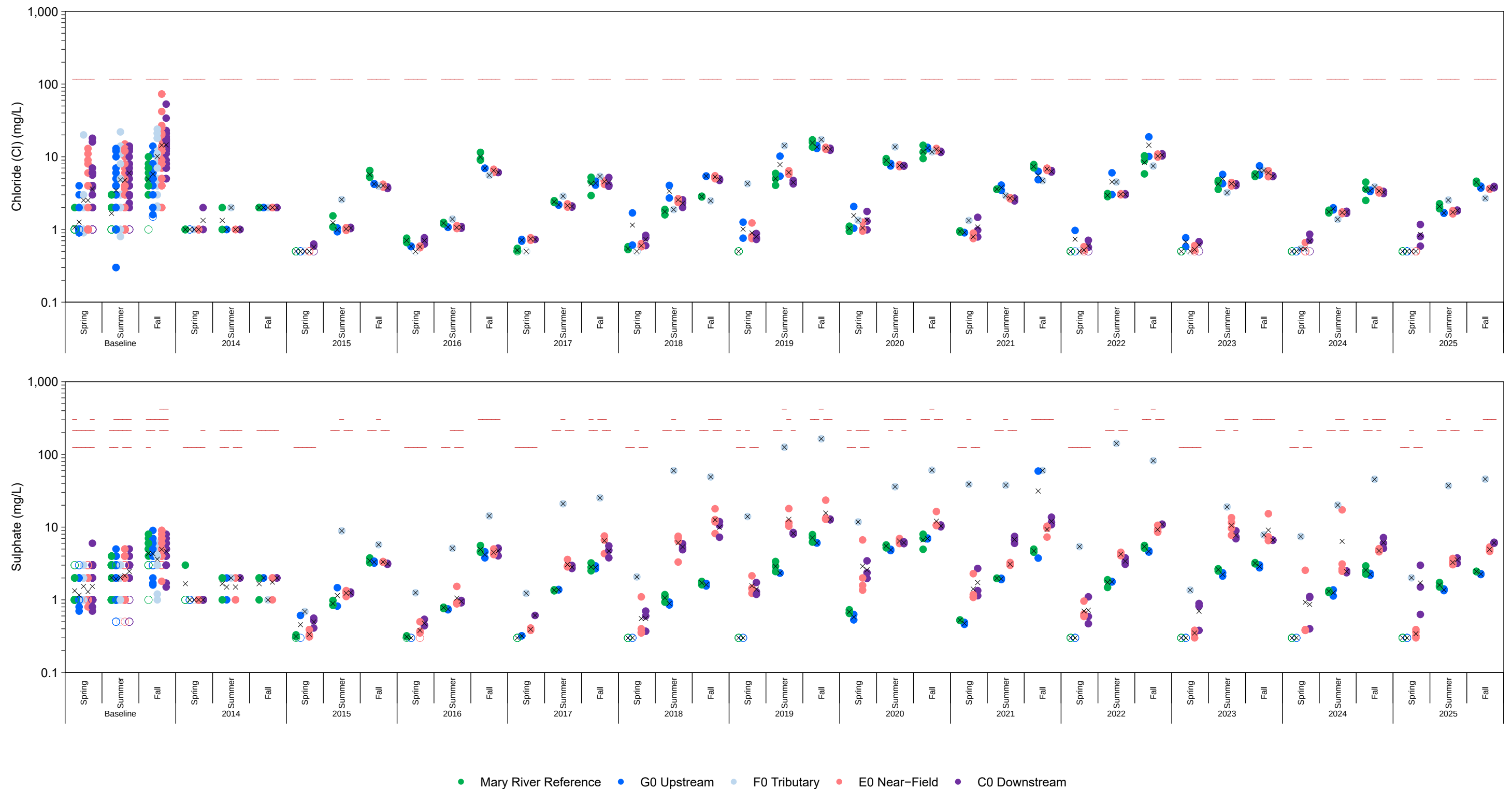


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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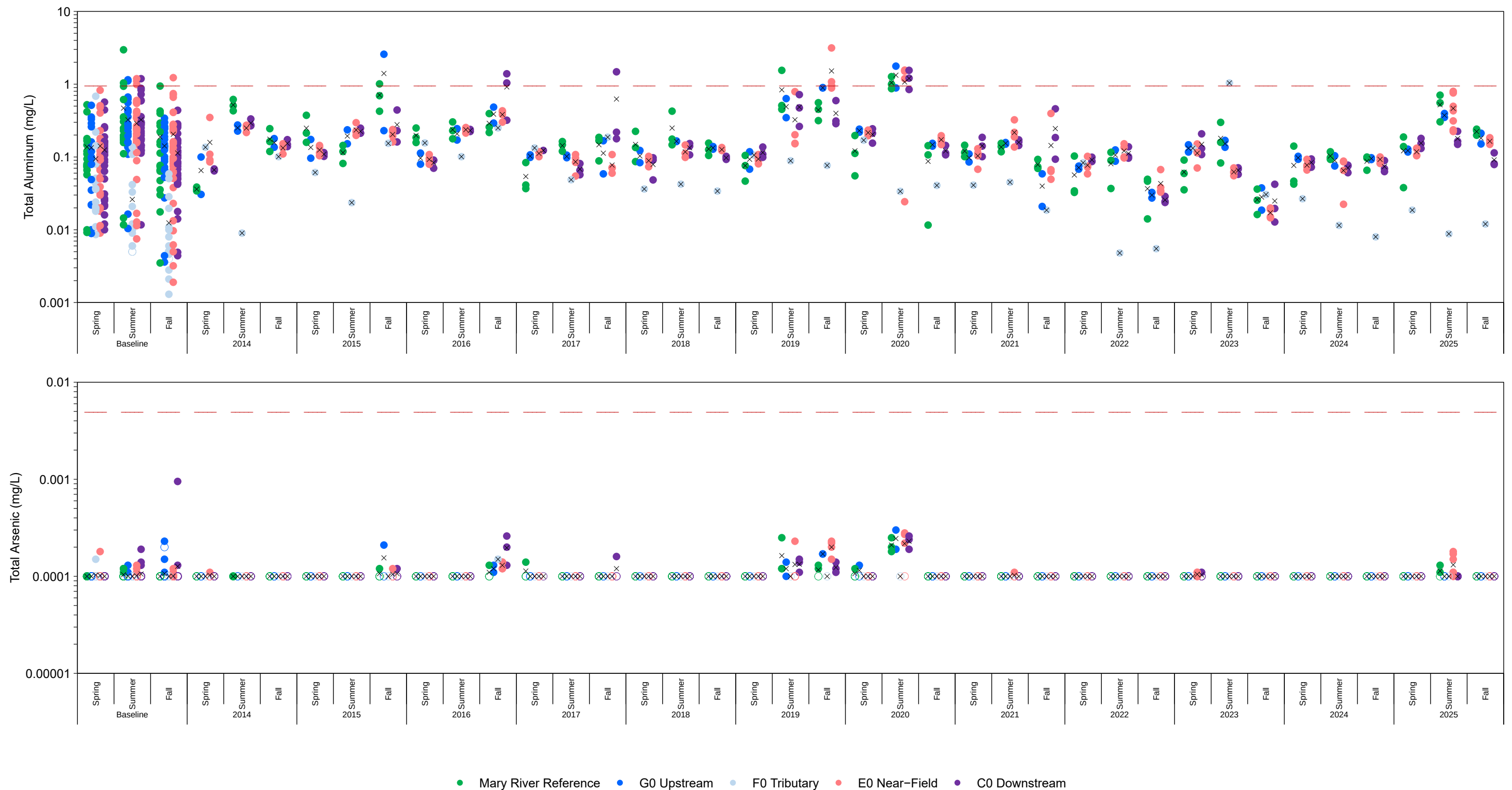


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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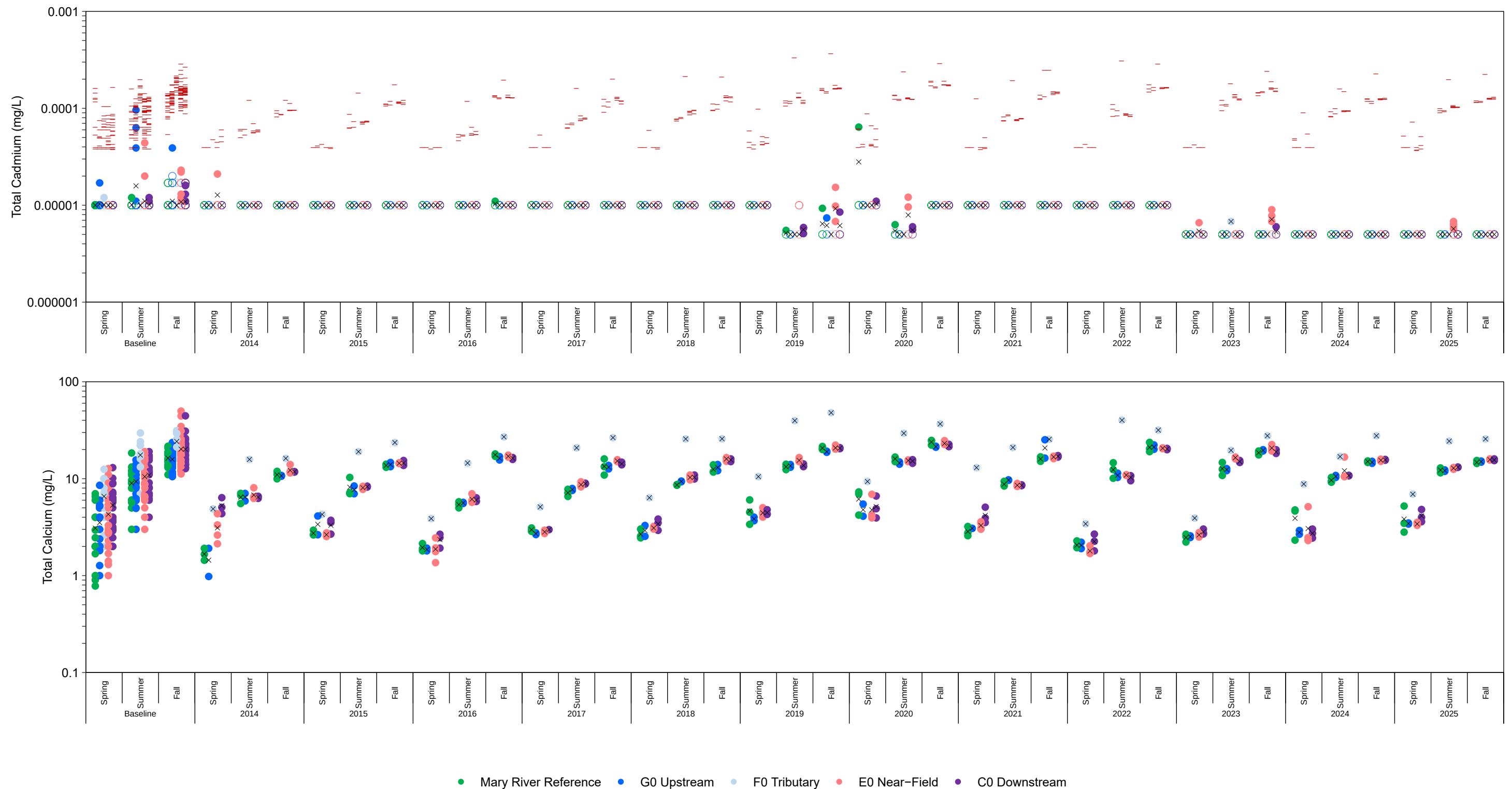


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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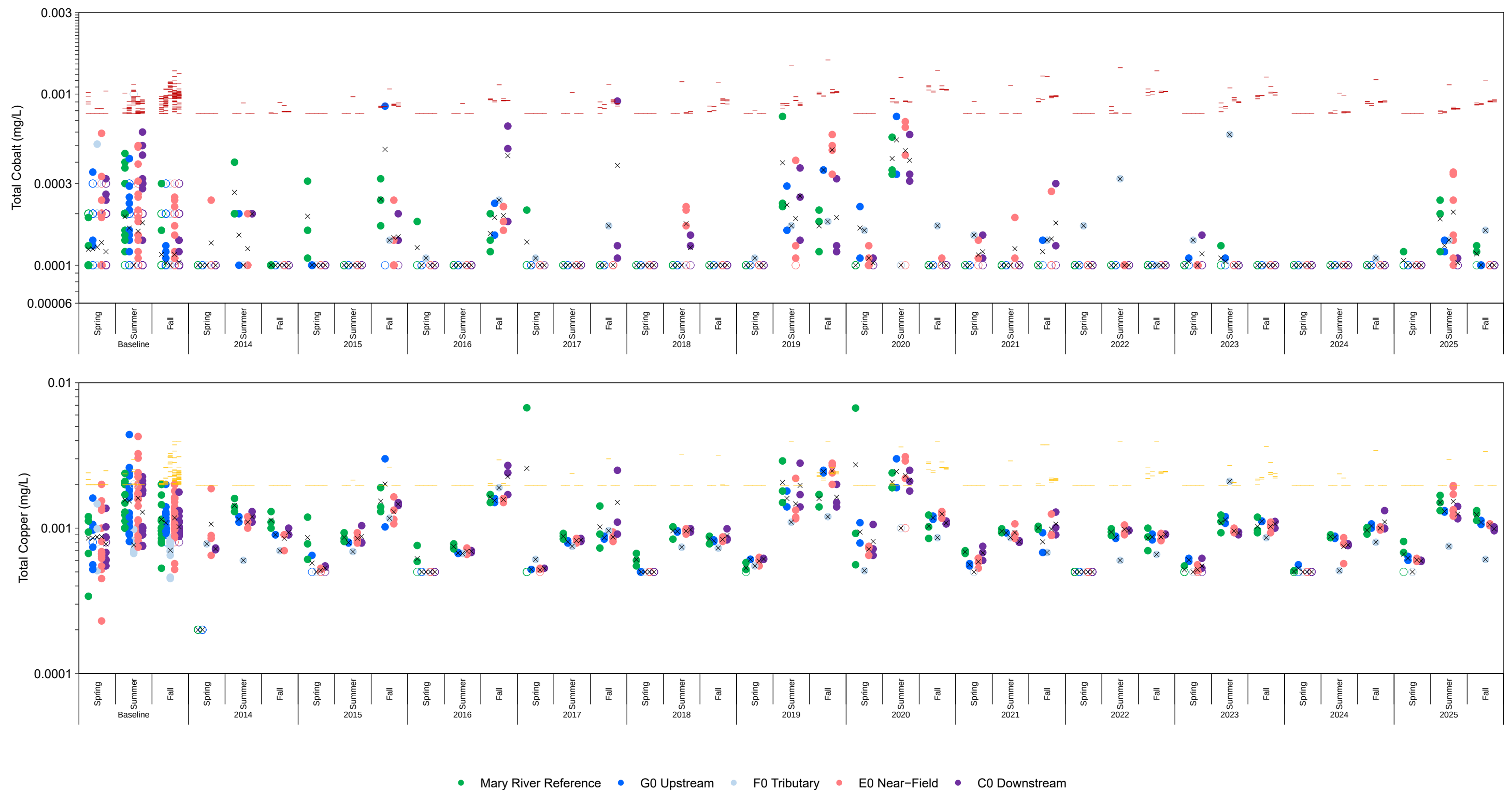


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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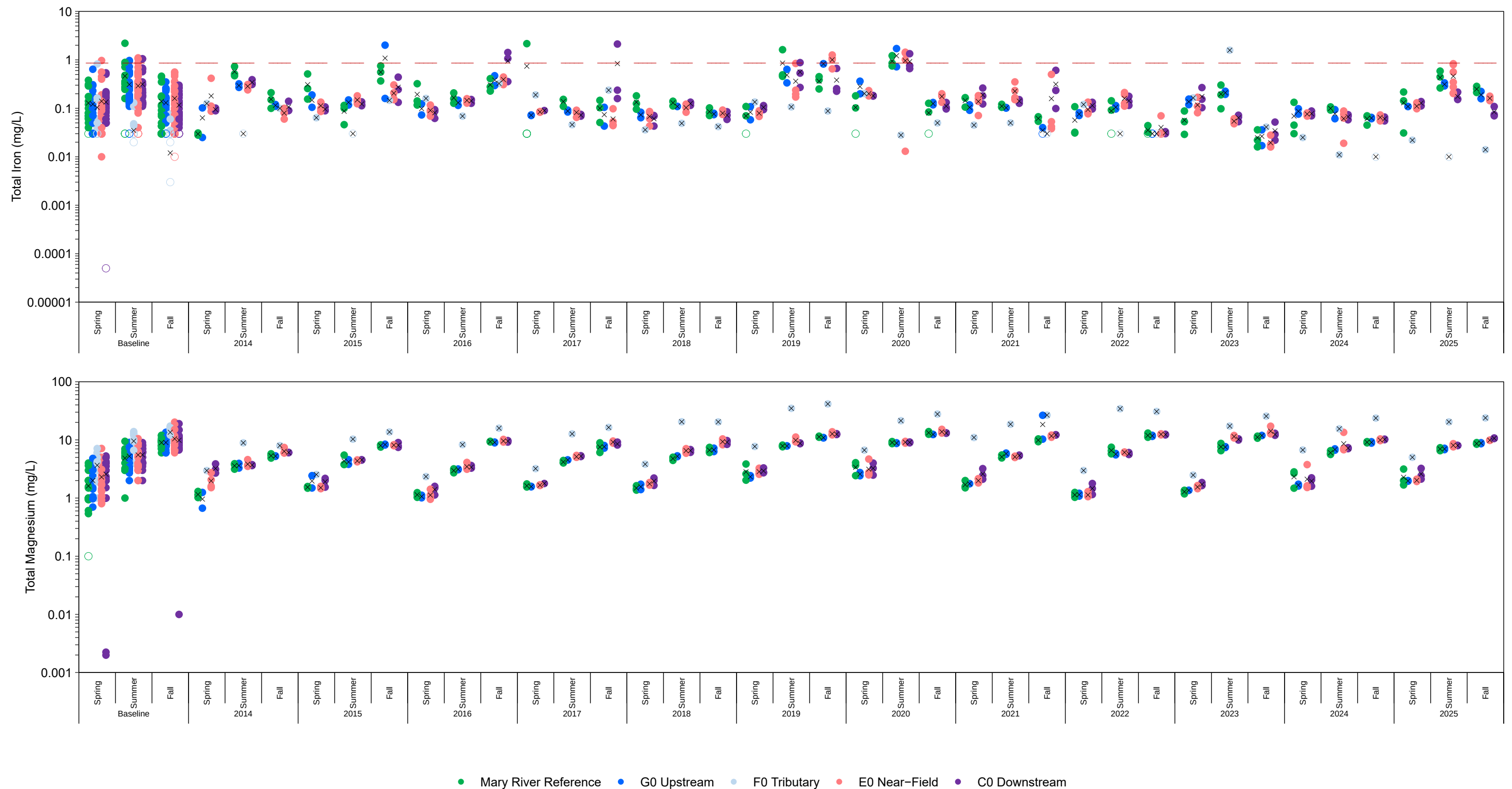


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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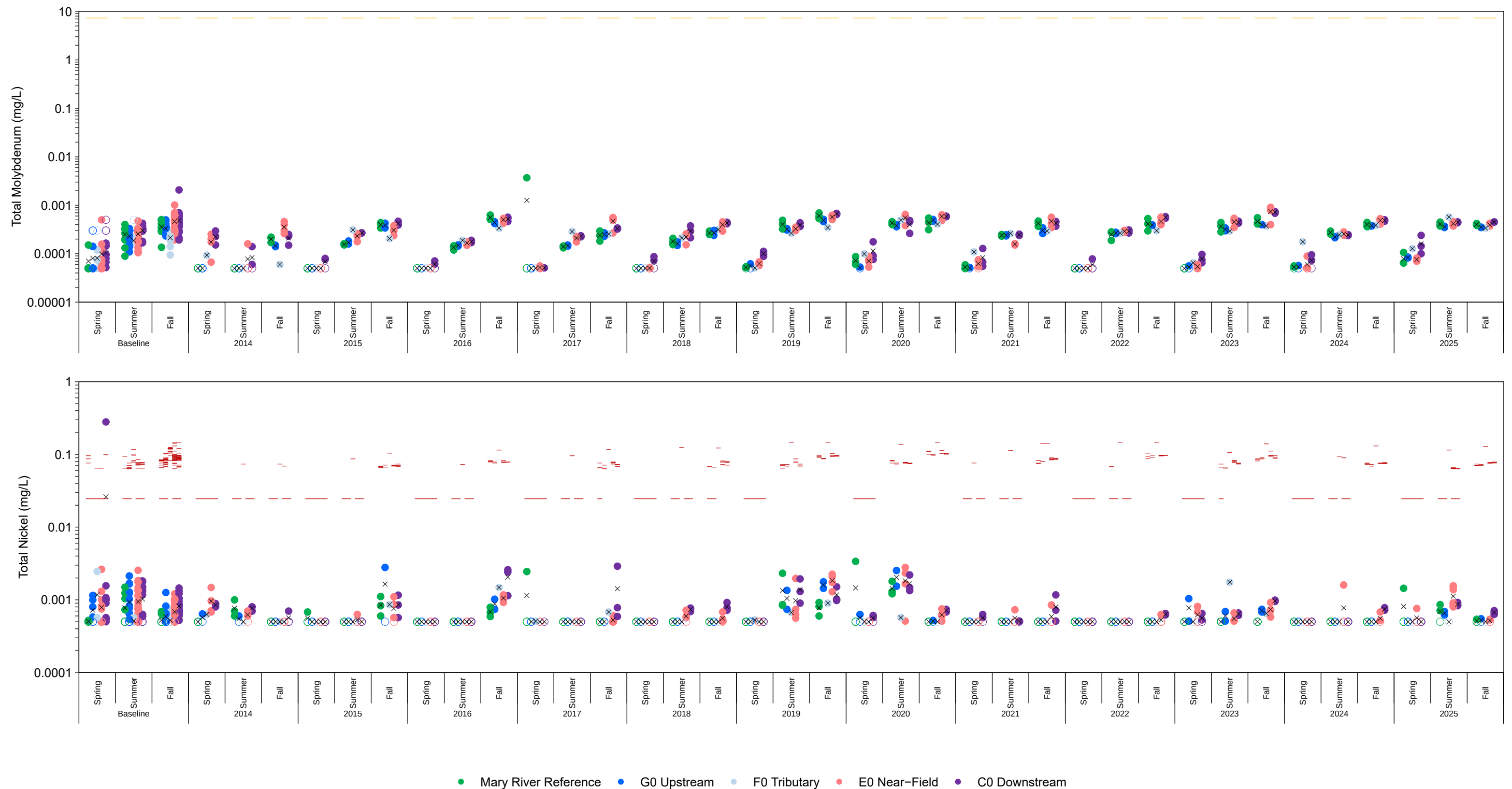


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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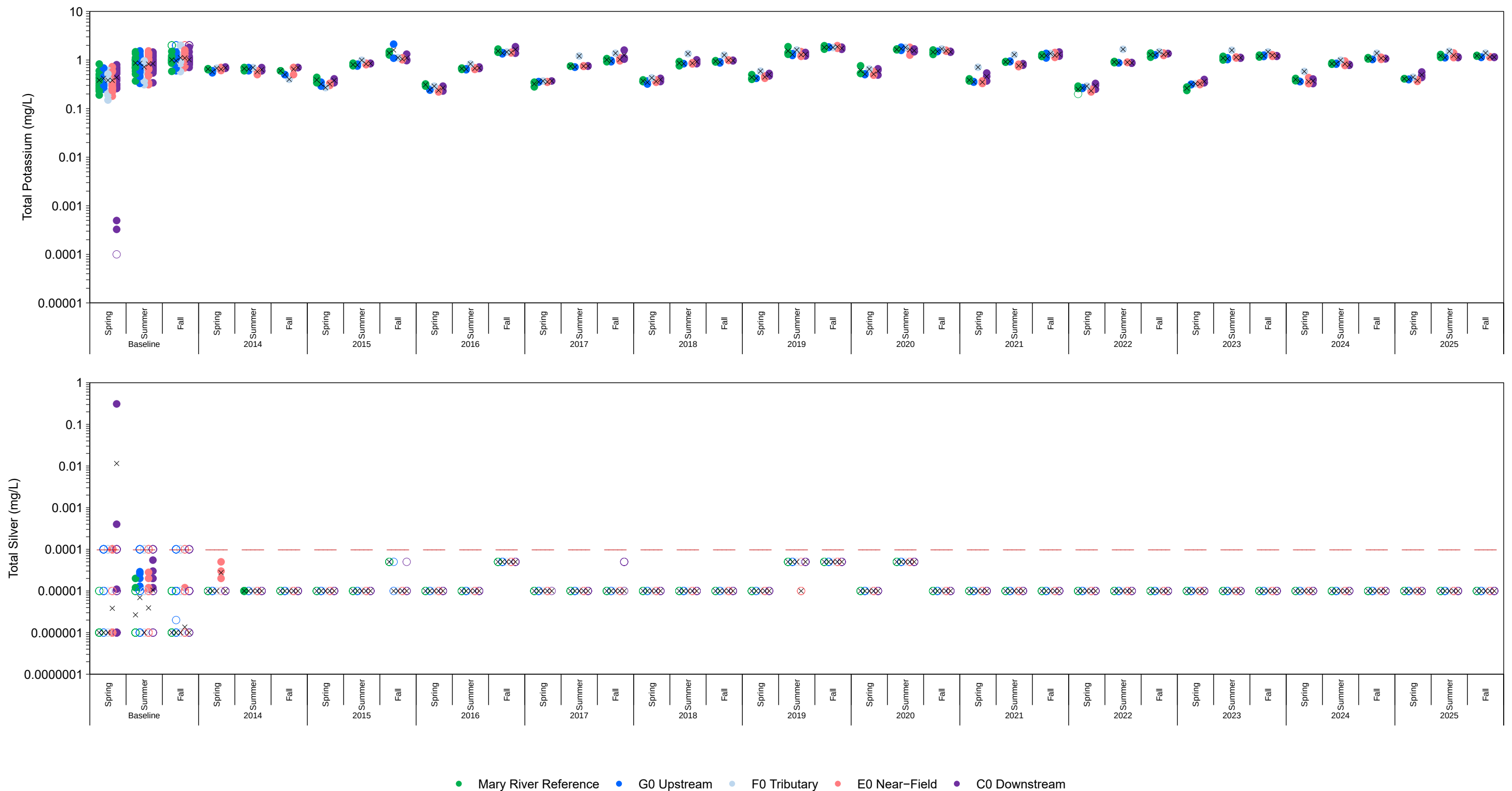


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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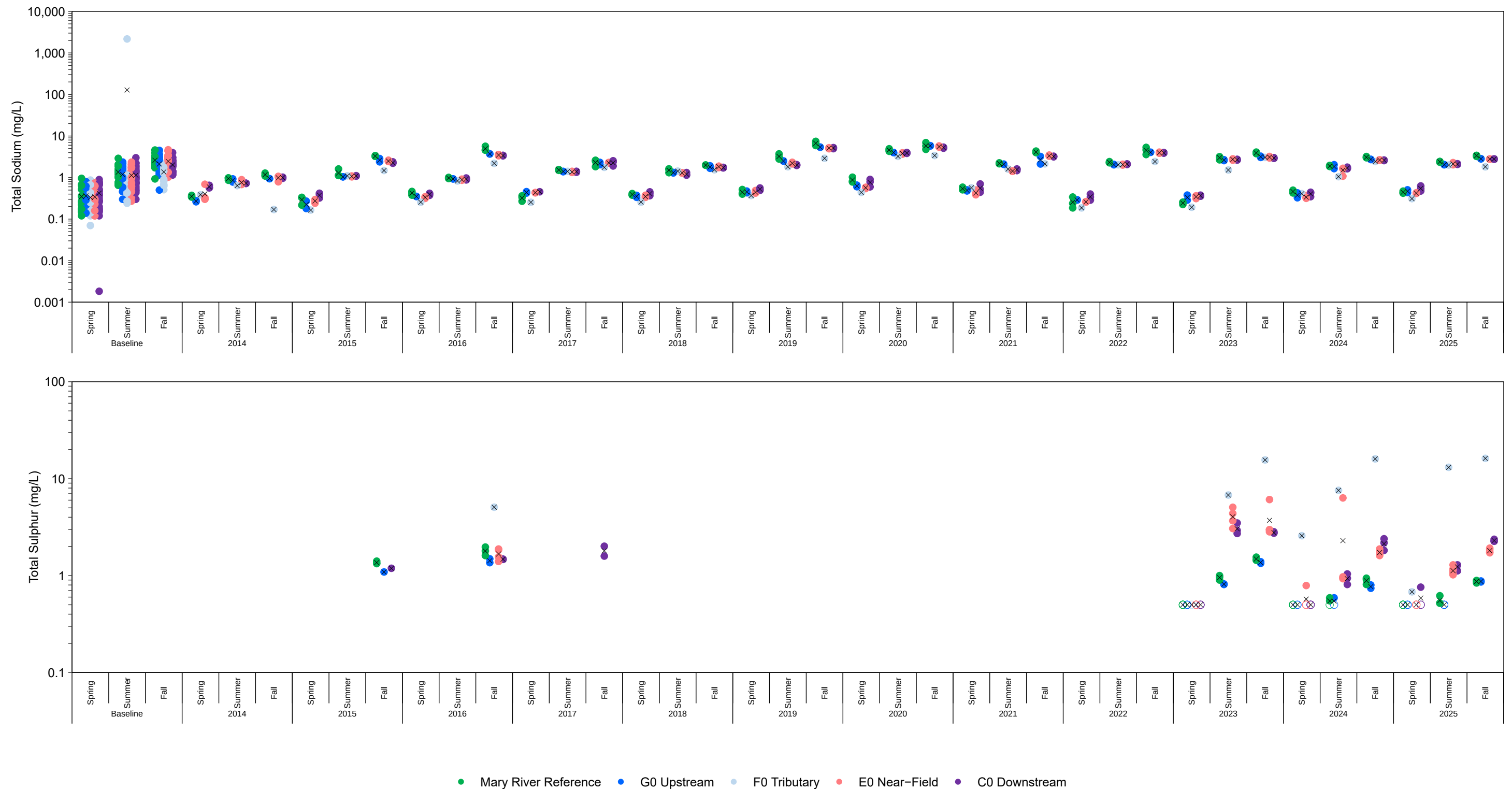


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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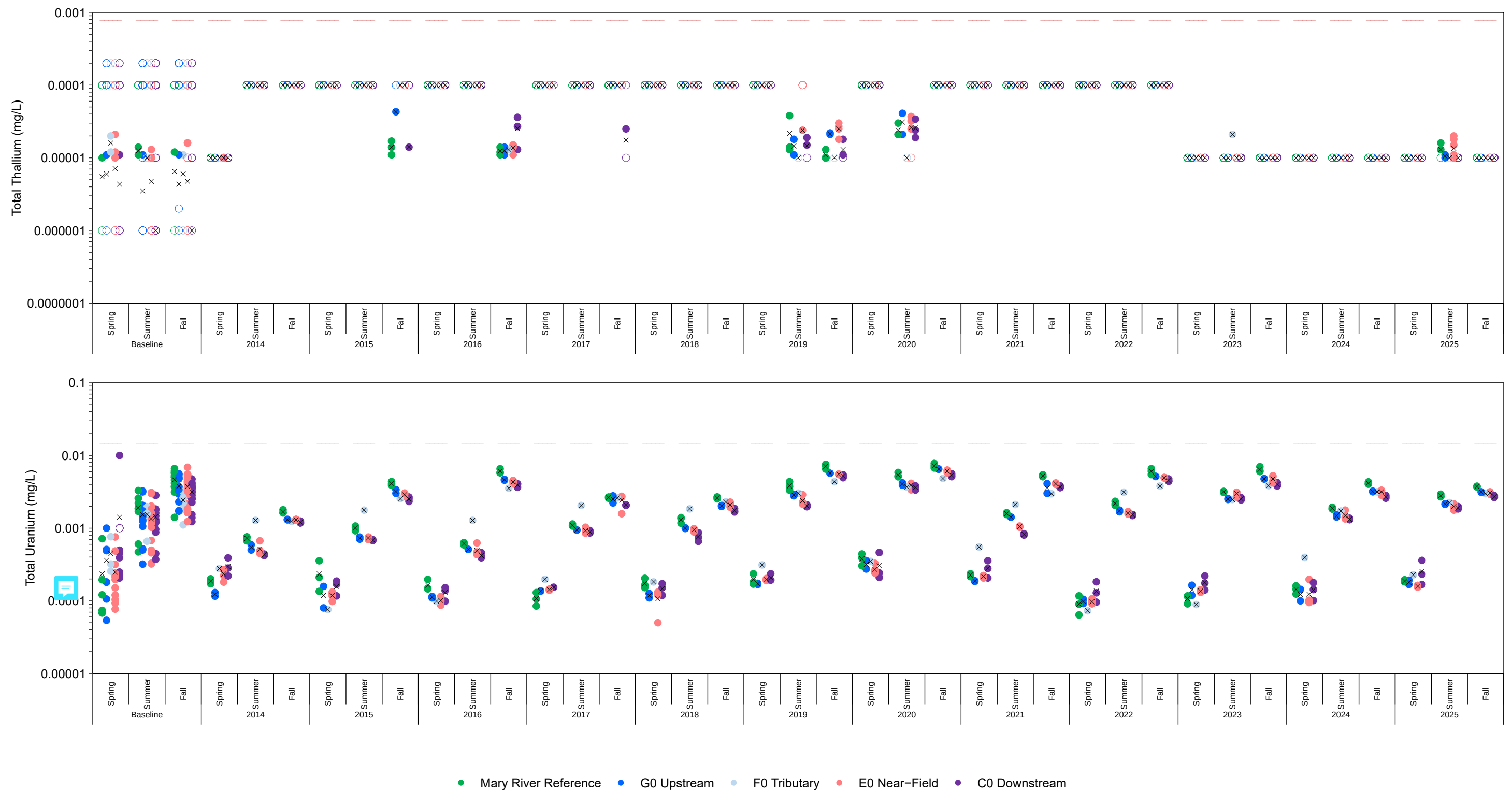


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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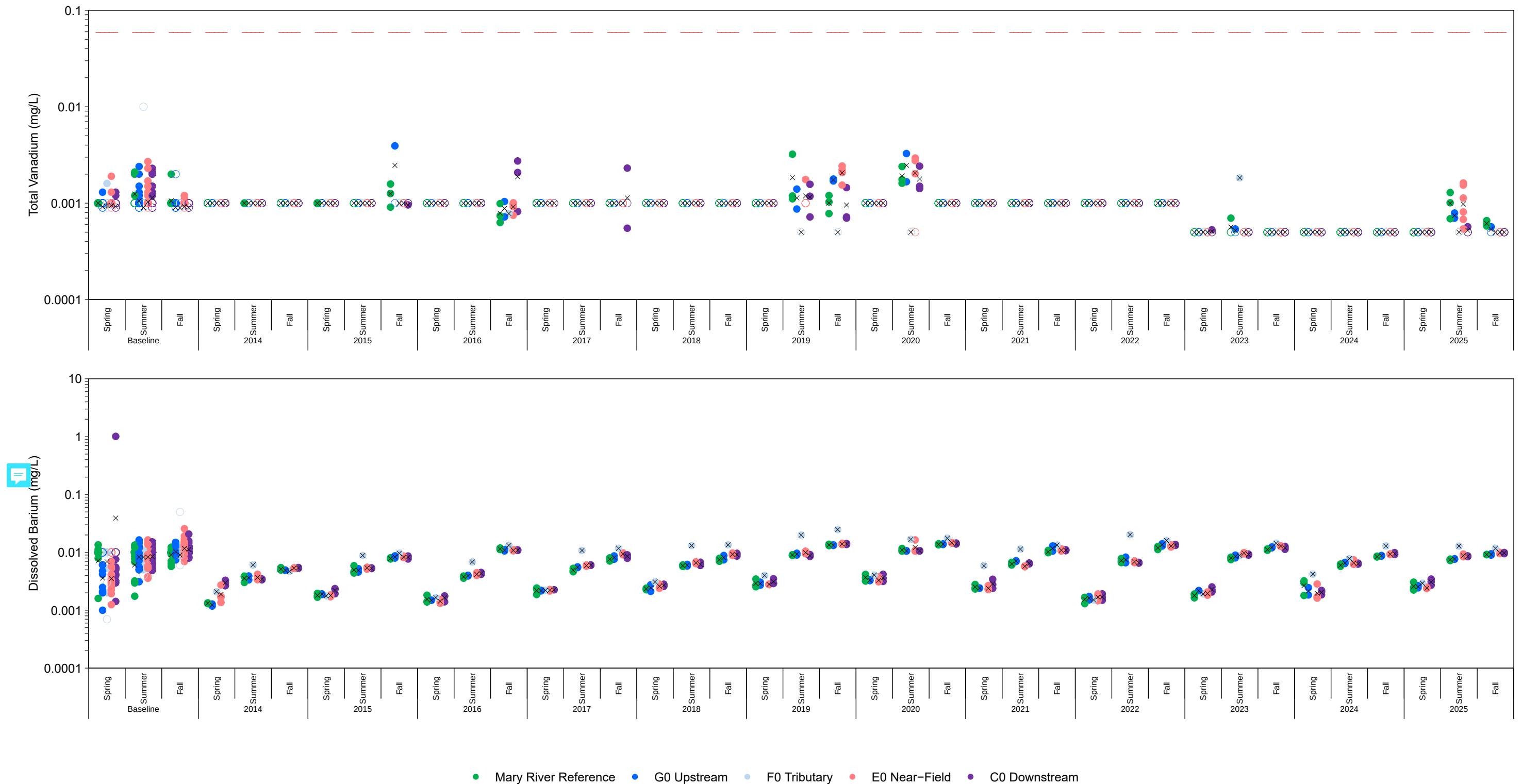


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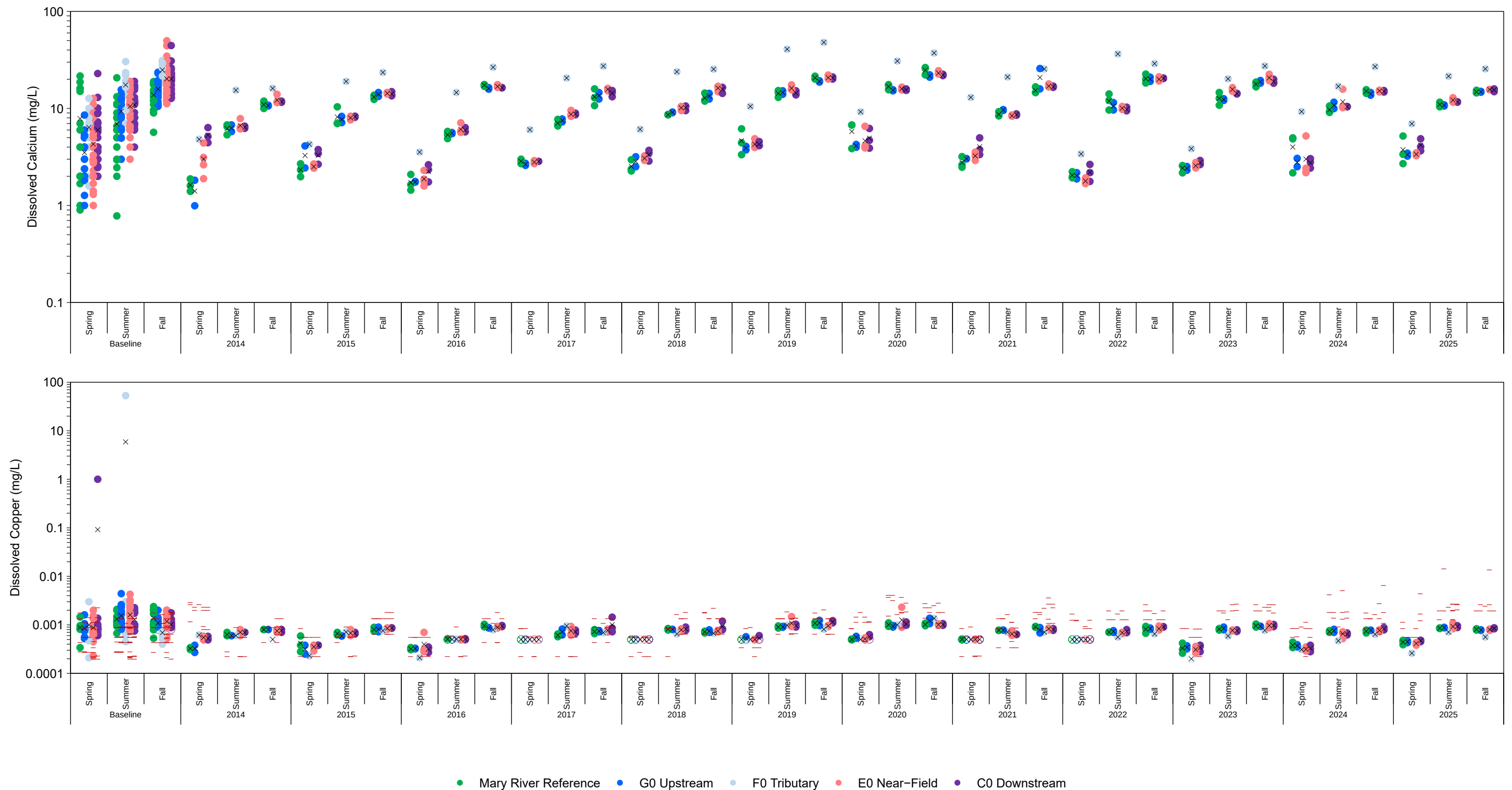


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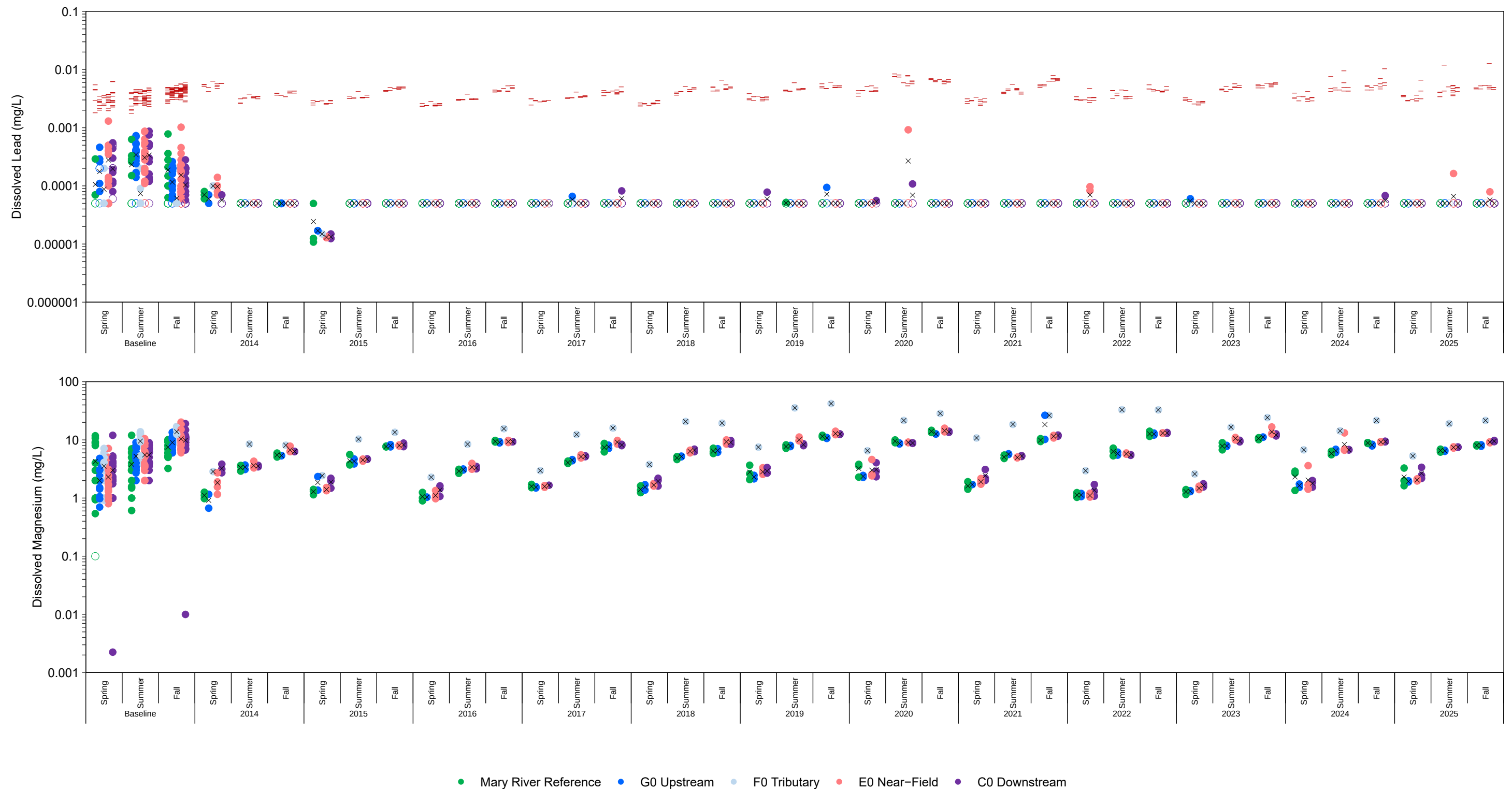


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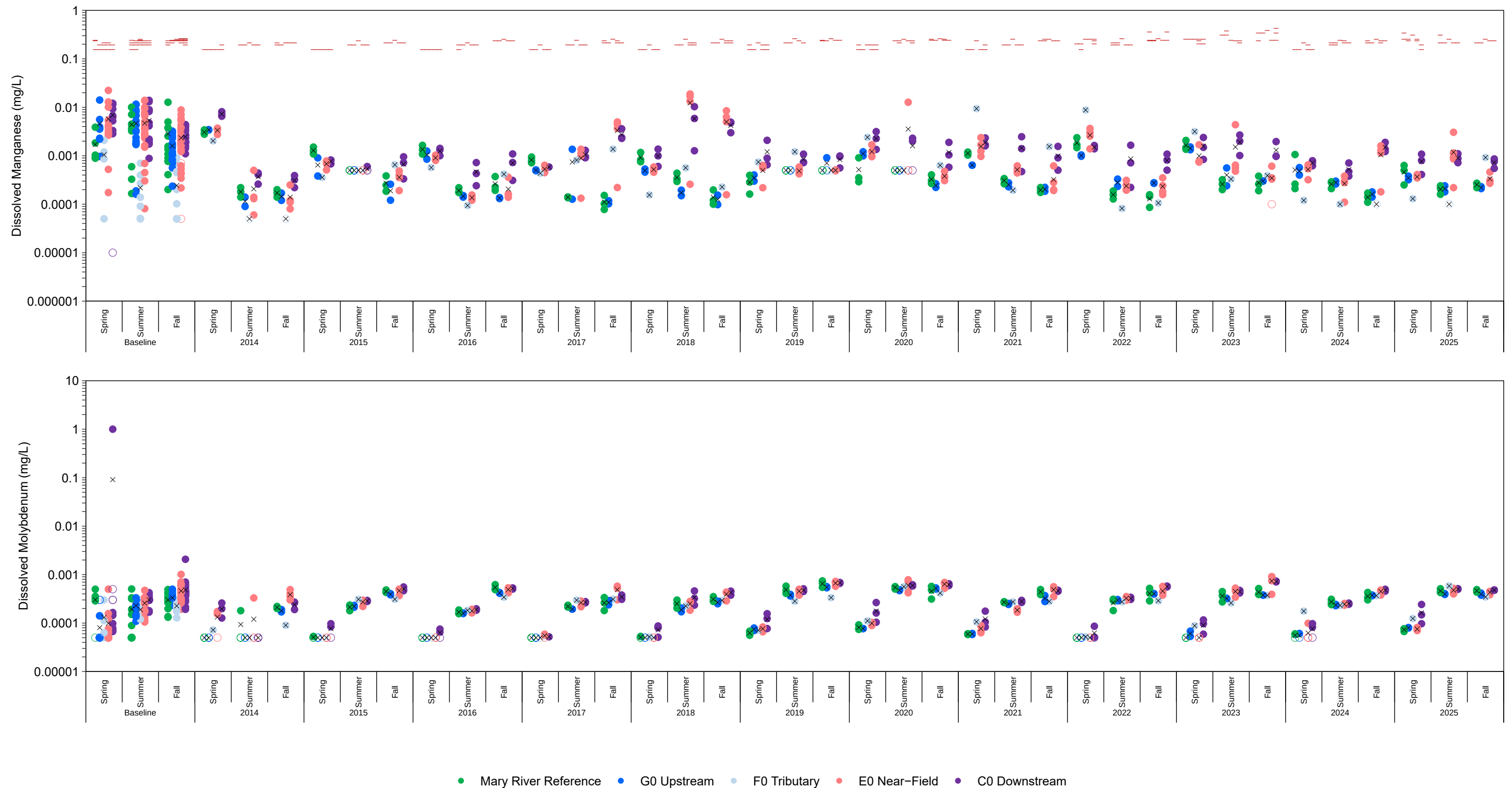


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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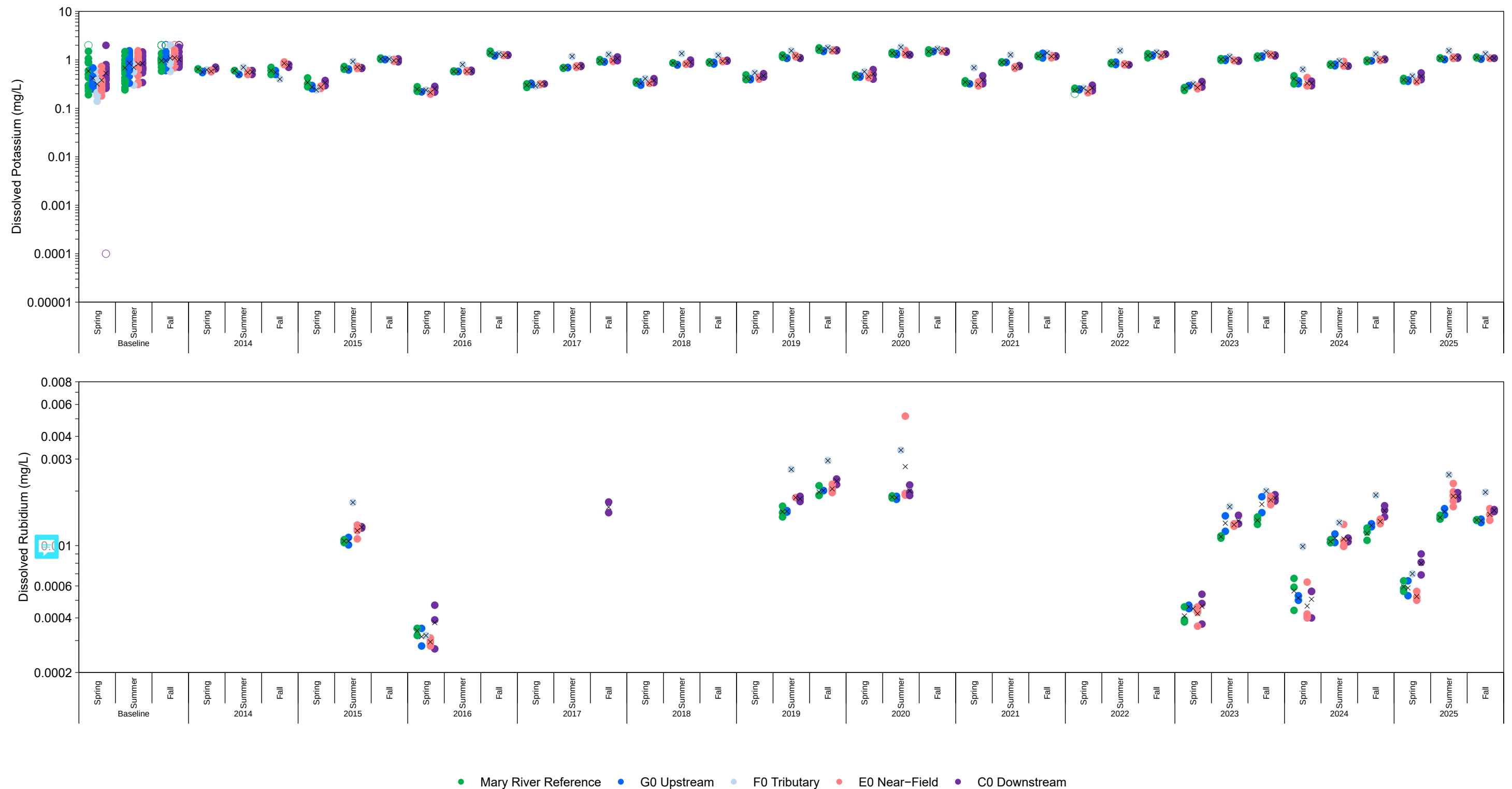


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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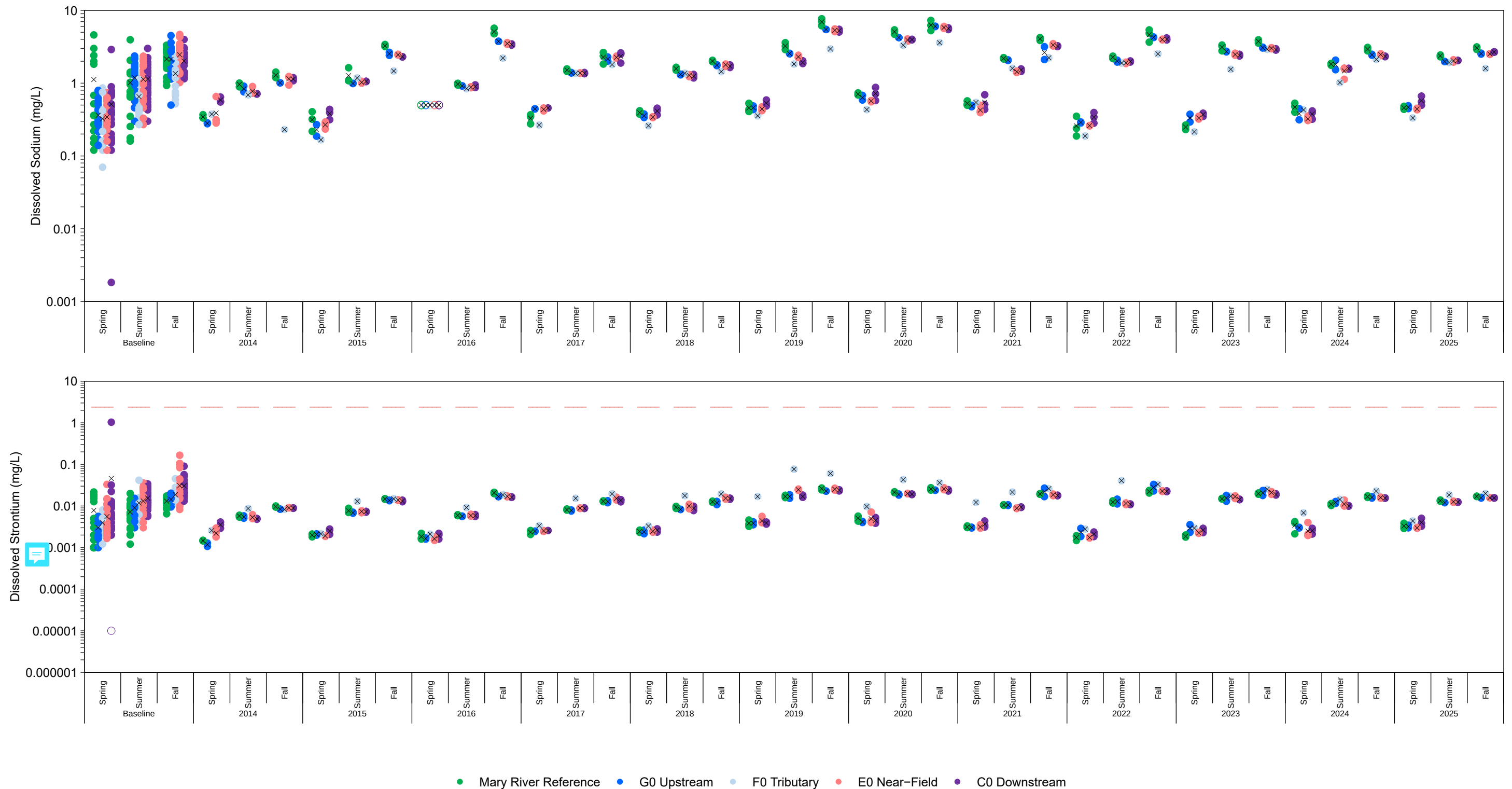


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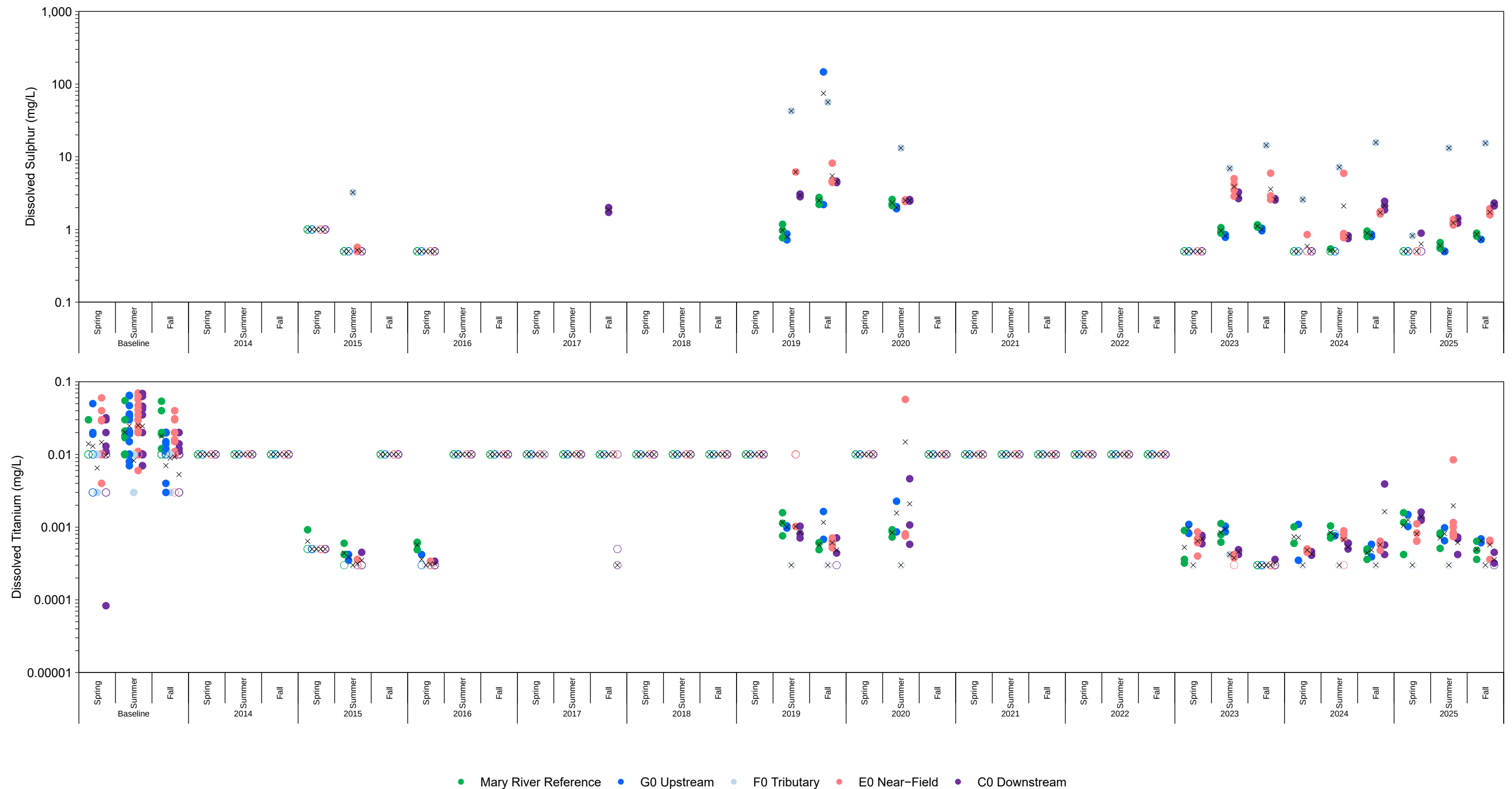


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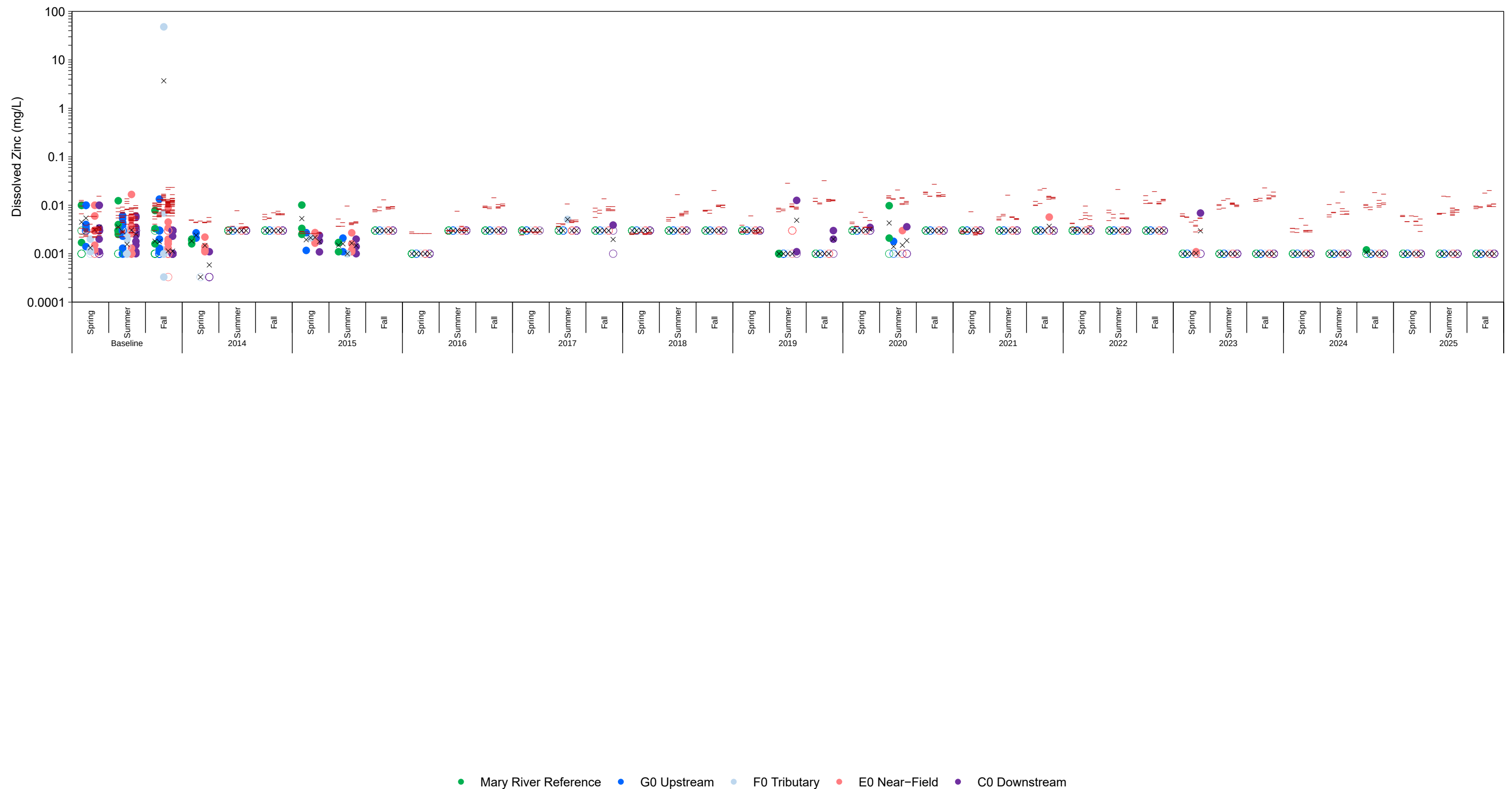


Figure B.13: Temporal Comparisons for Water Chemistry at Mary River (G0, F0, E0, and C0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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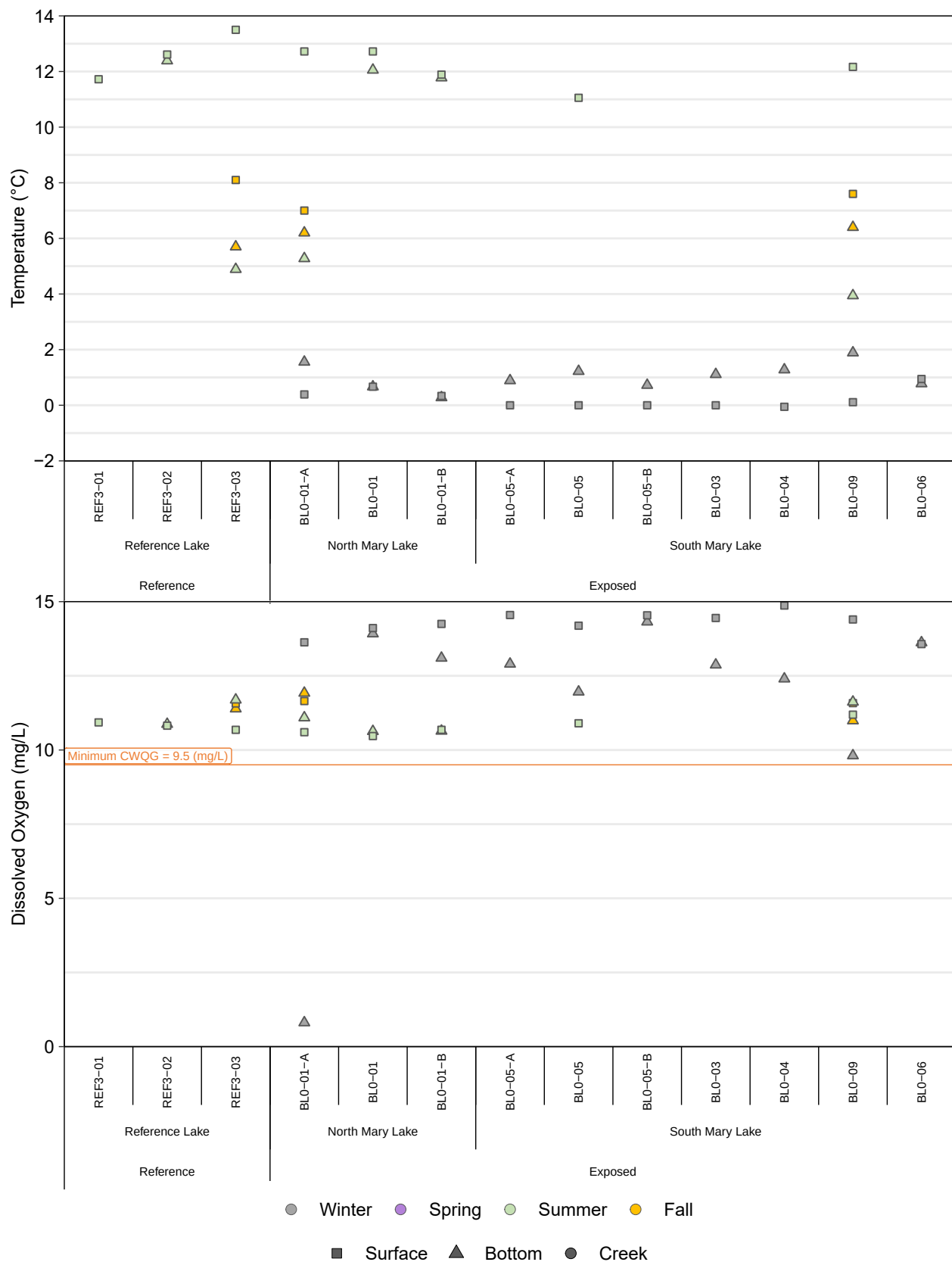


Figure B.14: *In Situ* Water Quality Measured at Mary Lake Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

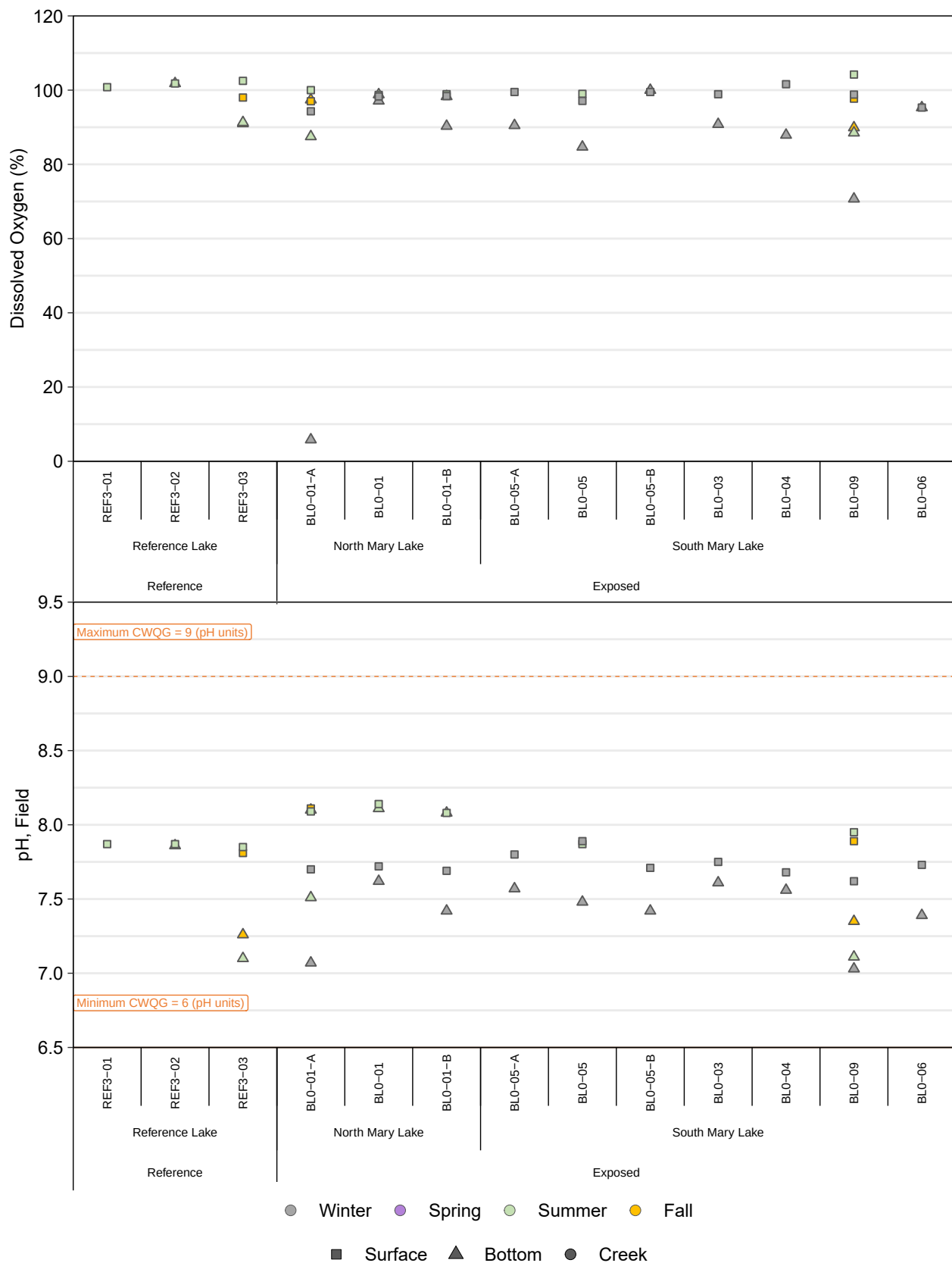


Figure B.14: *In Situ* Water Quality Measured at Mary Lake Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

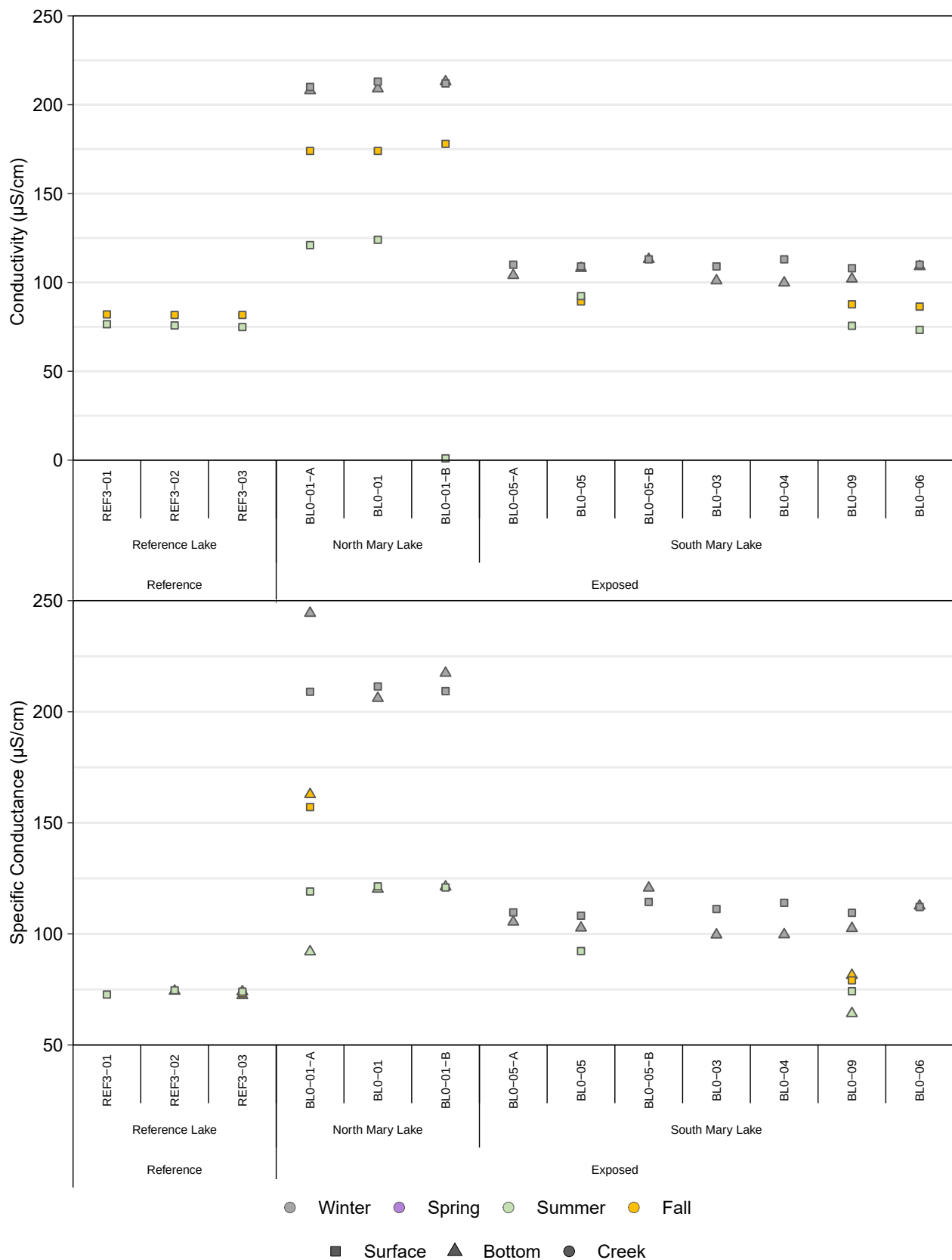


Figure B.14: *In Situ* Water Quality Measured at Mary Lake Water Quality Monitoring Stations in Spring, Summer, and Fall 2025, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Streams were not sampled in winter. Lakes were not sampled in spring. Reference Lake 3 (REF3) was not sampled in winter.

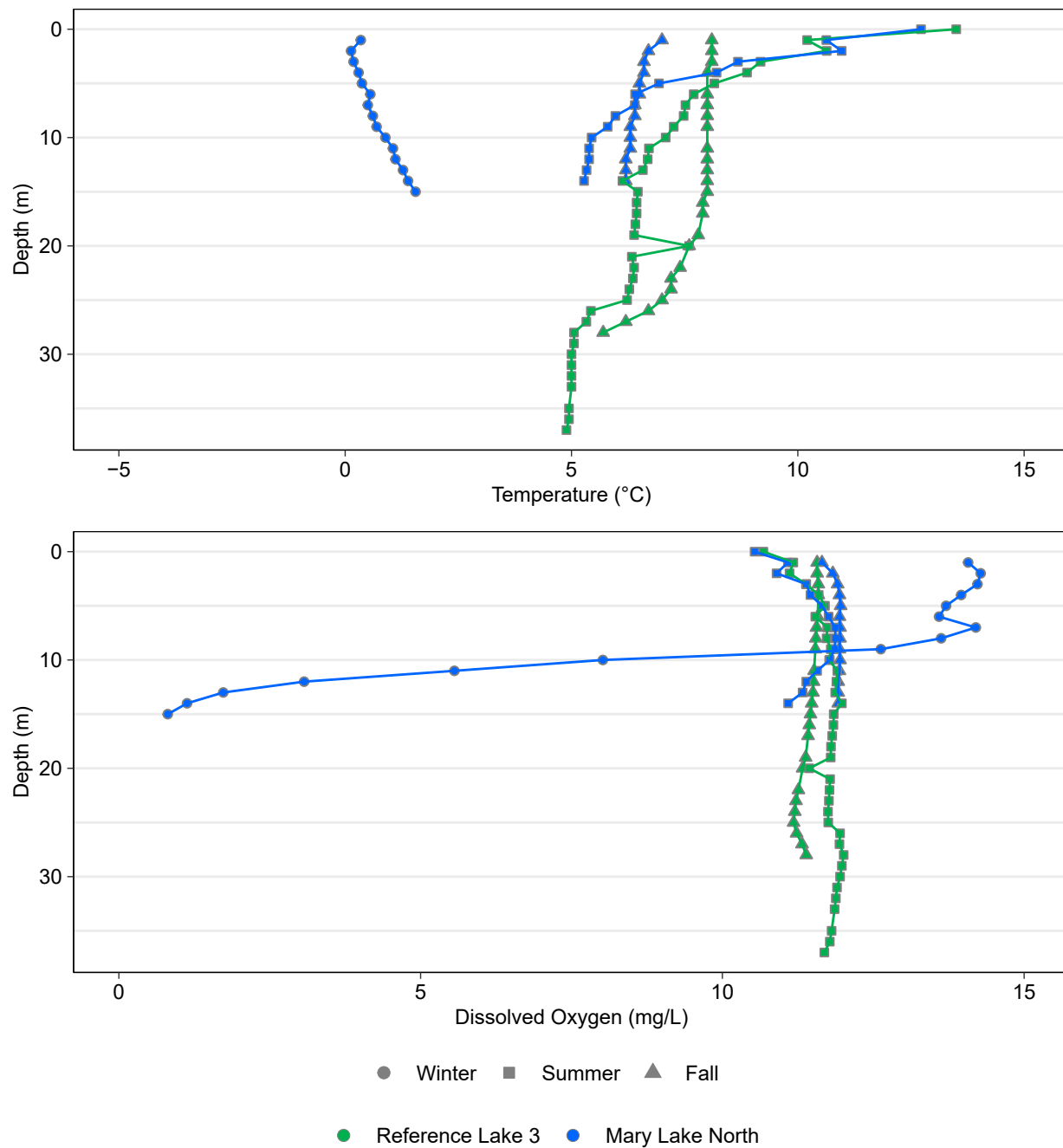


Figure B.15: *In Situ* Water Quality Profile Measurements at Mary Lake (BL0) North Basin and Reference Lake 3 (REF-03) during Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

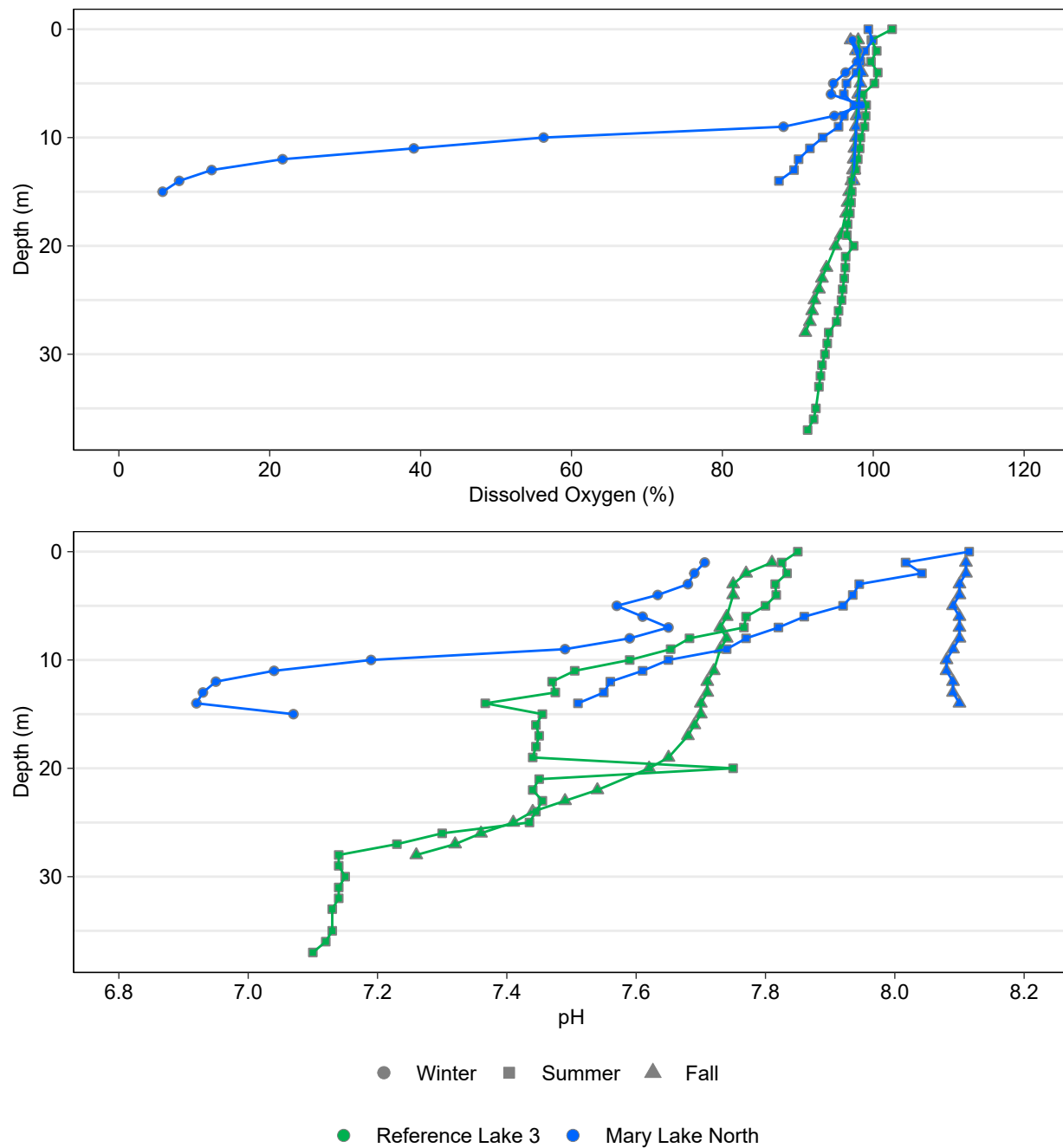


Figure B.15: *In Situ* Water Quality Profile Measurements at Mary Lake (BL0) North Basin and Reference Lake 3 (REF-03) during Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

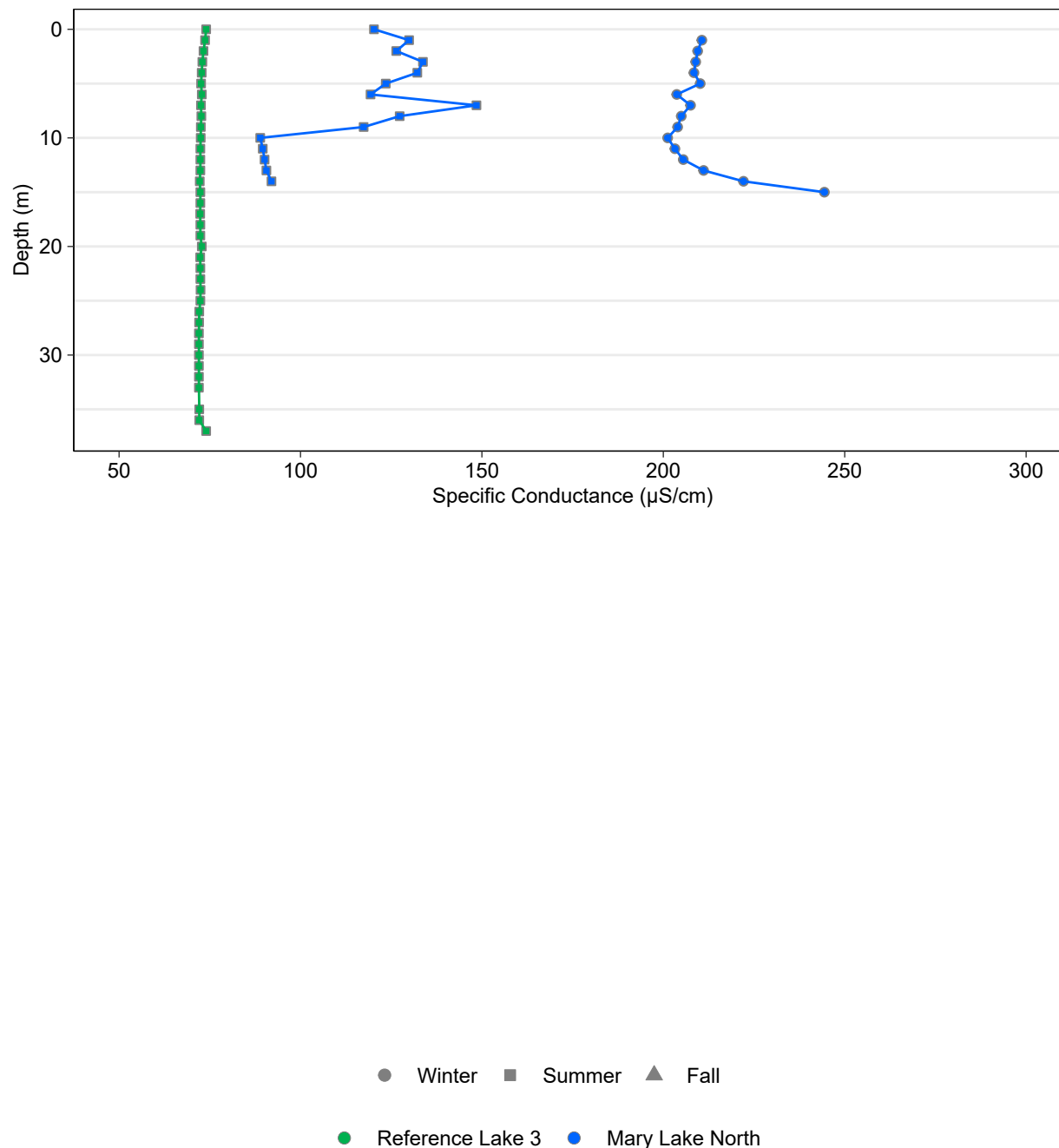


Figure B.15: *In Situ* Water Quality Profile Measurements at Mary Lake (BL0) North Basin and Reference Lake 3 (REF-03) during Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

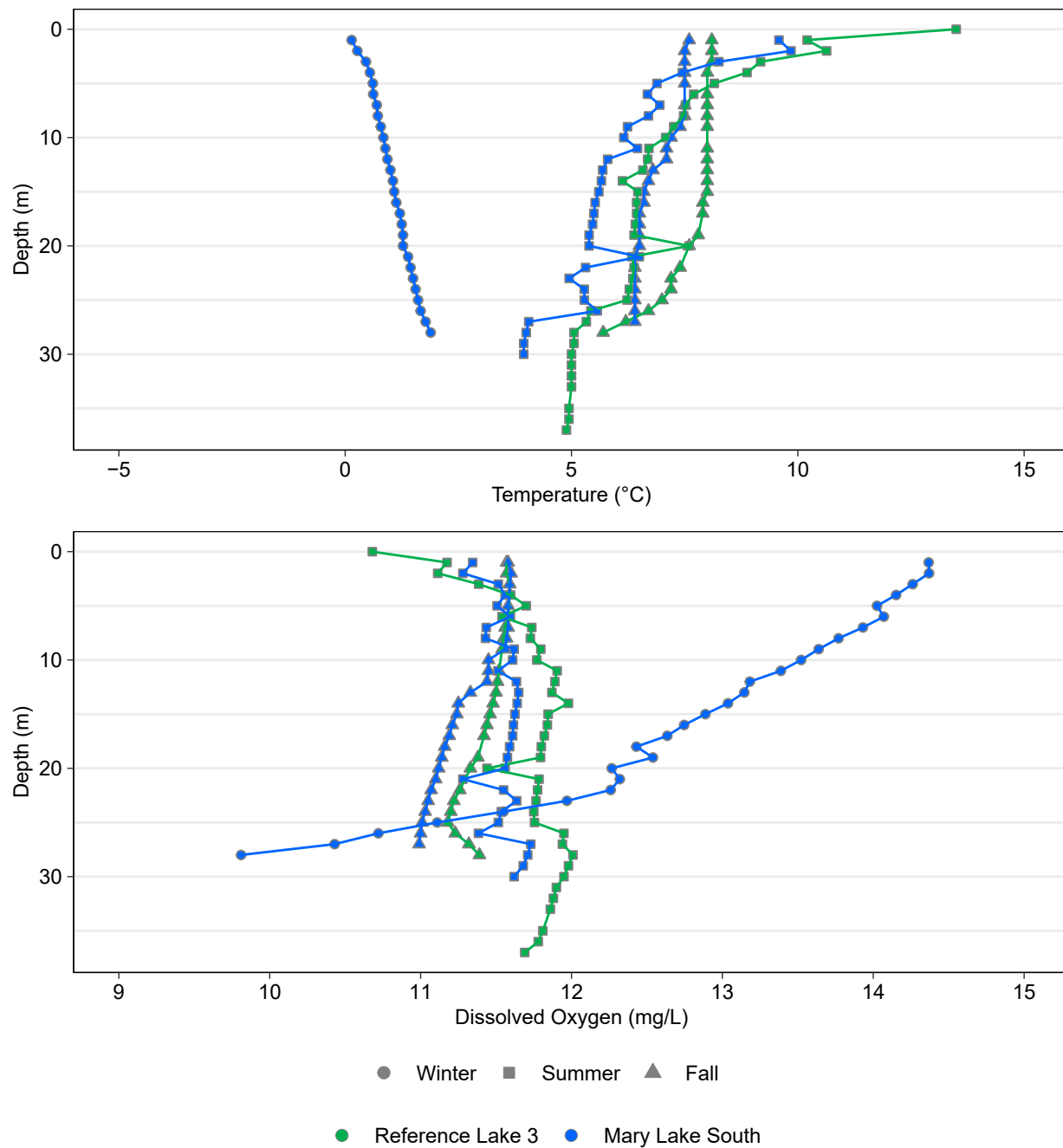


Figure B.16: *In Situ* Water Quality Profile Measurements at Mary Lake (BL0) South Basin and Reference Lake 3 (REF-03) during Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

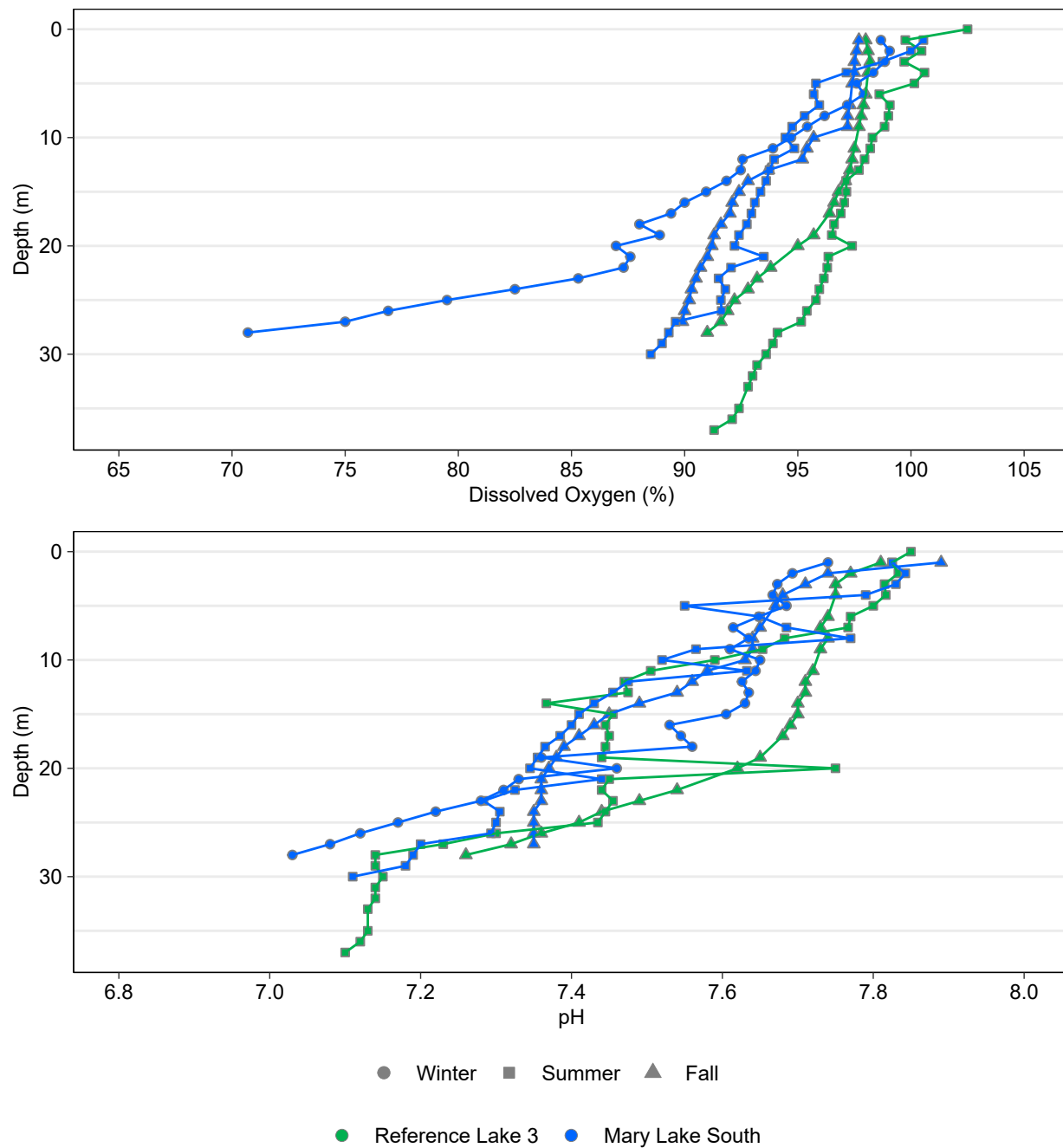


Figure B.16: *In Situ* Water Quality Profile Measurements at Mary Lake (BL0) South Basin and Reference Lake 3 (REF-03) during Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

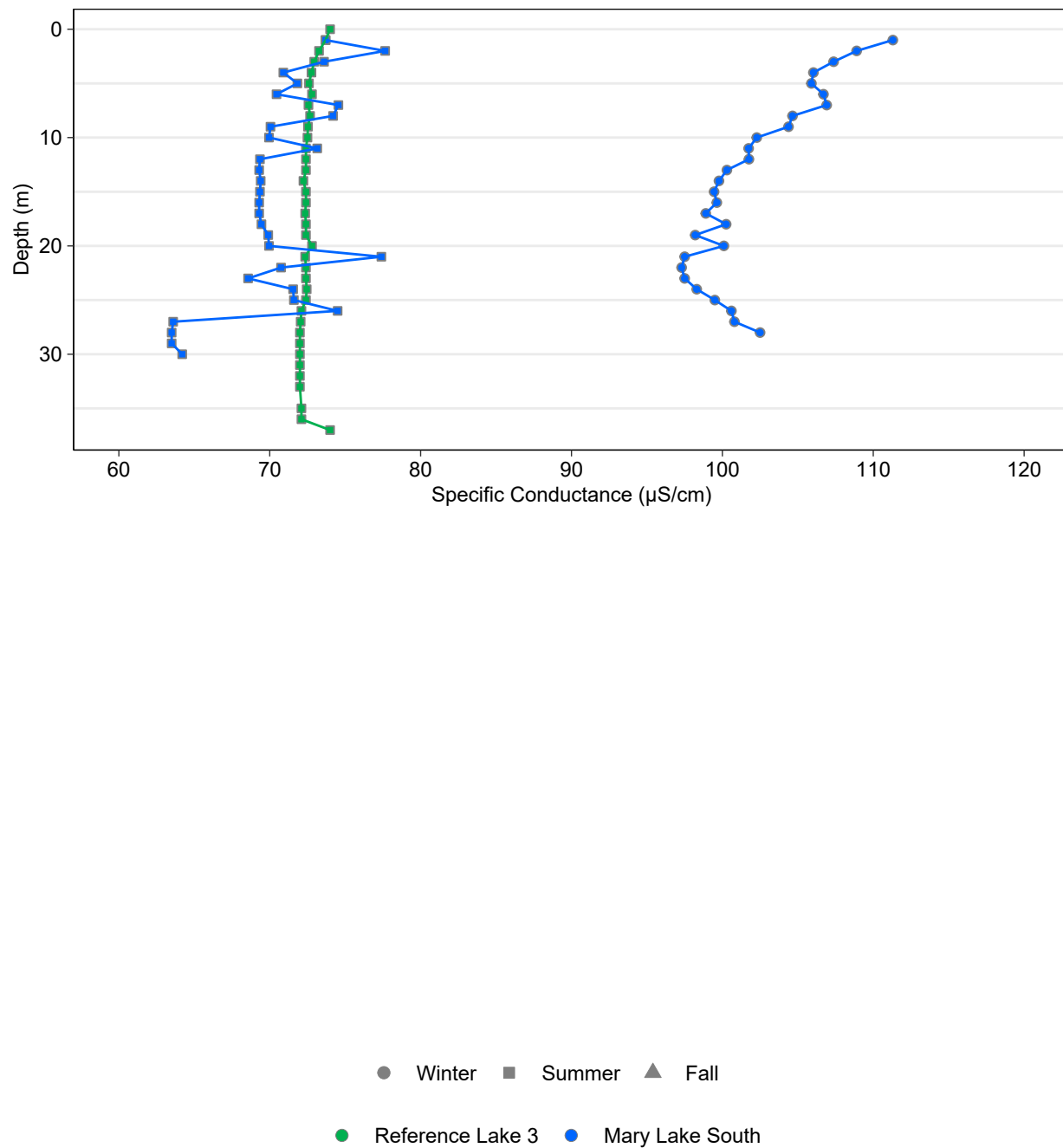


Figure B.16: *In Situ* Water Quality Profile Measurements at Mary Lake (BL0) South Basin and Reference Lake 3 (REF-03) during Winter, Summer, and Fall Sampling Events, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Green represents reference stations and blue represents mine-exposed stations. The winter data points represent the average of multiple profiles (i.e., one at each water quality monitoring station), consistent with the Revision 1 Aquatic Effects Monitoring Program (AEMP) study design. A single profile was collected during the summer and fall sampling events, consistent with the Revision 2 AEMP study design (Baffinland 2024). Reference Lake 3 is not monitored in winter.

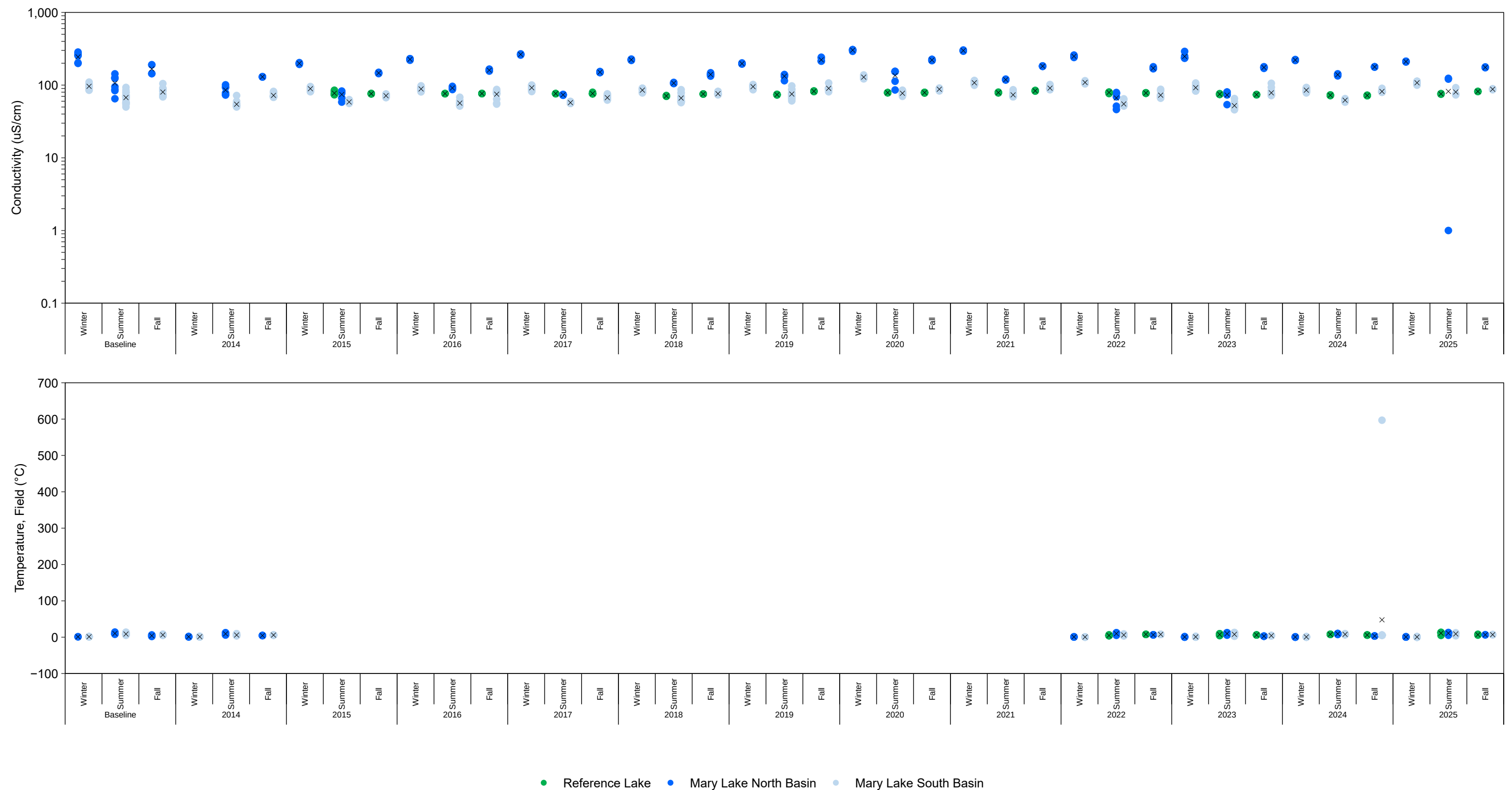


Figure B.17: Temporal Comparisons for Water Chemistry at Mary Lake (BL0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

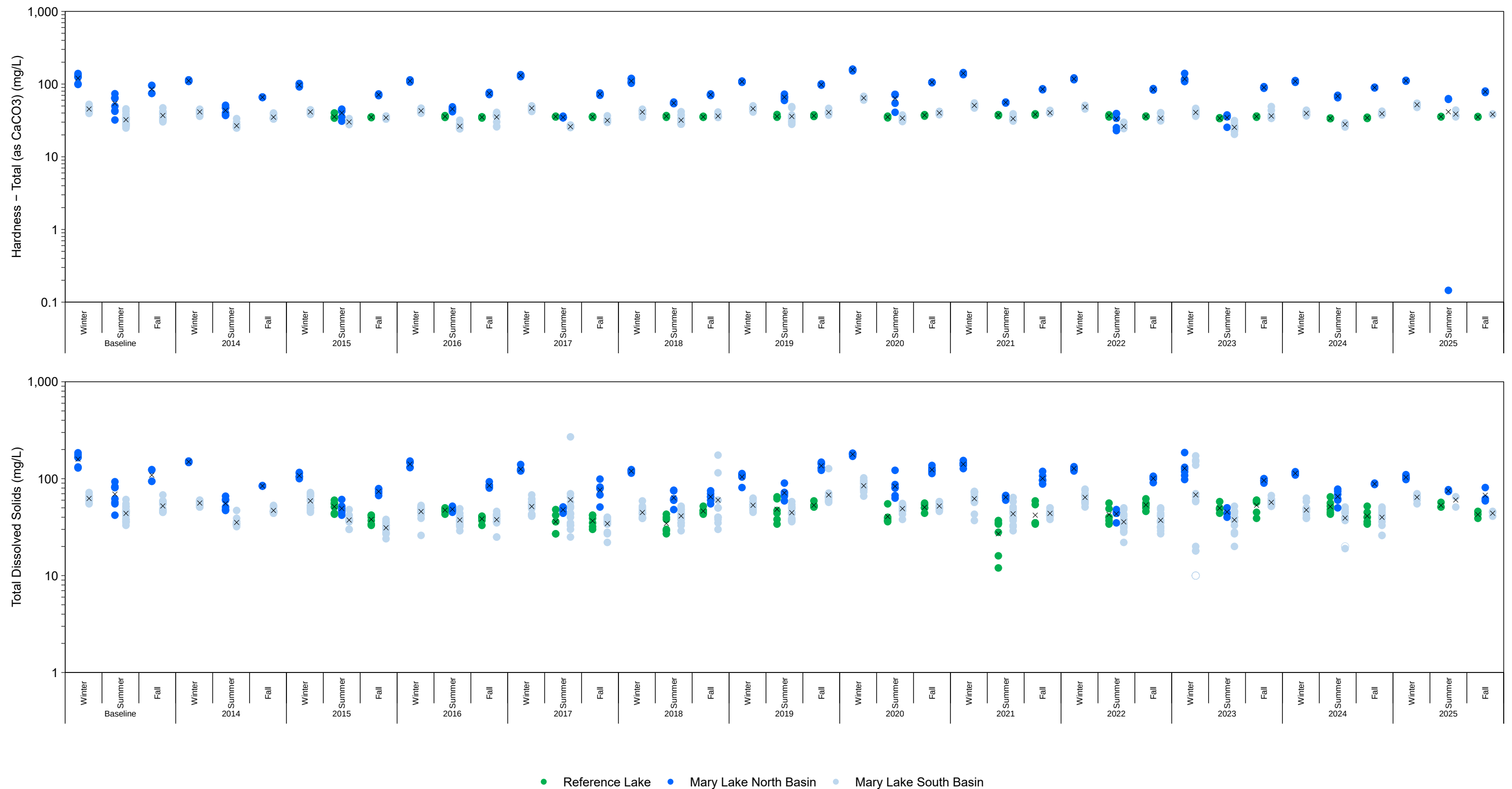


Figure B.17: Temporal Comparisons for Water Chemistry at Mary Lake (BL0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Concentrations below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL and the open symbol represents one or more values reported below the LRL. Orange lines indicate Water Quality Guidelines (WQG) and red lines indicate Aquatic Effects Monitoring Plan (AEMP) benchmarks. Some WQG and benchmarks are dependent on concurrent hardness, pH, etc. values. Black "X"s indicate mean concentrations for the corresponding data. WQG for dissolved oxygen represent lower limits and a range for field pH.

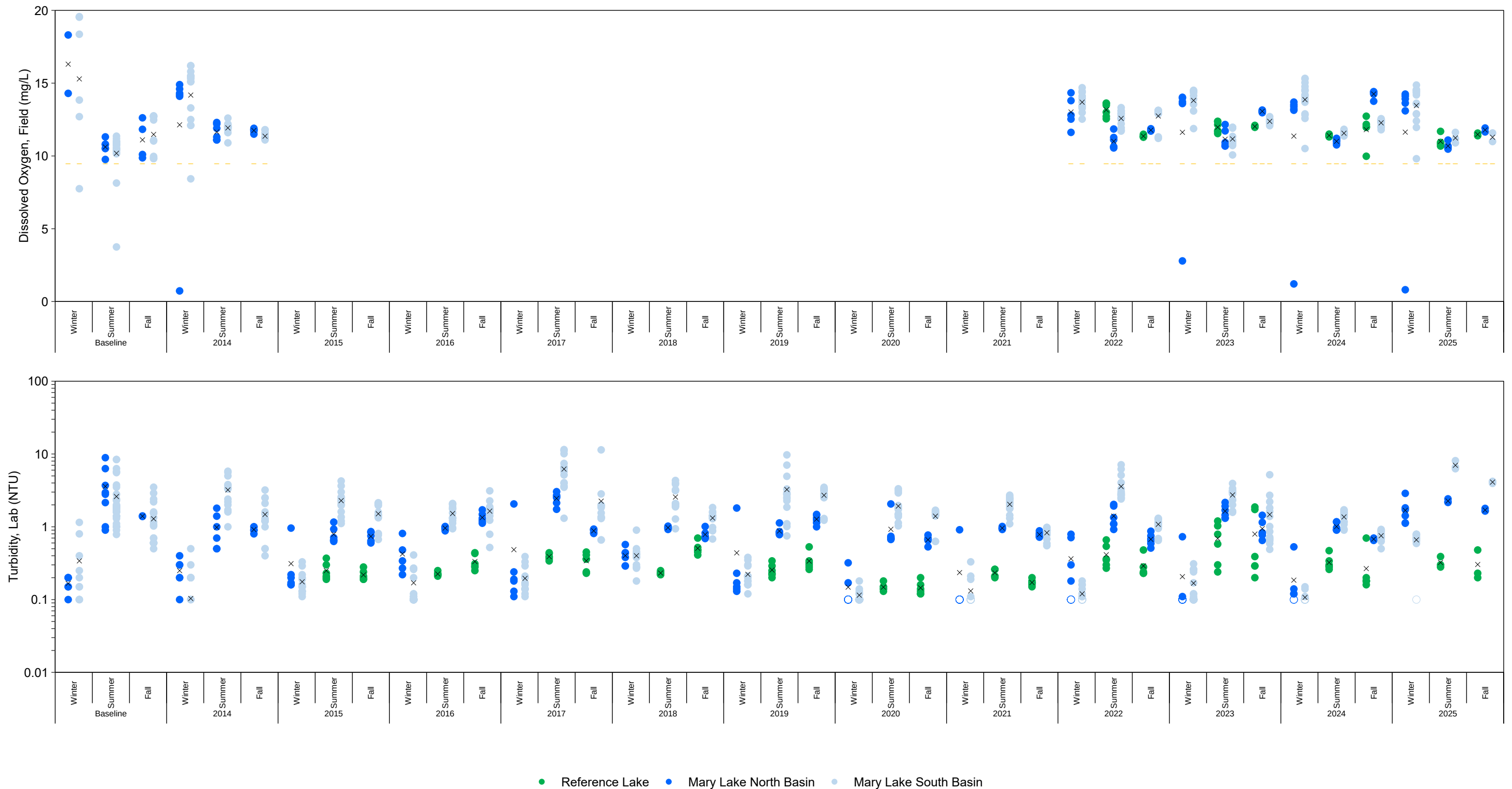


Figure B.17: Temporal Comparisons for Water Chemistry at Mary Lake (BL0) Over the Mine Baseline (2006 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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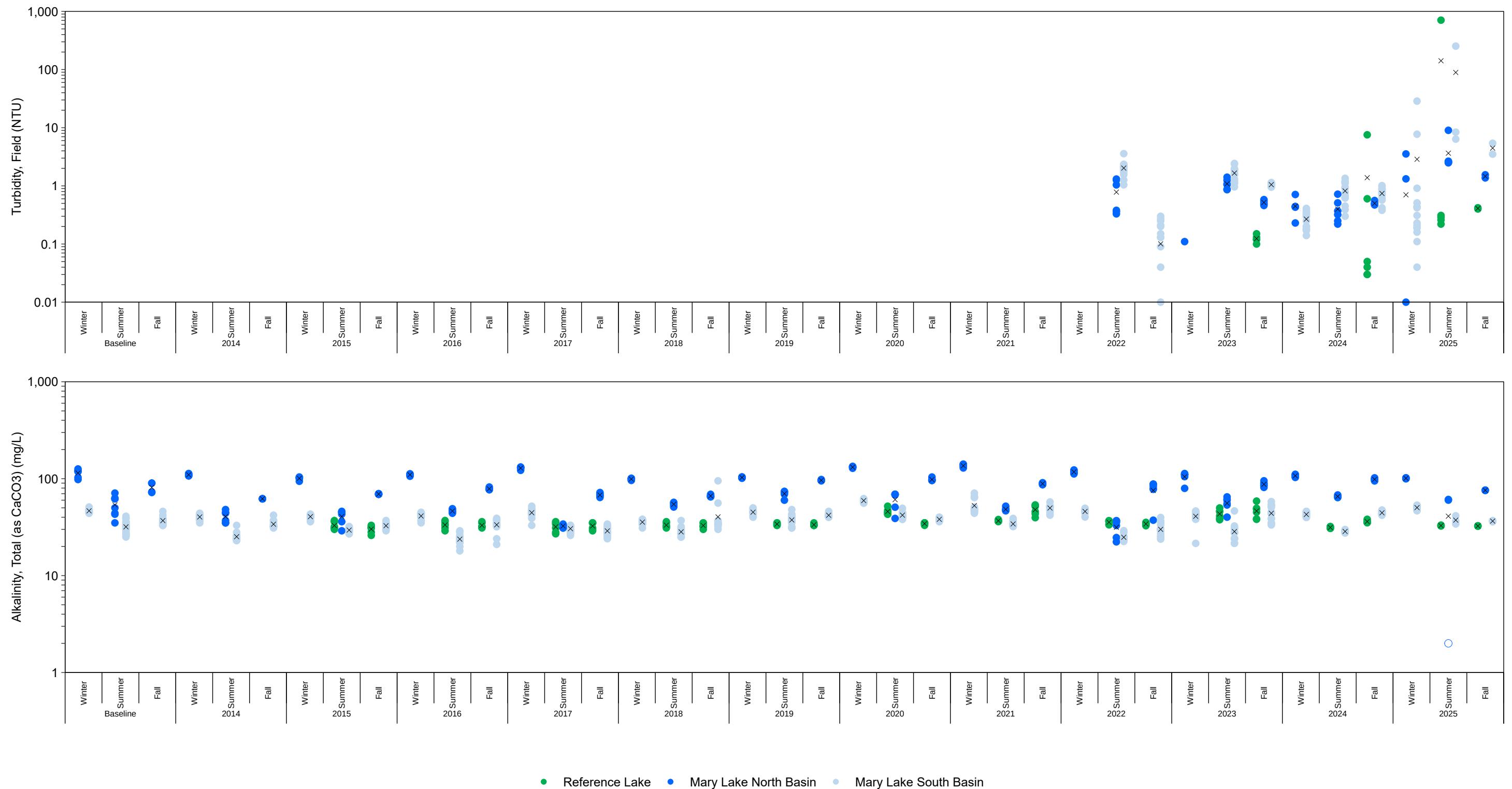


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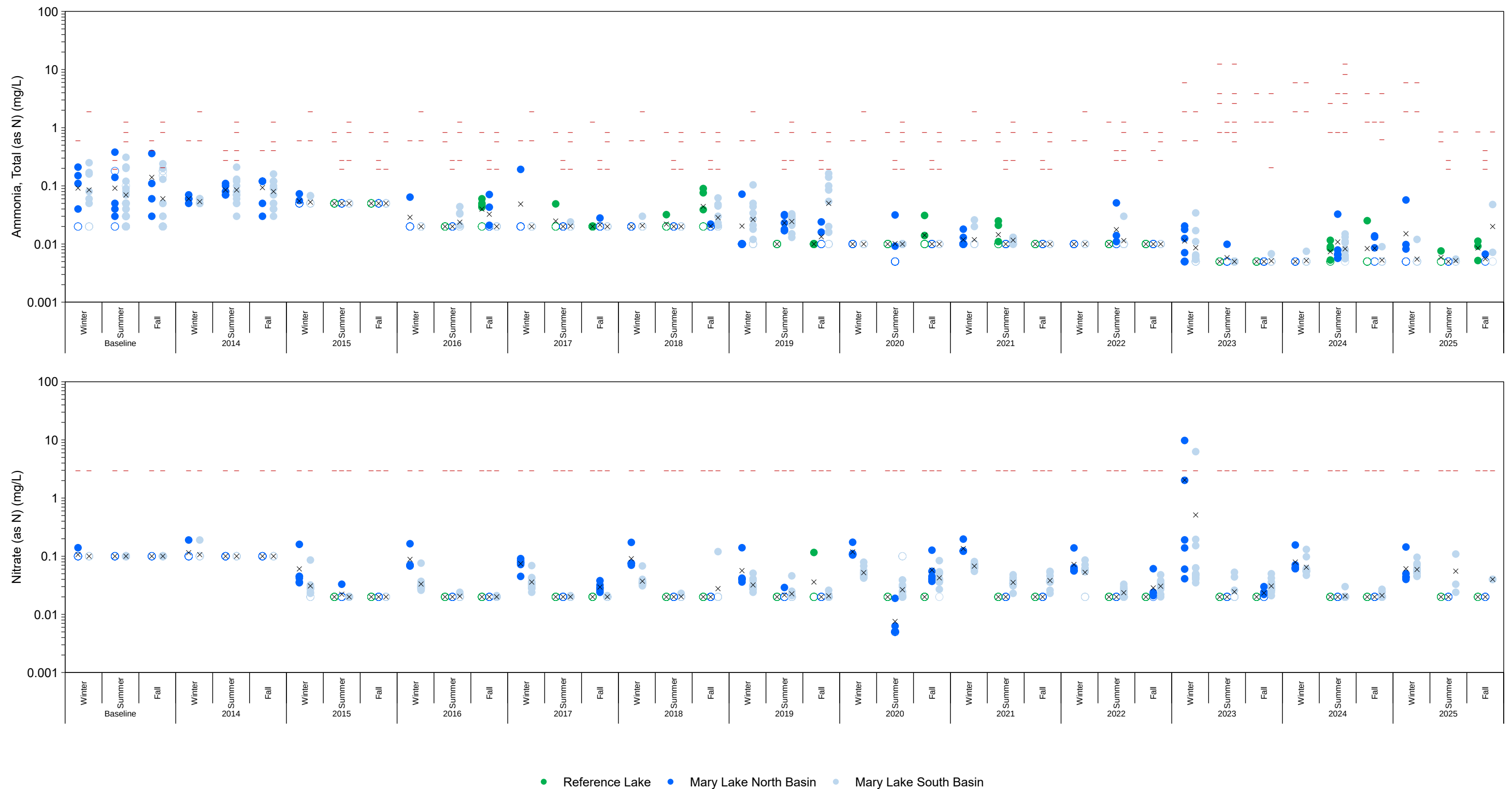


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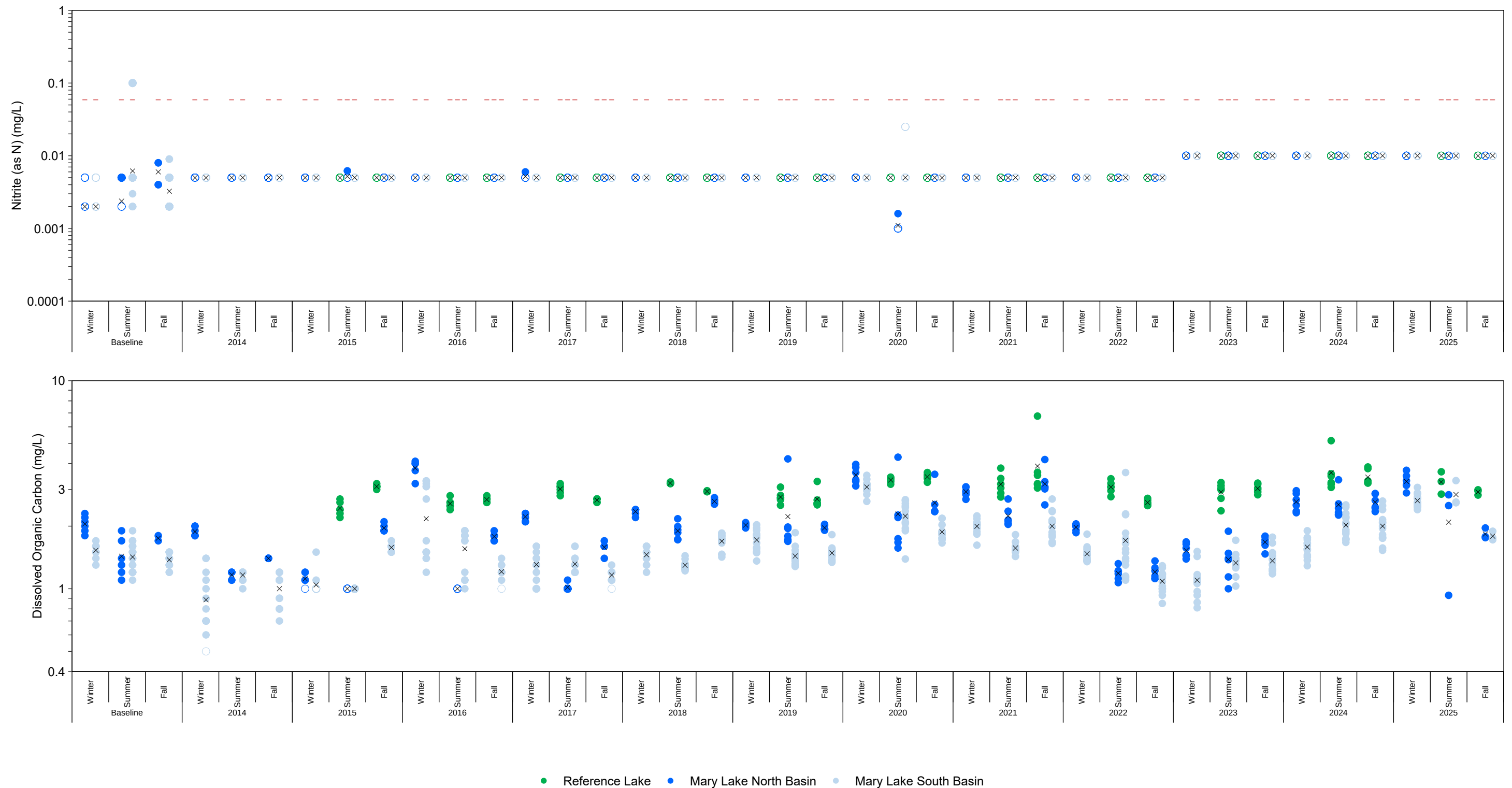


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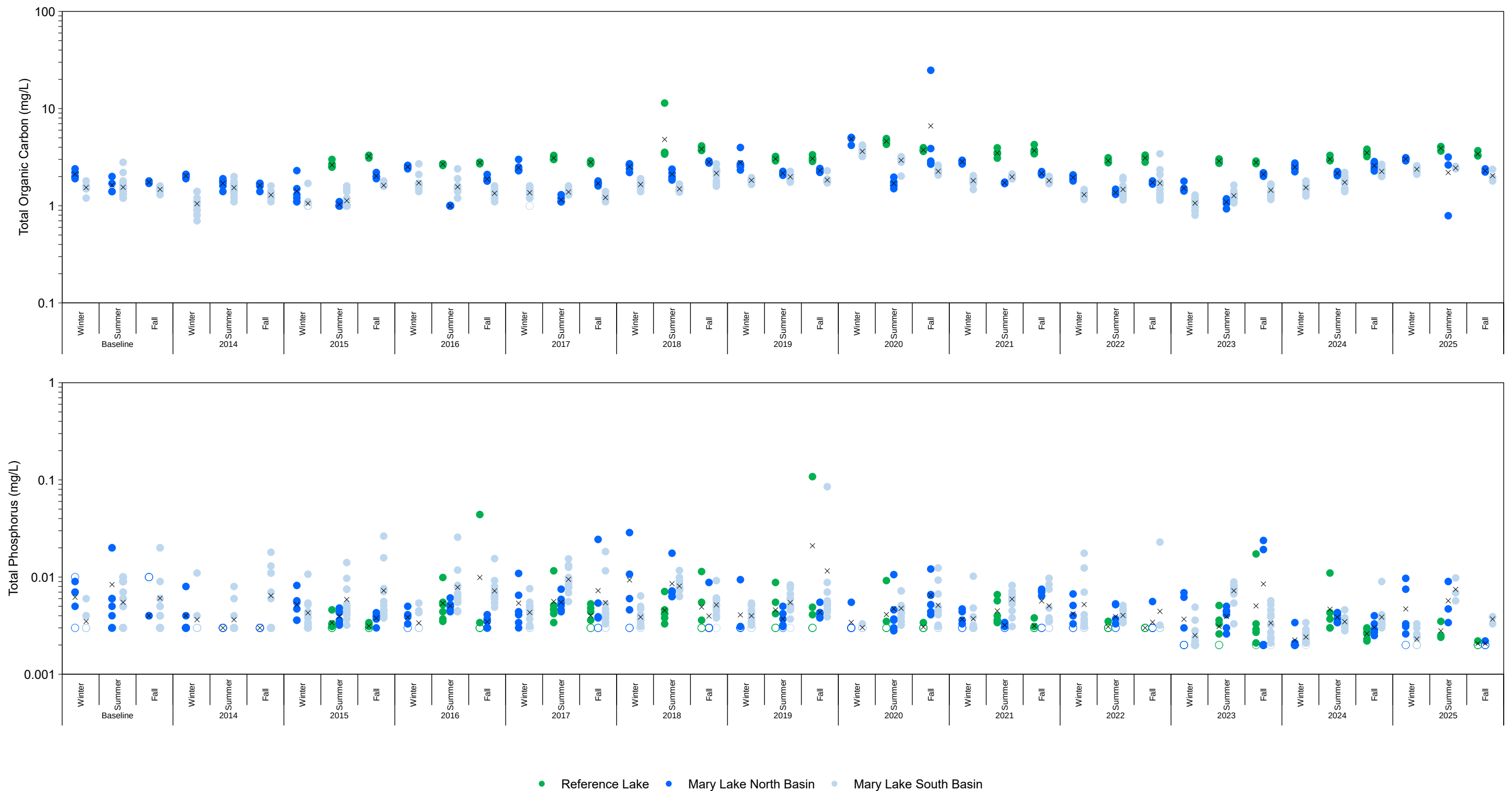


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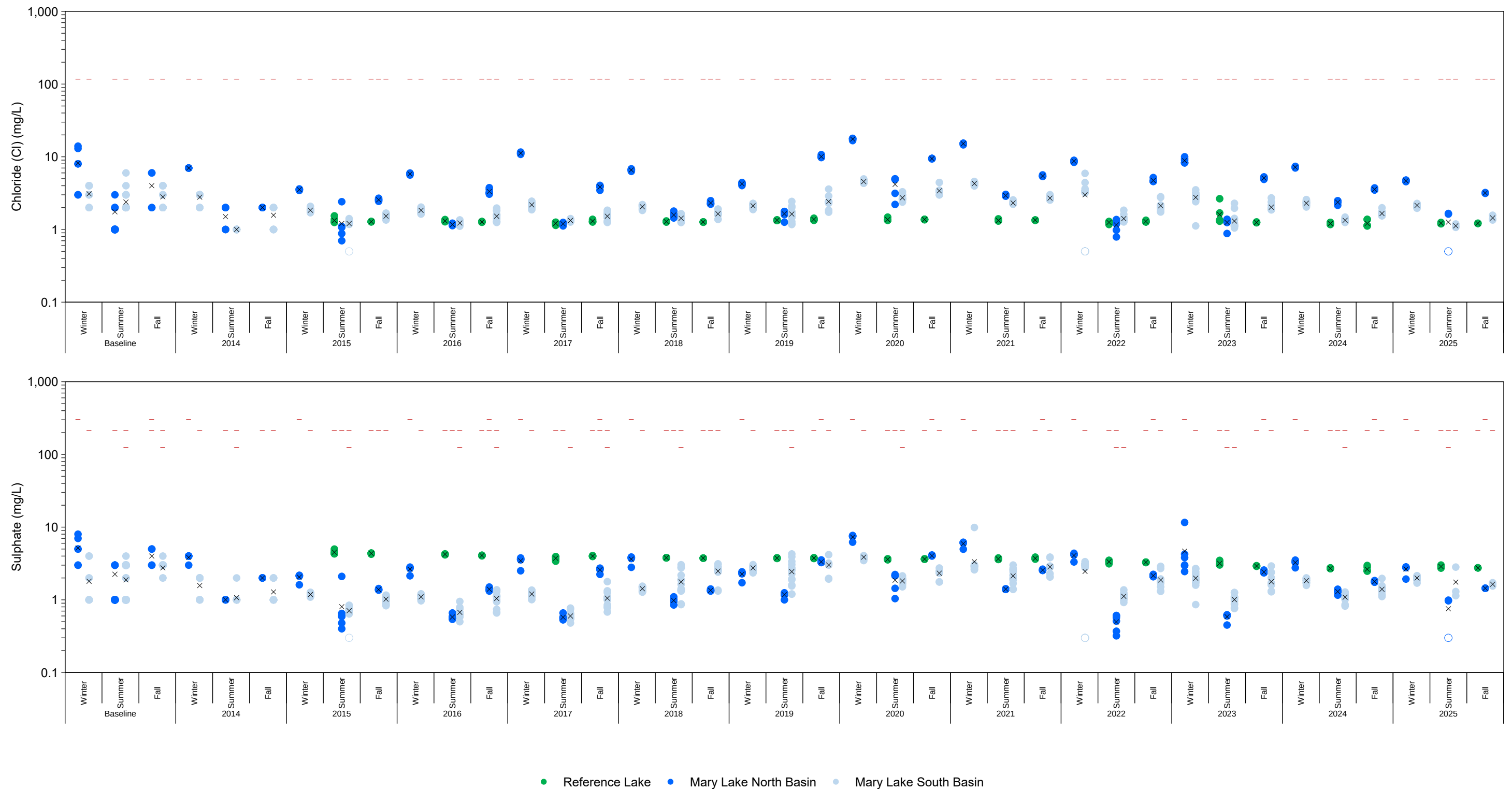


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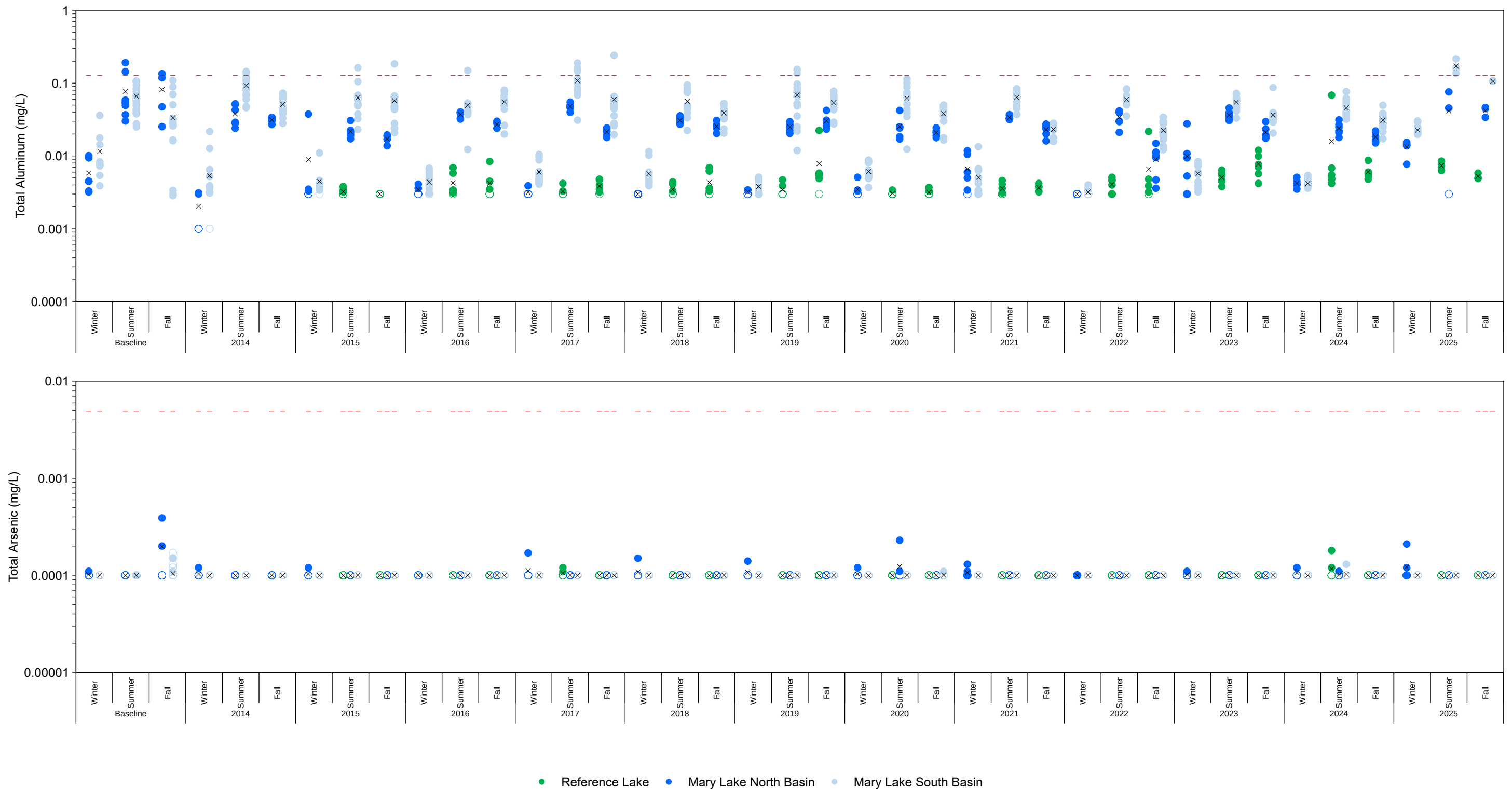


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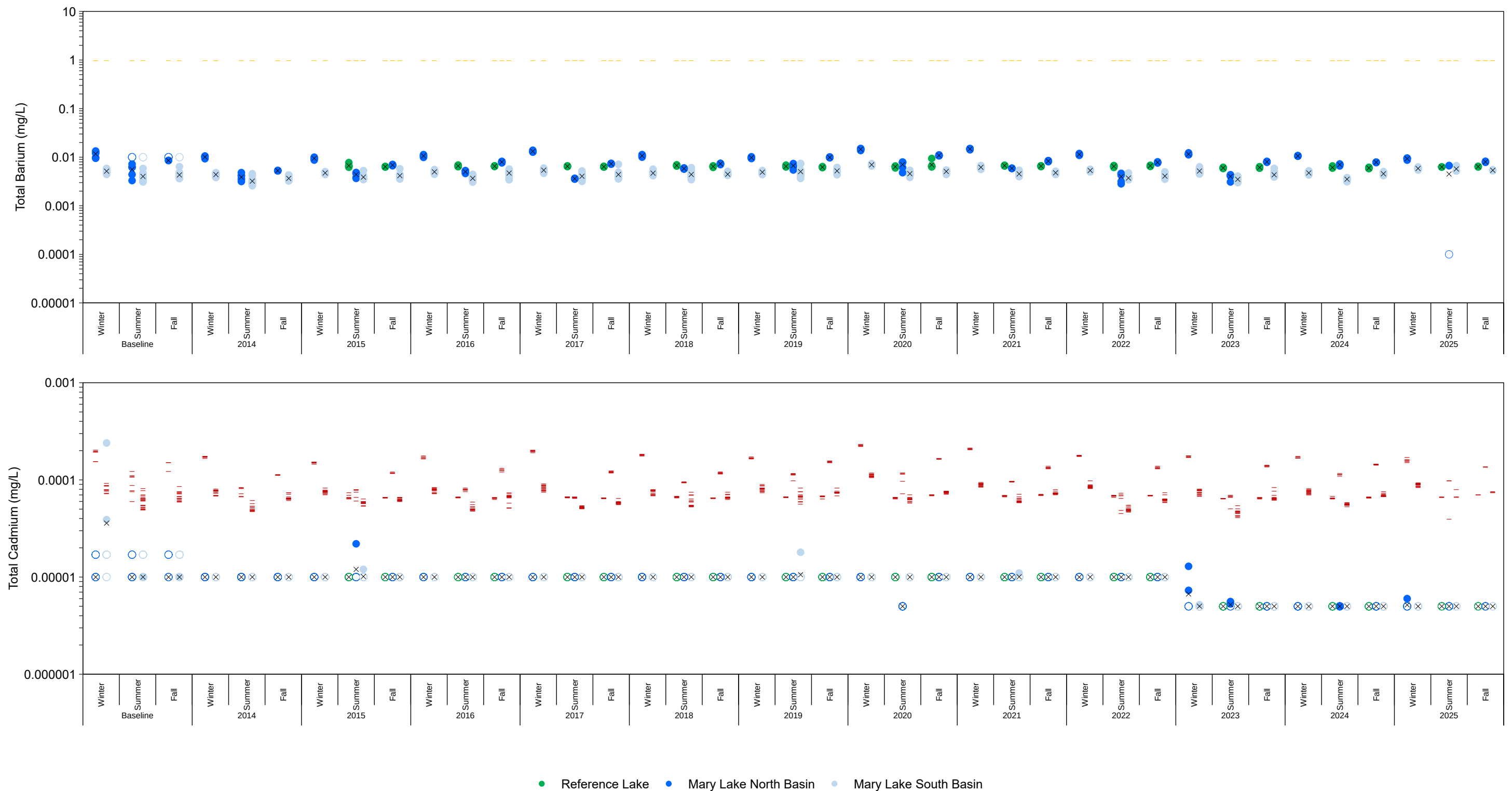


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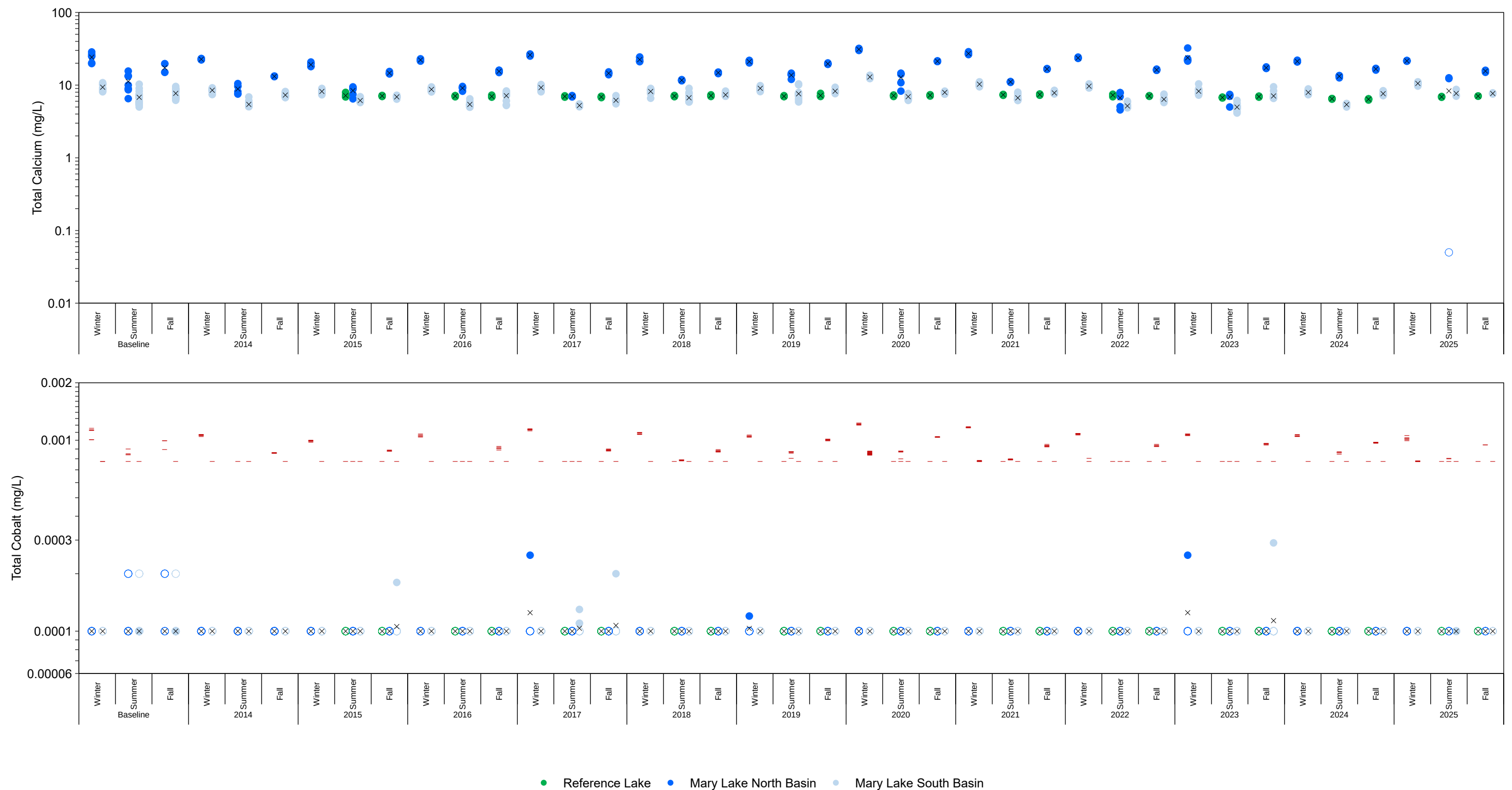


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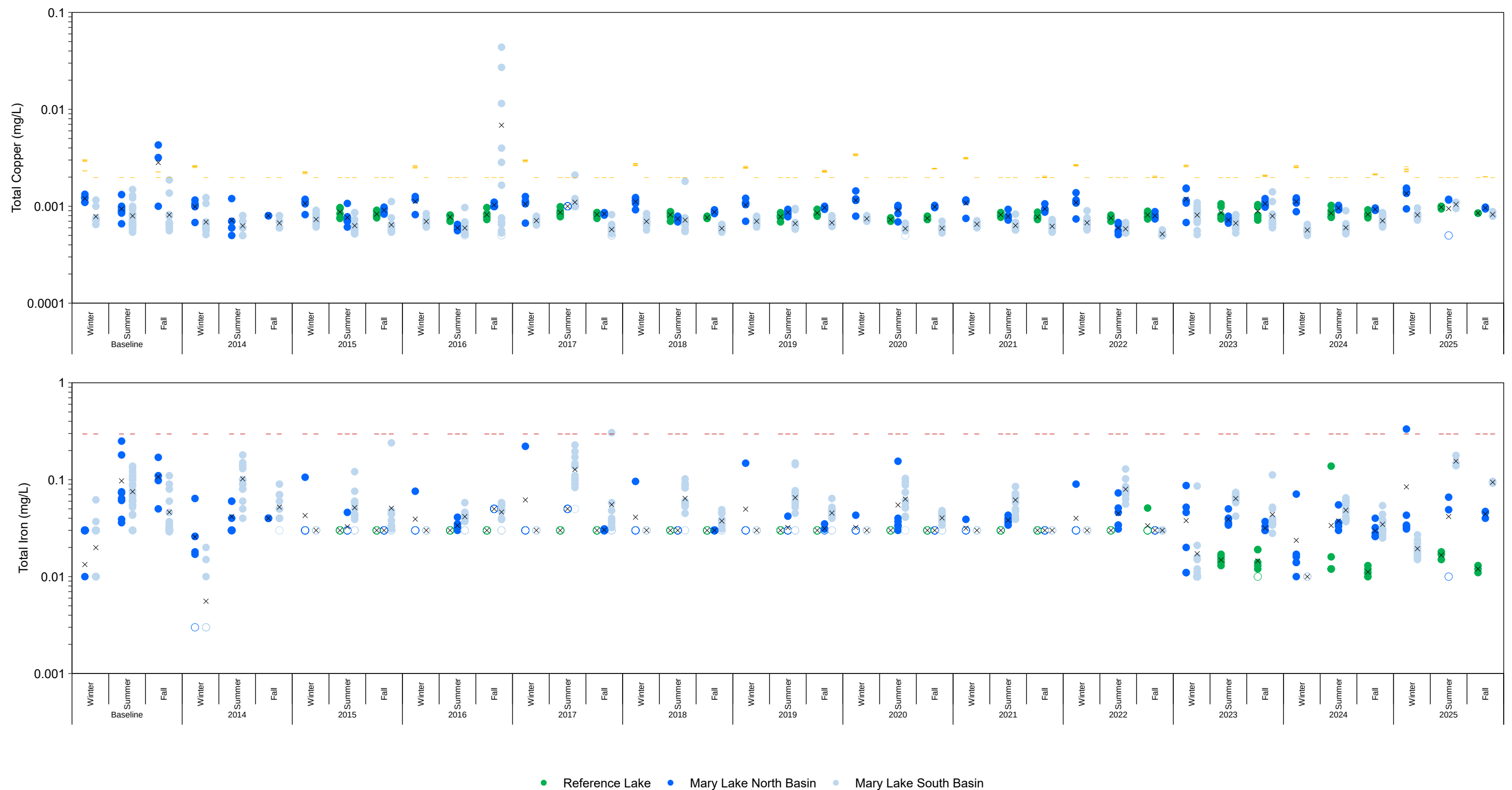


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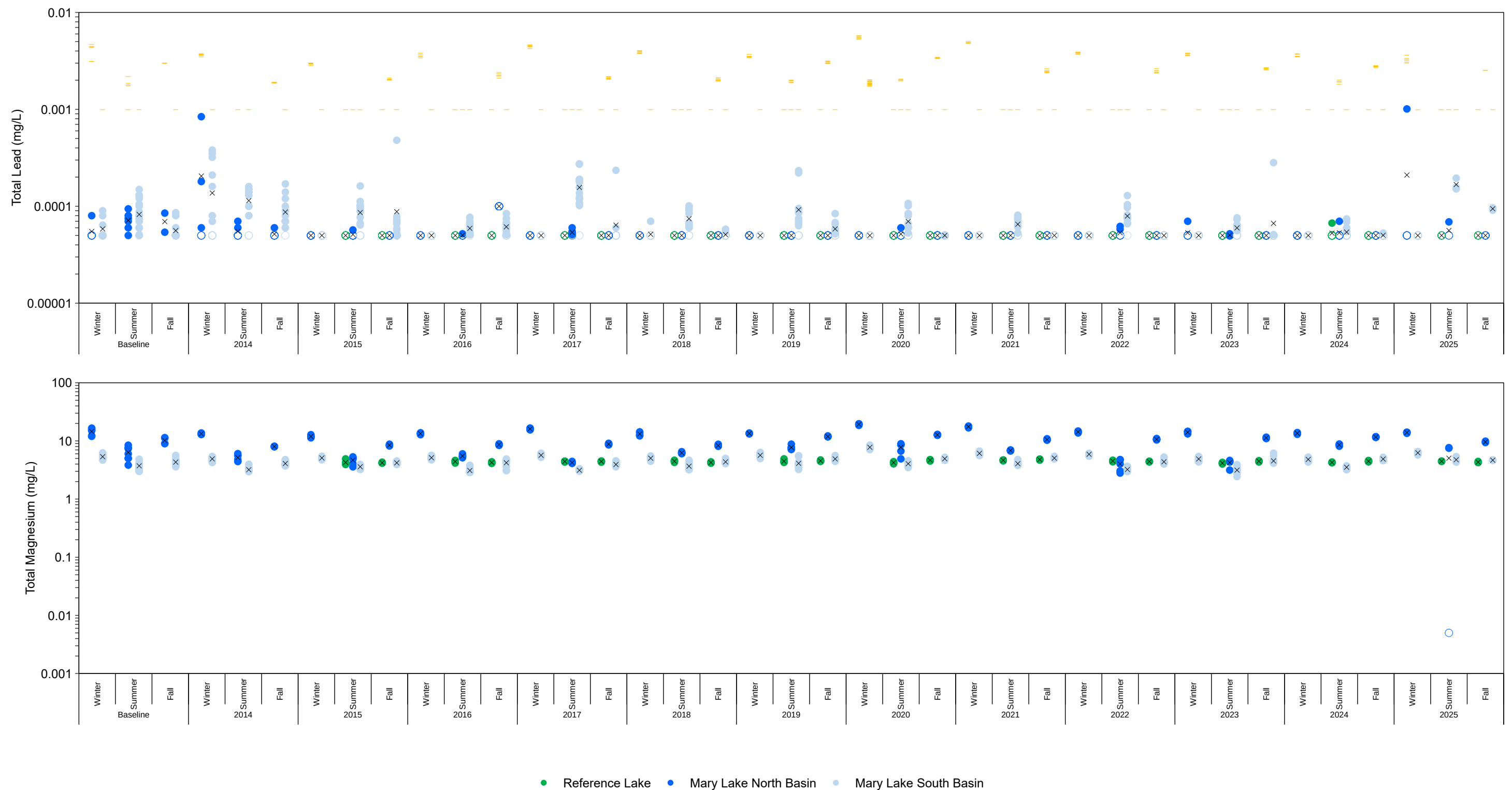


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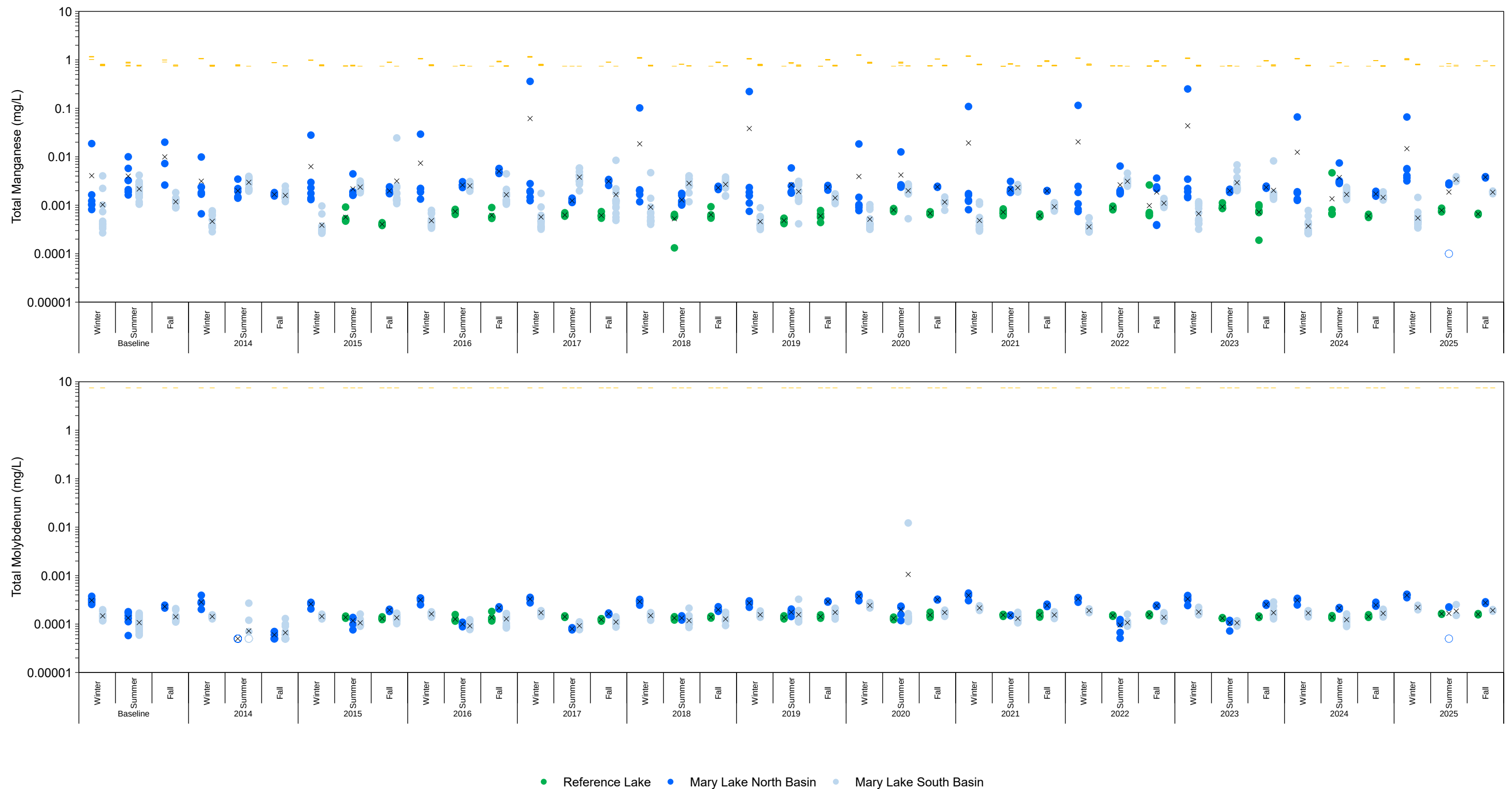


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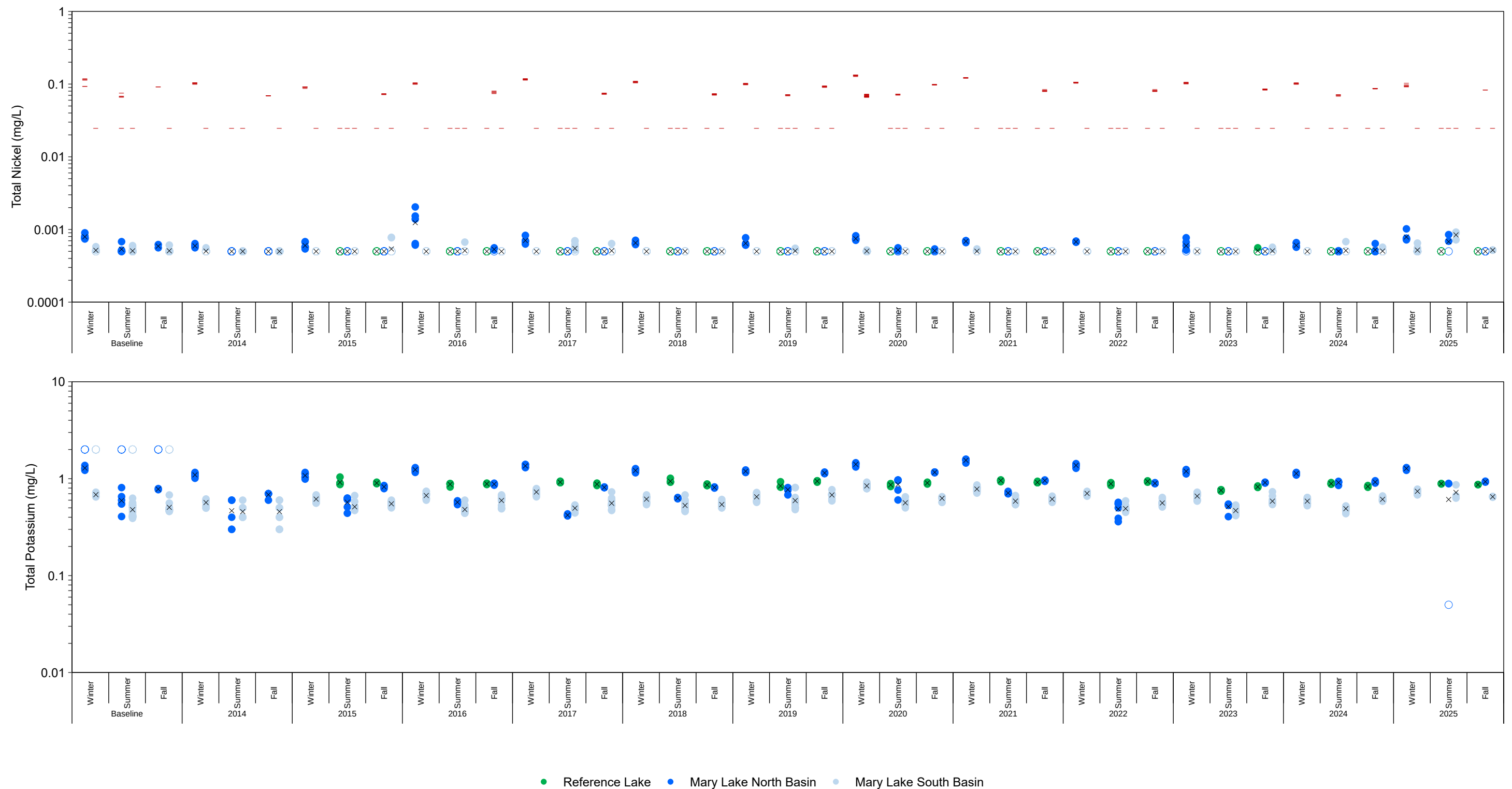


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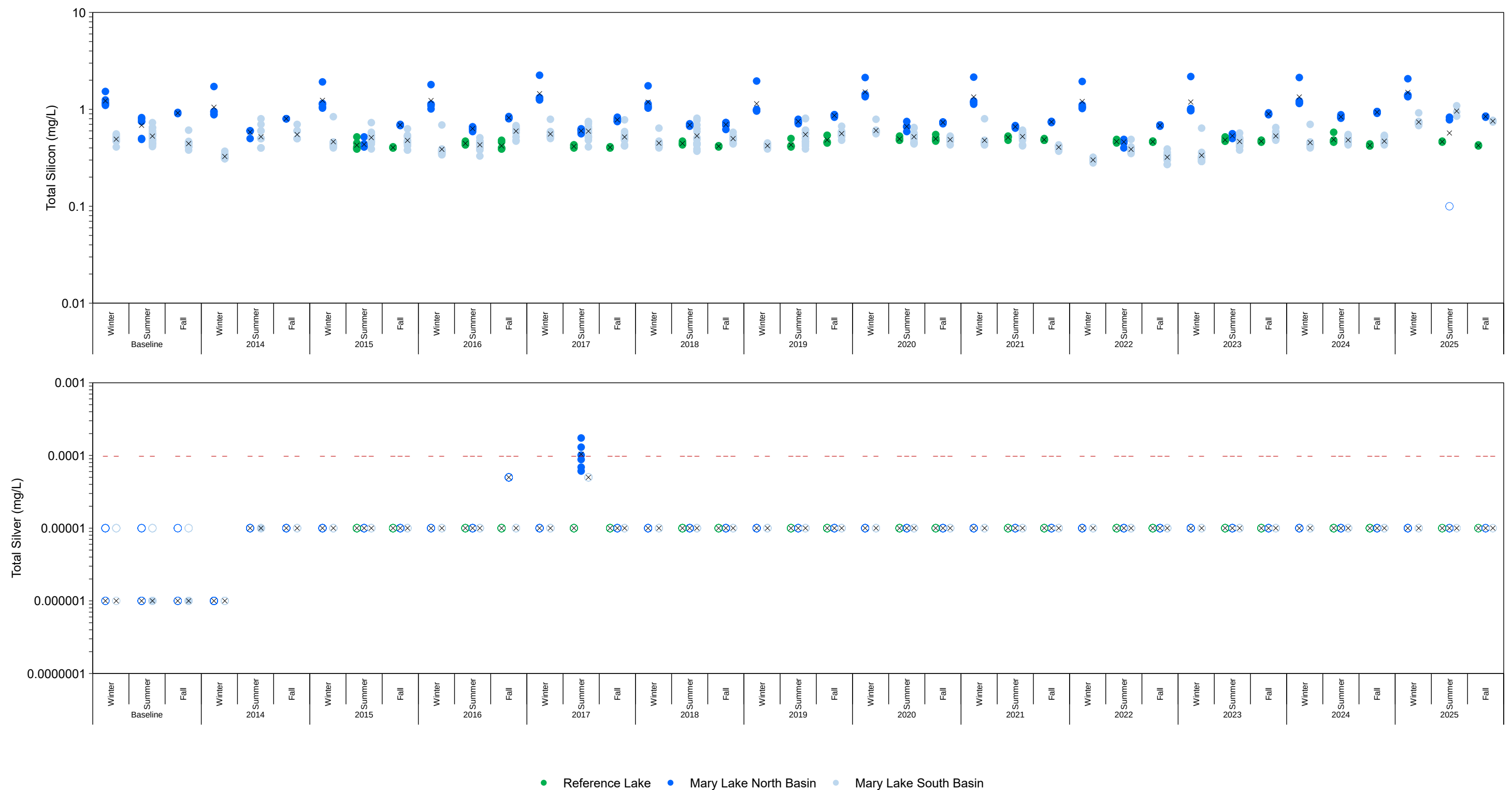


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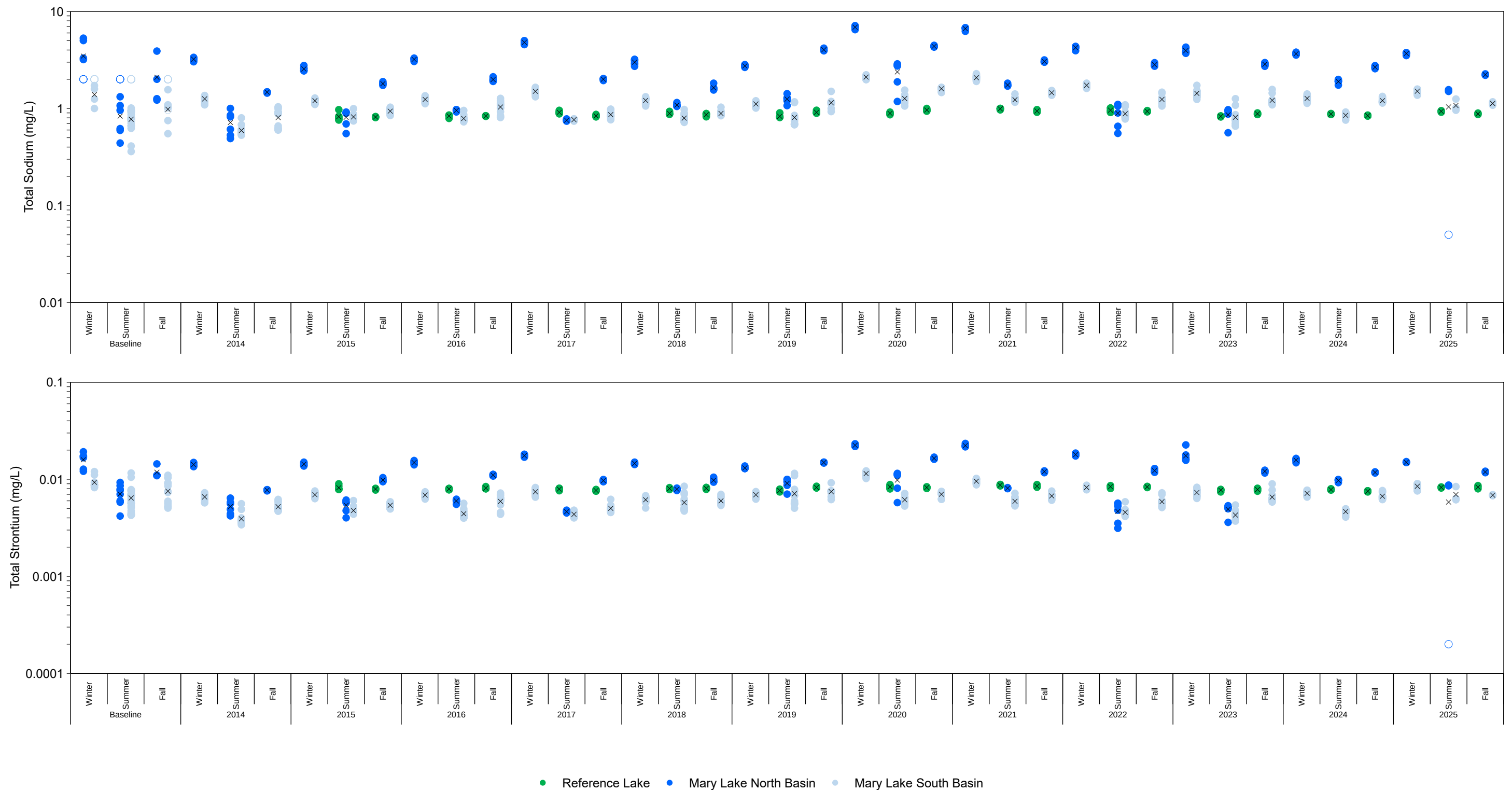


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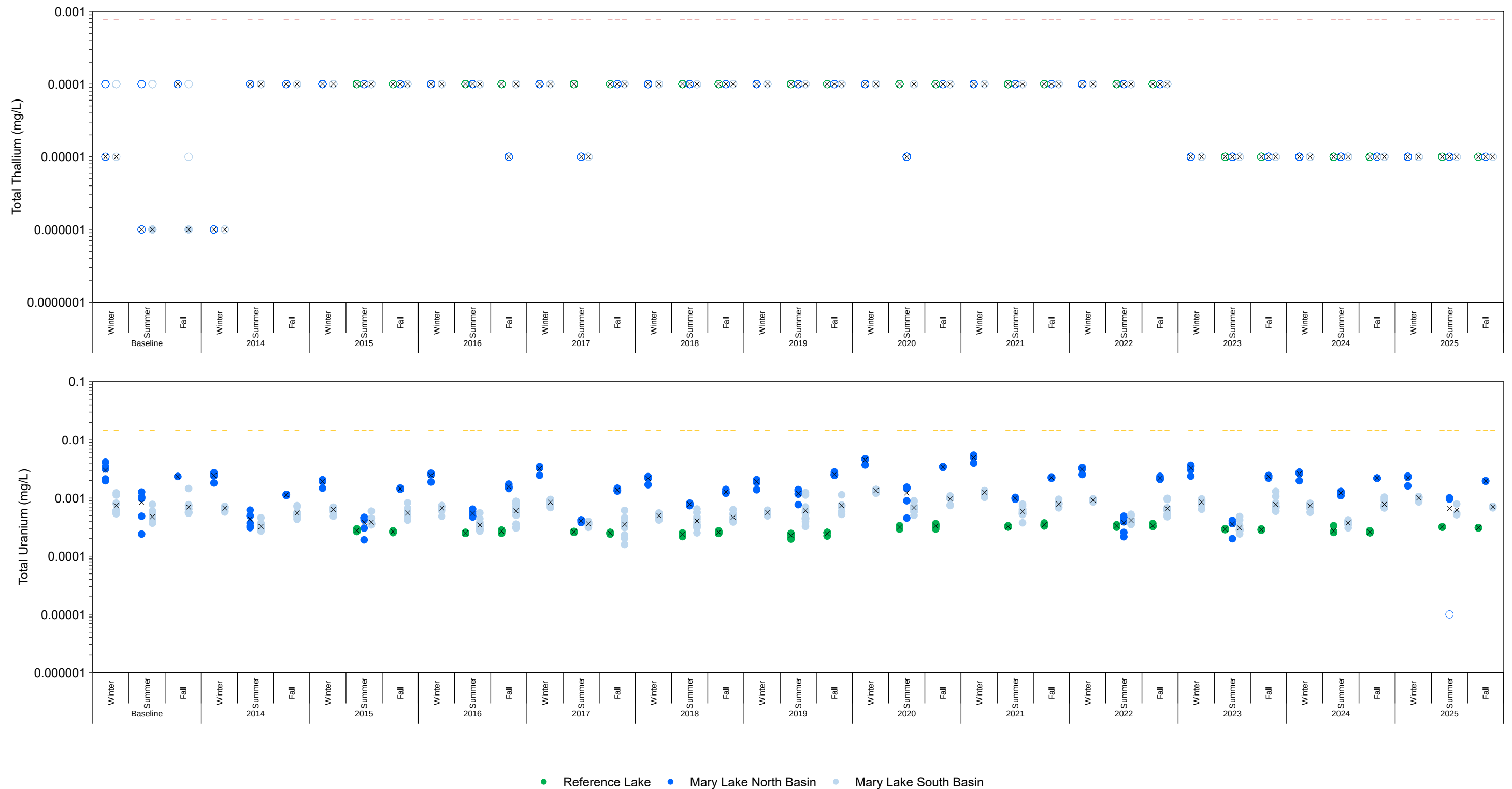


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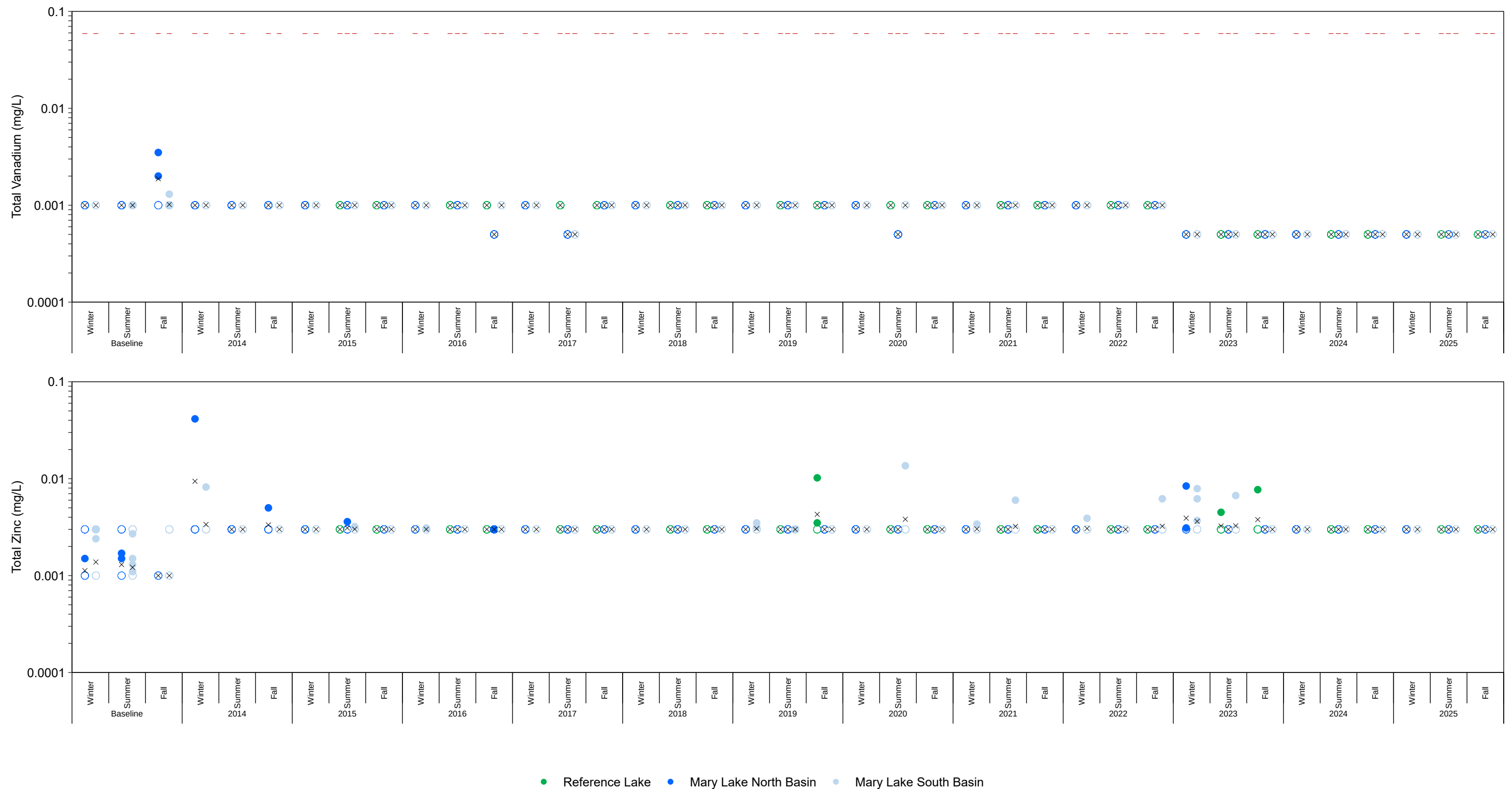


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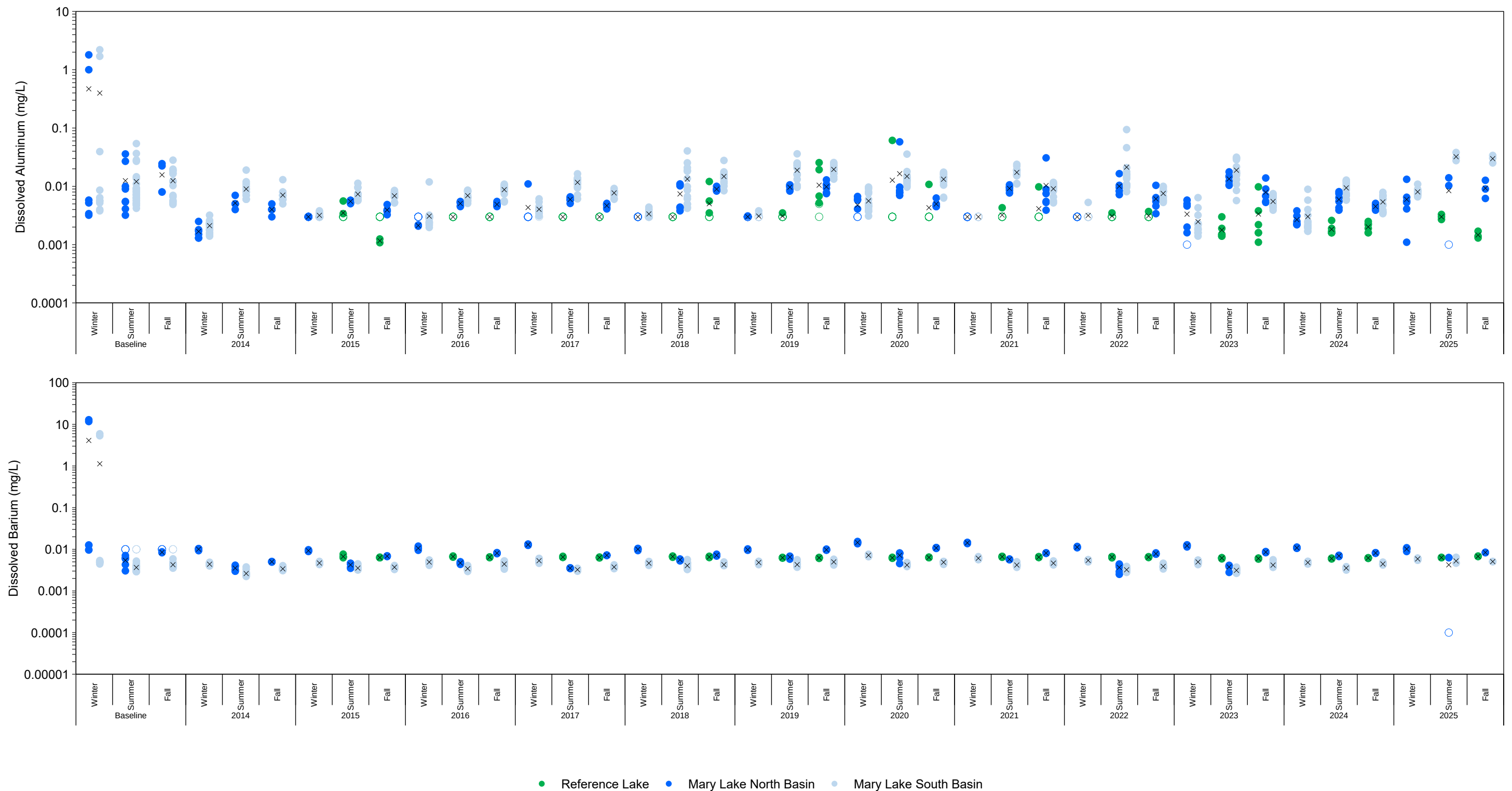


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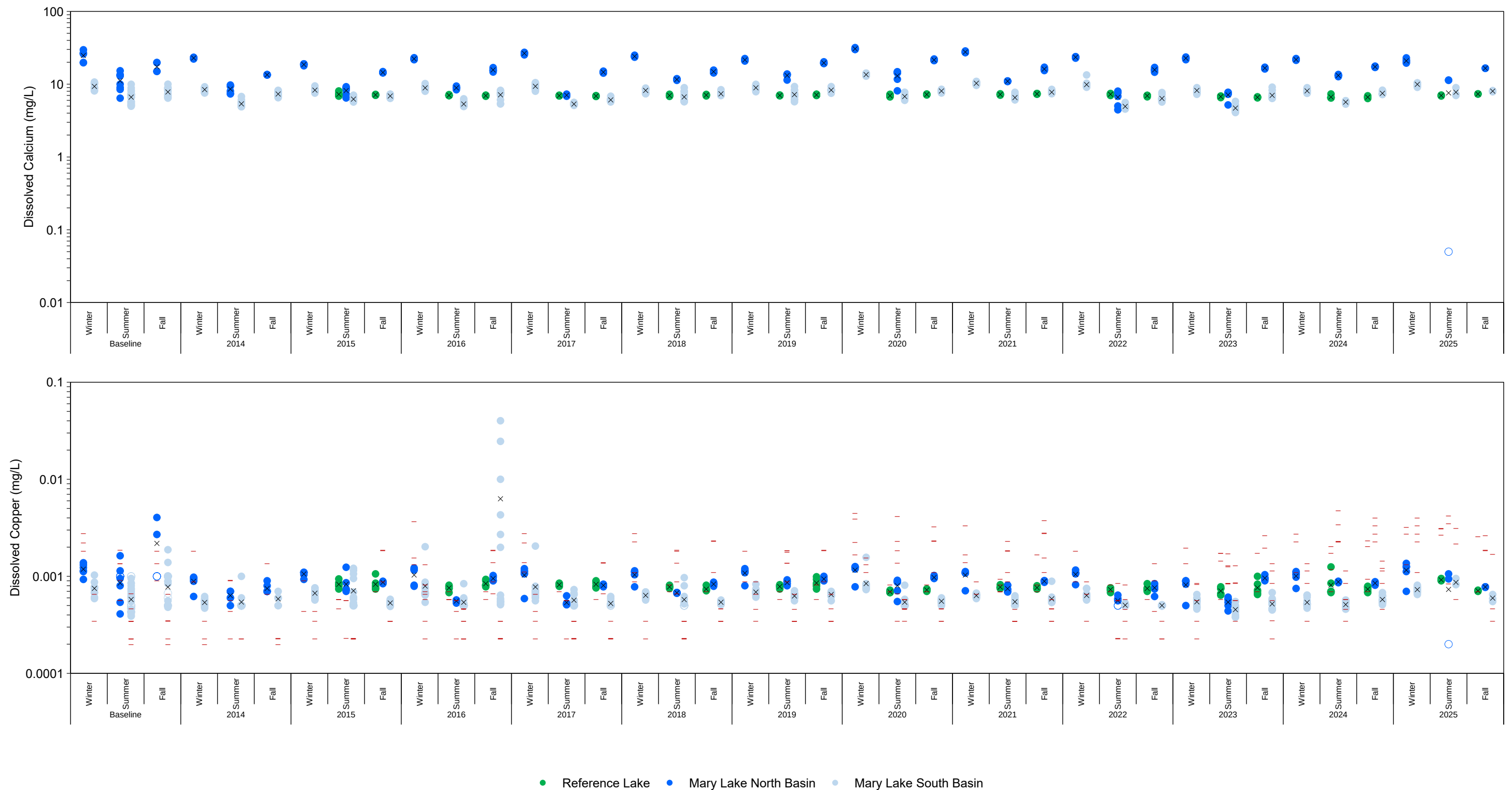


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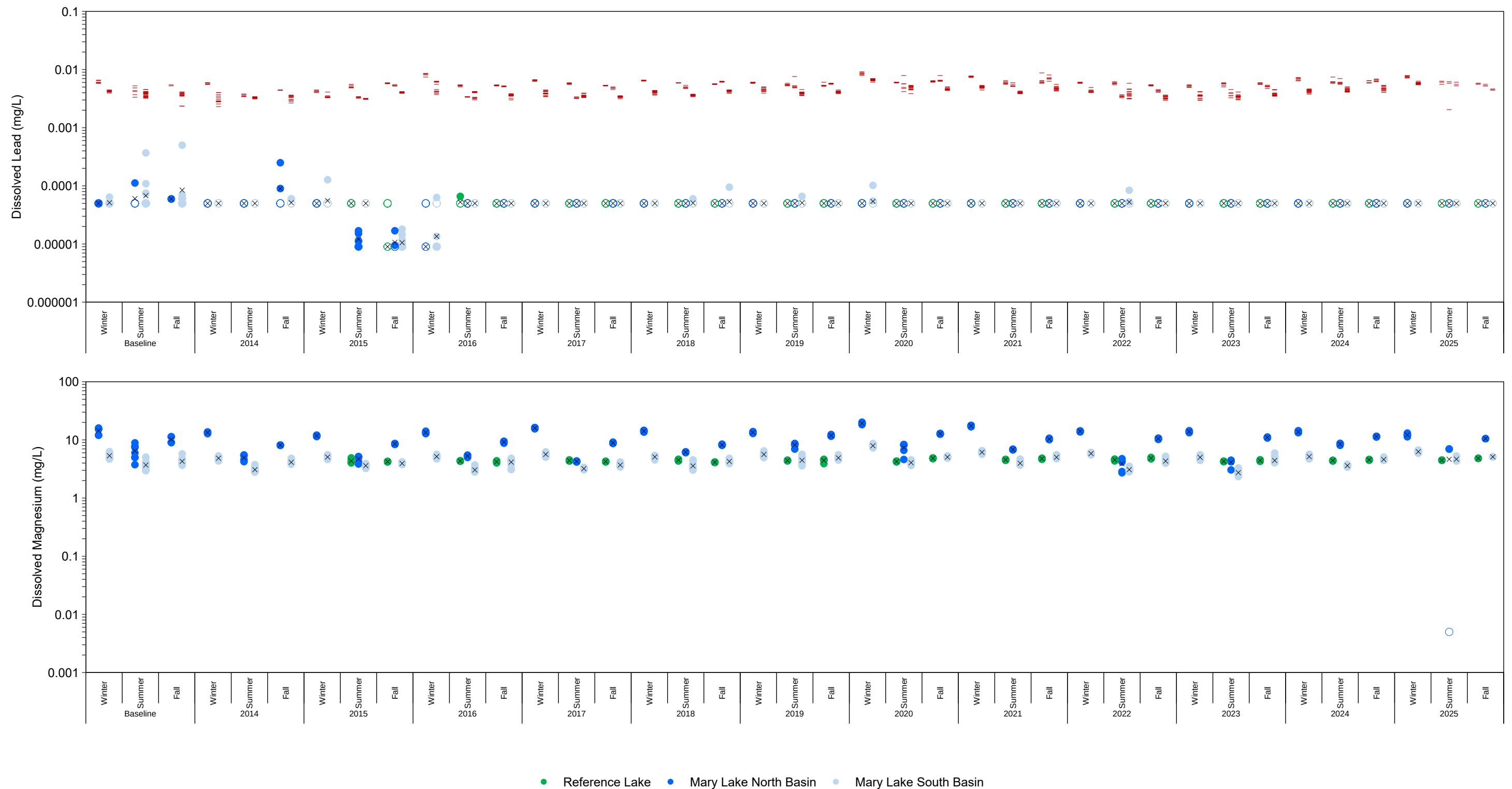


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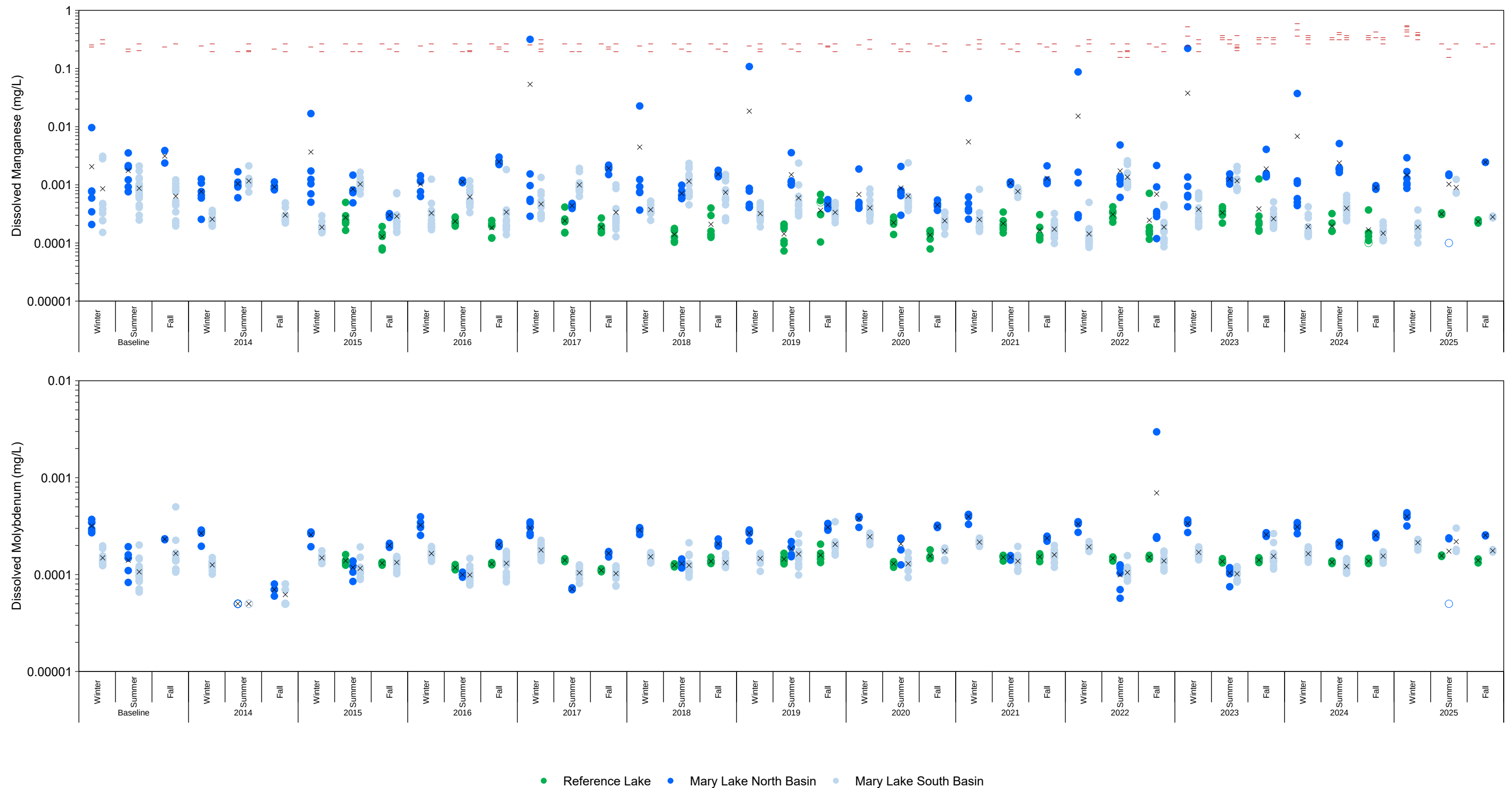


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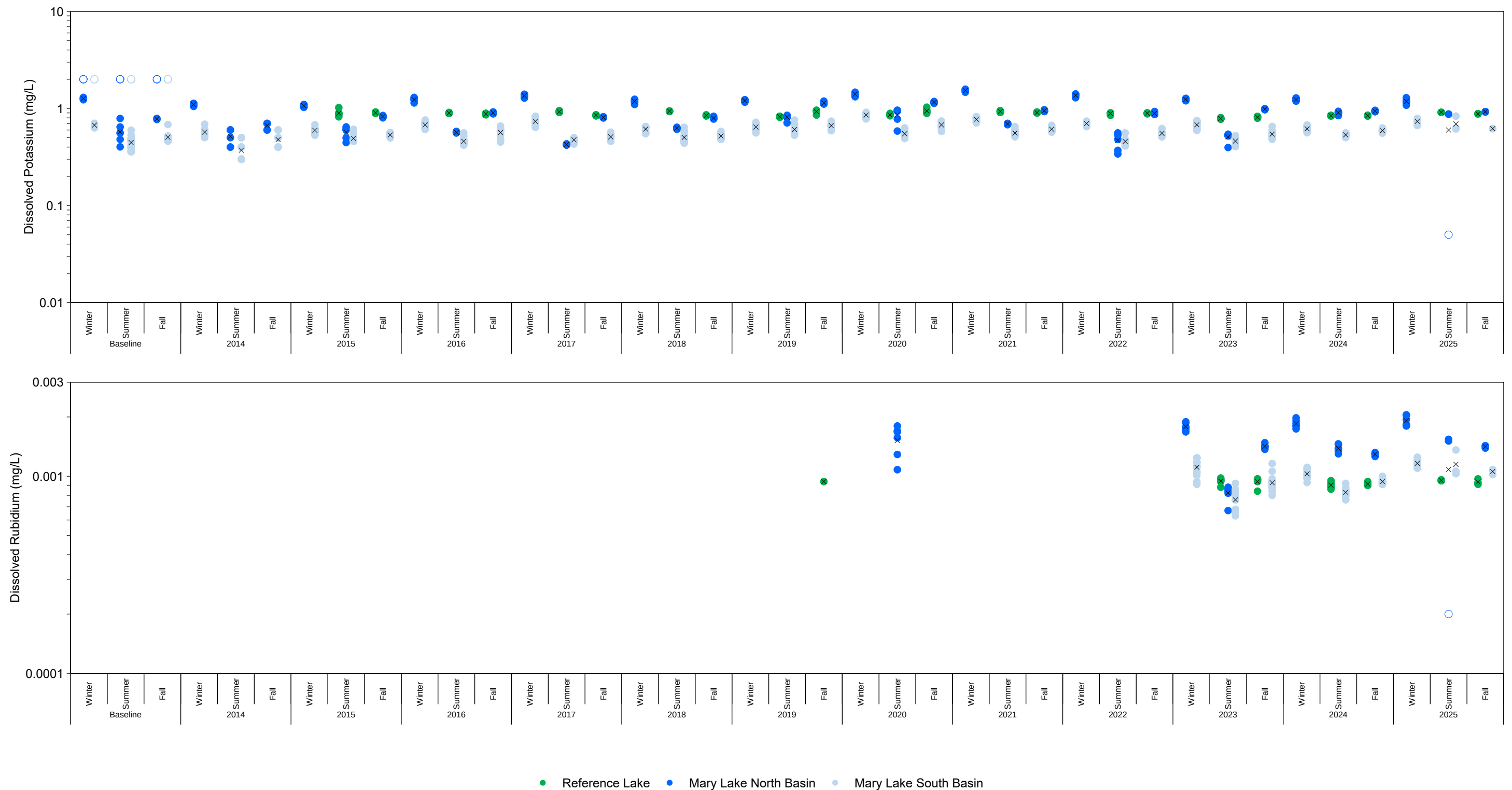


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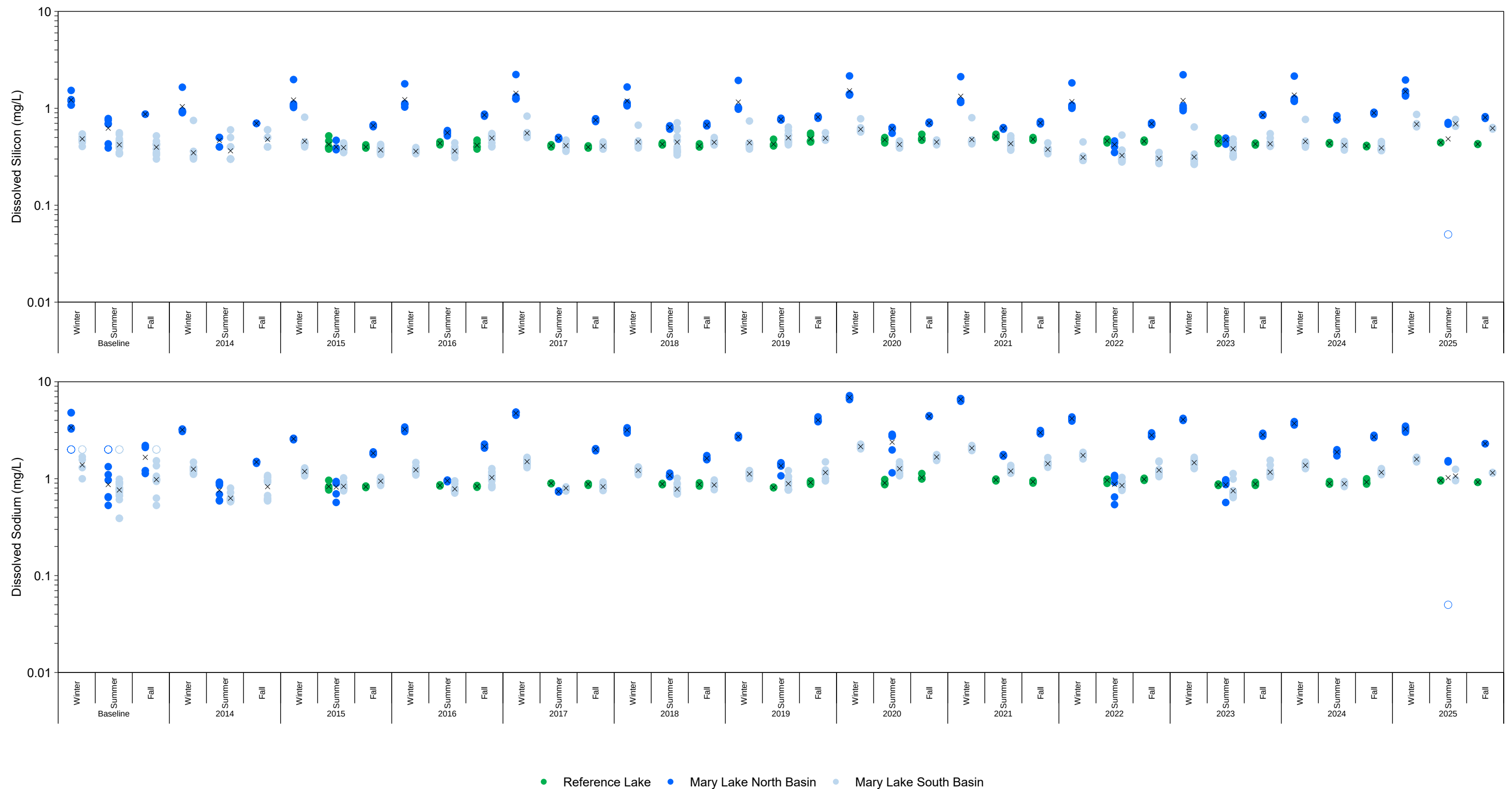


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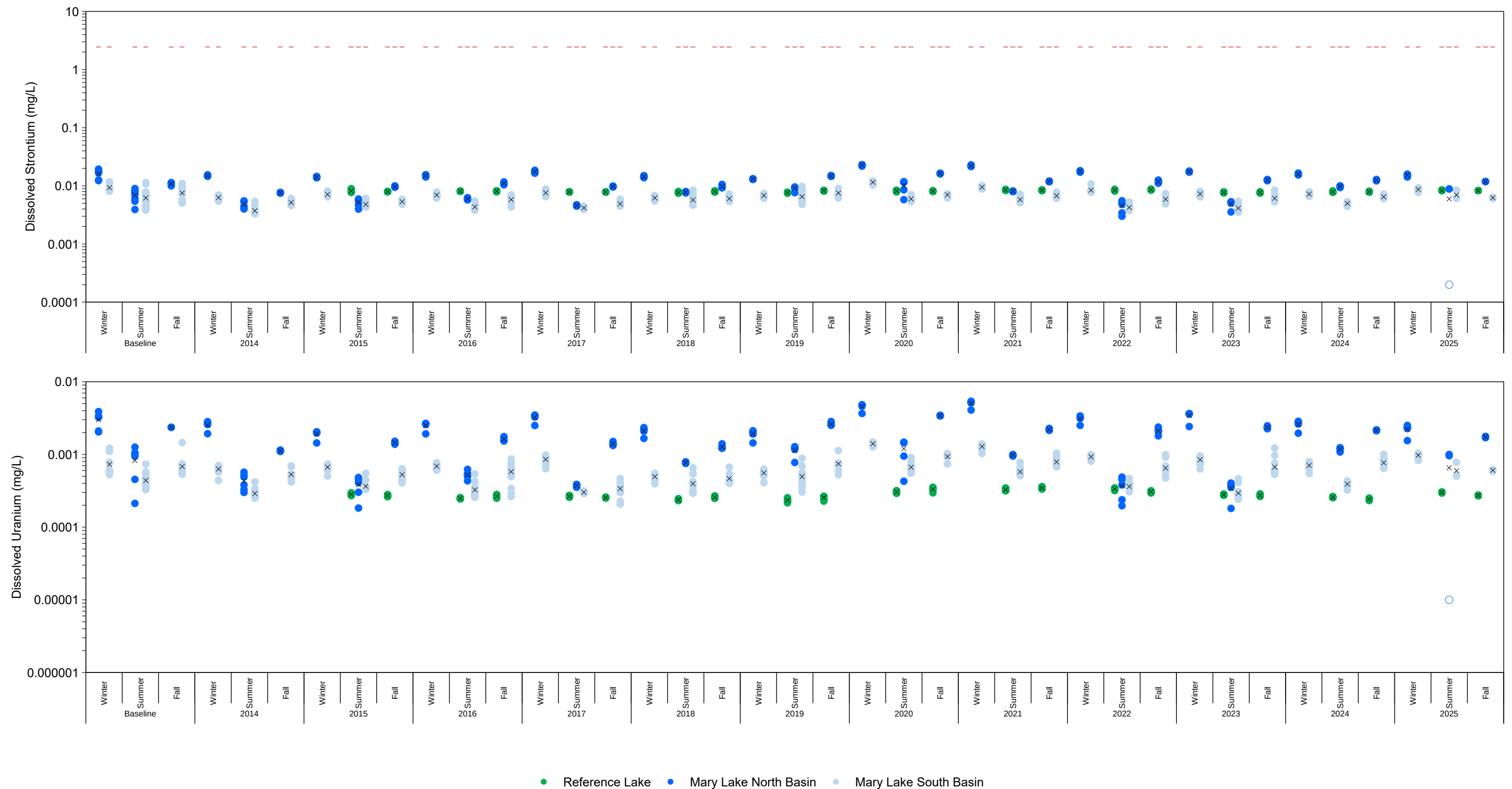


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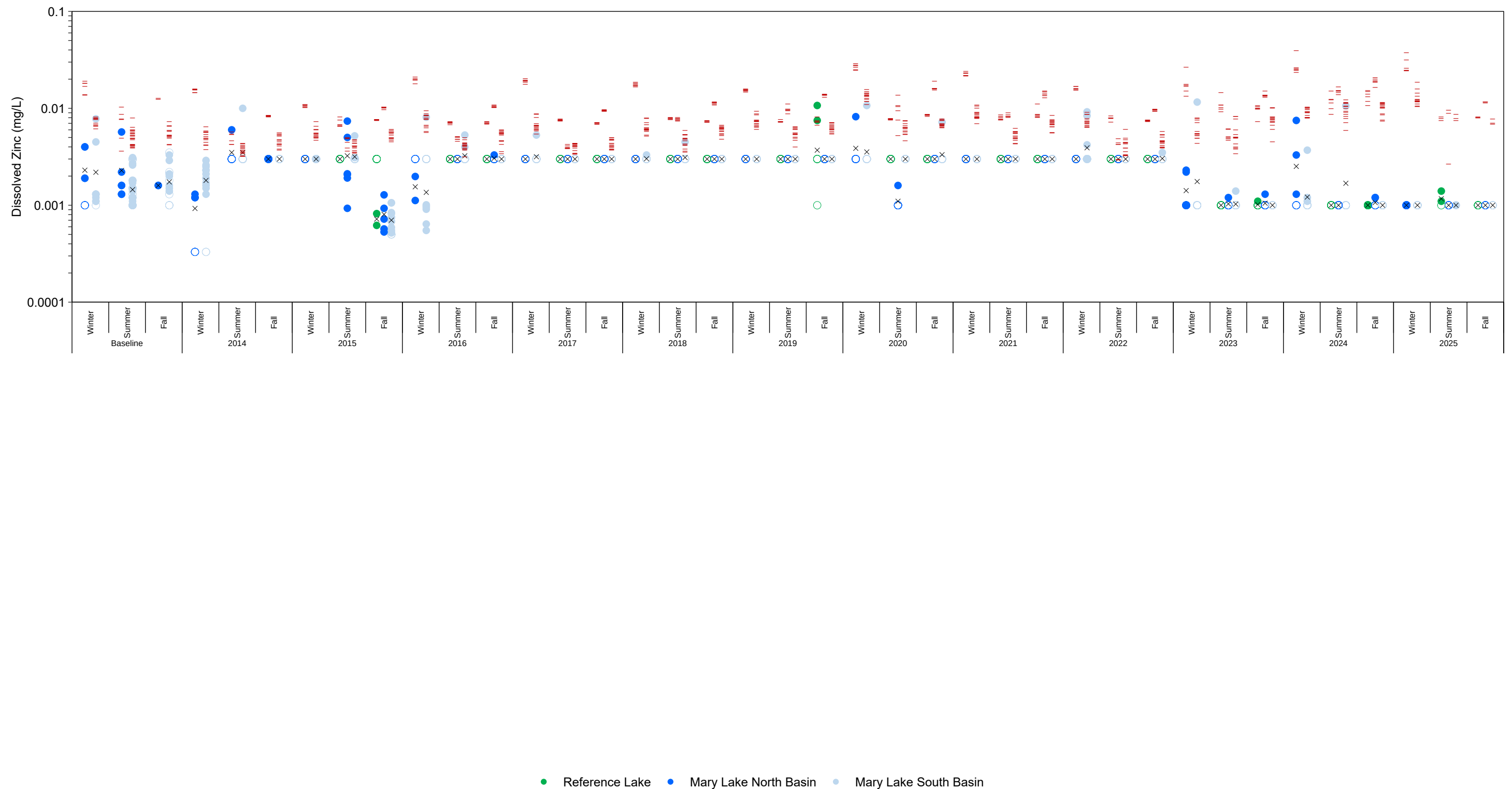


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TABLES

Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event									
						CLT1 North Branch			CLT1 Upper Main Stem	CLT1 Lower Main Stem				CLT2	
						L1-08	L1-02	L1-02	L2-03	L1-09	L1-09	L1-05	L0-01	K0-01	K0-01
						01-Jul-25	29-Jun-25	08-Jul-25	29-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	29-Jun-25	21-Jun-25	29-Jun-25
Conventionals	Conductivity (lab)	µS/cm	-	138	59.5	66.7	-	133	271	-	153	111	125	-	100
	Specific Conductance (field)	µS/cm	-	138	48.0	65.6	81.2	-	264	98.4	-	108	122	85.3	97.9
	pH (lab)	pH	-	-	-	7.16	7.45	8.01	7.65	7.42	8.02	7.57	7.65	-	7.52
	pH (field)	pH	6.5 - 9.0	-	7.09 - 7.66	7.92	7.69	-	7.83	7.69	-	7.94	7.93	7.80	7.83
	Temperature, Field	pH	-	0.150 - 13.1	0.330 - 6.40	2.20	8.10	-	14.5	9.40	-	13.6	14.4	5.10	13.0
	Hardness (as CaCO ₃) -Total	mg/L	-	79.6	28.3	31.5	-	71.0	124	-	79.9	56.3	63.8	-	52.0
	Total Suspended Solids (TSS)	mg/L	-	9.00	-	2.90	<1.3	<1	1.40	<1	<1	<1	<1	-	<1
	Total Dissolved Solids (TDS)	mg/L	-	90.0	87.0	33.0	62.0	64.0	160	56.0	80.0	82.0	82.0	-	61.0
	Dissolved Oxygen	mg/L	> 9.5	10.8	11.7	12.9	11.5	-	10.0	11.1	-	10.2	9.88	12.5	10.3
	Dissolved Oxygen	%	-	-	90.1	93.8	97.1	-	98.1	97.2	-	97.6	96.6	98.5	97.5
	Turbidity (lab)	NTU	-	-	-	1.16	0.360	0.170	5.50	0.630	0.490	0.620	0.720	-	0.560
	Turbidity (field)	NTU	-	-	-	1.45	0.250	-	4.82	0.830	-	0.580	0.770	0.830	0.550
	Alkalinity (as CaCO ₃)	mg/L	-	12.0 - 58.0	4.60 - 29.0	30.9	-	64.9	99.0	-	72.5	51.3	58.3	-	47.3
Nutrients and Organics	Total Ammonia	mg/L	0.197 - 3.98	0.400	-	<0.005	-	<0.005	0.0402	-	<0.005	0.00860	0.0109	-	0.00730
	Nitrate ^e	mg/L	3.00	-	-	0.0690	-	<0.02	0.114	-	<0.02	<0.02	0.0210	-	<0.02
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.400	0.165	0.0530	-	0.118	0.315	-	0.0970	0.119	0.0940	-	0.0690
	Dissolved Organic Carbon	mg/L	-	4.60	3.40	1.36	-	1.83	3.63	-	1.94	1.61	1.90	-	1.19
	Total Organic Carbon	mg/L	-	5.30	2.61	2.05	-	2.55	4.03	-	2.61	2.30	2.39	-	1.46
	Total Phosphorus	mg/L	-	0.0300	0.00970	0.00270	-	<0.002	0.00740	-	0.00250	<0.002	0.00250	-	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	-	<0.1	0.100	-	<0.1	<0.1	<0.1	-	<0.1
	Chloride (Cl) ^e	mg/L	120	8.00	1.79	1.18	-	0.920	16.3	-	2.42	2.10	2.32	-	0.960
	Sulphate (SO ₄)	mg/L	128 - 309	3.00	2.75	1.02	-	1.58	12.4	-	2.29	1.82	2.09	-	2.33
Total Metals	Aluminum (Al) ^e	mg/L	0.179	0.241	0.202	0.0371	-	0.00690	0.124	-	0.0115	0.0216	0.0280	-	0.0178
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	-	<0.0001	0.000140	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Barium (Ba)	mg/L	1.00	0.00652	0.00386	0.00490	-	0.00837	0.0147	-	0.00905	0.00688	0.00754	-	0.00579
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	-	<0.00002	<0.00002	-	<0.00002	<0.00002	<0.00002	-	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	<0.00005	-	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	-	<0.01	0.0180	-	<0.01	<0.01	<0.01	-	<0.01

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BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

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^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event									
						CLT1 North Branch			CLT1 Upper Main Stem	CLT1 Lower Main Stem				CLT2	
						L1-08	L1-02	L1-02	L2-03	L1-09	L1-09	L1-05	L0-01	K0-01	K0-01
						01-Jul-25	29-Jun-25	08-Jul-25	29-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	29-Jun-25	21-Jun-25	29-Jun-25
Total Metals	Cadmium (Cd)	mg/L	0.0000400 - 0.000191	-	-	<0.000005	-	<0.000005	0.00000790	-	<0.000005	<0.000005	<0.000005	-	<0.000005
	Calcium (Ca)	mg/L	-	13.9	5.59	5.90	-	14.0	24.6	-	15.8	11.1	12.6	-	10.1
	Cesium (Cs)	mg/L	-	-	0.0000360	0.0000120	-	0.0000110	0.0000170	-	0.0000120	0.0000110	0.0000110	-	<0.00001
	Chromium (Cr)	mg/L	0.00500	0.000880	-	<0.0005	-	<0.0005	0.000570	-	<0.0005	<0.0005	<0.0005	-	<0.0005
	Cobalt (Co)	mg/L	0.000778 - 0.00112	-	-	<0.0001	-	<0.0001	0.000130	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00287	0.00200	0.00104	0.00169	-	0.00182	0.00141	-	0.00177	0.00155	0.00149	-	0.000960
	Iron (Fe)	mg/L	0.326	0.340	0.232	0.0480	-	0.0100	0.307	-	0.0460	0.0440	0.0430	-	0.0170
	Lead (Pb)	mg/L	0.00100 - 0.00424	0.000200	0.000222	0.0000580	-	<0.00005	0.000178	-	<0.00005	<0.00005	<0.00005	-	<0.00005
	Lithium (Li)	mg/L	-	0.00128	-	<0.001	-	0.00100	<u>0.00470</u>	-	<u>0.00150</u>	<0.001	<0.001	-	<0.001
	Magnesium (Mg)	mg/L	-	9.56	3.40	4.06	-	8.76	15.3	-	9.82	6.94	7.86	-	6.51
	Manganese (Mn)	mg/L	0.768 - 1.16	0.00950	0.00377	0.00123	-	0.000340	0.0410	-	0.00328	0.00201	0.00182	-	0.000380
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	<0.000005	-	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000384	0.000233	0.000443	-	0.000599	0.00281	-	0.000776	0.000624	0.000657	-	0.000326
	Nickel (Ni)	mg/L	0.0250 - 0.114	0.00265	-	<0.0005	-	0.000660	0.00107	-	0.000670	0.000570	0.000690	-	0.000500
	Potassium (K)	mg/L	-	1.14	0.520	1.16	-	1.54	4.02	-	1.76	1.52	1.61	-	1.06
	Rubidium (Rb)	mg/L	-	-	0.00138	0.00328	-	0.00423	0.00529	-	0.00428	0.00376	0.00391	-	0.00222
	Selenium (Se)	mg/L	0.001	-	-	<0.00005	-	<0.00005	0.0000650	-	<0.00005	<0.00005	<0.00005	-	<0.00005
	Silicon (Si)	mg/L	-	1.09	0.710	0.620	-	0.700	0.860	-	0.720	0.560	0.610	-	0.490
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	<0.00001	-	<0.00001
	Sodium (Na)	mg/L	-	1.35	0.995	0.337	-	0.964	6.30	-	1.87	1.37	1.61	-	1.04
	Strontium (Sr)	mg/L	-	0.0220	0.00528	0.00430	-	0.00722	0.0499	-	0.0120	0.00961	0.0110	-	0.00612
	Sulphur (S)	mg/L	-	-	-	<0.5	-	<0.5	4.35	-	0.870	0.600	0.740	-	0.790
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	-	<0.00001	0.0000110	-	<0.00001	<0.00001	<0.00001	-	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.00183	-	<0.0003	0.00390	-	<0.0003	0.000870	0.00112	-	0.000570
	Tungsten (W)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000414	-	0.000955	0.0113	-	0.00209	0.00115	0.00112	-	0.000394
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	-	<0.003	<0.003	-	<0.003	<0.003	<0.003	-	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	-	<0.0002	0.000240	-	<0.0002	<0.0002	<0.0002	-	<0.0002

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Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event									
						CLT1 North Branch			CLT1 Upper Main Stem	CLT1 Lower Main Stem				CLT2	
						L1-08	L1-02	L1-02	L2-03	L1-09	L1-09	L1-05	L0-01	K0-01	K0-01
						01-Jul-25	29-Jun-25	08-Jul-25	29-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	29-Jun-25	21-Jun-25	29-Jun-25
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0130	0.0357	0.00720	-	0.00270	0.0114	-	0.00380	0.00660	0.00590	-	0.00620
	Antimony (Sb)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	-	<0.0001	0.000120	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Barium (Ba)	mg/L	-	0.00864	0.00323	0.00472	-	0.00845	<u>0.0141</u>	-	<u>0.00928</u>	0.00681	0.00759	-	0.00582
	Beryllium (Be)	mg/L	-	-	-	<0.00002	-	<0.00002	<0.00002	-	<0.00002	<0.00002	<0.00002	-	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	<0.00005	-	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	-	<0.01	0.0160	-	<0.01	<0.01	<0.01	-	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000250	-	-	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	<0.000005	-	<0.000005
	Calcium (Ca)	mg/L	-	14.0	5.61	5.95	-	12.2	<u>24.5</u>	-	13.8	11.0	12.3	-	10.0
	Cesium (Cs)	mg/L	-	-	-	<0.00001	-	0.0000100	<0.00001	-	<0.00001	<0.00001	<0.00001	-	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000560	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Copper (Cu)	mg/L	0.000568 - 0.00629	0.00400	0.000940	0.00149	-	0.00175	0.00119	-	0.00170	0.00143	0.00138	-	0.000840
	Iron (Fe)	mg/L	-	0.0500	-	<0.01	-	<0.01	0.0420	-	0.0210	0.0150	0.0100	-	<0.01
	Lead (Pb)	mg/L	0.00294 - 0.00843	-	-	<0.00005	-	<0.00005	<0.00005	-	<0.00005	<0.00005	<0.00005	-	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	-	<0.001	0.00480	-	<0.001	<0.001	<0.001	-	<0.001
	Magnesium (Mg)	mg/L	-	7.59	3.32	4.21	-	<u>8.24</u>	<u>15.6</u>	-	<u>9.33</u>	6.98	<u>7.79</u>	-	6.50
	Manganese (Mn)	mg/L	0.220 - 0.390	0.00525	0.00265	0.000360	-	0.000200	<u>0.0375</u>	-	0.00189	0.000940	0.00113	-	0.000160
	Mercury (Hg)	mg/L	-	-	-	<0.000005	-	<0.000005	<0.000005	-	<0.000005	<0.000005	<0.000005	-	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000366	0.000241	<u>0.000447</u>	-	<u>0.000607</u>	<u>0.00276</u>	-	<u>0.000763</u>	<u>0.000599</u>	<u>0.000607</u>	-	0.000328
	Nickel (Ni)	mg/L	0.000600 - 0.00300	0.00500	-	<0.0005	-	0.000500	0.000770	-	0.000590	<0.0005	0.000530	-	<0.0005
	Potassium (K)	mg/L	-	1.17	0.470	<u>1.18</u>	-	<u>1.60</u>	<u>4.02</u>	-	<u>1.86</u>	<u>1.52</u>	<u>1.60</u>	-	1.05
	Rubidium (Rb)	mg/L	-	-	0.00110	0.00338	-	0.00411	0.00512	-	0.00416	0.00374	0.00389	-	0.00217
	Selenium (Se)	mg/L	-	-	-	<0.00005	-	<0.00005	0.0000760	-	0.0000530	<0.00005	<0.00005	-	<0.00005
	Silicon (Si)	mg/L	-	0.839	0.635	0.593	-	0.649	0.635	-	0.677	0.515	0.532	-	0.445
	Silver (Ag)	mg/L	-	-	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	<0.00001	<0.00001	-	<0.00001
	Sodium (Na)	mg/L	-	0.884	0.968	0.359	-	<u>0.978</u>	<u>6.39</u>	-	<u>1.84</u>	<u>1.39</u>	<u>1.61</u>	-	<u>1.06</u>
	Strontium (Sr) ^e	mg/L	2.50	0.0204	0.00504	0.00401	-	0.00749	<u>0.0494</u>	-	0.0120	0.00955	0.0108	-	0.00608
	Sulphur (S)	mg/L	-	-	-	<0.5	-	<0.5	4.28	-	0.730	0.620	0.620	-	0.700
	Tellurium (Te)	mg/L	-	-	-	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	-	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	-	<0.00001	0.0000100	-	<0.00001	<0.00001	<0.00001	-	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	-	<0.0003	<0.0003	-	<0.0003	<0.0003	<0.0003	-	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001	-	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000402	-	<u>0.000916</u>	<u>0.0110</u>	-	<u>0.00199</u>	<u>0.00110</u>	<u>0.00107</u>	-	0.000371
	Vanadium (V)	mg/L	-	-	-	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	-	<0.0003	<0.0003	-	<0.0003	<0.0003	<0.0003	-	<0.0003

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Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event						
						CLT1 North Branch		CLT1 Upper Main Stem	CLT1 Lower Main Stem			CLT2
						L1-08	L1-02	L2-03	L1-09	L1-05	L0-01	K0-01
						03-Aug-25	02-Aug-25	01-Aug-25	02-Aug-25	02-Aug-25	02-Aug-25	02-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	234	130	129	190	285	221	229	243	234
	Specific Conductance (field)	µS/cm	-	228	134	133	180	305	211	218	232	224
	pH (lab)	pH	-	-	-	7.92	8.23	8.15	8.16	8.16	8.22	8.27
	pH (field)	pH	6.5 - 9.0	-	7.71 - 8.01	8.06	8.24	8.19	8.13	8.17	8.27	8.30
	Temperature, Field	pH	-	5.34 - 17.5	3.20 - 12.3	3.90	9.60	18.6	11.1	9.90	10.7	9.60
	Hardness (as CaCO ₃) -Total	mg/L	-	119	64.9	64.9	104	128	120	119	128	131
	Total Suspended Solids (TSS)	mg/L	-	-	-	<1	<1	3.70	<1	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	152	82.0	70.0	94.0	178	115	119	114	113
	Dissolved Oxygen	mg/L	> 9.5	9.65	10.2	12.6	10.9	9.27	10.6	10.8	10.6	11.0
	Dissolved Oxygen	%	-	-	85.3	96.2	95.7	99.3	96.2	95.1	96.0	96.3
	Turbidity (lab)	NTU	-	-	-	0.470	0.220	6.10	1.20	1.12	0.920	0.240
	Turbidity (field)	NTU	-	-	-	0.440	0.0900	5.07	0.950	1.17	0.810	0.170
	Alkalinity (as CaCO ₃)	mg/L	-	42.0 - 103	16.8 - 67.1	58.1	95.6	121	104	106	107	114
Nutrients and Organics	Total Ammonia	mg/L	0.197 - 3.98	0.520	-	0.00570	<0.005	0.0166	0.00770	<0.005	0.00630	0.0492
	Nitrate ^e	mg/L	3.00	-	-	0.0660	<0.02	0.0570	0.0250	0.0420	0.0620	0.0230
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.480	0.130	0.0960	0.117	0.222	0.193	0.138	0.140	0.177
	Dissolved Organic Carbon	mg/L	-	3.90	4.27	2.01	3.25	4.33	3.30	3.01	3.02	2.77
	Total Organic Carbon	mg/L	-	4.40	3.06	2.59	3.44	5.10	4.07	3.66	3.82	3.14
	Total Phosphorus	mg/L	-	0.0150	0.0109	0.00450	0.00290	0.00690	0.00260	0.0114	0.00240	0.00470
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	19.0	5.47	2.71	1.31	10.3	3.80	4.75	6.63	3.57
	Sulphate (SO ₄)	mg/L	128 - 309	4.00	8.71	2.14	1.85	9.26	3.43	4.10	4.58	2.82
Total Metals	Aluminum (Al) ^e	mg/L	0.179	0.143	0.734	0.0194	0.0101	0.170	0.0202	0.0295	0.0236	0.0101
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	0.000150	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.0119	0.0117	0.00864	0.0109	0.0150	0.0120	0.0131	0.0127	0.0127
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	0.0170	<0.01	<0.01	<0.01	<0.01

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BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event						
						CLT1 North Branch		CLT1 Upper Main Stem	CLT1 Lower Main Stem			CLT2
						L1-08	L1-02	L2-03	L1-09	L1-05	L0-01	K0-01
						03-Aug-25	02-Aug-25	01-Aug-25	02-Aug-25	02-Aug-25	02-Aug-25	02-Aug-25
Total Metals	Cadmium (Cd)	mg/L	0.0000400 - 0.000191	-	-	<0.000005	<0.000005	0.00000520	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	24.4	13.2	12.5	19.5	24.4	22.2	23.1	24.2	24.4
	Cesium (Cs)	mg/L	-	-	0.000130	0.0000140	0.0000150	0.0000240	0.0000130	0.0000140	0.0000120	<0.00001
	Chromium (Cr)	mg/L	0.00500	0.000640	-	<0.0005	<0.0005	0.000630	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000778 - 0.00112	-	-	<0.0001	<0.0001	0.000170	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00287	0.00228	0.00200	0.00229	0.00244	0.00160	0.00228	0.00218	0.00204	0.00202
	Iron (Fe)	mg/L	0.326	0.200	0.856	0.0160	0.0200	<u>0.504</u>	0.131	0.127	0.0830	0.0140
	Lead (Pb)	mg/L	0.00100 - 0.00424	-	0.000607	<0.00005	<0.00005	0.000192	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00360	-	<0.001	<0.001	0.00330	0.00140	0.00200	0.00150	0.00120
	Magnesium (Mg)	mg/L	-	14.3	7.76	8.18	13.5	16.2	15.6	15.0	16.5	17.0
	Manganese (Mn)	mg/L	0.768 - 1.16	0.00980	0.00979	0.000680	0.000710	0.0447	0.00921	0.00633	0.00408	0.000310
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000510	0.000669	0.00109	0.000812	0.00292	0.00115	0.00123	0.00106	<u>0.000617</u>
	Nickel (Ni)	mg/L	0.0250 - 0.114	0.00116	0.00111	<0.0005	0.000810	0.00133	0.000940	0.00101	0.00110	0.00156
	Potassium (K)	mg/L	-	1.63	1.14	2.14	2.07	3.33	2.37	2.37	2.36	2.03
	Rubidium (Rb)	mg/L	-	-	0.00537	0.00553	0.00552	0.00469	0.00527	0.00512	0.00499	0.00403
	Selenium (Se)	mg/L	0.001	-	-	0.0000650	<0.00005	0.0000760	0.0000590	0.0000550	0.0000550	<0.00005
	Silicon (Si)	mg/L	-	1.18	2.45	0.870	1.00	<u>1.30</u>	1.09	<u>1.22</u>	1.15	1.04
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	3.16	0.588	1.57	7.21	3.47	3.40	4.08	3.23
	Strontium (Sr)	mg/L	-	0.0275	0.0159	0.00884	0.0112	0.0293	0.0184	0.0190	0.0201	0.0168
	Sulphur (S)	mg/L	-	-	2.11	0.850	0.610	3.27	1.16	1.69	1.58	0.990
	Thallium (Tl) ^e	mg/L	0.000800	-	-	0.0000110	0.0000100	0.0000120	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	0.00146	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	0.0522	0.000490	<0.0003	0.00691	0.000610	0.00102	0.000750	0.000320
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00264</u>	<u>0.00200</u>	0.0159	0.00452	0.00477	<u>0.00396</u>	<u>0.00244</u>
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	0.000210	<0.0002	0.000330	<0.0002	0.000210	<0.0002	0.000210

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Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

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						CLT1 North Branch		CLT1 Upper Main Stem	CLT1 Lower Main Stem			CLT2
						L1-08	L1-02	L2-03	L1-09	L1-05	L0-01	K0-01
						03-Aug-25	02-Aug-25	01-Aug-25	02-Aug-25	02-Aug-25	02-Aug-25	02-Aug-25
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0110	0.104	0.00720	0.00500	<u>0.0139</u>	0.00480	<u>0.0202</u>	0.00490	0.00420
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	0.000120	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0118	0.00808	0.00878	<u>0.0121</u>	<u>0.0145</u>	<u>0.0128</u>	<u>0.0137</u>	<u>0.0138</u>	<u>0.0133</u>
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	0.0180	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000250	-	-	<0.000005	<0.000005	0.00000500	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	24.4	13.8	11.5	19.8	<u>27.5</u>	22.2	21.3	24.2	24.4
	Cesium (Cs)	mg/L	-	-	0.0000280	0.0000130	0.0000150	<0.00001	0.0000120	0.0000150	0.0000100	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000560	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.000568 - 0.00629	0.00200	0.00122	<u>0.00226</u>	<u>0.00241</u>	<u>0.00146</u>	<u>0.00205</u>	<u>0.00216</u>	<u>0.00191</u>	<u>0.00176</u>
	Iron (Fe)	mg/L	-	0.120	0.0520	<0.01	0.0130	0.110	0.0530	0.0910	0.0350	<0.01
	Lead (Pb)	mg/L	0.00294 - 0.00843	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00355	-	<0.001	0.00160	<u>0.00370</u>	0.00220	0.00230	0.00240	0.00210
	Magnesium (Mg)	mg/L	-	14.1	7.80	7.71	12.2	<u>16.8</u>	13.6	14.0	<u>14.9</u>	<u>15.0</u>
	Manganese (Mn)	mg/L	0.220 - 0.390	0.00614	0.000805	0.000430	0.000460	<u>0.0400</u>	<u>0.00788</u>	<u>0.00606</u>	<u>0.00320</u>	0.000190
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000501	0.000640	<u>0.00109</u>	<u>0.000849</u>	<u>0.00283</u>	<u>0.00120</u>	<u>0.00129</u>	<u>0.00109</u>	<u>0.000644</u>
	Nickel (Ni)	mg/L	0.000600 - 0.00300	0.00150	-	<0.0005	0.000770	0.00111	0.000820	0.000980	0.00100	0.000710
	Potassium (K)	mg/L	-	1.66	0.850	<u>2.21</u>	<u>2.05</u>	<u>3.19</u>	<u>2.27</u>	<u>2.45</u>	<u>2.31</u>	<u>1.96</u>
	Rubidium (Rb)	mg/L	-	-	0.00240	0.00561	0.00548	0.00452	0.00508	0.00516	0.00496	0.00389
	Selenium (Se)	mg/L	-	-	-	0.0000690	0.0000530	0.0000810	0.0000500	<0.00005	0.0000550	0.0000510
	Silicon (Si)	mg/L	-	1.17	1.16	0.858	1.02	0.999	1.07	<u>1.23</u>	1.14	1.02
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.87	3.27	0.602	1.43	<u>7.17</u>	<u>3.10</u>	<u>3.30</u>	<u>3.73</u>	<u>2.89</u>
	Strontium (Sr) ^e	mg/L	2.50	0.0266	0.0150	0.00895	0.0109	<u>0.0297</u>	0.0178	0.0194	0.0195	0.0162
	Sulphur (S)	mg/L	-	-	4.44	0.820	0.800	3.34	1.31	1.70	1.73	1.14
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	0.0000130	<0.00001	0.0000110	<0.00001	0.0000110	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	0.000810	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00266</u>	<u>0.00209</u>	<u>0.0158</u>	<u>0.00451</u>	<u>0.00476</u>	<u>0.00405</u>	<u>0.00246</u>
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

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						L1-08	L1-02	L2-03	L1-09	L1-05	L0-01	K0-01
						28-Aug-25	17-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23
Conventionals	Conductivity (lab)	µS/cm	-	340	178	169	195	315	238	240	247	258
	Specific Conductance (field)	µS/cm	-	665	160	177	206	333	250	253	259	270
	pH (lab)	pH	-	-	-	7.86	8.08	8.04	8.05	8.06	8.10	8.15
	pH (field)	pH	6.5 - 9.0	-	7.39 - 8.13	8.11	8.15	8.10	8.21	8.25	8.21	8.29
	Temperature, Field	pH	-	0.950 - 8.66	-0.100 - 3.00	<u>0.300</u>	<u>0.900</u>	4.50	2.60	2.40	2.20	2.30
	Hardness (as CaCO ₃) -Total	mg/L	-	165	85.1	87.6	103	156	121	123	125	134
	Total Suspended Solids (TSS)	mg/L	-	6.00	-	<1.2	<1.2	<u>7.50</u>	<1	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	221	105	97.0	118	179	118	121	120	126
	Dissolved Oxygen	mg/L	> 9.5	10.7	12.3	13.5	13.9	12.7	13.2	13.2	13.2	13.3
	Dissolved Oxygen	%	-	-	89.9	93.0	97.6	98.7	96.6	96.5	96.1	97.4
	Turbidity (lab)	NTU	-	-	-	0.350	0.320	<u>10.7</u>	<u>1.65</u>	1.16	0.970	0.580
	Turbidity (field)	NTU	-	-	-	0.190	0.190	3.80	1.33	1.05	0.730	0.320
	Alkalinity (as CaCO ₃)	mg/L	-	58.0 - 125	25.0 - 82.2	74.8	93.8	<u>136</u>	108	110	112	122
Nutrients and Organics	Total Ammonia	mg/L	0.197 - 3.98	0.600	-	<0.005	<0.005	0.0257	0.0104	0.00780	0.00860	<0.005
	Nitrate ^e	mg/L	3.00	-	0.126	0.0480	0.0480	0.203	0.129	0.0770	0.0700	<0.02
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.300	0.140	0.0910	0.117	0.235	0.127	0.135	0.141	0.162
	Dissolved Organic Carbon	mg/L	-	3.60	2.66	1.74	2.33	<u>3.65</u>	3.24	2.86	2.83	2.31
	Total Organic Carbon	mg/L	-	4.00	2.42	1.66	3.44	<u>5.60</u>	3.19	3.58	3.45	2.82
	Total Phosphorus	mg/L	-	0.0130	0.0111	<0.002	<0.002	0.00400	<0.002	<0.002	<0.002	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	0.00120	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	34.0	11.7	5.66	2.97	11.2	6.12	6.09	6.55	5.56
	Sulphate (SO ₄)	mg/L	128 - 309	8.00	14.1	2.51	2.65	<u>9.52</u>	4.98	5.03	4.92	4.18
Total Metals	Aluminum (Al) ^e	mg/L	0.179	0.0550	0.495	0.0136	0.00850	<u>0.124</u>	0.0301	0.0221	0.0196	0.0156
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	0.000130	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.0190	0.0129	0.0101	0.0116	0.0145	0.0126	0.0130	0.0132	0.0133
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	0.0140	<0.01	<0.01	<0.01	<0.01

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event						
						CLT1 North Branch		CLT1 Upper Main Stem	CLT1 Lower Main Stem			CLT2
						L1-08	L1-02	L2-03	L1-09	L1-05	L0-01	K0-01
						28-Aug-25	17-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23
Total Metals	Cadmium (Cd)	mg/L	0.0000400 - 0.000191	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	38.0	17.1	16.1	19.0	28.2	22.1	22.5	23.1	24.8
	Cesium (Cs)	mg/L	-	-	0.0000750	0.0000110	0.0000130	0.0000150	0.0000120	0.0000110	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	0.00300	-	<0.0005	<0.0005	<0.0005	0.000630	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000778 - 0.00112	-	-	<0.0001	<0.0001	0.000150	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00287	0.00200	0.00174	0.00201	0.00200	0.00126	0.00175	0.00175	0.00170	0.00145
	Iron (Fe)	mg/L	0.326	0.170	0.462	0.0120	0.0140	0.442	0.158	0.121	0.0710	0.0200
	Lead (Pb)	mg/L	0.00100 - 0.00424	-	0.000434	<0.00005	<0.00005	0.0000880	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00660	-	<0.001	<0.001	0.00320	0.00170	0.00170	0.00160	0.00140
	Magnesium (Mg)	mg/L	-	17.1	10.3	11.5	13.6	20.8	15.9	16.3	16.3	17.6
	Manganese (Mn)	mg/L	0.768 - 1.16	0.00773	0.00477	0.000460	0.000680	0.0287	0.00928	0.00678	0.00355	0.000660
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000878	0.000777	0.00109	0.000940	0.00229	0.00122	0.00117	0.00109	0.000633
	Nickel (Ni)	mg/L	0.0250 - 0.114	0.00122	0.00104	<0.0005	0.000550	0.00115	0.000790	0.000820	0.000850	0.000580
	Potassium (K)	mg/L	-	2.13	1.17	2.14	2.14	3.55	2.38	2.41	2.34	1.90
	Rubidium (Rb)	mg/L	-	-	0.00313	0.00566	0.00509	0.00424	0.00458	0.00466	0.00438	0.00326
	Selenium (Se)	mg/L	0.001	-	-	<0.00005	<0.00005	0.0000810	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	1.53	1.91	0.940	1.09	1.32	1.16	1.16	1.19	1.06
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	4.18	5.07	0.696	1.54	8.23	3.88	3.96	3.95	3.58
	Strontium (Sr)	mg/L	-	0.0937	0.0242	0.0128	0.0119	0.0300	0.0197	0.0196	0.0193	0.0172
	Sulphur (S)	mg/L	-	-	3.67	1.10	1.16	3.86	2.10	2.13	2.02	1.76
	Thallium (Tl) ^e	mg/L	0.000800	-	-	0.0000110	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	0.000820	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	0.0273	0.000440	<0.0003	0.00546	0.00113	0.000810	0.000820	0.000700
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00478	0.00308	0.0184	0.00673	0.00681	0.00572	0.00278
	Vanadium (V) ^e	mg/L	-	-	-	0.000560	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	0.000220	<0.0002	<0.0002	<0.0002	<0.0002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

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underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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Table B.1: Water Chemistry at Camp Lake Tributary (CLT) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event						
						CLT1 North Branch		CLT1 Upper Main Stem	CLT1 Lower Main Stem			CLT2
						L1-08	L1-02	L2-03	L1-09	L1-05	L0-01	K0-01
						28-Aug-25	17-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23	16-Sep-23
Dissolved Metals	Aluminum (Al)	mg/L	-	0.00600	0.0632	0.00520	0.00320	0.00480	0.00330	0.00300	0.00310	0.00200
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0189	0.0109	0.0103	0.0121	0.0138	0.0127	0.0130	0.0136	0.0136
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	0.0130	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000250	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	38.4	17.1	16.0	19.0	28.4	22.0	21.8	23.3	24.6
	Cesium (Cs)	mg/L	-	-	0.0000370	0.0000100	0.0000130	<0.00001	0.0000110	0.0000110	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000560	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.000568 - 0.00629	0.00200	0.00125	0.00194	0.00197	0.00108	0.00172	0.00174	0.00172	0.00148
	Iron (Fe)	mg/L	-	0.100	-	<0.01	<0.01	<u>0.128</u>	0.0510	0.0460	0.0300	<0.01
	Lead (Pb)	mg/L	0.00294 - 0.00843	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00640	-	<0.001	0.00110	0.00330	0.00200	0.00190	0.00200	0.00170
	Magnesium (Mg)	mg/L	-	17.1	10.5	11.2	13.6	<u>20.1</u>	14.8	14.4	15.1	16.3
	Manganese (Mn)	mg/L	0.220 - 0.390	0.00882	0.00113	0.000250	0.000560	<u>0.0235</u>	0.00781	0.00558	0.00296	0.000370
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000852	0.000752	<u>0.00106</u>	<u>0.000925</u>	<u>0.00224</u>	<u>0.00127</u>	<u>0.00124</u>	<u>0.00115</u>	0.000643
	Nickel (Ni)	mg/L	0.000600 - 0.00300	0.00500	-	<0.0005	0.000550	0.000940	0.000680	0.000720	0.000840	0.000570
	Potassium (K)	mg/L	-	2.15	1.07	2.15	<u>2.17</u>	<u>3.49</u>	<u>2.48</u>	<u>2.42</u>	<u>2.40</u>	1.92
	Rubidium (Rb)	mg/L	-	-	0.00221	0.00575	0.00528	0.00391	0.00479	0.00473	0.00444	0.00325
	Selenium (Se)	mg/L	-	-	-	0.0000620	<0.00005	0.0000710	<0.00005	0.0000510	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	1.50	1.09	0.885	1.08	1.12	1.05	1.07	1.12	0.990
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	3.40	5.11	0.683	1.53	<u>8.01</u>	<u>3.83</u>	<u>3.75</u>	<u>3.87</u>	<u>3.50</u>
	Strontium (Sr) ^e	mg/L	2.50	0.0992	0.0256	0.0129	0.0119	0.0300	0.0205	0.0198	0.0192	0.0179
	Sulphur (S)	mg/L	-	-	3.90	1.06	1.15	3.79	2.09	2.12	2.08	1.76
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	0.0000120	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00468</u>	0.00307	<u>0.0180</u>	<u>0.00645</u>	<u>0.00650</u>	<u>0.00554</u>	0.00296
	Vanadium (V)	mg/L	-	-	-	0.000500	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.2: *In Situ* Water Quality Measurements Collected at Camp Lake Tributary 1 (CLT1), Camp Lake Tributary 2 (CLT2), and Reference Creek Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Sampling Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)	pH (pH units)	Conductivity (µS/cm)	Specific Conductance (µS/cm)
Unnamed Reference Creek	REF-CRK-B1	12-Aug-25	6.2	11.74	94.9	7.20	71.8	111.9
	REF-CRK-B2	12-Aug-25	6.4	11.52	93.6	7.30	71.5	110.9
	REF-CRK-B3	12-Aug-25	6.7	11.61	107.7	7.43	70.0	107.7
	REF-CRK-B4	12-Aug-25	5.9	11.84	94.8	7.21	68.3	107.7
	REF-CRK-B5	12-Aug-25	5.9	11.75	93.9	7.43	67.0	105.5
Camp Lake Tributary 1 North Branch	CLT1-US-B1	14-Aug-25	4.2	12.57	96.4	7.80	115.5	191.8
	CLT1-US-B2	14-Aug-25	4.2	12.64	96.8	7.83	115.6	192.0
	CLT1-US-B3	14-Aug-25	4.1	12.57	96.2	7.81	100.5	167.2
	CLT1-US-B4	14-Aug-25	4.2	12.43	95.1	7.65	116.3	193.7
	CLT1-US-B5	14-Aug-25	4.0	12.51	95.5	7.64	115.1	192.5
Camp Lake Tributary 1 Upper Main Stem	CLT1-L2-B1	10-Aug-25	6.3	11.99	97.2	8.15	198.2	308.3
	CLT1-L2-B2	10-Aug-25	6.0	11.75	94.4	8.09	196.6	308.9
	CLT1-L2-B3	10-Aug-25	5.4	12.12	96.0	8.07	193.8	309.5
	CLT1-L2-B4	10-Aug-25	5.3	11.60	91.6	7.97	194.9	312.5
	CLT1-L2-B5	10-Aug-25	4.2	12.19	93.7	8.00	186.7	309.6
Camp Lake Tributary 1 Lower Main Stem	CLT1-DS-B1	12-Aug-25	7.7	11.37	95.2	7.65	150.9	225.7
	CLT1-DS-B2	12-Aug-25	7.8	11.34	95.4	7.72	152.0	226.2
	CLT1-DS-B3	12-Aug-25	8.2	11.31	95.9	7.66	153.5	226.2
	CLT1-DS-B4	12-Aug-25	3.7	12.35	93.5	7.59	134.9	227.0
	CLT1-DS-B5	12-Aug-25	3.7	12.37	93.8	7.75	134.4	226.2
Camp Lake Tributary 2 Upstream	CLT2-US-B1	11-Aug-25	6.7	11.94	97.7	8.36	149.7	230.1
	CLT2-US-B2	11-Aug-25	6.6	11.89	97.2	8.36	149.2	230.2
	CLT2-US-B3	11-Aug-25	6.5	11.95	97.4	8.33	148.9	230.2
	CLT2-US-B4	11-Aug-25	5.9	11.93	96.0	8.35	146.7	230.9
	CLT2-US-B5	11-Aug-25	5.8	12.02	95.8	8.34	146.3	231.1
Camp Lake Tributary 2 Downstream	CLT2-DS-B1	11-Aug-25	3.4	12.91	97.1	8.21	136.8	233.1
	CLT2-DS-B2	11-Aug-25	3.2	13.06	97.4	8.17	136.4	234.1
	CLT2-DS-B3	11-Aug-25	3.0	13.22	98.2	8.14	136.4	235.5
	CLT2-DS-B4	11-Aug-25	2.8	13.20	97.5	8.21	135.3	234.9
	CLT2-DS-B5	11-Aug-25	2.7	13.13	96.7	8.25	134.4	234.5

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. CCME = Canadian Council of Ministers of the Environment. WQG = Water Quality Guideline.

Table B.3: Water Chemistry Baseline Normal Ranges Calculated for Camp Lake Tributary 1 (Stations L0-01, L1-02, L1-08, L1-09, and L2-03) and Camp Lake Tributary 2 (Station K0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventionals	Conductivity (lab)	µS/cm	35	-	138	34	-	234	36	-	340
	Specific Conductance (field)	µS/cm	33	-	138	33	-	228	35	-	665
	pH (lab)	pH	33	-	8.60	32	-	8.16	36	-	8.41
	pH (field) ^a	pH	0	-	-	0	-	-	0	-	-
	Temperature, Field ^a	pH	33	0.150	13.1	33	5.34	17.5	36	0.950	8.66
	Hardness (as CaCO ₃) -Total	mg/L	35	-	79.6	34	-	119	36	-	165
	Total Suspended Solids (TSS)	mg/L	25	-	9.00	25	-	LRL	27	-	6.00
	Total Dissolved Solids (TDS)	mg/L	35	-	90.0	34	-	152	36	-	221
	Dissolved Oxygen ^b	mg/L	31	10.8	-	27	9.65	-	34	10.7	-
	Dissolved Oxygen ^b	%	0	-	-	0	-	-	0	-	-
	Turbidity (lab)	NTU	35	-	2.40	33	-	1.10	33	-	1.60
	Turbidity (field)	NTU	0	-	-	0	-	-	0	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	35	12.0	58.0	34	42.0	103	36	58.0	125
Nutrients and Organics	Total Ammonia	mg/L	32	-	0.400	34	-	0.520	36	-	0.600
	Nitrate	mg/L	35	-	LRL	34	-	LRL	36	-	LRL
	Nitrite	mg/L	32	-	LRL	34	-	LRL	36	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	22	-	0.400	25	-	0.480	27	-	0.300
	Dissolved Organic Carbon	mg/L	24	-	4.60	25	-	3.90	27	-	3.60
	Total Organic Carbon	mg/L	24	-	5.30	25	-	4.40	27	-	4.00
	Total Phosphorus	mg/L	32	-	0.0300	34	-	0.0150	36	-	0.0130
	Phenols	mg/L	0	-	-	0	-	-	0	-	-
Anions	Bromide (Br)	mg/L	32	-	LRL	34	-	LRL	36	-	LRL
	Chloride (Cl)	mg/L	35	-	8.00	34	-	19.0	36	-	34.0
	Sulphate (SO ₄)	mg/L	35	-	3.00	34	-	4.00	36	-	8.00
Total Metals	Aluminum (Al)	mg/L	35	-	0.241	34	-	0.143	36	-	0.0550
	Antimony (Sb)	mg/L	21	-	LRL	23	-	LRL	29	-	LRL
	Arsenic (As)	mg/L	35	-	LRL	34	-	LRL	36	-	LRL
	Barium (Ba)	mg/L	35	-	0.00652	34	-	0.0119	36	-	0.0190
	Beryllium (Be)	mg/L	21	-	LRL	23	-	LRL	29	-	LRL
	Bismuth (Bi)	mg/L	21	-	LRL	23	-	LRL	29	-	LRL
	Boron (B)	mg/L	34	-	LRL	34	-	LRL	36	-	LRL
	Cadmium (Cd)	mg/L	35	-	LRL	34	-	LRL	36	-	LRL
	Calcium (Ca)	mg/L	35	-	13.9	34	-	24.4	36	-	38.0
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	35	-	0.000880	34	-	0.000640	36	-	0.00300
	Cobalt (Co)	mg/L	34	-	LRL	34	-	LRL	36	-	LRL
	Copper (Cu)	mg/L	30	-	0.00200	33	-	0.00228	36	-	0.00200
	Iron (Fe)	mg/L	35	-	0.340	34	-	0.200	36	-	0.170
	Lead (Pb)	mg/L	19	-	0.000200	22	-	LRL	27	-	LRL
	Lithium (Li)	mg/L	17	-	0.00128	19	-	0.00360	25	-	0.00660
	Magnesium (Mg)	mg/L	35	-	9.56	34	-	14.3	36	-	17.1
	Manganese (Mn)	mg/L	21	-	0.00950	23	-	0.00980	29	-	0.00773
	Mercury (Hg)	mg/L	33	-	LRL	34	-	LRL	36	-	LRL
	Molybdenum (Mo)	mg/L	21	-	0.000384	23	-	0.000510	29	-	0.000878
	Nickel (Ni)	mg/L	17	-	0.00265	21	-	0.00116	24	-	0.00122
	Potassium (K)	mg/L	34	-	1.14	34	-	1.63	36	-	2.13
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	35	-	LRL	34	-	LRL	36	-	LRL
	Silicon (Si)	mg/L	17	-	1.09	19	-	1.18	25	-	1.53
	Silver (Ag)	mg/L	34	-	LRL	34	-	LRL	36	-	LRL
	Sodium (Na)	mg/L	35	-	1.35	34	-	2.00	36	-	4.18
	Strontium (Sr)	mg/L	34	-	0.0220	34	-	0.0275	36	-	0.0937
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	23	-	LRL	29	-	LRL	31	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	34	-	LRL	34	-	LRL	36	-	LRL
	Titanium (Ti)	mg/L	21	-	LRL	23	-	LRL	29	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	17	-	0.000689	18	-	0.00168	25	-	0.00401
	Vanadium (V)	mg/L	34	-	LRL	33	-	LRL	36	-	LRL
	Zinc (Zn)	mg/L	21	-	LRL	22	-	LRL	29	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.3: Water Chemistry Baseline Normal Ranges Calculated for Camp Lake Tributary 1 (Stations L0-01, L1-02, L1-08, L1-09, and L2-03) and Camp Lake Tributary 2 (Station K0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	34	-	0.0130	32	-	0.0110	35	-	0.00600
	Antimony (Sb)	mg/L	20	-	LRL	21	-	LRL	28	-	LRL
	Arsenic (As)	mg/L	34	-	LRL	32	-	LRL	35	-	LRL
	Barium (Ba)	mg/L	34	-	0.00864	32	-	0.0118	35	-	0.0189
	Beryllium (Be)	mg/L	20	-	LRL	21	-	LRL	28	-	LRL
	Bismuth (Bi)	mg/L	20	-	LRL	21	-	LRL	28	-	LRL
	Boron (B)	mg/L	33	-	LRL	32	-	LRL	35	-	LRL
	Cadmium (Cd)	mg/L	34	-	LRL	32	-	LRL	35	-	LRL
	Calcium (Ca)	mg/L	34	-	14.0	32	-	24.4	35	-	38.4
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	34	-	LRL	32	-	LRL	35	-	LRL
	Cobalt (Co)	mg/L	33	-	LRL	32	-	LRL	35	-	LRL
	Copper (Cu)	mg/L	32	-	0.00400	31	-	0.00200	35	-	0.00200
	Iron (Fe)	mg/L	33	-	0.0500	32	-	0.120	35	-	0.100
	Lead (Pb)	mg/L	20	-	LRL	21	-	LRL	28	-	LRL
	Lithium (Li)	mg/L	17	-	LRL	18	-	0.00355	25	-	0.00640
	Magnesium (Mg)	mg/L	34	-	7.59	32	-	14.1	35	-	17.1
	Manganese (Mn)	mg/L	20	-	0.00525	21	-	0.00614	28	-	0.00882
	Mercury (Hg)	mg/L	18	-	LRL	18	-	LRL	22	-	LRL
	Molybdenum (Mo)	mg/L	20	-	0.000366	21	-	0.000501	28	-	0.000852
	Nickel (Ni)	mg/L	33	-	0.00500	32	-	0.00150	35	-	0.00500
	Potassium (K)	mg/L	33	-	1.17	32	-	1.66	35	-	2.15
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	34	-	LRL	32	-	LRL	35	-	LRL
	Silicon (Si)	mg/L	17	-	0.839	18	-	1.17	25	-	1.50
	Silver (Ag)	mg/L	33	-	LRL	32	-	LRL	35	-	LRL
	Sodium (Na)	mg/L	34	-	0.884	32	-	1.87	35	-	3.40
	Strontium (Sr)	mg/L	33	-	0.0204	32	-	0.0266	35	-	0.0992
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Tellurium (Te)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	22	-	LRL	27	-	LRL	30	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	33	-	LRL	32	-	LRL	35	-	LRL
	Titanium (Ti)	mg/L	20	-	LRL	21	-	LRL	28	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	18	-	0.000653	18	-	0.00170	25	-	0.00389
	Vanadium (V)	mg/L	33	-	LRL	32	-	LRL	35	-	LRL
	Zinc (Zn)	mg/L	20	-	0.00305	21	-	0.00350	28	-	0.00450
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.4: Water Chemistry Reference Normal Ranges Calculated Based on Data From Reference Creek Stations (CLT-REF3, CLT-REF4, MRY-REF2, and MRY-REF3), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2014 to 2025

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventional	Conductivity (lab)	µS/cm	44	-	59.5	48	-	130	48	-	178
	Specific Conductance (field)	µS/cm	19	-	48.0	17	-	134	14	-	160
	pH (lab)	pH	48	-	7.83	48	-	8.03	48	-	8.17
	pH (field) ^a	pH	15	7.09	7.66	13	7.71	8.01	14	7.39	8.13
	Temperature, Field ^a	pH	19	0.330	6.40	17	3.20	12.3	14	-0.100	3.00
	Hardness (as CaCO ₃) -Total	mg/L	48	-	28.3	48	-	64.9	48	-	85.1
	Total Suspended Solids (TSS)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Total Dissolved Solids (TDS)	mg/L	48	-	87.0	48	-	82.0	48	-	105
	Dissolved Oxygen ^b	mg/L	19	11.7	-	17	10.2	-	14	12.3	-
	Dissolved Oxygen ^b	%	15	90.1	-	13	85.3	-	14	89.9	-
	Turbidity (lab)	NTU	48	-	7.78	48	-	16.0	48	-	15.6
	Turbidity (field)	NTU	15	-	7.75	13	-	25.1	14	-	18.0
	Alkalinity (as CaCO ₃) ^a	mg/L	48	4.60	29.0	48	16.8	67.1	48	25.0	82.2
Nutrients and Organics	Total Ammonia	mg/L	44	-	LRL	48	-	LRL	48	-	LRL
	Nitrate	mg/L	48	-	LRL	48	-	LRL	48	-	0.126
	Nitrite	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	48	-	0.165	48	-	0.130	48	-	0.140
	Dissolved Organic Carbon	mg/L	48	-	3.40	48	-	4.27	48	-	2.66
	Total Organic Carbon	mg/L	48	-	2.61	48	-	3.06	48	-	2.42
	Total Phosphorus	mg/L	48	-	0.00970	48	-	0.0109	48	-	0.0111
	Phenols	mg/L	12	-	LRL	12	-	LRL	12	-	LRL
Anions	Bromide (Br)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Chloride (Cl)	mg/L	48	-	1.79	48	-	5.47	48	-	11.7
	Sulphate (SO ₄)	mg/L	48	-	2.75	48	-	8.71	48	-	14.1
Total Metals	Aluminum (Al)	mg/L	48	-	0.202	48	-	0.734	48	-	0.495
	Antimony (Sb)	mg/L	45	-	LRL	47	-	LRL	48	-	LRL
	Arsenic (As)	mg/L	45	-	LRL	47	-	LRL	48	-	LRL
	Barium (Ba)	mg/L	48	-	0.00386	48	-	0.0117	48	-	0.0129
	Beryllium (Be)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Bismuth (Bi)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Boron (B)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Cadmium (Cd)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Calcium (Ca)	mg/L	48	-	5.59	48	-	13.2	48	-	17.1
	Cesium (Cs)	mg/L	12	-	0.0000360	12	-	0.000130	21	-	0.0000750
	Chromium (Cr)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Cobalt (Co)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Copper (Cu)	mg/L	48	-	0.00104	48	-	0.00200	48	-	0.00174
	Iron (Fe)	mg/L	48	-	0.232	48	-	0.856	48	-	0.462
	Lead (Pb)	mg/L	48	-	0.000222	48	-	0.000607	48	-	0.000434
	Lithium (Li)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Magnesium (Mg)	mg/L	48	-	3.40	48	-	7.76	48	-	10.3
	Manganese (Mn)	mg/L	48	-	0.00377	48	-	0.00979	48	-	0.00477
	Mercury (Hg)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Molybdenum (Mo)	mg/L	48	-	0.000233	48	-	0.000669	48	-	0.000777
	Nickel (Ni)	mg/L	48	-	LRL	48	-	0.00111	48	-	0.00104
	Potassium (K)	mg/L	48	-	0.520	48	-	1.14	48	-	1.17
	Rubidium (Rb)	mg/L	12	-	0.00138	12	-	0.00537	21	-	0.00313
	Selenium (Se)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Silicon (Si)	mg/L	48	-	0.710	48	-	2.45	48	-	1.91
	Silver (Ag)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Sodium (Na)	mg/L	48	-	0.995	48	-	3.16	48	-	5.07
	Strontium (Sr)	mg/L	48	-	0.00528	48	-	0.0159	48	-	0.0242
	Sulphur (S)	mg/L	12	-	LRL	12	-	2.11	21	-	3.67
	Thallium (Tl)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Thorium (Th)	mg/L	12	-	LRL	12	-	0.00146	21	-	0.000820
	Tin (Sn)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Titanium (Ti)	mg/L	48	-	LRL	48	-	0.0522	48	-	0.0273
	Tungsten (W)	mg/L	12	-	LRL	17	-	LRL	21	-	LRL
	Uranium (U)	mg/L	48	-	0.000458	48	-	0.00433	48	-	0.00983
	Vanadium (V)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Zinc (Zn)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Zirconium (Zr)	mg/L	16	-	LRL	21	-	0.00118	25	-	0.000920

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a reference normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no reference normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the reference normal range.

^b Concentrations were required to be above the 5th percentile to be within the reference normal range.

Table B.4: Water Chemistry Reference Normal Ranges Calculated Based on Data From Reference Creek Stations (CLT-REF3, CLT-REF4, MRY-REF2, and MRY-REF3), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2014 to 2025

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	48	-	0.0357	48	-	0.104	48	-	0.0632
	Antimony (Sb)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Arsenic (As)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Barium (Ba)	mg/L	48	-	0.00323	48	-	0.00808	48	-	0.0109
	Beryllium (Be)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Bismuth (Bi)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Boron (B)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Cadmium (Cd)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Calcium (Ca)	mg/L	48	-	5.61	48	-	13.8	48	-	17.1
	Cesium (Cs)	mg/L	16	-	LRL	17	-	0.0000280	16	-	0.0000370
	Chromium (Cr)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Cobalt (Co)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Copper (Cu)	mg/L	48	-	0.000940	48	-	0.00122	48	-	0.00125
	Iron (Fe)	mg/L	48	-	LRL	48	-	0.0520	48	-	LRL
	Lead (Pb)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Lithium (Li)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Magnesium (Mg)	mg/L	48	-	3.32	48	-	7.80	48	-	10.5
	Manganese (Mn)	mg/L	48	-	0.00265	48	-	0.000805	48	-	0.00113
	Mercury (Hg)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Molybdenum (Mo)	mg/L	48	-	0.000241	48	-	0.000640	48	-	0.000752
	Nickel (Ni)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Potassium (K)	mg/L	48	-	0.470	48	-	0.850	48	-	1.07
	Rubidium (Rb)	mg/L	16	-	0.00110	17	-	0.00240	16	-	0.00221
	Selenium (Se)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Silicon (Si)	mg/L	48	-	0.635	48	-	1.16	48	-	1.09
	Silver (Ag)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Sodium (Na)	mg/L	48	-	0.968	48	-	3.27	48	-	5.11
	Strontium (Sr)	mg/L	48	-	0.00504	48	-	0.0150	48	-	0.0256
	Sulphur (S)	mg/L	16	-	LRL	17	-	4.44	16	-	3.90
	Tellurium (Te)	mg/L	16	-	LRL	17	-	LRL	16	-	LRL
	Thallium (Tl)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Thorium (Th)	mg/L	17	-	LRL	17	-	LRL	16	-	LRL
	Tin (Sn)	mg/L	47	-	LRL	48	-	LRL	48	-	LRL
	Titanium (Ti)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Tungsten (W)	mg/L	16	-	LRL	17	-	LRL	16	-	LRL
	Uranium (U)	mg/L	48	-	0.000447	48	-	0.00417	48	-	0.00993
	Vanadium (V)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Zinc (Zn)	mg/L	48	-	LRL	48	-	LRL	48	-	LRL
	Zirconium (Zr)	mg/L	16	-	LRL	17	-	LRL	16	-	LRL

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a reference normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no reference normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the reference normal range.

^b Concentrations were required to be above the 5th percentile to be within the reference normal range.

Table B.5: In Situ Water Quality Profile Data Collected at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	Temperature (°C)					Dissolved Oxygen (mg/L)					Dissolved Oxygen (% saturation)					pH (pH units)				
	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09
	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	0.889	0.0556	0.500	0.111	-0.0556	13.8	14.0	13.9	13.9	14.4	96.7	96.0	96.8	95.2	98.6	7.77	7.84	7.85	7.86	7.85
2.0	0.500	0.389	0.444	0.556	0.333	14.0	14.2	14.1	13.7	14.1	96.9	98.0	97.9	95.3	97.7	7.77	7.82	7.85	7.86	7.84
3.0	0.611	0.556	0.556	0.722	0.556	13.9	14.1	14.1	13.5	14.0	97.0	98.1	97.9	94.3	97.1	7.76	7.81	7.83	7.85	7.84
4.0	0.667	0.667	0.667	0.722	0.611	13.9	14.0	14.1	13.4	13.9	96.9	97.6	97.9	93.9	96.7	7.75	7.85	7.83	7.85	7.84
5.0	0.667	0.667	0.667	0.722	-	13.9	14.0	14.0	13.4	-	96.9	97.3	97.8	93.6	-	7.75	7.78	7.80	7.84	-
6.0	0.722	0.722	-	-	0.722	13.8	13.9	-	-	13.7	96.5	97.0	-	-	95.7	7.75	7.76	-	-	7.84
7.0	0.778	0.778	0.722	0.889	0.778	13.7	13.8	13.9	13.2	13.5	96.1	96.7	97.1	92.4	94.5	7.74	7.75	7.76	7.83	7.83
8.0	-	-	0.833	0.944	0.833	-	-	13.7	13.1	13.4	-	-	96.0	92.0	94.0	-	-	7.73	7.83	7.82
9.0	0.833	0.833	0.889	-	0.889	13.6	13.7	13.6	-	13.3	95.5	96.3	95.2	-	93.2	7.71	7.74	7.71	-	7.81
10.0	0.944	0.944	0.944	1.000	1.000	13.5	13.6	13.4	13.0	13.1	94.7	95.7	94.1	91.6	92.3	7.70	7.72	7.69	7.82	7.80
11.0	0.944	-	1.06	1.11	1.06	13.4	-	13.2	12.9	12.9	94.4	-	93.2	91.1	91.2	7.64	-	7.66	7.81	7.79
12.0	-	-	1.11	1.17	1.17	-	-	13.1	12.8	12.8	-	-	92.2	90.9	90.4	-	-	7.64	7.80	7.77
13.0	-	-	-	1.22	1.22	-	-	-	12.7	12.6	-	-	-	89.8	89.5	-	-	-	7.78	7.76
14.0	-	-	1.28	1.33	1.28	-	-	12.6	12.5	12.3	-	-	89.6	88.5	87.5	-	-	7.60	7.74	7.71
15.0	-	-	1.33	1.33	1.33	-	-	12.5	12.2	12.2	-	-	88.4	86.6	86.3	-	-	7.57	7.68	7.69
16.0	-	-	-	1.44	-	-	-	-	11.9	-	-	-	-	84.9	-	-	-	-	7.63	-
17.0	-	-	-	1.44	-	-	-	-	11.6	-	-	-	-	82.8	-	-	-	-	7.58	-
18.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.0	-	-	-	1.50	-	-	-	-	11.2	-	-	-	-	79.7	-	-	-	-	7.53	-
20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.0	-	-	-	1.56	-	-	-	-	10.9	-	-	-	-	78.2	-	-	-	-	7.49	-
22.0	-	-	-	1.61	-	-	-	-	10.5	-	-	-	-	75.2	-	-	-	-	7.44	-
23.0	-	-	-	1.61	-	-	-	-	10.3	-	-	-	-	73.5	-	-	-	-	7.42	-
24.0	-	-	-	1.72	-	-	-	-	9.93	-	-	-	-	71.2	-	-	-	-	7.39	-
25.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.0	-	-	-	1.94	-	-	-	-	8.54	-	-	-	-	61.7	-	-	-	-	7.27	-
27.0	-	-	-	2.11	-	-	-	-	7.54	-	-	-	-	54.7	-	-	-	-	7.21	-
28.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.0	-	-	-	2.22	-	-	-	-	6.67	-	-	-	-	48.6	-	-	-	-	7.16	-
30.0	-	-	-	2.33	-	-	-	-	5.59	-	-	-	-	40.8	-	-	-	-	7.10	-
31.0	-	-	-	2.44	-	-	-	-	4.29	-	-	-	-	31.4	-	-	-	-	7.04	-
32.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).
Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.5: *In Situ* Water Quality Profile Data Collected at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	Specific Conductance (µS/cm)					Turbidity (NTU)				
	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09
	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-
1.0	180	183	180	173	182	0.770	0.930	0.770	0.820	0.860
2.0	176	177	177	170	177	0.730	0.770	0.750	0.790	0.810
3.0	175	176	176	168	175	0.760	0.760	0.800	0.790	0.810
4.0	174	175	175	167	174	0.760	0.750	0.770	0.770	0.810
5.0	174	174	174	167	-	0.750	0.720	0.770	0.740	-
6.0	174	174	-	-	172	0.730	0.750	-	-	0.780
7.0	173	173	174	165	171	0.740	0.750	0.770	0.740	0.780
8.0	-	-	172	164	170	-	-	0.750	0.770	0.780
9.0	172	172	171	-	169	0.710	0.810	0.740	-	0.840
10.0	171	172	170	164	168	0.720	0.740	0.750	0.740	0.750
11.0	174	-	169	163	167	0.740	-	0.740	0.750	0.770
12.0	-	-	168	162	166	-	-	0.730	0.760	0.780
13.0	-	-	-	161	166	-	-	-	0.740	0.750
14.0	-	-	166	161	165	-	-	0.750	0.740	0.780
15.0	-	-	166	162	165	-	-	0.720	0.770	0.780
16.0	-	-	-	162	-	-	-	-	0.780	-
17.0	-	-	-	162	-	-	-	-	0.770	-
18.0	-	-	-	-	-	-	-	-	-	-
19.0	-	-	-	163	-	-	-	-	0.770	-
20.0	-	-	-	-	-	-	-	-	-	-
21.0	-	-	-	165	-	-	-	-	0.870	-
22.0	-	-	-	165	-	-	-	-	0.800	-
23.0	-	-	-	165	-	-	-	-	0.780	-
24.0	-	-	-	167	-	-	-	-	0.830	-
25.0	-	-	-	-	-	-	-	-	-	-
26.0	-	-	-	169	-	-	-	-	0.810	-
27.0	-	-	-	171	-	-	-	-	0.830	-
28.0	-	-	-	-	-	-	-	-	-	-
29.0	-	-	-	175	-	-	-	-	0.850	-
30.0	-	-	-	179	-	-	-	-	0.850	-
31.0	-	-	-	188	-	-	-	-	0.910	-
32.0	-	-	-	-	-	-	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.6: *In Situ* Water Quality Profile Data Collected at Camp Lake (JL0) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Summer 2025

Depth (m)	Temperature (°C)							Dissolved Oxygen (mg/L)						
	JL0-02	JL0-07		JL0-21	JL0-30	JL0-31	JL0-32	JL0-02	JL0-07		JL0-21	JL0-30	JL0-31	JL0-32
	26-Jul-25	25-Jul-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	26-Jul-25	25-Jul-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25
0.0	7.70	-	7.70	7.50	7.70	7.70	7.70	11.5	-	11.6	11.6	11.5	11.6	11.5
1.0	-	10.8	7.70	-	-	-	-	-	11.8	11.6	-	-	-	-
2.0	10.9	9.22	7.70	-	-	-	-	11.3	12.1	11.6	-	-	-	-
3.0	-	7.78	7.70	-	-	-	-	-	12.3	11.6	-	-	-	-
4.0	-	7.11	7.70	-	-	-	-	-	12.6	11.6	-	-	-	-
5.0	-	6.50	7.70	-	-	-	-	-	12.6	11.6	-	-	-	-
6.0	-	5.94	7.70	7.50	-	-	-	-	12.6	11.6	11.6	-	-	-
7.0	-	5.89	7.70	-	-	-	-	-	12.5	11.6	-	-	-	-
8.0	-	-	7.70	-	-	-	-	-	-	11.6	-	-	-	-
9.0	-	5.72	7.70	-	-	-	-	-	12.6	11.6	-	-	-	-
10.0	7.60	5.67	7.70	-	-	-	7.50	11.3	12.5	11.6	-	-	-	9.27
11.0	-	5.50	7.70	-	-	-	-	-	12.5	11.5	-	-	-	-
12.0	-	5.39	7.70	-	7.70	7.60	-	-	12.3	11.5	-	11.3	11.4	-
13.0	-	5.33	7.70	-	-	-	-	-	12.3	11.5	-	-	-	-
14.0	-	5.33	7.70	-	-	-	-	-	12.2	11.5	-	-	-	-
15.0	-	5.28	7.70	-	-	-	-	-	12.1	11.5	-	-	-	-
16.0	-	5.22	7.70	-	-	-	-	-	12.1	11.5	-	-	-	-
17.0	-	5.22	7.70	-	-	-	-	-	12.1	11.5	-	-	-	-
18.0	-	5.22	7.70	-	-	-	-	-	12.0	11.5	-	-	-	-
19.0	-	5.22	7.60	-	-	-	-	-	12.0	11.5	-	-	-	-
20.0	-	5.17	6.70	-	-	-	-	-	12.0	11.6	-	-	-	-
21.0	-	5.17	6.50	-	-	-	-	-	12.0	11.6	-	-	-	-
22.0	-	5.17	6.20	-	-	-	-	-	11.9	11.7	-	-	-	-
23.0	-	-	6.20	-	-	-	-	-	-	11.7	-	-	-	-
24.0	-	5.17	6.20	-	-	-	-	-	11.9	11.7	-	-	-	-
25.0	-	5.17	6.10	-	-	-	-	-	11.9	11.6	-	-	-	-
26.0	-	5.17	6.00	-	-	-	-	-	11.9	11.6	-	-	-	-
27.0	-	5.17	6.00	-	-	-	-	-	11.9	11.6	-	-	-	-
28.0	-	-	6.00	-	-	-	-	-	-	11.6	-	-	-	-
29.0	-	5.11	5.90	-	-	-	-	-	11.8	11.6	-	-	-	-
30.0	-	5.11	5.90	-	-	-	-	-	11.7	11.6	-	-	-	-
31.0	-	5.11	5.90	-	-	-	-	-	11.7	11.5	-	-	-	-
32.0	-	5.06	5.70	-	-	-	-	-	11.7	10.5	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. Stations JL0-02, JL0-07, JL0-21, JL0-30, JL0-31, and JL0-32 are BIC monitoring stations for which top and bottom measures were taken at the time of sample collection.

Table B.6: *In Situ* Water Quality Profile Data Collected at Camp Lake (JL0) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Summer 2025

Depth (m)	Dissolved Oxygen (% saturation)							pH (pH units)						
	JL0-02	JL0-07		JL0-21	JL0-30	JL0-31	JL0-32	JL0-02	JL0-07		JL0-21	JL0-30	JL0-31	JL0-32
	26-Jul-25	25-Jul-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	26-Jul-25	25-Jul-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25
0.0	98.9	-	100	99.9	99.6	99.8	99.2	8.11	-	8.12	8.10	8.10	8.08	7.72
1.0	-	106	100	-	-	-	-	-	7.92	8.12	-	-	-	-
2.0	102	106	100	-	-	-	-	8.11	7.96	8.12	-	-	-	-
3.0	-	104	100	-	-	-	-	-	7.91	8.11	-	-	-	-
4.0	-	104	100	-	-	-	-	-	7.83	8.12	-	-	-	-
5.0	-	102	99.9	-	-	-	-	-	7.72	8.12	-	-	-	-
6.0	-	101	99.8	99.5	-	-	-	-	7.60	8.12	8.11	-	-	-
7.0	-	100	99.8	-	-	-	-	-	7.60	8.11	-	-	-	-
8.0	-	-	99.7	-	-	-	-	-	-	8.11	-	-	-	-
9.0	-	100	99.6	-	-	-	-	-	7.61	8.12	-	-	-	-
10.0	97.2	99.8	99.6	-	-	-	80.0	8.09	7.60	8.11	-	-	-	7.23
11.0	-	99.1	99.5	-	-	-	-	-	7.59	8.12	-	-	-	-
12.0	-	97.8	99.5	-	90.0	98.4	-	-	7.54	8.11	-	8.12	7.97	-
13.0	-	97.0	99.4	-	-	-	-	-	7.52	8.11	-	-	-	-
14.0	-	96.6	99.4	-	-	-	-	-	7.51	8.11	-	-	-	-
15.0	-	95.4	99.3	-	-	-	-	-	7.51	8.10	-	-	-	-
16.0	-	95.3	99.2	-	-	-	-	-	7.52	8.10	-	-	-	-
17.0	-	95.1	99.3	-	-	-	-	-	7.53	8.10	-	-	-	-
18.0	-	94.7	99.2	-	-	-	-	-	7.56	8.09	-	-	-	-
19.0	-	94.4	99.7	-	-	-	-	-	7.56	8.08	-	-	-	-
20.0	-	94.3	97.8	-	-	-	-	-	7.57	7.98	-	-	-	-
21.0	-	94.2	97.7	-	-	-	-	-	7.57	7.95	-	-	-	-
22.0	-	94.1	97.0	-	-	-	-	-	7.57	7.92	-	-	-	-
23.0	-	-	97.0	-	-	-	-	-	-	7.90	-	-	-	-
24.0	-	93.9	96.9	-	-	-	-	-	7.57	7.90	-	-	-	-
25.0	-	93.6	96.7	-	-	-	-	-	7.56	7.88	-	-	-	-
26.0	-	93.5	96.4	-	-	-	-	-	7.56	7.87	-	-	-	-
27.0	-	93.3	96.2	-	-	-	-	-	7.56	7.86	-	-	-	-
28.0	-	-	96.1	-	-	-	-	-	-	7.85	-	-	-	-
29.0	-	92.3	95.7	-	-	-	-	-	7.55	7.83	-	-	-	-
30.0	-	92.0	95.3	-	-	-	-	-	7.54	7.81	-	-	-	-
31.0	-	91.7	94.7	-	-	-	-	-	7.54	7.79	-	-	-	-
32.0	-	91.5	86.6	-	-	-	-	-	7.53	7.68	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. Stations JL0-02, JL0-07, JL0-21, JL0-30, JL0-31, and JL0-32 are BIC monitoring stations for which top and bottom measures were taken at the time of sample collection.

Table B.6: *In Situ* Water Quality Profile Data Collected at Camp Lake (JL0) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Summer 2025

Depth (m)	Specific Conductance (µS/cm)							Turbidity (NTU)						
	JL0-02	JL0-07		JL0-21	JL0-30	JL0-31	JL0-32	JL0-02	JL0-07		JL0-21	JL0-30	JL0-31	JL0-32
	26-Jul-25	25-Jul-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	26-Jul-25	25-Jul-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25	7-Aug-25
0.0	150	-	149	149	149	149	150	0.930	-	0.640	0.730	0.700	0.650	0.790
1.0	-	150	149	-	-	-	-	-	1.17	0.670	-	-	-	-
2.0	164	149	149	-	-	-	-	1.14	1.24	0.650	-	-	-	-
3.0	-	151	149	-	-	-	-	-	1.27	0.670	-	-	-	-
4.0	-	148	149	-	-	-	-	-	1.34	0.630	-	-	-	-
5.0	-	148	149	-	-	-	-	-	1.38	0.650	-	-	-	-
6.0	-	148	149	149	-	-	-	-	1.43	0.670	0.710	-	-	-
7.0	-	148	149	-	-	-	-	-	1.40	0.650	-	-	-	-
8.0	-	-	149	-	-	-	-	-	-	0.680	-	-	-	-
9.0	-	148	149	-	-	-	-	-	1.46	0.640	-	-	-	-
10.0	150	148	149	-	-	-	150	0.740	1.45	0.660	-	-	-	1.36
11.0	-	148	149	-	-	-	-	-	1.42	0.640	-	-	-	-
12.0	-	148	149	-	149	149	-	-	1.36	0.680	-	2.70	0.620	-
13.0	-	148	149	-	-	-	-	-	1.38	0.640	-	-	-	-
14.0	-	148	149	-	-	-	-	-	1.38	0.650	-	-	-	-
15.0	-	148	149	-	-	-	-	-	1.33	0.620	-	-	-	-
16.0	-	148	149	-	-	-	-	-	1.38	0.640	-	-	-	-
17.0	-	148	149	-	-	-	-	-	1.32	0.670	-	-	-	-
18.0	-	148	149	-	-	-	-	-	1.38	0.660	-	-	-	-
19.0	-	148	149	-	-	-	-	-	1.32	0.650	-	-	-	-
20.0	-	148	149	-	-	-	-	-	1.31	0.620	-	-	-	-
21.0	-	148	149	-	-	-	-	-	1.31	0.620	-	-	-	-
22.0	-	148	148	-	-	-	-	-	1.40	0.610	-	-	-	-
23.0	-	-	148	-	-	-	-	-	-	0.620	-	-	-	-
24.0	-	148	148	-	-	-	-	-	1.33	0.610	-	-	-	-
25.0	-	148	148	-	-	-	-	-	1.31	0.610	-	-	-	-
26.0	-	148	148	-	-	-	-	-	1.37	0.600	-	-	-	-
27.0	-	148	148	-	-	-	-	-	1.32	0.620	-	-	-	-
28.0	-	-	148	-	-	-	-	-	-	0.610	-	-	-	-
29.0	-	148	148	-	-	-	-	-	1.54	0.630	-	-	-	-
30.0	-	148	148	-	-	-	-	-	1.39	0.620	-	-	-	-
31.0	-	148	148	-	-	-	-	-	1.39	0.620	-	-	-	-
32.0	-	150	149	-	-	-	-	-	26.8	0.740	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).
Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. Stations JL0-02, JL0-07, JL0-21, JL0-30, JL0-31, and JL0-32 are BIC monitoring stations for which top and bottom measures were taken at the time of sample collection.

Table B.7: *In Situ* Water Quality Profile Data Collected at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Fall 2025

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)	pH (pH units)	Turbidity (NTU)
	JL0-07	JL0-07	JL0-07	JL0-07	JL0-07
	21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
0.0	-	-	-	-	-
1.0	7.90	11.9	101	7.92	0.600
2.0	7.80	11.9	101	7.93	0.660
3.0	7.80	11.9	101	7.94	0.660
4.0	7.80	11.9	101	7.95	0.640
5.0	7.80	11.8	101	7.95	0.620
6.0	7.80	11.8	101	7.96	0.640
7.0	-	-	-	-	-
8.0	7.60	11.8	100	7.95	0.620
9.0	7.50	11.8	99.4	7.92	0.640
10.0	7.50	11.8	99.3	7.90	0.660
11.0	7.40	11.8	98.9	7.89	0.720
12.0	7.30	11.7	98.7	7.88	0.650
13.0	7.30	11.7	98.1	7.85	0.640
14.0	7.20	11.7	97.8	7.84	0.690
15.0	7.20	11.6	97.3	7.82	0.660
16.0	7.20	11.6	97.0	7.81	0.640
17.0	7.20	11.6	96.7	7.80	0.660
18.0	7.20	11.5	96.5	7.80	0.660
19.0	7.10	11.5	96.3	7.79	0.680
20.0	7.20	11.5	96.1	7.78	0.660
21.0	7.10	11.5	95.9	7.78	0.660
22.0	7.10	11.4	95.1	7.77	0.660
23.0	7.10	11.4	94.8	7.74	0.670
24.0	7.00	11.3	93.8	7.73	0.660
25.0	7.00	11.3	93.9	7.71	0.730
26.0	7.00	11.2	93.5	7.70	0.670
27.0	7.00	11.2	93.3	7.69	0.710
28.0	7.00	11.2	93.1	7.68	0.720
29.0	-	-	-	-	-
30.0	6.90	11.0	91.7	7.64	0.800
31.0	-	-	-	-	-
32.0	6.80	10.9	90.8	7.71	0.770

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.8: Water Chemistry Baseline Normal Ranges Calculated for Camp Lake (Stations JL0-01, JL0-02, JL0-09, and J0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventionals	Conductivity (lab)	µS/cm	5	-	-	17	-	134	16	-	132
	Specific Conductance (field)	µS/cm	3	-	-	13	-	128	13	-	142
	pH (lab)	pH	5	-	-	17	-	8.30	16	-	8.13
	pH (field) ^a	pH	0	-	-	0	-	-	0	-	-
	Temperature, Field ^a	pH	3	-	-	14	6.14	9.88	13	5.65	9.06
	Hardness (as CaCO ₃) -Total	mg/L	5	-	-	17	-	67.6	16	-	67.0
	Total Suspended Solids (TSS)	mg/L	5	-	LRL	14	-	LRL	12	-	LRL
	Total Dissolved Solids (TDS)	mg/L	5	-	-	17	-	87.5	16	-	85.5
	Dissolved Oxygen ^b	mg/L	3	-	-	12	7.72	-	12	10.1	-
	Dissolved Oxygen ^b	%	0	-	-	0	-	-	0	-	-
	Turbidity (lab)	NTU	5	-	-	17	-	20.4	14	-	2.30
	Turbidity (field)	NTU	0	-	-	0	-	-	0	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	5	-	-	17	49.0	67.5	16	49.0	63.5
Nutrients and Organics	Total Ammonia	mg/L	5	-	-	17	-	1.41	16	-	0.600
	Nitrate	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Nitrite	mg/L	5	-	LRL	17	-	LRL	16	-	0.0120
	Total Kjeldahl Nitrogen (TKN)	mg/L	5	-	-	14	-	1.45	12	-	1.45
	Dissolved Organic Carbon	mg/L	5	-	-	14	-	2.20	12	-	2.10
	Total Organic Carbon	mg/L	5	-	-	14	-	2.15	12	-	2.10
	Total Phosphorus	mg/L	5	-	-	17	-	0.0110	16	-	0.00950
	Phenols	mg/L	0	-	-	0	-	-	0	-	-
Anions	Bromide (Br)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Chloride (Cl)	mg/L	5	-	-	17	-	4.00	16	-	3.50
	Sulphate (SO ₄)	mg/L	5	-	-	17	-	3.00	16	-	3.50
Total Metals	Aluminum (Al)	mg/L	5	-	-	17	-	0.0278	16	-	0.0442
	Antimony (Sb)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Arsenic (As)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Barium (Ba)	mg/L	5	-	-	17	-	0.00584	16	-	0.00588
	Beryllium (Be)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Bismuth (Bi)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Boron (B)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Cadmium (Cd)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Calcium (Ca)	mg/L	5	-	-	17	-	13.6	16	-	12.7
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Cobalt (Co)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Copper (Cu)	mg/L	5	-	-	14	-	0.0100	13	-	0.00114
	Iron (Fe)	mg/L	5	-	LRL	17	-	0.0505	16	-	LRL
	Lead (Pb)	mg/L	5	-	-	14	-	0.000253	13	-	LRL
	Lithium (Li)	mg/L	5	-	LRL	13	-	0.000870	12	-	0.00108
	Magnesium (Mg)	mg/L	5	-	-	17	-	8.18	16	-	8.57
	Manganese (Mn)	mg/L	5	-	-	14	-	0.00340	13	-	0.00355
	Mercury (Hg)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Molybdenum (Mo)	mg/L	5	-	-	14	-	0.000240	13	-	0.000304
	Nickel (Ni)	mg/L	5	-	-	13	-	0.000935	12	-	0.000920
	Potassium (K)	mg/L	5	-	-	17	-	0.944	16	-	2.00
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Silicon (Si)	mg/L	5	-	-	13	-	0.502	12	-	0.770
	Silver (Ag)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Sodium (Na)	mg/L	5	-	-	17	-	1.09	16	-	2.47
	Strontium (Sr)	mg/L	5	-	-	17	-	0.0101	16	-	0.0143
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	5	-	LRL	15	-	LRL	13	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	5	-	-	17	-	LRL	16	-	LRL
	Titanium (Ti)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	5	-	-	13	-	0.000660	12	-	0.00290
	Vanadium (V)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Zinc (Zn)	mg/L	5	-	LRL	14	-	0.00325	13	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range.
CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.
^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.
^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.8: Water Chemistry Baseline Normal Ranges Calculated for Camp Lake (Stations JL0-01, JL0-02, JL0-09, and J0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	5	-	-	17	-	0.0128	16	-	0.00820
	Antimony (Sb)	mg/L	5	-	LRL	14	-	5.40	13	-	LRL
	Arsenic (As)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Barium (Ba)	mg/L	5	-	-	17	-	0.0100	16	-	0.00610
	Beryllium (Be)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Bismuth (Bi)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Boron (B)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Cadmium (Cd)	mg/L	5	-	-	17	-	LRL	16	-	LRL
	Calcium (Ca)	mg/L	5	-	-	17	-	13.2	16	-	13.2
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Cobalt (Co)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Copper (Cu)	mg/L	5	-	-	14	-	0.00696	13	-	0.000920
	Iron (Fe)	mg/L	5	-	LRL	17	-	0.0300	16	-	0.0300
	Lead (Pb)	mg/L	5	-	-	14	-	LRL	13	-	0.000200
	Lithium (Li)	mg/L	5	-	LRL	13	-	LRL	12	-	LRL
	Magnesium (Mg)	mg/L	5	-	-	17	-	7.96	16	-	7.88
	Manganese (Mn)	mg/L	5	-	-	14	-	0.187	13	-	0.00141
	Mercury (Hg)	mg/L	5	-	LRL	13	-	LRL	10	-	LRL
	Molybdenum (Mo)	mg/L	5	-	-	14	-	0.525	13	-	0.000300
	Nickel (Ni)	mg/L	5	-	-	16	-	0.00500	15	-	0.00500
	Potassium (K)	mg/L	5	-	-	17	-	0.967	16	-	2.00
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Silicon (Si)	mg/L	5	-	-	13	-	0.476	12	-	0.466
	Silver (Ag)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Sodium (Na)	mg/L	5	-	-	17	-	2.16	16	-	2.00
	Strontium (Sr)	mg/L	5	-	-	17	-	0.00950	16	-	0.00999
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Tellurium (Te)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	5	-	LRL	15	-	LRL	13	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	5	-	-	17	-	LRL	16	-	LRL
	Titanium (Ti)	mg/L	5	-	LRL	14	-	LRL	13	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	5	-	-	13	-	0.000604	12	-	0.000667
	Vanadium (V)	mg/L	5	-	LRL	17	-	LRL	16	-	LRL
	Zinc (Zn)	mg/L	5	-	-	14	-	0.0100	13	-	0.00255
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insuffileient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.9: Water Chemistry Reference Normal Ranges Calculated Based on Data From Reference Lake Stations (REF3-1, REF3-2,REF3-3), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventionals	Conductivity (lab)	µS/cm	0	-	-	33	-	79.7	33	-	83.5
	Specific Conductance (field)	µS/cm	0	-	-	9	-	-	7	-	-
	pH (lab)	pH	0	-	-	33	-	7.92	33	-	7.86
	pH (field) ^a	pH	0	-	-	9	-	-	7	-	-
	Temperature, Field ^a	pH	0	-	-	12	4.30	12.5	10	5.75	7.85
	Hardness (as CaCO ₃) -Total	mg/L	0	-	-	33	-	37.7	33	-	38.6
	Total Suspended Solids (TSS)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Total Dissolved Solids (TDS)	mg/L	0	-	-	33	-	58.0	33	-	59.0
	Dissolved Oxygen ^b	mg/L	0	-	-	12	10.8	-	10	11.3	-
	Dissolved Oxygen ^b	%	0	-	-	12	96.9	-	10	89.6	-
	Turbidity (lab)	NTU	0	-	-	33	-	0.720	33	-	1.01
	Turbidity (field)	NTU	0	-	-	12	-	353	10	-	3.79
	Alkalinity (as CaCO ₃) ^a	mg/L	0	-	-	33	30.0	47.9	33	29.5	49.4
Nutrients and Organics	Total Ammonia	mg/L	0	-	-	33	-	LRL	33	-	0.0550
	Nitrate	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Nitrite	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	0	-	-	33	-	0.235	33	-	0.210
	Dissolved Organic Carbon	mg/L	0	-	-	33	-	3.65	33	-	3.82
	Total Organic Carbon	mg/L	0	-	-	33	-	4.81	33	-	3.86
	Total Phosphorus	mg/L	0	-	-	33	-	0.00700	33	-	0.0235
	Phenols	mg/L	0	-	-	9	-	-	9	-	-
Anions	Bromide (Br)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Chloride (Cl)	mg/L	0	-	-	33	-	1.42	33	-	1.38
	Sulphate (SO ₄)	mg/L	0	-	-	33	-	4.48	33	-	4.37
Total Metals	Aluminum (Al)	mg/L	0	-	-	33	-	0.00850	33	-	0.0128
	Antimony (Sb)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Arsenic (As)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Barium (Ba)	mg/L	0	-	-	33	-	0.00692	33	-	0.00670
	Beryllium (Be)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Bismuth (Bi)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Boron (B)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Cadmium (Cd)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Calcium (Ca)	mg/L	0	-	-	33	-	7.42	33	-	7.49
	Cesium (Cs)	mg/L	0	-	-	9	-	LRL	9	-	LRL
	Chromium (Cr)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Cobalt (Co)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Copper (Cu)	mg/L	0	-	-	33	-	0.000990	33	-	0.000905
	Iron (Fe)	mg/L	0	-	-	33	-	LRL	33	-	0.0190
	Lead (Pb)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Lithium (Li)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Magnesium (Mg)	mg/L	0	-	-	33	-	4.67	33	-	4.82
	Manganese (Mn)	mg/L	0	-	-	33	-	0.000990	33	-	0.000980
	Mercury (Hg)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Molybdenum (Mo)	mg/L	0	-	-	33	-	0.000164	33	-	0.000164
	Nickel (Ni)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Potassium (K)	mg/L	0	-	-	33	-	0.960	33	-	0.945
	Rubidium (Rb)	mg/L	0	-	-	9	-	-	9	-	-
	Selenium (Se)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Silicon (Si)	mg/L	0	-	-	33	-	0.520	33	-	0.500
	Silver (Ag)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Sodium (Na)	mg/L	0	-	-	33	-	1.00	33	-	0.968
	Strontium (Sr)	mg/L	0	-	-	33	-	0.00875	33	-	0.00861
	Sulphur (S)	mg/L	0	-	-	9	-	-	9	-	-
	Thallium (Tl)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Thorium (Th)	mg/L	0	-	-	9	-	LRL	9	-	LRL
	Tin (Sn)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Titanium (Ti)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Tungsten (W)	mg/L	0	-	-	9	-	LRL	9	-	LRL
	Uranium (U)	mg/L	0	-	-	33	-	0.000332	33	-	0.000352
	Vanadium (V)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Zinc (Zn)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	12	-	LRL	12	-	LRL

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a reference normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no reference normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the reference normal range.

^b Concentrations were required to be above the 5th percentile to be within the reference normal range.

Table B.9: Water Chemistry Reference Normal Ranges Calculated Based on Data From Reference Lake Stations (REF3-1, REF3-2,REF3-3), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	0	-	-	33	-	0.00430	33	-	0.0122
	Antimony (Sb)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Arsenic (As)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Barium (Ba)	mg/L	0	-	-	33	-	0.00683	33	-	0.00674
	Beryllium (Be)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Bismuth (Bi)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Boron (B)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Cadmium (Cd)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Calcium (Ca)	mg/L	0	-	-	33	-	7.34	33	-	7.40
	Cesium (Cs)	mg/L	0	-	-	9	-	LRL	10	-	LRL
	Chromium (Cr)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Cobalt (Co)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Copper (Cu)	mg/L	0	-	-	33	-	0.000950	33	-	0.000890
	Iron (Fe)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Lead (Pb)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Lithium (Li)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Magnesium (Mg)	mg/L	0	-	-	33	-	4.60	33	-	4.88
	Manganese (Mn)	mg/L	0	-	-	33	-	0.000345	33	-	0.000594
	Mercury (Hg)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Molybdenum (Mo)	mg/L	0	-	-	33	-	0.000157	33	-	0.000166
	Nickel (Ni)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Potassium (K)	mg/L	0	-	-	33	-	0.945	33	-	0.950
	Rubidium (Rb)	mg/L	0	-	-	9	-	-	10	-	0.000970
	Selenium (Se)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Silicon (Si)	mg/L	0	-	-	33	-	0.510	33	-	0.506
	Silver (Ag)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Sodium (Na)	mg/L	0	-	-	33	-	0.980	33	-	1.01
	Strontium (Sr)	mg/L	0	-	-	33	-	0.00858	33	-	0.00860
	Sulphur (S)	mg/L	0	-	-	9	-	-	11	-	1.65
	Tellurium (Te)	mg/L	0	-	-	9	-	LRL	10	-	LRL
	Thallium (Tl)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Thorium (Th)	mg/L	0	-	-	9	-	LRL	10	-	LRL
	Tin (Sn)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Titanium (Ti)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Tungsten (W)	mg/L	0	-	-	9	-	LRL	10	-	LRL
	Uranium (U)	mg/L	0	-	-	33	-	0.000339	33	-	0.000350
	Vanadium (V)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Zinc (Zn)	mg/L	0	-	-	33	-	LRL	33	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	9	-	LRL	11	-	LRL

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a reference normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no reference normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the reference normal range.

^b Concentrations were required to be above the 5th percentile to be within the reference normal range.

Table B.10: Water Chemistry at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event										Spring Sampling Event
						JL0-02		JL0-10		JL0-01		JL0-07		JL0-09		J0-01
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	outlet
						12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	01-Jul-25
Conventionals	Conductivity (lab)	µS/cm	-	-	-	177	177	175	179	168	180	184	172	167	181	140
	Specific Conductance (field)	µS/cm	-	-	-	174	180	172	183	166	180	188	173	165	182	139
	pH (lab)	pH	-	-	-	7.62	7.59	7.69	7.69	7.62	7.71	7.16	7.62	7.58	7.69	7.23
	pH (field)	mg/L	6.5 - 9.0	-	-	7.64	7.77	7.72	7.84	7.57	7.85	7.04	7.86	7.69	7.85	7.93
	Temperature, Field	mg/L	-	-	-	0.944	0.889	0.944	0.0556	1.33	0.500	2.44	0.111	1.33	-0.0556	4.10
	Hardness (as CaCO ₃) -Total	mg/L	-	-	-	84.2	86.4	86.3	85.8	78.5	86.3	84.1	82.6	81.6	87.7	68.4
	Total Suspended Solids (TSS)	mg/L	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	-	-	70.0	76.0	86.0	86.0	82.0	88.0	88.0	84.0	84.0	88.0	78.0
	Dissolved Oxygen	mg/L	-	-	-	13.4	13.8	13.6	14.0	12.5	14.0	4.29	13.9	12.2	14.4	12.6
	Dissolved Oxygen	%	-	-	-	94.4	96.7	95.7	96.0	88.4	96.8	31.4	95.2	86.3	98.6	96.5
	Turbidity (lab)	NTU	-	-	-	0.200	0.240	0.210	0.220	0.130	0.120	0.280	0.140	0.120	0.440	0.880
	Turbidity (field)	NTU	-	-	-	0.740	0.770	0.740	0.930	0.720	0.770	0.910	0.820	0.780	0.860	1.24
	Alkalinity (as CaCO ₃)	mg/L	-	-	-	78.2	78.2	78.1	79.8	75.5	80.7	75.4	76.8	73.6	80.0	62.2
Nutrients and Organics	Total Ammonia ^e	mg/L	1.92 - 6.02	-	-	0.0238	0.0198	0.0227	0.0185	0.0148	0.0233	<0.005	0.0202	0.00980	0.0211	<0.005
	Nitrate ^e	mg/L	3.00	-	-	<0.02	<0.02	0.0210	<0.02	0.0320	<0.02	0.130	<0.02	0.0420	0.0220	0.0290
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	-	0.193	0.199	0.152	0.137	0.126	0.346	0.128	0.159	0.153	0.181	0.0780
	Dissolved Organic Carbon	mg/L	-	-	-	2.50	2.62	2.18	3.00	2.41	2.54	2.77	2.80	2.30	2.51	2.00
	Total Organic Carbon	mg/L	-	-	-	2.38	2.43	2.30	2.45	2.21	2.48	2.25	2.48	2.12	2.36	2.70
	Total Phosphorus	mg/L	-	-	-	0.00360	0.00480	0.00390	0.00340	0.00470	0.0120	0.00440	0.00410	0.00210	0.00270	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	-	-	4.84	4.90	4.77	4.90	4.58	4.94	7.32	4.73	4.55	4.97	3.89
	Sulphate (SO ₄) ^e	mg/L	309	-	-	4.74	4.80	4.68	4.80	4.49	4.84	4.54	4.63	4.46	4.86	3.83
Total Metals	Aluminum (Al) ^e	mg/L	0.100	-	-	0.00510	0.00560	0.00510	0.0102	0.00500	0.00920	0.00590	0.00520	0.00490	0.00680	0.0160
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000320	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	0.000120	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	-	-	0.00882	0.00918	0.00875	0.00902	0.00838	0.00900	0.00918	0.00883	0.00838	0.00925	0.00725
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.000126 - 0.000143	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	-	-	16.9	17.3	17.1	17.2	15.5	17.1	16.7	16.1	16.5	17.0	13.6
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.10: Water Chemistry at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event										Spring Sampling Event
						JL0-02		JL0-10		JL0-01		JL0-07		JL0-09		J0-01
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	outlet
						12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	01-Jul-25
Total Metals	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000540	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^e	mg/L	0.000910 - 0.000968	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00213	-	-	0.00166	0.00152	0.00134	0.00137	0.00154	0.00137	0.00153	0.00134	0.00139	0.00131	0.000880
	Iron (Fe) ^e	mg/L	0.300	-	-	<0.01	<0.01	<0.01	0.0100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0310
	Lead (Pb)	mg/L	0.00224 - 0.00271	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00120	0.00120	0.00120	0.00130	0.00120	0.00130	<0.001	<0.001	0.00100	0.00110	<0.001
	Magnesium (Mg)	mg/L	-	-	-	10.2	10.5	10.6	10.4	9.67	10.6	10.3	10.3	9.82	11.0	8.36
	Manganese (Mn)	mg/L	0.939 - 0.993	-	-	0.000510	0.000400	0.000390	0.000520	0.000450	0.000460	0.00526	0.000340	0.000520	0.000450	0.00197
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	-	-	0.000567	0.000566	0.000561	0.000584	0.000548	0.000554	0.000462	0.000564	0.000520	0.000584	0.000442
	Nickel (Ni) ^e	mg/L	0.0776 - 0.0869	-	-	0.000790	0.000770	0.000800	0.000850	0.000820	0.00122	0.000770	0.000770	0.000770	0.000820	0.000680
	Potassium (K)	mg/L	-	-	-	1.63	1.67	1.64	1.69	1.53	1.70	1.56	1.64	1.54	1.73	1.26
	Rubidium (Rb)	mg/L	-	-	-	0.00344	0.00352	0.00352	0.00355	0.00315	0.00356	0.00329	0.00338	0.00313	0.00357	0.00269
	Selenium (Se)	mg/L	0.001	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	-	0.590	0.570	0.580	0.600	0.600	0.590	1.57	0.580	0.640	0.620	0.520
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	-	2.49	2.53	2.46	2.64	2.38	2.58	3.66	2.48	2.34	2.65	1.91
	Strontium (Sr)	mg/L	-	-	-	0.0137	0.0142	0.0139	0.0144	0.0137	0.0139	0.0146	0.0136	0.0134	0.0146	0.0106
	Sulphur (S)	mg/L	-	-	-	1.64	1.46	1.66	1.62	1.46	1.77	1.56	1.56	1.59	1.71	1.19
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	0.000340	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000580
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00184	0.00190	0.00189	0.00194	0.00181	0.00197	0.00148	0.00184	0.00178	0.00201	0.00134
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	-	-	0.00280	0.00270	0.00280	0.00310	0.00290	0.00240	0.00160	0.00240	0.00200	0.00260	0.00340
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	-	-	0.00876	0.00932	0.00887	0.00941	0.00878	0.00917	0.00923	0.00880	0.00869	0.00938	0.00717
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

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Table B.10: Water Chemistry at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event										Spring Sampling Event
						JL0-02		JL0-10		JL0-01		JL0-07		JL0-09		J0-01
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	outlet
						12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	01-Jul-25
Dissolved Metals	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.000173 - 0.000193	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	-	-	17.2	16.6	16.5	17.0	15.5	16.1	15.6	15.8	15.2	17.1	13.7
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000455 - 0.000484	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.00134 - 0.00406	-	-	0.00129	0.00103	0.00113	0.00105	0.00116	0.00105	0.000950	0.00100	0.00106	0.00108	0.000860
	Iron (Fe) ^e	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0160
	Lead (Pb) ^e	mg/L	0.00592 - 0.00702	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00140	0.00110	0.00110	0.00110	<0.001	<0.001	<0.001	<0.001	<0.001	0.00100	<0.001
	Magnesium (Mg)	mg/L	-	-	-	11.0	9.79	9.86	10.1	9.61	10.2	9.48	9.74	9.23	10.0	8.82
	Manganese (Mn) ^e	mg/L	0.350 - 0.560	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00269	<0.0001	<0.0001	<0.0001	0.00129
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	-	-	0.000546	0.000530	0.000534	0.000516	0.000500	0.000541	0.000464	0.000514	0.000485	0.000542	0.000441
	Nickel (Ni)	mg/L	0.00150 - 0.00210	-	-	0.000720	0.000700	0.000680	0.000700	0.000720	0.000700	0.000650	0.000680	0.000620	0.000740	0.000610
	Potassium (K)	mg/L	-	-	-	1.63	1.51	1.48	1.55	1.40	1.51	1.39	1.45	1.41	1.53	1.29
	Rubidium (Rb)	mg/L	-	-	-	0.00350	0.00335	0.00321	0.00345	0.00320	0.00325	0.00296	0.00322	0.00295	0.00327	0.00278
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	-	0.549	0.539	0.542	0.558	0.574	0.540	1.55	0.549	0.582	0.569	0.521
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	-	2.55	2.33	2.36	2.41	2.31	2.35	3.46	2.27	2.20	2.34	2.01
	Strontium (Sr) ^e	mg/L	2.50	-	-	0.0137	0.0140	0.0133	0.0143	0.0126	0.0140	0.0141	0.0132	0.0124	0.0144	0.0107
	Sulphur (S)	mg/L	-	-	-	1.48	1.50	1.60	1.64	1.52	1.66	1.40	1.64	1.52	1.62	1.24
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00176	0.00168	0.00168	0.00166	0.00154	0.00174	0.00128	0.00161	0.00155	0.00171	0.00135
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00380	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

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Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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Table B.10: Water Chemistry at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event					Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event				
						JL0-02	JL0-07		JL0-09	J0-01			JL0-02	JL0-07		JL0-09	J0-01
						surface	bottom	surface	surface	outlet			surface	bottom	surface	surface	outlet
						26-Jul-25	25-Jul-25	25-Jul-25	25-Jul-25	03-Aug-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25	28-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	134	79.7	<u>152</u>	-	<u>151</u>	<u>151</u>	<u>157</u>	132	83.5	<u>166</u>	-	<u>167</u>	<u>166</u>	<u>156</u>
	Specific Conductance (field)	µS/cm	-	128	-	<u>164</u>	<u>150</u>	<u>150</u>	<u>148</u>	<u>162</u>	142	-	-	<u>151</u>	<u>151</u>	-	<u>161</u>
	pH (lab)	pH	-	-	-	8.05	-	8.00	8.08	8.17	-	-	7.97	-	7.87	7.96	8.00
	pH (field)	mg/L	6.5 - 9.0	-	-	8.11	7.53	7.92	8.12	8.19	-	-	-	7.47	7.92	-	7.90
	Temperature, Field	mg/L	-	6.14 - 9.88	4.30 - 12.5	<u>10.9</u>	<u>5.06</u>	<u>10.8</u>	8.39	<u>10.7</u>	5.65 - 9.06	5.75 - 7.85	-	6.80	7.90	-	6.00
	Hardness (as CaCO ₃) -Total	mg/L	-	67.6	37.7	76.0	-	74.8	76	77.6	67.0	38.6	74.7	-	73.5	75.0	78.9
	Total Suspended Solids (TSS)	mg/L	-	-	-	<1.1	-	<1.3	<1.1	<1	-	-	<1	-	<1	<1	<1.1
	Total Dissolved Solids (TDS)	mg/L	-	87.5	58.0	76.0	-	73.0	63.0	83.0	85.5	59.0	62.0	-	66.0	63.0	91.0
	Dissolved Oxygen	mg/L	-	7.72	10.8	11.3	11.7	11.8	12.2	11.0	10.1	11.3	-	10.7	11.9	-	12.1
	Dissolved Oxygen	%	-	-	96.9	102	91.5	106	104	99.2	-	89.6	-	88.8	101	-	97.2
	Turbidity (lab)	NTU	-	20.4	0.720	0.810	-	0.900	0.960	0.780	2.30	1.01	0.450	-	0.420	0.740	0.640
	Turbidity (field)	NTU	-	-	353	1.14	26.8	1.17	1.33	0.160	-	3.79	-	1.27	0.600	-	0.260
	Alkalinity (as CaCO ₃)	mg/L	-	49.0 - 67.5	30.0 - 47.9	<u>68.6</u>	-	<u>69.9</u>	<u>67.9</u>	<u>68.9</u>	49.0 - 63.5	29.5 - 49.4	<u>68.2</u>	-	<u>66.8</u>	<u>67.4</u>	<u>70.8</u>
Nutrients and Organics	Total Ammonia ^e	mg/L	1.92 - 6.02	1.41	-	<0.005	-	<0.005	<0.005	<0.005	0.600	0.0550	0.0118	-	<0.005	0.0607	0.0150
	Nitrate ^e	mg/L	3.00	-	-	<0.02	-	<0.02	<0.02	<0.02	-	-	<0.02	-	<0.02	<0.02	<0.02
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	-	<0.01	<0.01	<0.01	0.0120	-	<0.01	-	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	1.45	0.235	0.0940	-	0.102	0.141	0.147	1.45	0.210	0.134	-	0.132	0.186	0.157
	Dissolved Organic Carbon	mg/L	-	2.20	3.65	<u>3.03</u>	-	<u>2.25</u>	<u>2.71</u>	2.07	2.10	3.82	<u>2.78</u>	-	<u>2.58</u>	<u>2.40</u>	2.10
	Total Organic Carbon	mg/L	-	2.15	4.81	<u>3.00</u>	-	<u>3.09</u>	<u>2.84</u>	<u>2.79</u>	2.10	3.86	<u>2.99</u>	-	<u>2.52</u>	<u>2.29</u>	2.02
	Total Phosphorus	mg/L	-	0.0110	0.00700	0.00420	-	0.00570	0.00340	0.00400	0.00950	0.0235	0.00210	-	0.00210	0.00540	0.00440
	Phenols	mg/L	0.00400	-	-	<0.001	-	<0.001	<0.001	<0.001	-	-	<0.001	-	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	-	<0.1	<0.1	<0.1	-	-	<0.1	-	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	4.00	1.42	3.98	-	4.18	3.96	3.99	3.50	1.38	4.07	-	4.26	4.09	3.89
	Sulphate (SO ₄) ^e	mg/L	309	3.00	4.48	<u>3.69</u>	-	<u>3.85</u>	<u>3.68</u>	<u>3.79</u>	3.50	4.37	<u>3.85</u>	-	<u>4.02</u>	<u>3.90</u>	3.50
Total Metals	Aluminum (Al) ^e	mg/L	0.100	0.0278	0.00850	0.0154	-	0.0131	0.0142	0.0110	0.0442	0.0128	0.00760	-	0.00830	0.00870	0.00790
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00584	0.00692	<u>0.00794</u>	-	<u>0.00792</u>	<u>0.00803</u>	<u>0.00793</u>	0.00588	0.00670	<u>0.00800</u>	-	<u>0.00828</u>	<u>0.00811</u>	<u>0.00813</u>
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	-	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.000126 - 0.000143	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	13.6	7.42	<u>14.9</u>	-	<u>14.6</u>	<u>14.9</u>	<u>15.2</u>	12.7	7.49	<u>14.8</u>	-	<u>14.4</u>	<u>14.9</u>	<u>14.6</u>
	Cesium (Cs)	mg/L	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001

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						surface	bottom	surface	surface	outlet			surface	bottom	surface	surface	outlet
						26-Jul-25	25-Jul-25	25-Jul-25	25-Jul-25	03-Aug-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25	28-Aug-25
Total Metals	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^e	mg/L	0.000910 - 0.000968	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00213	0.0100	0.000990	0.00121	-	0.00121	0.00124	0.00103	0.00114	0.000905	0.00103	-	0.00109	0.00106	0.000960
	Iron (Fe) ^e	mg/L	0.300	0.0505	-	0.0190	-	0.0190	0.0190	0.0330	-	0.0190	0.0110	-	0.0100	0.0100	0.0480
	Lead (Pb)	mg/L	0.00224 - 0.00271	0.000253	-	<0.00005	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.000870	-	<u>0.00110</u>	-	<u>0.00110</u>	<u>0.00110</u>	<u>0.00120</u>	0.00108	-	<0.001	-	<0.001	<0.001	<u>0.00110</u>
	Magnesium (Mg)	mg/L	-	8.18	4.67	9.43	-	9.30	9.42	9.62	8.57	4.82	9.16	-	9.11	9.18	10.3
	Manganese (Mn)	mg/L	0.939 - 0.993	0.00340	0.000990	0.00176	-	0.00210	0.00175	0.00209	0.00355	0.000980	0.00118	-	0.00116	0.00125	0.00212
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000240	0.000164	<u>0.000494</u>	-	<u>0.000489</u>	<u>0.000499</u>	<u>0.000491</u>	0.000304	0.000164	<u>0.000529</u>	-	<u>0.000499</u>	<u>0.000518</u>	<u>0.000485</u>
	Nickel (Ni) ^e	mg/L	0.0776 - 0.0869	0.000935	-	<u>0.00112</u>	-	<u>0.00227</u>	<u>0.000950</u>	0.000730	0.000920	-	0.000730	-	0.000680	<u>0.000960</u>	0.000740
	Potassium (K)	mg/L	-	0.944	0.960	<u>1.45</u>	-	<u>1.42</u>	<u>1.45</u>	<u>1.40</u>	2.00	0.945	1.45	-	1.43	1.48	1.43
	Rubidium (Rb)	mg/L	-	-	-	0.00298	-	0.00294	0.00303	0.00303	-	-	0.00309	-	0.00298	0.00300	0.00296
	Selenium (Se)	mg/L	0.001	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.502	0.520	<u>0.560</u>	-	<u>0.540</u>	<u>0.550</u>	<u>0.520</u>	0.770	0.500	0.480	-	0.470	0.470	0.550
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.09	1.00	<u>2.06</u>	-	<u>2.03</u>	<u>2.06</u>	<u>2.08</u>	2.47	0.968	2.11	-	2.12	2.11	2.18
	Strontium (Sr)	mg/L	-	0.0101	0.00875	<u>0.0119</u>	-	<u>0.0118</u>	<u>0.0118</u>	<u>0.0118</u>	0.0143	0.00861	0.0125	-	0.0122	0.0124	0.0121
	Sulphur (S)	mg/L	-	-	-	1.48	-	1.43	1.52	1.42	-	-	1.41	-	1.39	1.43	1.44
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	0.000160	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0005	-	0.000570	0.000630	0.000340	-	-	<0.0003	-	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00153</u>	-	<u>0.00150</u>	<u>0.00149</u>	<u>0.00155</u>	-	-	0.00159	-	0.00163	0.00156	0.00146
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	-	<0.003	<0.003	<0.003	-	-	<0.003	-	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002	<0.0002	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0128	0.00430	0.00380	-	0.00290	0.00320	0.00250	0.00820	0.0122	0.00210	-	0.00230	0.00200	0.00210
	Antimony (Sb)	mg/L	-	5.40	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0100	0.00683	0.00881	-	0.00864	0.00871	0.00804	0.00610	0.00674	<u>0.00857</u>	-	<u>0.00858</u>	<u>0.00849</u>	<u>0.00840</u>
	Beryllium (Be)	mg/L	-	-	-	<0.00002	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.10: Water Chemistry at Camp Lake (JL0) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event					Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event				
						JL0-02	JL0-07		JL0-09	J0-01			JL0-02	JL0-07		JL0-09	J0-01
						surface	bottom	surface	surface	outlet			surface	bottom	surface	surface	outlet
						26-Jul-25	25-Jul-25	25-Jul-25	25-Jul-25	03-Aug-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25	28-Aug-25
Dissolved Metals	Boron (B)	mg/L	-	-	-	<0.01	-	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.000173 - 0.000193	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	13.2	7.34	14.7	-	14.4	14.5	13.5	13.2	7.40	15.2	-	15.2	15.1	14.8
	Cesium (Cs)	mg/L	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000455 - 0.000484	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.00134 - 0.00406	0.00696	0.000950	0.00116	-	0.00113	0.00119	0.000960	0.000920	0.000890	0.000820	-	0.000880	0.000840	0.000890
	Iron (Fe) ^e	mg/L	-	0.0300	-	<0.01	-	<0.01	<0.01	0.0160	0.0300	-	<0.01	-	<0.01	<0.01	<u>0.0370</u>
	Lead (Pb) ^e	mg/L	0.00592 - 0.00702	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005	0.000200	-	<0.00005	-	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00110	-	<0.001	<0.001	0.00130	-	-	0.00110	-	0.00100	0.00100	0.00130
	Magnesium (Mg)	mg/L	-	7.96	4.60	9.01	-	8.90	8.76	9.09	7.88	4.88	10.0	-	9.99	9.96	10.1
	Manganese (Mn) ^e	mg/L	0.350 - 0.560	0.187	0.000345	0.000650	-	0.000600	0.000550	0.00114	0.00141	0.000594	0.000340	-	0.000360	0.000250	0.00150
	Mercury (Hg)	mg/L	-	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.525	0.000157	0.000533	-	0.000500	0.000520	0.000476	0.000300	0.000166	0.000457	-	0.000469	0.000462	0.000478
	Nickel (Ni)	mg/L	0.00150 - 0.00210	0.00500	-	0.000700	-	0.000690	0.000690	0.000680	0.00500	-	0.000530	-	0.000600	0.000530	0.000720
	Potassium (K)	mg/L	-	0.967	0.945	1.54	-	1.50	1.51	1.46	2.00	0.950	1.45	-	1.44	1.44	1.43
	Rubidium (Rb)	mg/L	-	-	-	0.00312	-	0.00309	0.00303	0.00303	-	0.000970	0.00300	-	0.00296	0.00295	0.00302
	Selenium (Se)	mg/L	-	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.476	0.510	0.545	-	0.535	0.538	<u>0.481</u>	0.466	0.506	<u>0.477</u>	-	<u>0.470</u>	<u>0.469</u>	0.510
	Silver (Ag)	mg/L	-	-	-	<0.00001	-	0.0000150	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.16	0.980	2.04	-	2.04	2.00	2.04	2.00	1.01	2.15	-	2.14	2.13	2.15
	Strontium (Sr) ^e	mg/L	2.50	0.00950	0.00858	0.0123	-	0.0121	0.0123	0.0116	0.00999	0.00860	0.0121	-	0.0122	0.0121	0.0122
	Sulphur (S)	mg/L	-	-	-	1.49	-	1.46	1.44	1.44	-	1.65	1.35	-	1.38	1.47	1.52
	Tellurium (Te)	mg/L	-	-	-	<0.0002	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	-	<0.0003	<0.0003	<0.0003	-	-	<0.0003	-	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00163	-	0.00160	0.00161	0.00154	-	-	0.00143	-	0.00142	0.00141	0.00143
	Vanadium (V)	mg/L	-	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	<0.001	-	<0.001	0.00120	<0.001	-	-	<0.001	-	0.00210	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	-	<0.0003	<0.0003	<0.0003	-	-	<0.0003	-	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b)	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 12		
						D1-05		D1-05	D1-00	D12-1		
						08-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	01-Jun-25	08-Jun-25	15-Jun-25
Conventional	Conductivity (lab)	µS/cm	-	-	59.5	-	-	260	208	-	-	-
	Specific Conductance (field)	µS/cm	-	-	48.0	138	196	-	202	111	144	182
	pH (lab)	pH	-	-	-	-	7.39	7.74	7.63	-	-	-
	pH (field)	pH	6.5 - 9.0	-	7.09 - 7.66	7.73	7.76	-	7.95	8.01	8.10	8.20
	Temperature, Field	mg/L	-	-	0.330 - 6.40	3.10	9.20	-	13.6	2.40	5.60	4.50
	Hardness (as CaCO ₃) -Total	mg/L	-	-	28.3	-	-	127	98.9	-	-	-
	Total Suspended Solids (TSS)	mg/L	-	-	-	-	<1	<1	<1	-	-	-
	Total Dissolved Solids (TDS)	mg/L	-	-	87.0	-	114	143	124	-	-	-
	Dissolved Oxygen	mg/L	> 9.5	-	11.7	12.1	10.4	-	10.2	13.0	12.3	12.5
	Dissolved Oxygen	%	-	-	90.1	90.3	90.7	-	98.1	95.0	97.7	96.7
	Turbidity (lab)	NTU	-	-	-	-	1.26	0.450	1.54	-	-	-
	Turbidity (field)	NTU	-	-	7.75	7.43	1.45	-	1.73	17.3	9.53	3.25
	Alkalinity (as CaCO ₃)	mg/L	-	-	4.60 - 29.0	-	-	68.1	62.9	-	-	-
Nutrients and Organics	Total Ammonia ^e	mg/L	0.588 - 3.98	-	-	-	-	<0.005	0.00940	-	-	-
	Nitrate ^e	mg/L	3.00	-	-	-	-	2.00	0.972	-	-	-
	Nitrite ^e	mg/L	0.0600	-	-	-	-	<0.01	<0.01	-	-	-
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	0.165	-	-	0.236	0.175	-	-	-
	Dissolved Organic Carbon	mg/L	-	-	3.40	-	-	1.66	1.55	-	-	-
	Total Organic Carbon	mg/L	-	-	2.61	-	-	2.06	2.22	-	-	-
	Total Phosphorus	mg/L	-	-	0.00970	-	-	<0.002	0.00270	-	-	-
	Phenols	mg/L	0.00400	-	-	-	-	<0.001	<0.001	-	-	-
Anions	Bromide (Br)	mg/L	-	-	-	-	-	<0.1	<0.1	-	-	-
	Chloride (Cl) ^e	mg/L	120	-	1.79	-	-	5.10	3.69	-	-	-
	Sulphate (SO ₄) ^e	mg/L	128 - 309	-	2.75	-	-	43.2	27.6	-	-	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

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underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 12		
						D1-05		D1-05	D1-00	D12-1		
						08-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	01-Jun-25	08-Jun-25	15-Jun-25
Total Metals	Aluminum (Al) ^e	mg/L	0.350	-	0.202	-	-	0.0153	0.0404	-	-	-
	Antimony (Sb)	mg/L	0.0740	-	-	-	-	<0.0001	<0.0001	-	-	-
	Arsenic (As) ^e	mg/L	0.00500	-	-	-	-	<0.0001	<0.0001	-	-	-
	Barium (Ba)	mg/L	1.00	-	0.00386	-	-	0.0104	0.00951	-	-	-
	Beryllium (Be)	mg/L	0.000130	-	-	-	-	<0.00002	<0.00002	-	-	-
	Bismuth (Bi)	mg/L	-	-	-	-	-	<0.00005	<0.00005	-	-	-
	Boron (B)	mg/L	1.50	-	-	-	-	0.0160	0.0160	-	-	-
	Cadmium (Cd) ^e	mg/L	0.0000400 - 0.000181	-	-	-	-	0.0000159	0.0000147	-	-	-
	Calcium (Ca)	mg/L	-	-	5.59	-	-	22.3	17.5	-	-	-
	Cesium (Cs)	mg/L	-	-	0.0000360	-	-	0.0000100	<0.00001	-	-	-
	Chromium (Cr)	mg/L	0.00500	-	-	-	-	0.000520	0.000520	-	-	-
	Cobalt (Co) ^e	mg/L	0.000778 - 0.00109	-	-	-	-	0.000160	0.000120	-	-	-
	Copper (Cu)	mg/L	0.00200 - 0.00271	-	0.00104	-	-	0.00147	0.00147	-	-	-
	Iron (Fe) ^e	mg/L	0.543	-	0.232	-	-	0.0170	0.0990	-	-	-
	Lead (Pb)	mg/L	0.00100 - 0.00389	-	0.000222	-	-	<0.00005	0.0000670	-	-	-
	Lithium (Li)	mg/L	-	-	-	-	-	0.00450	0.00350	-	-	-
	Magnesium (Mg)	mg/L	-	-	3.40	-	-	17.2	13.4	-	-	-
	Manganese (Mn)	mg/L	0.768 - 1.12	-	0.00377	-	-	0.00106	0.00708	-	-	-
	Mercury (Hg)	mg/L	0.0000260	-	-	-	-	<0.000005	<0.000005	-	-	-
	Molybdenum (Mo)	mg/L	7.60	-	0.000233	-	-	0.00700	0.00623	-	-	-
	Nickel (Ni) ^e	mg/L	0.0250 - 0.108	-	-	-	-	0.000560	0.000780	-	-	-
	Potassium (K)	mg/L	-	-	0.520	-	-	4.56	4.13	-	-	-
	Rubidium (Rb)	mg/L	-	-	0.00138	-	-	0.00617	0.00544	-	-	-
	Selenium (Se)	mg/L	0.001	-	-	-	-	0.000214	0.000153	-	-	-
	Silicon (Si)	mg/L	-	-	0.710	-	-	1.46	1.14	-	-	-
	Silver (Ag) ^e	mg/L	0.000100	-	-	-	-	<0.00001	<0.00001	-	-	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

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underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

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Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b)	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 12		
						D1-05		D1-05	D1-00	D12-1		
						08-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	01-Jun-25	08-Jun-25	15-Jun-25
Total Metals	Sodium (Na)	mg/L	-	-	0.995	-	-	2.47	2.01	-	-	-
	Strontium (Sr)	mg/L	-	-	0.00528	-	-	0.0500	0.0378	-	-	-
	Sulphur (S)	mg/L	-	-	-	-	-	15.0	9.48	-	-	-
	Thallium (Tl) ^e	mg/L	0.000800	-	-	-	-	0.0000130	0.0000130	-	-	-
	Thorium (Th)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Tin (Sn)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Titanium (Ti)	mg/L	-	-	-	-	-	0.000400	0.00144	-	-	-
	Tungsten (W)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Uranium (U)	mg/L	-	-	-	-	-	0.00623	0.00302	-	-	-
	Vanadium (V) ^e	mg/L	-	-	-	-	-	<0.0005	<0.0005	-	-	-
	Zinc (Zn)	mg/L	-	-	-	-	-	<0.003	<0.003	-	-	-
	Zirconium (Zr)	mg/L	-	-	-	-	-	<0.0002	<0.0002	-	-	-
Dissolved Metals	Aluminum (Al)	mg/L	-	-	0.0357	-	-	0.00420	0.00880	-	-	-
	Antimony (Sb)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Arsenic (As)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Barium (Ba)	mg/L	-	-	0.00323	-	-	0.0107	0.00930	-	-	-
	Beryllium (Be)	mg/L	-	-	-	-	-	<0.00002	<0.00002	-	-	-
	Bismuth (Bi)	mg/L	-	-	-	-	-	<0.00005	<0.00005	-	-	-
	Boron (B)	mg/L	-	-	-	-	-	0.0140	0.0150	-	-	-
	Cadmium (Cd)	mg/L	0.0000329 - 0.000238	-	-	-	-	0.0000134	0.0000136	-	-	-
	Calcium (Ca)	mg/L	-	-	5.61	-	-	19.7	17.3	-	-	-
	Cesium (Cs)	mg/L	-	-	-	-	-	<0.00001	<0.00001	-	-	-
	Chromium (Cr)	mg/L	-	-	-	-	-	<0.0005	<0.0005	-	-	-
	Cobalt (Co)	mg/L	0.000389 - 0.000544	-	-	-	-	0.000150	0.000110	-	-	-

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Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 12		
						D1-05		D1-05	D1-00	D12-1		
						08-Jun-25	29-Jun-25	08-Jul-25	29-Jun-25	01-Jun-25	08-Jun-25	15-Jun-25
Dissolved Metals	Copper (Cu) ^e	mg/L	0.000200 - 0.00212	-	0.000940	-	-	0.00146	0.00134	-	-	-
	Iron (Fe) ^e	mg/L	-	-	-	-	-	<0.01	0.0380	-	-	-
	Lead (Pb) ^e	mg/L	0.00294 - 0.00556	-	-	-	-	<0.00005	<0.00005	-	-	-
	Lithium (Li)	mg/L	-	-	-	-	-	0.00330	0.00380	-	-	-
	Magnesium (Mg)	mg/L	-	-	3.32	-	-	16.5	13.5	-	-	-
	Manganese (Mn) ^e	mg/L	0.240 - 0.370	-	0.00265	-	-	0.000520	0.00609	-	-	-
	Mercury (Hg)	mg/L	-	-	-	-	-	<0.000005	<0.000005	-	-	-
	Molybdenum (Mo)	mg/L	-	-	0.000241	-	-	0.00723	0.00612	-	-	-
	Nickel (Ni)	mg/L	0.000600 - 0.00210	-	-	-	-	0.000590	0.000560	-	-	-
	Potassium (K)	mg/L	-	-	0.470	-	-	4.82	4.19	-	-	-
	Rubidium (Rb)	mg/L	-	-	0.00110	-	-	0.00641	0.00540	-	-	-
	Selenium (Se)	mg/L	-	-	-	-	-	0.000293	0.000137	-	-	-
	Silicon (Si)	mg/L	-	-	0.635	-	-	1.38	1.10	-	-	-
	Silver (Ag)	mg/L	-	-	-	-	-	<0.00001	<0.00001	-	-	-
	Sodium (Na)	mg/L	-	-	0.968	-	-	2.46	2.04	-	-	-
	Strontium (Sr) ^e	mg/L	2.50	-	0.00504	-	-	0.0502	0.0378	-	-	-
	Sulphur (S)	mg/L	-	-	-	-	-	14.9	9.45	-	-	-
	Tellurium (Te)	mg/L	-	-	-	-	-	<0.0002	<0.0002	-	-	-
	Thallium (Tl)	mg/L	-	-	-	-	-	0.0000120	0.0000110	-	-	-
	Thorium (Th)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Tin (Sn)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Titanium (Ti)	mg/L	-	-	-	-	-	<0.0003	<0.0003	-	-	-
	Tungsten (W)	mg/L	-	-	-	-	-	<0.0001	<0.0001	-	-	-
	Uranium (U)	mg/L	-	-	-	-	-	0.00592	0.00296	-	-	-
	Vanadium (V)	mg/L	-	-	-	-	-	<0.0005	<0.0005	-	-	-
	Zinc (Zn) ^e	mg/L	-	-	-	-	-	<0.001	<0.001	-	-	-
	Zirconium (Zr)	mg/L	-	-	-	-	-	<0.0003	<0.0003	-	-	-

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Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event		Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event		
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 1		
						D1-05	D1-00			D1-05	D1-05	D1-00
						01-Aug-25	01-Aug-25			28-Aug-25	5-Sep-25	28-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	-	130	573	526	282	178	581	-	561
	Specific Conductance (field)	µS/cm	-	-	134	613	558	278	160	622	578	588
	pH (lab)	pH	-	-	-	7.71	8.24	-	-	7.85	-	8.09
	pH (field)	pH	6.5 - 9.0	-	7.71 - 8.01	7.73	8.22	-	7.39 - 8.13	7.95	7.78	8.20
	Temperature, Field	mg/L	-	-	3.20 - 12.3	10.1	16.8	1.28 - 8.02	-0.100 - 3.00	4.00	1.20	4.60
	Hardness (as CaCO ₃) -Total	mg/L	-	-	64.9	258	241	150	85.1	294	-	282
	Total Suspended Solids (TSS)	mg/L	-	-	-	1.60	<1	-	-	<1.1	-	<1.1
	Total Dissolved Solids (TDS)	mg/L	-	-	82.0	369	328	183	105	368	-	344
	Dissolved Oxygen	mg/L	> 9.5	-	10.2	10.4	9.66	11.9	12.3	12.3	12.8	12.6
	Dissolved Oxygen	%	-	-	85.3	92.1	99.7	-	89.9	94.0	90.8	97.9
	Turbidity (lab)	NTU	-	-	-	0.410	0.960	-	-	1.25	-	1.88
	Turbidity (field)	NTU	-	-	25.1	0.110	0.500	-	18.0	1.06	-1.55	2.22
	Alkalinity (as CaCO ₃)	mg/L	-	-	16.8 - 67.1	73.5	92.2	66.0 - 130	25.0 - 82.2	94.0	-	107
Nutrients and Organics	Total Ammonia ^e	mg/L	0.588 - 3.98	-	-	<0.005	0.00830	0.150	-	<0.005	-	0.00540
	Nitrate ^e	mg/L	3.00	-	-	9.37	6.87	0.170	0.126	7.66	-	6.22
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	-	-	<0.01	-	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	0.130	0.362	0.429	0.150	0.140	0.299	-	0.245
	Dissolved Organic Carbon	mg/L	-	-	4.27	2.75	2.56	2.70	2.66	2.21	-	2.13
	Total Organic Carbon	mg/L	-	-	3.06	2.74	3.31	2.70	2.42	3.28	-	3.43
	Total Phosphorus	mg/L	-	-	0.0109	0.00280	0.00230	0.0140	0.0111	<0.002	-	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	-	-	<0.001	-	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	0.120	0.120	-	-	<0.1	-	0.260
	Chloride (Cl) ^e	mg/L	120	-	5.47	16.1	16.5	21.0	11.7	16.6	-	17.0
	Sulphate (SO ₄) ^e	mg/L	128 - 309	-	8.71	148	121	14.0	14.1	139	-	123

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						Sheardown Lake Tributary 1				Sheardown Lake Tributary 1		
						D1-05	D1-00			D1-05	D1-05	D1-00
						01-Aug-25	01-Aug-25			28-Aug-25	5-Sep-25	28-Aug-25
Total Metals	Aluminum (Al) ^e	mg/L	0.350	-	0.734	0.0102	0.0222	0.0260	0.495	0.0158	-	<u>0.0388</u>
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Barium (Ba)	mg/L	1.00	-	0.0117	0.0231	0.0226	0.0134	0.0129	0.0228	-	0.0231
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005
	Boron (B)	mg/L	1.50	-	-	0.0210	0.0210	0.0180	-	<u>0.0200</u>	-	<u>0.0190</u>
	Cadmium (Cd) ^e	mg/L	0.0000400 - 0.000181	-	-	0.000111	0.0000534	0.0000460	-	0.0000300	-	0.0000210
	Calcium (Ca)	mg/L	-	-	13.2	41.8	40.0	29.4	17.1	46.7	-	45.1
	Cesium (Cs)	mg/L	-	-	0.000130	0.0000190	0.0000160	-	0.0000750	0.0000140	-	0.0000120
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	0.000250	-	<u><0.0005</u>	-	<u><0.0005</u>
	Cobalt (Co) ^e	mg/L	0.000778 - 0.00109	-	-	0.000740	0.000650	-	-	0.000590	-	0.000530
	Copper (Cu)	mg/L	0.00200 - 0.00271	-	0.00200	0.00203	0.00195	0.00304	0.00174	0.00172	-	0.00155
	Iron (Fe) ^e	mg/L	0.543	-	0.856	0.0120	0.103	0.100	0.462	0.0220	-	0.0930
	Lead (Pb)	mg/L	0.00100 - 0.00389	-	0.000607	<0.00005	<0.00005	-	0.000434	0.000211	-	0.0000840
	Lithium (Li)	mg/L	-	-	-	0.00780	0.00670	0.00146	-	<u>0.00630</u>	-	<u>0.00560</u>
	Magnesium (Mg)	mg/L	-	-	7.76	37.3	34.2	18.5	10.3	43.0	-	41.1
	Manganese (Mn)	mg/L	0.768 - 1.12	-	0.00979	0.0219	0.0160	0.00263	0.00477	0.00260	-	0.00656
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005
	Molybdenum (Mo)	mg/L	7.60	-	0.000669	0.00654	0.00555	0.00362	0.000777	0.00567	-	0.00476
	Nickel (Ni) ^e	mg/L	0.0250 - 0.108	-	0.00111	0.00118	0.00128	0.00142	0.00104	0.000820	-	0.00105
	Potassium (K)	mg/L	-	-	1.14	6.58	5.90	2.38	1.17	6.59	-	5.75
	Rubidium (Rb)	mg/L	-	-	0.00537	0.00965	0.00874	-	0.00313	0.00917	-	0.00762
	Selenium (Se)	mg/L	0.001	-	-	0.000500	0.000362	-	-	0.000535	-	0.000420
	Silicon (Si)	mg/L	-	-	2.45	1.75	1.54	1.81	1.91	1.81	-	1.74
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001

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underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event		Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event		
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 1		
						D1-05	D1-00			D1-05	D1-05	D1-00
						01-Aug-25	01-Aug-25			28-Aug-25	5-Sep-25	28-Aug-25
Total Metals	Sodium (Na)	mg/L	-	-	3.16	6.68	6.50	2.64	5.07	7.11	-	7.35
	Strontium (Sr)	mg/L	-	-	0.0159	0.104	0.0840	0.0163	0.0242	0.103	-	0.0849
	Sulphur (S)	mg/L	-	-	2.11	50.9	41.8	-	3.67	53.1	-	47.2
	Thallium (Tl) ^e	mg/L	0.000800	-	-	0.0000270	0.0000230	-	-	0.0000140	-	0.0000110
	Thorium (Th)	mg/L	-	-	0.00146	<0.0001	<0.0001	-	0.000820	<0.0001	-	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Titanium (Ti)	mg/L	-	-	0.0522	<0.0006	<0.0009	-	0.0273	0.000520	-	0.00187
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Uranium (U)	mg/L	-	-	-	0.0111	0.00976	-	-	0.0188	-	0.0158
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	-	-	<0.003	-	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	-	0.104	0.0108	0.00570	0.00400	0.0632	0.00340	-	0.00490
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	0.000100	-	<0.0001	-	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Barium (Ba)	mg/L	-	-	0.00808	0.0253	0.0234	0.0119	0.0109	0.0224	-	0.0235
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	0.000500	-	<0.00002	-	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	0.000500	-	<0.00005	-	<0.00005
	Boron (B)	mg/L	-	-	-	0.0200	0.0200	-	-	0.0180	-	0.0180
	Cadmium (Cd)	mg/L	0.0000329 - 0.000238	-	-	0.000124	0.0000507	-	-	0.0000289	-	0.0000178
	Calcium (Ca)	mg/L	-	-	13.8	49.2	44.1	28.9	17.1	46.0	-	45.0
	Cesium (Cs)	mg/L	-	-	0.0000280	0.0000180	0.0000160	-	0.0000370	0.0000120	-	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	0.000600	-	<0.0005	-	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000544	-	-	0.000760	0.000590	-	-	0.000560	-	0.000500

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.11: Water Chemistry at Sheardown Lake Tributary 1 (SDLT1) and 12 (SDLT12) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event		Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event		
						Sheardown Lake Tributary 1				Sheardown Lake Tributary 1		
						D1-05	D1-00			D1-05	D1-05	D1-00
						01-Aug-25	01-Aug-25			28-Aug-25	5-Sep-25	28-Aug-25
Dissolved Metals	Copper (Cu) ^e	mg/L	0.000200 - 0.00212	-	0.00122	0.00214	0.00185	-	0.00125	0.00154	-	0.00146
	Iron (Fe) ^e	mg/L	-	-	0.0520	0.0120	0.0360	0.0600	-	<0.01	-	0.0250
	Lead (Pb) ^e	mg/L	0.00294 - 0.00556	-	-	0.0000520	<0.00005	0.000200	-	<0.00005	-	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00830	0.00690	-	-	0.00610	-	0.00550
	Magnesium (Mg)	mg/L	-	-	7.80	39.8	35.2	18.0	10.5	40.3	-	40.3
	Manganese (Mn) ^e	mg/L	0.240 - 0.370	-	0.000805	0.0230	0.0147	0.00218	0.00113	0.00211	-	0.00528
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005
	Molybdenum (Mo)	mg/L	-	-	0.000640	0.00603	0.00523	0.00369	0.000752	0.00555	-	0.00465
	Nickel (Ni)	mg/L	0.000600 - 0.00210	-	-	0.00162	0.00121	-	-	0.000730	-	0.000970
	Potassium (K)	mg/L	-	-	0.850	7.04	5.89	2.31	1.07	6.40	-	5.80
	Rubidium (Rb)	mg/L	-	-	0.00240	0.0104	0.00887	-	0.00221	0.00882	-	0.00770
	Selenium (Se)	mg/L	-	-	-	0.000616	0.000444	-	-	0.000545	-	0.000463
	Silicon (Si)	mg/L	-	-	1.16	1.71	1.47	-	1.09	1.70	-	1.65
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001
	Sodium (Na)	mg/L	-	-	3.27	6.89	6.36	2.56	5.11	6.69	-	7.17
	Strontium (Sr) ^e	mg/L	2.50	-	0.0150	0.108	0.0842	0.0158	0.0256	0.103	-	0.0852
	Sulphur (S)	mg/L	-	-	4.44	51.8	41.6	-	3.90	51.2	-	46.3
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002
	Thallium (Tl)	mg/L	-	-	-	0.0000280	0.0000230	-	-	0.0000130	-	0.0000100
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	0.0100	-	<0.0003	-	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001
	Uranium (U)	mg/L	-	-	-	0.0109	0.0102	-	-	0.0183	-	0.0158
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	0.00380	0.00130	-	-	<0.001	-	0.00200
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	-	-	<0.0003	-	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.12: *In Situ* Water Quality Measurements Collected at Sheardown Lake Tributaries 1 (SDLT1), 12 (SDLT12), and 9 (SDLT9) and Reference Creek Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Sampling Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)	pH (pH units)	Conductivity (µS/cm)	Specific Conductance (µS/cm)
Unnamed Reference Creek	REF-CRK-B1	12-Aug-25	6.20	11.7	94.9	7.20	71.8	112
	REF-CRK-B2	12-Aug-25	6.40	11.5	93.6	7.30	71.5	111
	REF-CRK-B3	12-Aug-25	6.70	11.6	108	7.43	70.0	108
	REF-CRK-B4	12-Aug-25	5.90	11.8	94.8	7.21	68.3	108
	REF-CRK-B5	12-Aug-25	5.90	11.8	93.9	7.43	67.0	106
Sheardown Lake Tributary 1 Reach 1	SDLT-1-R1-B1	07-Aug-25	5.00	12.0	94.0	8.10	401	648
	SDLT-1-R1-B2	07-Aug-25	6.80	11.8	96.0	8.18	415	635
	SDLT-1-R1-B3	07-Aug-25	6.20	11.8	95.2	8.22	415	648
	SDLT-1-R1-B4	07-Aug-25	5.80	12.1	96.6	8.17	409	646
	SDLT-1-R1-B5	07-Aug-25	5.30	12.1	95.5	8.18	404	648
Sheardown Lake Tributary 12 Downstream	SDLT-12-DS-B1	07-Aug-25	3.80	11.2	85.2	8.10	205	345
	SDLT-12-DS-B2	07-Aug-25	6.80	11.6	95.4	8.33	216	330
	SDLT-12-DS-B3	07-Aug-25	7.80	11.6	97.1	8.29	223	323
Sheardown Lake Tributary 9 Upstream	SDLT-9-DS-B1	08-Aug-25	7.39	9.45	78.6	7.86	154	232
	SDLT-9-DS-B2	08-Aug-25	7.40	11.0	92.0	8.30	142	215
	SDLT-9-DS-B3	08-Aug-25	6.70	9.90	80.9	7.86	160	246
	SDLT-9-DS-B4	08-Aug-25	6.90	10.3	85.0	7.85	164	250
	SDLT-9-DS-B5	08-Aug-25	6.90	10.8	88.6	7.96	164	250

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. CCME = Canadian Council of Ministers of the Environment. WQG = Water Quality Guideline.

Table B.13: Water Chemistry Baseline Normal Ranges Calculated for Sheardown Lake Tributary 1 (Stations D1-00 and D1-05) and Sheardown Lake Tributary 12 (Station D12-1), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventional	Conductivity (lab)	µS/cm	8	-	-	9	-	-	11	-	282
	Specific Conductance (field)	µS/cm	7	-	-	9	-	-	11	-	278
	pH (lab)	pH	6	-	-	8	-	-	10	-	8.11
	pH (field) ^a	pH	2	-	-	2	-	-	2	-	-
	Temperature, Field ^a	pH	7	-	-	9	-	-	11	1.28	8.02
	Hardness (as CaCO ₃) -Total	mg/L	8	-	-	9	-	-	11	-	150
	Total Suspended Solids (TSS)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Total Dissolved Solids (TDS)	mg/L	8	-	-	9	-	-	11	-	183
	Dissolved Oxygen ^b	mg/L	7	-	-	8	-	-	10	11.9	-
	Dissolved Oxygen ^b	%	0	-	-	0	-	-	0	-	-
	Turbidity (lab)	NTU	8	-	-	9	-	-	11	-	0.600
	Turbidity (field)	NTU	0	-	-	0	-	-	0	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	8	-	-	9	-	-	11	66.0	130
Nutrients and Organics	Total Ammonia	mg/L	7	-	-	8	-	-	10	-	0.150
	Nitrate	mg/L	8	-	LRL	9	-	LRL	11	-	0.170
	Nitrite	mg/L	8	-	-	9	-	LRL	11	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	7	-	-	8	-	-	10	-	0.150
	Dissolved Organic Carbon	mg/L	7	-	-	8	-	-	10	-	2.70
	Total Organic Carbon	mg/L	7	-	-	8	-	-	10	-	2.70
	Total Phosphorus	mg/L	8	-	-	9	-	-	11	-	0.0140
	Phenols	mg/L	1	-	LRL	1	-	LRL	1	-	LRL
Anions	Bromide (Br)	mg/L	8	-	-	9	-	LRL	11	-	LRL
	Chloride (Cl)	mg/L	8	-	-	9	-	-	11	-	21.0
	Sulphate (SO ₄)	mg/L	8	-	LRL	9	-	-	11	-	14.0
Total Metals	Aluminum (Al)	mg/L	8	-	-	9	-	-	11	-	0.0260
	Antimony (Sb)	mg/L	7	-	LRL	8	-	LRL	11	-	LRL
	Arsenic (As)	mg/L	8	-	LRL	9	-	LRL	11	-	LRL
	Barium (Ba)	mg/L	8	-	-	9	-	-	11	-	0.0134
	Beryllium (Be)	mg/L	7	-	LRL	8	-	LRL	11	-	LRL
	Bismuth (Bi)	mg/L	7	-	LRL	8	-	LRL	11	-	LRL
	Boron (B)	mg/L	8	-	LRL	9	-	-	11	-	0.0180
	Cadmium (Cd)	mg/L	7	-	-	8	-	-	11	-	0.0000460
	Calcium (Ca)	mg/L	8	-	-	9	-	-	11	-	29.4
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	7	-	LRL	8	-	-	11	-	0.000250
	Cobalt (Co)	mg/L	8	-	-	9	-	LRL	11	-	LRL
	Copper (Cu)	mg/L	8	-	-	9	-	-	11	-	0.00304
	Iron (Fe)	mg/L	8	-	-	9	-	-	11	-	0.100
	Lead (Pb)	mg/L	7	-	-	8	-	-	11	-	LRL
	Lithium (Li)	mg/L	6	-	-	7	-	-	10	-	0.00146
	Magnesium (Mg)	mg/L	8	-	-	9	-	-	11	-	18.5
	Manganese (Mn)	mg/L	8	-	-	9	-	-	11	-	0.00263
	Mercury (Hg)	mg/L	8	-	LRL	9	-	LRL	11	-	LRL
	Molybdenum (Mo)	mg/L	8	-	-	9	-	-	11	-	0.00362
	Nickel (Ni)	mg/L	8	-	-	9	-	-	11	-	0.00142
	Potassium (K)	mg/L	8	-	-	9	-	-	11	-	2.38
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	8	-	LRL	9	-	LRL	11	-	LRL
	Silicon (Si)	mg/L	6	-	-	7	-	-	10	-	1.81
	Silver (Ag)	mg/L	8	-	LRL	9	-	LRL	11	-	LRL
	Sodium (Na)	mg/L	8	-	-	9	-	-	11	-	2.64
	Strontium (Sr)	mg/L	8	-	-	9	-	-	11	-	0.0163
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	7	-	LRL	9	-	-	11	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	8	-	LRL	9	-	LRL	11	-	LRL
	Titanium (Ti)	mg/L	7	-	LRL	8	-	LRL	11	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	6	-	-	7	-	-	10	-	0.00915
	Vanadium (V)	mg/L	8	-	LRL	9	-	LRL	11	-	LRL
	Zinc (Zn)	mg/L	7	-	-	8	-	-	11	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.13: Water Chemistry Baseline Normal Ranges Calculated for Sheardown Lake Tributary 1 (Stations D1-00 and D1-05) and Sheardown Lake Tributary 12 (Station D12-1), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	7	-	-	8	-	-	10	-	0.00400
	Antimony (Sb)	mg/L	7	-	LRL	8	-	-	10	-	0.000100
	Arsenic (As)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Barium (Ba)	mg/L	7	-	-	8	-	-	10	-	0.0119
	Beryllium (Be)	mg/L	7	-	LRL	8	-	-	10	-	0.000500
	Bismuth (Bi)	mg/L	7	-	LRL	8	-	-	10	-	0.000500
	Boron (B)	mg/L	7	-	LRL	8	-	LRL	10	-	0.0130
	Cadmium (Cd)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Calcium (Ca)	mg/L	7	-	-	8	-	-	10	-	28.9
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	7	-	-	8	-	LRL	10	-	0.000600
	Cobalt (Co)	mg/L	7	-	LRL	8	-	LRL	10	-	0.000300
	Copper (Cu)	mg/L	7	-	-	8	-	-	9	-	-
	Iron (Fe)	mg/L	7	-	-	8	-	-	10	-	0.0600
	Lead (Pb)	mg/L	7	-	-	8	-	-	10	-	0.000200
	Lithium (Li)	mg/L	6	-	-	7	-	LRL	9	-	LRL
	Magnesium (Mg)	mg/L	7	-	-	8	-	-	10	-	18.0
	Manganese (Mn)	mg/L	7	-	-	8	-	-	10	-	0.00218
	Mercury (Hg)	mg/L	6	-	LRL	7	-	LRL	8	-	LRL
	Molybdenum (Mo)	mg/L	7	-	-	8	-	-	10	-	0.00369
	Nickel (Ni)	mg/L	7	-	-	8	-	-	9	-	-
	Potassium (K)	mg/L	7	-	-	8	-	-	10	-	2.31
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Silicon (Si)	mg/L	6	-	-	7	-	-	9	-	-
	Silver (Ag)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Sodium (Na)	mg/L	7	-	-	8	-	-	10	-	2.56
	Strontium (Sr)	mg/L	7	-	-	8	-	-	10	-	0.0158
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Tellurium (Te)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	7	-	-	8	-	LRL	10	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Titanium (Ti)	mg/L	7	-	-	8	-	-	10	-	0.0100
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	6	-	-	7	-	-	9	-	-
	Vanadium (V)	mg/L	7	-	LRL	8	-	LRL	10	-	LRL
	Zinc (Zn)	mg/L	7	-	-	8	-	-	10	-	0.00400
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.14: Water Chemistry at Sheardown Lake Tributary 9 (SDLT9) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Sheardown Lake Tributary 9						Sheardown Lake Tributary 9	Sheardown Lake Tributary 9					
						D9-1						D9-1	D9-1					
						01-Jun-25	08-Jun-25	15-Jun-25	22-Jun-25	01-Jul-25	06-Jul-25	01-Aug-25	24-Aug-25	28-Aug-25	1-Sep-25	7-Sep-25	14-Sep-25	21-Sep-25
Conventional	Conductivity (lab)	µS/cm	-	-	-	-	-	-	-	218	-	273	-	263	-	-	-	-
	Specific Conductance (field)	µS/cm	-	-	-	61.8	72.8	149	182	219	232	-	275	-	238	282	283	279
	pH (lab)	pH	-	-	-	-	-	-	-	7.10	-	7.55	-	7.77	-	-	-	-
	pH (field)	pH	6.5 - 9.0	-	-	7.95	7.61	8.11	7.92	7.30	7.85	-	7.57	-	7.79	7.77	7.92	7.69
	Temperature, Field	mg/L	-	-	-	1.10	1.60	2.90	10.4	3.20	4.70	-	5.40	-	1.60	0.800	2.10	0.200
	Hardness (as CaCO ₃) -Dissolved	mg/L	-	-	-	-	-	-	-	118	-	142	-	132	-	-	-	-
	Hardness (as CaCO ₃) -Total	mg/L	-	-	-	-	-	-	-	116	-	130	-	134	-	-	-	-
	Total Suspended Solids (TSS)	mg/L	-	-	-	-	-	-	-	<1	-	<1	-	<1.1	-	-	-	-
	Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	-	-	110	-	162	-	147	-	-	-	-
	Dissolved Oxygen	mg/L	-	-	-	12.8	12.0	12.5	9.44	8.60	8.73	-	9.44	-	11.8	11.4	13.6	11.5
	Dissolved Oxygen	%	-	-	-	90.1	85.5	92.3	84.4	64.1	67.9	-	74.7	-	84.5	79.5	97.9	78.9
	Turbidity (lab)	NTU	-	-	-	-	-	-	-	<0.1	-	0.160	-	0.180	-	-	-	-
	Turbidity (field)	NTU	-	-	-	6.04	2.11	0.510	-1.08	0.390	0.700	-	-0.0400	-	0	-0.530	-0.160	0.260
	Alkalinity (as CaCO ₃)	mg/L	-	-	-	-	-	-	-	104	-	20.0	-	109	-	-	-	-
Nutrients and Organics	Total Ammonia ^e	mg/L	3.98	-	-	-	-	-	-	<0.005	-	0.174	-	0.371	-	-	-	-
	Nitrate ^e	mg/L	3.00	-	-	-	-	-	-	1.59	-	7.55	-	5.85	-	-	-	-
	Nitrite ^e	mg/L	0.0600	-	-	-	-	-	-	<0.01	-	0.0620	-	0.0510	-	-	-	-
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	-	-	-	-	-	0.170	-	0.539	-	0.721	-	-	-	-
	Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	2.30	-	2.79	-	3.13	-	-	-	-
	Total Organic Carbon	mg/L	-	-	-	-	-	-	-	3.29	-	3.42	-	4.02	-	-	-	-
	Total Phosphorus	mg/L	-	-	-	-	-	-	-	<0.002	-	0.00280	-	0.00210	-	-	-	-
	Phenols	mg/L	0.00400	-	-	-	-	-	-	<0.001	-	<0.001	-	<0.001	-	-	-	-
Anions	Bromide (Br)	mg/L	-	-	-	-	-	-	-	<0.1	-	<0.1	-	<0.1	-	-	-	-
	Chloride (Cl) ^e	mg/L	120	-	-	-	-	-	-	0.830	-	0.880	-	0.870	-	-	-	-
	Sulphate (SO ₄) ^e	mg/L	309	-	-	-	-	-	-	2.46	-	4.23	-	3.17	-	-	-	-
Total Metals	Aluminum (Al) ^e	mg/L	0.350	-	-	-	-	-	-	0.00300	-	0.00400	-	0.00420	-	-	-	-
	Antimony (Sb)	mg/L	0.0740	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Arsenic (As) ^e	mg/L	0.00500	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Barium (Ba)	mg/L	1.00	-	-	-	-	-	-	0.0121	-	0.0150	-	0.0147	-	-	-	-
	Beryllium (Be)	mg/L	0.000130	-	-	-	-	-	-	<0.00002	-	<0.00002	-	<0.00002	-	-	-	-
	Bismuth (Bi)	mg/L	-	-	-	-	-	-	-	<0.00005	-	<0.00005	-	<0.00005	-	-	-	-
	Boron (B)	mg/L	1.50	-	-	-	-	-	-	<0.01	-	<0.01	-	<0.01	-	-	-	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.14: Water Chemistry at Sheardown Lake Tributary 9 (SDLT9) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Sheardown Lake Tributary 9						Sheardown Lake Tributary 9	Sheardown Lake Tributary 9					
						D9-1						D9-1	D9-1					
						01-Jun-25	08-Jun-25	15-Jun-25	22-Jun-25	01-Jul-25	06-Jul-25	01-Aug-25	24-Aug-25	28-Aug-25	1-Sep-25	7-Sep-25	14-Sep-25	21-Sep-25
Total Metals	Cadmium (Cd) ^e	mg/L	0.000182	-	-	-	-	-	-	<0.000005	-	<0.000005	-	<0.000005	-	-	-	-
	Calcium (Ca)	mg/L	-	-	-	-	-	-	-	23.1	-	25.7	-	25.4	-	-	-	-
	Cesium (Cs)	mg/L	-	-	-	-	-	-	-	<0.00001	-	0.0000160	-	<0.00001	-	-	-	-
	Chromium (Cr)	mg/L	0.00500	-	-	-	-	-	-	<0.0005	-	<0.0005	-	<0.0005	-	-	-	-
	Cobalt (Co) ^e	mg/L	0.00109	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Copper (Cu)	mg/L	0.00273	-	-	-	-	-	-	0.00121	-	0.00155	-	0.00113	-	-	-	-
	Iron (Fe) ^e	mg/L	0.543	-	-	-	-	-	-	<0.01	-	<0.01	-	0.0150	-	-	-	-
	Lead (Pb)	mg/L	0.00395	-	-	-	-	-	-	<0.00005	-	<0.00005	-	<0.00005	-	-	-	-
	Lithium (Li)	mg/L	-	-	-	-	-	-	-	<0.001	-	0.00170	-	0.00140	-	-	-	-
	Magnesium (Mg)	mg/L	-	-	-	-	-	-	-	14.1	-	16.0	-	17.2	-	-	-	-
	Manganese (Mn)	mg/L	1.13	-	-	-	-	-	-	0.000150	-	0.00234	-	0.00107	-	-	-	-
	Mercury (Hg)	mg/L	0.0000260	-	-	-	-	-	-	<0.000005	-	<0.000005	-	<0.000005	-	-	-	-
	Molybdenum (Mo)	mg/L	7.60	-	-	-	-	-	-	0.000712	-	0.000859	-	0.000975	-	-	-	-
	Nickel (Ni) ^e	mg/L	0.109	-	-	-	-	-	-	0.00125	-	0.00158	-	0.00124	-	-	-	-
	Potassium (K)	mg/L	-	-	-	-	-	-	-	1.51	-	1.88	-	1.69	-	-	-	-
	Rubidium (Rb)	mg/L	-	-	-	-	-	-	-	0.00252	-	0.00428	-	0.00295	-	-	-	-
	Selenium (Se)	mg/L	0.00200	-	-	-	-	-	-	<0.00005	-	<0.00005	-	<0.00005	-	-	-	-
	Silicon (Si)	mg/L	-	-	-	-	-	-	-	1.16	-	1.18	-	1.09	-	-	-	-
	Silver (Ag) ^e	mg/L	0.000100	-	-	-	-	-	-	<0.00001	-	<0.00001	-	<0.00001	-	-	-	-
	Sodium (Na)	mg/L	-	-	-	-	-	-	-	1.13	-	1.49	-	1.49	-	-	-	-
	Strontium (Sr)	mg/L	-	-	-	-	-	-	-	0.0130	-	0.0164	-	0.0149	-	-	-	-
	Sulphur (S)	mg/L	-	-	-	-	-	-	-	0.780	-	1.49	-	1.28	-	-	-	-
	Thallium (Tl) ^e	mg/L	0.000800	-	-	-	-	-	-	<0.00001	-	0.0000160	-	<0.00001	-	-	-	-
	Thorium (Th)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Tin (Sn)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Titanium (Ti)	mg/L	-	-	-	-	-	-	-	<0.0003	-	<0.0003	-	<0.0003	-	-	-	-
	Tungsten (W)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Uranium (U)	mg/L	-	-	-	-	-	-	-	0.000976	-	0.000826	-	0.000898	-	-	-	-
	Vanadium (V) ^e	mg/L	-	-	-	-	-	-	-	<0.0005	-	<0.0005	-	<0.0005	-	-	-	-
	Zinc (Zn)	mg/L	-	-	-	-	-	-	-	<0.003	-	<0.003	-	<0.003	-	-	-	-
	Zirconium (Zr)	mg/L	-	-	-	-	-	-	-	<0.0002	-	<0.0002	-	<0.0002	-	-	-	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.14: Water Chemistry at Sheardown Lake Tributary 9 (SDLT9) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Sheardown Lake Tributary 9						Sheardown Lake Tributary 9	Sheardown Lake Tributary 9					
						D9-1						D9-1	D9-1					
						D9-1						D9-1	D9-1					
						01-Jun-25	08-Jun-25	15-Jun-25	22-Jun-25	01-Jul-25	06-Jul-25	01-Aug-25	24-Aug-25	28-Aug-25	1-Sep-25	7-Sep-25	14-Sep-25	21-Sep-25
Dissolved Metals	Aluminum (Al)	mg/L	-	-	-	-	-	-	-	0.00160	-	0.00300	-	0.00140	-	-	-	-
	Antimony (Sb)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Arsenic (As)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Barium (Ba)	mg/L	-	-	-	-	-	-	-	0.0128	-	0.0160	-	0.0145	-	-	-	-
	Beryllium (Be)	mg/L	-	-	-	-	-	-	-	<0.00002	-	<0.00002	-	<0.00002	-	-	-	-
	Bismuth (Bi)	mg/L	-	-	-	-	-	-	-	<0.00005	-	<0.00005	-	<0.00005	-	-	-	-
	Boron (B)	mg/L	-	-	-	-	-	-	-	<0.01	-	<0.01	-	<0.01	-	-	-	-
	Cadmium (Cd)	mg/L	0.000240	-	-	-	-	-	-	<0.000005	-	<0.000005	-	<0.000005	-	-	-	-
	Calcium (Ca)	mg/L	-	-	-	-	-	-	-	23.2	-	29.1	-	25.2	-	-	-	-
	Cesium (Cs)	mg/L	-	-	-	-	-	-	-	<0.00001	-	0.0000140	-	<0.00001	-	-	-	-
	Chromium (Cr)	mg/L	-	-	-	-	-	-	-	<0.0005	-	<0.0005	-	<0.0005	-	-	-	-
	Cobalt (Co)	mg/L	0.000547	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Copper (Cu) ^e	mg/L	0.00230	-	-	-	-	-	-	0.00114	-	0.00149	-	0.00111	-	-	-	-
	Iron (Fe) ^e	mg/L	-	-	-	-	-	-	-	<0.01	-	<0.01	-	<0.01	-	-	-	-
	Lead (Pb) ^e	mg/L	0.00659	-	-	-	-	-	-	<0.00005	-	<0.00005	-	<0.00005	-	-	-	-
	Lithium (Li)	mg/L	-	-	-	-	-	-	-	0.00130	-	0.00220	-	0.00140	-	-	-	-
	Magnesium (Mg)	mg/L	-	-	-	-	-	-	-	14.7	-	16.8	-	16.8	-	-	-	-
	Manganese (Mn) ^e	mg/L	0.530	-	-	-	-	-	-	0.000120	-	0.00227	-	0.000580	-	-	-	-
	Mercury (Hg)	mg/L	-	-	-	-	-	-	-	<0.000005	-	<0.000005	-	<0.000005	-	-	-	-
	Molybdenum (Mo)	mg/L	-	-	-	-	-	-	-	0.000704	-	0.000826	-	0.000895	-	-	-	-
	Nickel (Ni)	mg/L	0.00230	-	-	-	-	-	-	0.00133	-	0.00158	-	0.00116	-	-	-	-
	Potassium (K)	mg/L	-	-	-	-	-	-	-	1.53	-	1.83	-	1.66	-	-	-	-
	Rubidium (Rb)	mg/L	-	-	-	-	-	-	-	0.00238	-	0.00427	-	0.00310	-	-	-	-
	Selenium (Se)	mg/L	-	-	-	-	-	-	-	<0.00005	-	<0.00005	-	<0.00005	-	-	-	-
	Silicon (Si)	mg/L	-	-	-	-	-	-	-	1.24	-	1.13	-	1.04	-	-	-	-
	Silver (Ag)	mg/L	-	-	-	-	-	-	-	<0.00001	-	<0.00001	-	<0.00001	-	-	-	-

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BOLD

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underline

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^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.14: Water Chemistry at Sheardown Lake Tributary 9 (SDLT9) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Sheardown Lake Tributary 9												
						Sheardown Lake Tributary 9						Sheardown Lake Tributary 9	Sheardown Lake Tributary 9					
						D9-1						D9-1	D9-1					
						01-Jun-25	08-Jun-25	15-Jun-25	22-Jun-25	01-Jul-25	06-Jul-25	01-Aug-25	24-Aug-25	28-Aug-25	1-Sep-25	7-Sep-25	14-Sep-25	21-Sep-25
Dissolved Metals	Sodium (Na)	mg/L	-	-	-	-	-	-	-	1.19	-	1.51	-	1.41	-	-	-	-
	Strontium (Sr) ^e	mg/L	2.50	-	-	-	-	-	-	0.0132	-	0.0167	-	0.0149	-	-	-	-
	Sulphur (S)	mg/L	-	-	-	-	-	-	-	0.900	-	1.64	-	1.11	-	-	-	-
	Tellurium (Te)	mg/L	-	-	-	-	-	-	-	<0.0002	-	<0.0002	-	<0.0002	-	-	-	-
	Thallium (Tl)	mg/L	-	-	-	-	-	-	-	<0.00001	-	0.0000160	-	<0.00001	-	-	-	-
	Thorium (Th)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Tin (Sn)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Titanium (Ti)	mg/L	-	-	-	-	-	-	-	<0.0003	-	<0.0003	-	<0.0003	-	-	-	-
	Tungsten (W)	mg/L	-	-	-	-	-	-	-	<0.0001	-	<0.0001	-	<0.0001	-	-	-	-
	Uranium (U)	mg/L	-	-	-	-	-	-	-	0.00100	-	0.000806	-	0.000890	-	-	-	-
	Vanadium (V)	mg/L	-	-	-	-	-	-	-	<0.0005	-	<0.0005	-	<0.0005	-	-	-	-
	Zinc (Zn) ^e	mg/L	-	-	-	-	-	-	-	<0.001	-	0.00240	-	<0.001	-	-	-	-
	Zirconium (Zr)	mg/L	-	-	-	-	-	-	-	<0.0003	-	<0.0003	-	<0.0003	-	-	-	-

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.15: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	Temperature (°C)						Dissolved Oxygen (mg/L)					
	DD-HAB9-STN2	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7	DD-HAB9-STN2	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7
	15-Apr-25	15-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-
1.0	0.556	2.06	0.889	0.611	0	0	13.7	12.3	13.3	13.9	14.5	14.8
2.0	0.333	0.778	0.667	0.333	0.389	0.389	14.1	13.4	13.6	14.3	14.3	14.6
3.0	0.611	0.667	0.667	0.556	0.556	0.556	13.8	13.6	13.6	14.2	14.2	14.4
4.0	0.667	0.667	0.667	0.611	0.611	0.611	13.8	13.6	13.6	14.1	14.1	14.2
5.0	0.667	0.667	-	0.611	-	0.611	13.7	13.5	-	14.1	-	14.2
6.0	-	-	0.667	-	0.667	-	-	-	13.6	-	14.0	-
7.0	0.667	0.722	0.667	-	0.667	0.667	13.7	13.5	13.6	-	13.9	14.1
8.0	0.667	0.722	0.722	-	0.722	0.667	13.7	13.4	13.6	-	13.9	14.0
9.0	0.722	0.778	0.722	-	0.722	0.722	13.7	13.4	13.5	-	13.8	13.9
10.0	-	0.778	0.778	-	0.778	0.722	-	13.3	13.4	-	13.7	13.8
11.0	-	0.833	0.778	-	0.778	0.778	-	13.3	13.3	-	13.6	13.7
12.0	-	0.833	0.833	-	0.833	-	-	13.2	13.2	-	13.4	-
13.0	-	0.889	0.889	-	0.833	-	-	13.1	13.1	-	13.3	-
14.0	-	0.944	0.944	-	0.889	-	-	13.0	12.9	-	13.3	-
15.0	-	1.06	1.000	-	0.944	-	-	12.8	12.8	-	13.3	-
16.0	-	1.11	1.06	-	-	-	-	12.6	12.5	-	-	-
17.0	-	1.17	1.17	-	-	-	-	12.5	12.2	-	-	-
18.0	-	1.28	1.22	-	-	-	-	12.2	12.0	-	-	-
19.0	-	-	-	-	-	-	-	-	-	-	-	-
20.0	-	1.33	1.28	-	-	-	-	12.1	11.9	-	-	-
21.0	-	1.39	1.33	-	-	-	-	11.7	11.6	-	-	-
22.0	-	1.56	-	-	-	-	-	11.2	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimeter. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom.

Table B.15: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	Dissolved Oxygen (% Saturation)						pH (pH units)					
	DD-HAB9-STN2	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7	DD-HAB9-STN2	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7
	15-Apr-25	15-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	#####	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-
1.0	95.2	89.2	93.3	97.1	99.2	101	7.72	7.72	7.76	7.76	7.77	7.73
2.0	97.3	93.9	94.9	99.0	99.1	101	7.71	7.73	7.75	7.72	7.74	7.72
3.0	96.4	94.5	95.0	98.7	98.5	100	7.70	7.72	7.74	7.72	7.73	7.72
4.0	96.0	94.5	95.0	98.1	98.0	99.0	7.70	7.67	7.72	7.72	7.72	7.73
5.0	95.7	94.4	-	98.0	-	98.6	7.70	7.65	-	7.72	-	7.72
6.0	-	-	95.0	-	97.6	-	-	-	7.71	-	7.72	-
7.0	95.7	94.2	94.8	-	97.3	98.2	7.69	7.61	7.68	-	7.71	7.72
8.0	95.6	93.9	94.6	-	96.8	97.8	7.69	7.60	7.64	-	7.71	7.72
9.0	95.8	93.7	94.3	-	96.4	97.3	7.69	7.59	7.63	-	7.71	7.71
10.0	-	93.3	93.7	-	95.7	96.5	-	7.58	7.61	-	7.69	7.71
11.0	-	93.2	93.3	-	95.0	95.9	-	7.58	7.60	-	7.67	7.68
12.0	-	92.6	92.5	-	94.2	-	-	7.56	7.59	-	7.66	-
13.0	-	92.0	91.6	-	93.5	-	-	7.54	7.57	-	7.65	-
14.0	-	91.1	90.7	-	93.7	-	-	7.52	7.55	-	7.65	-
15.0	-	89.9	90.0	-	93.8	-	-	7.49	7.53	-	7.64	-
16.0	-	89.3	87.9	-	-	-	-	7.48	7.49	-	-	-
17.0	-	88.2	86.6	-	-	-	-	7.46	7.47	-	-	-
18.0	-	86.6	85.3	-	-	-	-	7.44	7.44	-	-	-
19.0	-	-	-	-	-	-	-	-	-	-	-	-
20.0	-	86.2	84.1	-	-	-	-	7.44	7.42	-	-	-
21.0	-	83.5	82.6	-	-	-	-	7.40	7.40	-	-	-
22.0	-	80.4	-	-	-	-	-	7.33	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).
Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimeter. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom.

Table B.15: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	Specific Conductance (µS/cm)						Turbidity (NTU)					
	DD-HAB9-STN2	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7	DD-HAB9-STN2	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7
	15-Apr-25	15-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-
1.0	260	249	258	261	260	264	-0.360	-0.590	-0.450	0.0600	0.0600	-0.180
2.0	253	248	252	256	252	254	-0.470	-0.570	-0.380	-0.470	-0.380	-0.370
3.0	248	247	249	251	249	251	-0.470	-0.490	-0.310	-0.470	-0.380	-0.410
4.0	247	246	248	250	249	250	-0.490	-0.520	-0.330	-0.420	-0.370	-0.410
5.0	247	245	-	252	-	249	-0.480	-0.510	-	-0.350	-	-0.390
6.0	-	-	248	-	248	-	-	-	-0.310	-	-0.380	-
7.0	247	245	248	-	247	249	-0.460	-0.490	-0.320	-	-0.390	-0.420
8.0	248	244	248	-	247	248	-0.440	-0.470	-0.320	-	-0.400	-0.400
9.0	248	244	247	-	246	247	-0.450	-0.470	-0.300	-	-0.400	-0.390
10.0	-	243	246	-	246	247	-	-0.460	-0.280	-	-0.320	-0.370
11.0	-	243	246	-	245	246	-	-0.470	-0.280	-	-0.340	-0.360
12.0	-	242	245	-	245	-	-	-0.420	-0.240	-	-0.340	-
13.0	-	243	244	-	244	-	-	-0.390	-0.250	-	-0.270	-
14.0	-	242	244	-	247	-	-	-0.400	-0.220	-	-0.230	-
15.0	-	241	244	-	247	-	-	-0.340	-0.190	-	-0.130	-
16.0	-	240	243	-	-	-	-	-0.340	-0.0700	-	-	-
17.0	-	239	243	-	-	-	-	-0.300	-0.0800	-	-	-
18.0	-	238	243	-	-	-	-	-0.270	0.0300	-	-	-
19.0	-	-	-	-	-	-	-	-	-	-	-	-
20.0	-	238	242	-	-	-	-	-0.300	0.0300	-	-	-
21.0	-	237	243	-	-	-	-	-0.0700	1.10	-	-	-
22.0	-	239	-	-	-	-	-	0.190	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).
Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimeter. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom.

Table B.16: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Sations, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Depth (m)	Temperature (°C)									Dissolved Oxygen (mg/L)								
	DD-HAB9-STN-1	DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-10	DL0-01-3	DL0-01-2		DL0-01-7	DD-HAB9-STN-1	DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-10	DL0-01-3	DL0-01-2		DL0-01-7
	24-Jul-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	24-Jul-25	8-Aug-25	24-Jul-25	24-Jul-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	24-Jul-25	8-Aug-25	24-Jul-25
0.0	-	8.10	8.10	7.90	8.10	7.90	-	8.10	-	-	11.3	11.3	11.4	11.2	11.4	-	11.2	-
1.0	11.1	-	-	-	-	-	10.7	8.10	-	11.5	-	-	-	-	-	11.4	11.2	-
2.0	-	-	-	-	-	-	10.1	8.10	10.1	-	-	-	-	-	-	11.5	11.2	11.5
3.0	10.7	-	-	-	-	-	9.33	8.10	9.06	11.6	-	-	-	-	-	11.6	11.2	11.7
4.0	10.3	-	-	-	-	-	8.83	8.10	-	11.5	-	-	-	-	-	11.8	11.2	-
5.0	7.22	-	-	-	-	-	7.94	8.10	8.11	11.9	-	-	-	-	-	11.8	11.2	11.8
6.0	6.78	-	-	-	-	8.10	7.06	8.10	7.00	11.9	-	-	-	-	11.2	11.9	11.2	11.9
7.0	6.56	-	-	-	-	-	6.78	8.10	6.72	11.8	-	-	-	-	-	11.9	11.1	11.8
8.0	6.39	-	-	7.90	-	-	-	7.90	-	11.8	-	-	11.2	-	-	-	11.1	-
9.0	-	-	8.10	-	8.10	-	6.61	7.90	6.56	-	-	11.2	-	11.1	-	11.9	11.1	11.8
10.0	-	-	-	-	-	-	6.44	7.90	-	-	-	-	-	-	-	11.8	11.1	-
11.0	-	8.00	-	-	-	-	6.44	7.90	-	-	11.2	-	-	-	-	11.8	11.1	-
12.0	-	-	-	-	-	-	6.39	7.70	-	-	-	-	-	-	-	11.8	11.1	-
13.0	-	-	-	-	-	-	6.33	7.60	-	-	-	-	-	-	-	11.8	11.2	-
14.0	-	-	-	-	-	-	6.22	7.60	-	-	-	-	-	-	-	11.7	11.2	-
15.0	-	-	-	-	-	-	6.22	7.50	-	-	-	-	-	-	-	11.7	11.2	-
16.0	-	-	-	-	-	-	6.17	7.40	-	-	-	-	-	-	-	11.6	11.2	-
17.0	-	-	-	-	-	-	-	7.10	-	-	-	-	-	-	-	-	11.2	-
18.0	-	-	-	-	-	-	-	6.80	-	-	-	-	-	-	-	-	11.2	-
19.0	-	-	-	-	-	-	-	6.70	-	-	-	-	-	-	-	-	11.2	-
20.0	-	-	-	-	-	-	-	6.70	-	-	-	-	-	-	-	-	11.2	-
21.0	-	-	-	-	-	-	-	6.70	-	-	-	-	-	-	-	-	11.2	-
22.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom. Stations DD-HAB-9-STN2,DL0-01-8, DL0-01-9, DL0-01-10, DL0-01-3, DL0-01-2, DL0-01-7 are BIC monitoring stations for which top and bottom measures were taken at the time of the sample collection.

Table B.16: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Sations, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Depth (m)	Dissolved Oxygen (% Saturation)									pH (pH units)								
	DD-HAB9-STN-1	DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-10	DL0-01-3	DL0-01-2		DL0-01-7	DD-HAB9-STN-1	DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-10	DL0-01-3	DL0-01-2		DL0-01-7
	24-Jul-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	24-Jul-25	8-Aug-25	24-Jul-25	24-Jul-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	24-Jul-25	8-Aug-25	24-Jul-25
0.0	-	98.7	98.8	99.5	97.4	99.3	-	97.6	-	-	8.03	8.05	8.08	7.86	7.78	-	8.04	-
1.0	104	-	-	-	-	-	102	97.5	-	8.18	-	-	-	-	-	8.03	8.02	-
2.0	-	-	-	-	-	-	102	97.5	102	-	-	-	-	-	-	7.99	8.02	8.19
3.0	104	-	-	-	-	-	101	97.4	102	8.17	-	-	-	-	-	7.98	8.02	8.16
4.0	103	-	-	-	-	-	102	97.3	-	8.18	-	-	-	-	-	7.96	8.02	-
5.0	98.4	-	-	-	-	-	99.9	97.2	100	8.12	-	-	-	-	-	7.94	8.02	8.15
6.0	97.4	-	-	-	-	97.3	98.2	97.1	98.2	8.05	-	-	-	-	7.78	7.84	8.01	8.07
7.0	96.2	-	-	-	-	-	97.3	97.0	97.0	7.99	-	-	-	-	-	7.78	8.00	8.03
8.0	95.7	-	-	97.3	-	-	-	96.7	-	7.99	-	-	8.04	-	-	-	7.99	-
9.0	-	-	97.7	-	96.8	-	96.8	96.6	96.2	-	-	8.03	-	7.94	-	7.76	7.99	8.01
10.0	-	-	-	-	-	-	96.2	96.5	-	-	-	-	-	-	-	7.74	7.98	-
11.0	-	97.4	-	-	-	-	95.9	96.3	-	-	8.04	-	-	-	-	7.72	7.97	-
12.0	-	-	-	-	-	-	95.6	96.6	-	-	-	-	-	-	-	7.72	8.00	-
13.0	-	-	-	-	-	-	95.4	96.0	-	-	-	-	-	-	-	7.72	7.94	-
14.0	-	-	-	-	-	-	94.9	96.1	-	-	-	-	-	-	-	7.70	7.94	-
15.0	-	-	-	-	-	-	94.5	95.9	-	-	-	-	-	-	-	7.69	7.93	-
16.0	-	-	-	-	-	-	94.0	95.6	-	-	-	-	-	-	-	7.68	7.91	-
17.0	-	-	-	-	-	-	-	95.2	-	-	-	-	-	-	-	-	7.88	-
18.0	-	-	-	-	-	-	-	94.5	-	-	-	-	-	-	-	-	7.85	-
19.0	-	-	-	-	-	-	-	94.4	-	-	-	-	-	-	-	-	7.84	-
20.0	-	-	-	-	-	-	-	94.3	-	-	-	-	-	-	-	-	7.83	-
21.0	-	-	-	-	-	-	-	94.1	-	-	-	-	-	-	-	-	7.81	-
22.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom. Stations DD-HAB-9-STN2,DL0-01-8, DL0-01-9, DL0-01-10, DL0-01-3, DL0-01-2, DL0-01-7 are BIC monitoring stations for which top and bottom measures were taken at the time of the sample collection.

Table B.16: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Sations, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Depth (m)	Specific Conductance (µS/cm)									Turbidity (NTU)								
	DD-HAB9-STN-1	DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-10	DL0-01-3	DL0-01-2		DL0-01-7	DD-HAB9-STN-1	DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-10	DL0-01-3	DL0-01-2		DL0-01-7
	24-Jul-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	24-Jul-25	8-Aug-25	24-Jul-25	24-Jul-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	8-Aug-25	24-Jul-25	8-Aug-25	24-Jul-25
0.0	-	202	203	204	202	203	-	202	-	-	2.06	2.00	2.09	2.01	2.02	-	2.04	-
1.0	200	-	-	-	-	-	200	202	-	2.72	-	-	-	-	-	2.87	2.05	-
2.0	-	-	-	-	-	-	201	202	203	-	-	-	-	-	-	2.98	1.97	3.03
3.0	207	-	-	-	-	-	201	202	214	2.88	-	-	-	-	-	3.12	2.10	3.18
4.0	208	-	-	-	-	-	199	202	-	2.98	-	-	-	-	-	3.18	2.04	-
5.0	200	-	-	-	-	-	200	202	201	3.38	-	-	-	-	-	3.45	2.05	3.34
6.0	197	-	-	-	-	202	196	202	196	3.44	-	-	-	-	2.30	3.32	1.99	3.44
7.0	195	-	-	-	-	-	196	202	196	3.49	-	-	-	-	-	3.53	2.03	3.39
8.0	195	-	-	204	-	-	-	202	-	3.55	-	-	2.15	-	-	-	1.99	-
9.0	-	-	204	-	202	-	195	202	195	-	-	2.07	-	2.43	-	3.40	1.95	3.59
10.0	-	-	-	-	-	-	195	202	-	-	-	-	-	-	-	3.68	1.98	-
11.0	-	224	-	-	-	-	195	202	-	-	2.13	-	-	-	-	3.93	1.95	-
12.0	-	-	-	-	-	-	195	201	-	-	-	-	-	-	-	3.54	1.86	-
13.0	-	-	-	-	-	-	195	201	-	-	-	-	-	-	-	3.53	1.92	-
14.0	-	-	-	-	-	-	195	201	-	-	-	-	-	-	-	3.61	1.82	-
15.0	-	-	-	-	-	-	195	201	-	-	-	-	-	-	-	3.63	1.89	-
16.0	-	-	-	-	-	-	196	200	-	-	-	-	-	-	-	3.81	1.81	-
17.0	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	1.73	-
18.0	-	-	-	-	-	-	-	199	-	-	-	-	-	-	-	-	1.45	-
19.0	-	-	-	-	-	-	-	199	-	-	-	-	-	-	-	-	1.62	-
20.0	-	-	-	-	-	-	-	199	-	-	-	-	-	-	-	-	1.48	-
21.0	-	-	-	-	-	-	-	199	-	-	-	-	-	-	-	-	1.74	-
22.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom. Stations DD-HAB-9-STN2,DL0-01-8, DL0-01-9, DL0-01-10, DL0-01-3, DL0-01-2, DL0-01-7 are BIC monitoring stations for which top and bottom measures were taken at the time of the sample collection.

Table B.17: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Northwest (NW; DL0-01) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Fall 2025

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	pH (pH units)	Turbidity (NTU)
	DL0-01-2	DL0-01-2	DL0-01-2	DL0-01-2	DL0-01-2
	21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
0.0	-	-	-	-	-
1.0	8.00	11.7	100	8.08	1.04
2.0	7.90	11.7	100	8.08	1.08
3.0	7.90	11.7	100	8.09	1.02
4.0	7.90	11.7	100	8.09	1.15
5.0	7.90	11.7	99.8	8.08	1.07
6.0	7.90	11.7	99.7	8.08	1.08
7.0	7.80	11.7	99.5	8.08	1.06
8.0	7.80	11.7	99.4	8.08	1.06
9.0	-	-	-	-	-
10.0	7.80	11.7	99.3	8.08	1.07
11.0	7.70	11.6	98.7	8.07	1.13
12.0	7.60	11.5	97.8	8.05	1.16
13.0	7.40	11.4	95.8	7.99	1.41
14.0	7.40	11.3	95.2	7.97	1.43
15.0	-	-	-	-	-
16.0	7.40	11.2	94.2	7.93	2.40
17.0	-	-	-	-	-
18.0	-	-	-	-	-
19.0	-	-	-	-	-
20.0	-	-	-	-	-
21.0	-	-	-	-	-
22.0	-	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.18: Water Chemistry Baseline Normal Ranges Calculated for Sheardown Lake Northwest (Stations DL0-01-1, DL0-01-2, DL0-01-3, DL0-01-4, DL0-01-5, DL0-01-7, and DD-HAB-Stn1) and Sheardown Lake Southeast (Stations DL0-02-1, DL0-02-3, DL0-02-4, and DL0-02-6), Mary River Project Core Recieving Environmental Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventionals	Conductivity (lab)	µS/cm	11	-	167	34	-	128	33	-	130
	Specific Conductance (field)	µS/cm	5	-	-	27	-	126	26	-	134
	pH (lab)	pH	11	-	7.96	34	-	8.32	33	-	8.14
	pH (field) ^a	pH	0	-	-	0	-	-	0	-	-
	Temperature, Field ^a	pH	5	-	-	27	7.98	11.6	26	5.45	8.66
	Hardness (as CaCO ₃) -Total	mg/L	11	-	83.9	31	-	63.2	33	-	63.4
	Total Suspended Solids (TSS)	mg/L	11	-	LRL	32	-	5.00	31	-	LRL
	Total Dissolved Solids (TDS)	mg/L	11	-	108	34	-	83.5	33	-	84.0
	Dissolved Oxygen ^b	mg/L	5	-	-	22	9.78	-	23	9.28	-
	Dissolved Oxygen ^b	%	0	-	-	0	-	-	0	-	-
	Turbidity (lab)	NTU	11	-	75.8	34	-	7.25	33	-	7.02
	Turbidity (field)	NTU	0	-	-	0	-	-	0	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	11	61.5	80.0	34	44.0	63.0	33	49.0	64.0
Nutrients and Organics	Total Ammonia	mg/L	11	-	0.395	34	-	0.180	33	-	0.0900
	Nitrate	mg/L	11	-	LRL	34	-	LRL	33	-	LRL
	Nitrite	mg/L	9	-	LRL	34	-	LRL	33	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	11	-	0.525	32	-	0.395	31	-	0.445
	Dissolved Organic Carbon	mg/L	9	-	-	32	-	2.00	31	-	1.90
	Total Organic Carbon	mg/L	9	-	-	32	-	2.05	30	-	2.00
	Total Phosphorus	mg/L	11	-	0.00900	34	-	0.0160	33	-	0.00950
	Phenols	mg/L	0	-	-	0	-	-	0	-	-
Anions	Bromide (Br)	mg/L	9	-	LRL	34	-	LRL	33	-	LRL
	Chloride (Cl)	mg/L	11	-	4.00	34	-	3.50	33	-	5.00
	Sulphate (SO ₄)	mg/L	11	-	5.00	34	-	4.00	33	-	4.00
Total Metals	Aluminum (Al)	mg/L	11	-	0.0114	31	-	0.171	33	-	0.200
	Antimony (Sb)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Arsenic (As)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Barium (Ba)	mg/L	11	-	0.00730	31	-	0.00593	33	-	0.00652
	Beryllium (Be)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Bismuth (Bi)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Boron (B)	mg/L	11	-	0.0130	31	-	LRL	33	-	LRL
	Cadmium (Cd)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Calcium (Ca)	mg/L	11	-	16.6	31	-	12.5	33	-	12.8
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	11	-	LRL	31	-	LRL	33	-	0.000810
	Cobalt (Co)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Copper (Cu)	mg/L	11	-	0.00152	29	-	0.00242	31	-	0.00187
	Iron (Fe)	mg/L	11	-	0.0850	31	-	0.208	33	-	0.215
	Lead (Pb)	mg/L	11	-	0.000168	29	-	0.000230	31	-	0.000500
	Lithium (Li)	mg/L	11	-	0.00100	29	-	LRL	31	-	0.00500
	Magnesium (Mg)	mg/L	11	-	10.3	31	-	7.76	33	-	7.83
	Manganese (Mn)	mg/L	11	-	0.0290	29	-	0.00622	31	-	0.0209
	Mercury (Hg)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Molybdenum (Mo)	mg/L	11	-	0.000894	29	-	0.000752	31	-	0.000788
	Nickel (Ni)	mg/L	11	-	0.000950	29	-	0.000840	31	-	0.00103
	Potassium (K)	mg/L	11	-	1.06	30	-	0.884	33	-	0.895
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	11	-	LRL	30	-	LRL	33	-	LRL
	Silicon (Si)	mg/L	11	-	1.28	28	-	0.902	31	-	1.03
	Silver (Ag)	mg/L	11	-	LRL	30	-	LRL	33	-	LRL
	Sodium (Na)	mg/L	11	-	2.00	30	-	2.00	33	-	2.00
	Strontium (Sr)	mg/L	11	-	0.0127	30	-	0.00856	33	-	0.0124
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	11	-	LRL	28	-	LRL	31	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	11	-	0.00235	30	-	0.000340	33	-	LRL
	Titanium (Ti)	mg/L	11	-	LRL	28	-	0.0130	31	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	11	-	0.00115	28	-	0.000926	31	-	0.000957
	Vanadium (V)	mg/L	11	-	LRL	30	-	LRL	33	-	LRL
	Zinc (Zn)	mg/L	11	-	LRL	28	-	0.00300	31	-	0.00375
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.18: Water Chemistry Baseline Normal Ranges Calculated for Sheardown Lake Northwest (Stations DL0-01-1, DL0-01-2, DL0-01-3, DL0-01-4, DL0-01-5, DL0-01-7, and DD-HAB-Stn1) and Sheardown Lake Southeast (Stations DL0-02-1, DL0-02-3, DL0-02-4, and DL0-02-6), Mary River Project Core Recieving Environmental Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	11	-	3.00	31	-	0.0237	33	-	0.0112
	Antimony (Sb)	mg/L	11	-	LRL	29	-	0.000255	31	-	LRL
	Arsenic (As)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Barium (Ba)	mg/L	11	-	6.94	31	-	0.00532	33	-	0.00568
	Beryllium (Be)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Bismuth (Bi)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Boron (B)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Cadmium (Cd)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Calcium (Ca)	mg/L	11	-	16.4	31	-	12.3	33	-	13.0
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Cobalt (Co)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Copper (Cu)	mg/L	10	-	0.00120	29	-	0.00107	31	-	0.000940
	Iron (Fe)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Lead (Pb)	mg/L	11	-	LRL	29	-	0.0000710	31	-	LRL
	Lithium (Li)	mg/L	11	-	LRL	29	-	LRL	31	-	0.00107
	Magnesium (Mg)	mg/L	11	-	9.97	31	-	7.50	33	-	7.83
	Manganese (Mn)	mg/L	11	-	0.0203	29	-	0.00432	31	-	0.00204
	Mercury (Hg)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Molybdenum (Mo)	mg/L	11	-	0.000860	29	-	0.000702	31	-	0.000754
	Nickel (Ni)	mg/L	11	-	0.000830	29	-	0.000650	31	-	0.000670
	Potassium (K)	mg/L	11	-	1.04	31	-	0.870	33	-	0.884
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Silicon (Si)	mg/L	11	-	1.25	29	-	0.630	31	-	0.692
	Silver (Ag)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Sodium (Na)	mg/L	11	-	2.00	31	-	2.00	33	-	2.00
	Strontium (Sr)	mg/L	11	-	0.0126	31	-	0.00813	33	-	0.0122
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Tellurium (Te)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	11	-	0.00215	31	-	LRL	33	-	LRL
	Titanium (Ti)	mg/L	11	-	LRL	29	-	LRL	31	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	11	-	0.00111	29	-	0.000898	31	-	0.000929
	Vanadium (V)	mg/L	11	-	LRL	31	-	LRL	33	-	LRL
	Zinc (Zn)	mg/L	11	-	0.00545	29	-	0.00300	31	-	0.00300
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.19: Water Chemistry at Sheardown Lake Northwest (NW; DL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event										DL0-01-7	
						DD-HAB9-STN1		DL0-01-5		DL0-01-1		DL0-01-4		DL0-01-2			
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface
						15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	16-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25
Conventional	Conductivity (lab)	µS/cm	-	167	-	<u>249</u>	<u>252</u>	<u>237</u>	<u>248</u>	<u>246</u>	<u>253</u>	<u>249</u>	<u>286</u>	<u>247</u>	<u>258</u>	<u>249</u>	<u>259</u>
	Specific Conductivity	µS/cm	-	-	-	248	260	239	249	243	258	252	261	247	260	246	264
	pH (lab)	pH	-	-	-	7.57	7.70	7.55	7.33	7.31	7.40	7.70	7.69	7.47	7.66	7.51	7.52
	pH (field)	pH	6.5 - 9.0	-	-	7.69	7.72	7.33	7.72	7.40	7.76	7.72	7.76	7.64	7.77	7.68	7.73
	Temperature, Field	mg/L	-	-	-	0.722	0.556	1.56	2.06	1.33	0.889	0.611	0.611	0.944	0	0.778	0
	Hardness (as CaCO ₃) -Total	mg/L	-	83.9	-	<u>109</u>	<u>113</u>	<u>103</u>	<u>110</u>	<u>110</u>	<u>114</u>	<u>112</u>	<u>116</u>	<u>109</u>	<u>115</u>	<u>110</u>	<u>118</u>
	Total Suspended Solids (TSS)	mg/L	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	108	-	<u>151</u>	<u>157</u>	<u>137</u>	<u>150</u>	<u>148</u>	<u>153</u>	<u>142</u>	<u>191</u>	<u>142</u>	<u>153</u>	<u>148</u>	<u>153</u>
	Dissolved Oxygen	mg/L	-	-	-	13.7	13.7	11.2	12.3	11.6	13.3	14.1	13.9	13.3	14.5	13.7	14.8
	Dissolved Oxygen	%	-	-	-	95.8	95.2	80.4	89.2	82.6	93.3	98.0	97.1	93.8	99.2	95.9	101
	Turbidity (lab)	NTU	-	-	-	0.340	0.260	1.46	0.210	0.550	0.250	0.230	0.230	0.460	0.430	0.300	0.300
	Turbidity (field)	NTU	-	-	-	-0.450	-0.360	0.190	-0.590	1.10	-0.450	-0.350	0.0600	-0.130	0.0600	-0.360	-0.180
Alkalinity (as CaCO ₃)	mg/L	-	61.5 - 80.0	-	69.7	71.3	67.6	70.9	70.9	71.9	69.4	65.5	70.3	73.2	70.4	73.3	
Nutrients and Organics	Total Ammonia	mg/L	1.92 - 6.02	0.395	-	<0.005	<0.005	<0.005	<0.005	0.0272	0.0132	<0.005	<0.005	0.00640	<0.005	<0.005	<0.005
	Nitrate ^e	mg/L	3.00	-	-	1.16	1.20	1.14	1.16	1.16	1.19	1.18	6.19	1.14	1.23	1.16	1.23
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.525	-	0.168	0.183	0.132	0.145	0.160	0.186	0.147	0.188	0.292	0.143	0.132	0.153
	Dissolved Organic Carbon	mg/L	-	-	-	2.74	2.73	2.64	2.64	2.21	2.57	2.50	2.68	2.46	2.22	2.27	2.45
	Total Organic Carbon	mg/L	-	-	-	1.91	1.94	1.90	2.18	1.81	1.86	1.90	2.00	1.63	1.88	2.15	1.97
	Total Phosphorus	mg/L	-	0.00900	-	0.00210	0.00230	0.00200	<0.002	<0.002	0.00270	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	0.110	0.120	0.110	0.180	0.130	0.120	0.110	0.100	0.130	0.150	0.130	0.160
	Chloride (Cl) ^e	mg/L	120	4.00	-	<u>8.47</u>	<u>8.62</u>	<u>8.03</u>	<u>8.51</u>	<u>8.37</u>	<u>8.59</u>	<u>8.49</u>	<u>8.84</u>	<u>8.36</u>	<u>8.88</u>	<u>8.43</u>	<u>8.86</u>
	Sulphate (SO ₄)	mg/L	309	5.00	-	<u>35.4</u>	<u>36.2</u>	<u>33.6</u>	<u>35.9</u>	<u>35.3</u>	<u>36.1</u>	<u>35.7</u>	<u>36.6</u>	<u>35.3</u>	<u>37.2</u>	<u>35.6</u>	<u>37.2</u>
Total Metals	Aluminum (Al) ^e	mg/L	0.173	0.0114	-	0.00680	0.00620	0.0103	0.00640	0.00760	0.00680	0.00630	0.00570	0.00930	0.00740	0.00570	0.00920
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00730	-	<u>0.0118</u>	<u>0.0124</u>	<u>0.0115</u>	<u>0.0117</u>	<u>0.0118</u>	<u>0.0120</u>	<u>0.0119</u>	<u>0.0124</u>	<u>0.0115</u>	<u>0.0120</u>	<u>0.0118</u>	<u>0.0127</u>
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	0.0130	-	<u>0.0180</u>	<u>0.0180</u>	<u>0.0160</u>	<u>0.0180</u>	<u>0.0160</u>	<u>0.0170</u>	<u>0.0180</u>	<u>0.0180</u>	<u>0.0180</u>	<u>0.0190</u>	<u>0.0180</u>	<u>0.0190</u>
	Cadmium (Cd)	mg/L	0.000163 - 0.000181	-	-	0.0000104	0.0000104	0.00000810	0.0000101	0.00000920	0.0000113	0.0000100	0.0000101	0.00000980	0.00000880	0.0000100	0.0000105
	Calcium (Ca)	mg/L	-	16.6	-	<u>19.7</u>	<u>20.7</u>	<u>18.6</u>	<u>20.1</u>	<u>20.8</u>	<u>21.7</u>	<u>20.2</u>	<u>21.0</u>	<u>20.0</u>	<u>21.4</u>	<u>20.1</u>	<u>22.2</u>
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.00103 - 0.00109	-	-	0.000120	0.000120	0.000120	0.000120	0.000110	0.000120	0.000110	0.000120	0.000120	0.000120	0.000120	0.000120

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.19: Water Chemistry at Sheardown Lake Northwest (NW; DL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event										DL0-01-7	
						DD-HAB9-STN1		DL0-01-5		DL0-01-1		DL0-01-4		DL0-01-2			
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface
						15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	16-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25
Total Metals	Copper (Cu)	mg/L	0.00243 - 0.00272	0.00152	-	0.00116	0.000940	0.00123	0.00107	0.00112	0.00114	0.00110	0.00106	0.00102	0.00105	0.00102	0.00112
	Iron (Fe)	mg/L	0.300	0.0850	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Lead (Pb)	mg/L	0.00331 - 0.00391	0.000168	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00100	-	<u>0.00230</u>	<u>0.00230</u>	<u>0.00170</u>	<u>0.00230</u>	<u>0.00190</u>	<u>0.00220</u>	<u>0.00230</u>	<u>0.00230</u>	<u>0.00230</u>	<u>0.00260</u>	<u>0.00230</u>	<u>0.00260</u>
	Magnesium (Mg)	mg/L	-	10.3	-	<u>14.6</u>	<u>14.8</u>	<u>13.8</u>	<u>14.6</u>	<u>14.2</u>	<u>14.6</u>	<u>14.9</u>	<u>15.5</u>	<u>14.4</u>	<u>14.9</u>	<u>14.6</u>	<u>15.1</u>
	Manganese (Mn)	mg/L	1.06 - 1.12	0.0290	-	0.000400	0.000410	0.000900	0.000360	0.000720	0.000350	0.000400	0.000350	0.000650	0.000410	0.000410	0.000420
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000894	-	<u>0.00227</u>	<u>0.00234</u>	<u>0.00203</u>	<u>0.00233</u>	<u>0.00212</u>	<u>0.00223</u>	<u>0.00235</u>	<u>0.00241</u>	<u>0.00222</u>	<u>0.00224</u>	<u>0.00227</u>	<u>0.00233</u>
	Nickel (Ni)	mg/L	0.0979 - 0.108	0.000950	-	0.000760	0.000740	0.000700	0.000740	0.000700	0.000750	0.000770	0.000770	0.000710	0.000790	0.000740	0.000760
	Potassium (K)	mg/L	-	1.06	-	<u>2.45</u>	<u>2.54</u>	<u>2.34</u>	<u>2.49</u>	<u>2.36</u>	<u>2.50</u>	<u>2.53</u>	<u>2.58</u>	<u>2.48</u>	<u>2.59</u>	<u>2.48</u>	<u>2.64</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00458	0.00467	0.00445	0.00452	0.00442	0.00460	0.00456	0.00463	0.00451	0.00466	0.00459	0.00474
	Selenium (Se)	mg/L	0.001	-	-	0.000155	0.000135	0.000133	0.000160	0.000138	0.000156	0.000135	0.000145	0.000137	0.000145	0.000143	0.000156
	Silicon (Si)	mg/L	-	1.28	-	0.760	0.790	0.900	0.780	0.860	0.780	0.780	0.810	0.790	0.810	0.790	0.810
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	-	<u>2.85</u>	<u>2.89</u>	<u>2.74</u>	<u>2.87</u>	<u>2.62</u>	<u>2.70</u>	<u>2.87</u>	<u>2.89</u>	<u>2.82</u>	<u>2.93</u>	<u>2.88</u>	<u>3.01</u>
	Strontium (Sr)	mg/L	-	0.0127	-	<u>0.0321</u>	<u>0.0328</u>	<u>0.0296</u>	<u>0.0324</u>	<u>0.0310</u>	<u>0.0323</u>	<u>0.0334</u>	<u>0.0333</u>	<u>0.0318</u>	<u>0.0331</u>	<u>0.0316</u>	<u>0.0331</u>
	Sulphur (S)	mg/L	-	-	-	12.1	12.6	11.1	12.3	11.5	12.0	12.2	12.8	12.3	12.9	12.5	12.9
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.00235	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00310</u>	<u>0.00318</u>	<u>0.00286</u>	<u>0.00312</u>	<u>0.00303</u>	<u>0.00320</u>	<u>0.00324</u>	<u>0.00321</u>	<u>0.00312</u>	<u>0.00325</u>	<u>0.00312</u>	<u>0.00323</u>
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	3.00	-	0.00390	0.00460	0.00390	0.00560	0.00350	0.00410	0.00420	0.00420	0.00380	0.00440	0.00390	0.00450
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	6.94	-	0.0117	0.0122	0.0115	0.0122	0.0119	0.0125	0.0123	0.0127	0.0118	0.0120	0.0118	0.0126
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	0.0170	0.0180	0.0160	0.0180	0.0170	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
	Cadmium (Cd)	mg/L	0.000217 - 0.000238	-	-	0.00000990	0.00000880	0.00000880	0.0000110	0.00000980	0.00000950	0.00000950	0.0000187	0.00000960	0.0000111	0.00000790	0.00000990
	Calcium (Ca)	mg/L	-	16.4	-	<u>20.2</u>	<u>20.8</u>	<u>18.6</u>	<u>20.4</u>	<u>20.4</u>	<u>21.2</u>	<u>20.7</u>	<u>21.4</u>	<u>19.9</u>	<u>20.7</u>	<u>20.2</u>	<u>20.5</u>

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						DD-HAB9-STN1		DL0-01-5		DL0-01-1		DL0-01-4		DL0-01-2			
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface
						15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	16-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25
Dissolved Metals	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
	Cobalt (Co)	mg/L	0.000517 - 0.000545	-	-	0.000110	0.000120	0.000100	0.000110	0.000110	0.000120	0.000120	0.000110	0.000110	0.000120	0.000120	
	Copper (Cu)	mg/L	0.00183 - 0.00336	0.00120	-	0.000920	0.000980	0.000850	0.000940	0.000930	0.000970	0.000950	0.000980	0.000890	0.000950	0.000900	0.000980
	Iron (Fe)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Lead (Pb)	mg/L	0.00636 - 0.00715	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00250	0.00270	0.00250	0.00270	0.00260	0.00280	0.00270	0.00260	0.00260	0.00280	0.00250	0.00270
	Magnesium (Mg)	mg/L	-	9.97	-	<u>14.7</u>	<u>15.3</u>	<u>13.8</u>	<u>14.9</u>	<u>14.4</u>	<u>15.4</u>	<u>15.0</u>	<u>15.6</u>	<u>14.3</u>	<u>14.8</u>	<u>14.5</u>	<u>15.3</u>
	Manganese (Mn)	mg/L	0.370 - 0.530	0.0203	-	<0.0001	0.000130	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	0.000120	<0.0001	0.000100	<0.0001	0.000100
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000860	-	<u>0.00224</u>	<u>0.00225</u>	<u>0.00199</u>	<u>0.00221</u>	<u>0.00212</u>	<u>0.00235</u>	<u>0.00232</u>	<u>0.00237</u>	<u>0.00216</u>	<u>0.00232</u>	<u>0.00228</u>	<u>0.00230</u>
	Nickel (Ni)	mg/L	0.00200 - 0.00240	0.000830	-	0.000700	0.000730	0.000670	0.000710	0.000680	0.000790	0.000740	0.000780	0.000670	0.000720	0.000740	0.000750
	Potassium (K)	mg/L	-	1.04	-	<u>2.45</u>	<u>2.56</u>	<u>2.29</u>	<u>2.49</u>	<u>2.40</u>	<u>2.56</u>	<u>2.53</u>	<u>2.63</u>	<u>2.43</u>	<u>2.52</u>	<u>2.45</u>	<u>2.55</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00433	0.00446	0.00418	0.00446	0.00418	0.00449	0.00441	0.00460	0.00431	0.00453	0.00426	0.00451
	Selenium (Se)	mg/L	-	-	-	0.000159	0.000173	0.000145	0.000157	0.000146	0.000167	0.000182	0.000183	0.000148	0.000175	0.000171	0.000167
	Silicon (Si)	mg/L	-	1.25	-	0.753	0.788	0.903	0.769	0.843	0.781	0.778	0.778	0.756	0.763	0.749	0.774
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	-	<u>2.80</u>	<u>2.97</u>	<u>2.70</u>	<u>2.88</u>	<u>2.86</u>	<u>2.98</u>	<u>2.92</u>	<u>3.01</u>	<u>2.83</u>	<u>2.99</u>	<u>2.81</u>	<u>2.98</u>
	Strontium (Sr) ^e	mg/L	2.50	0.0126	-	<u>0.0317</u>	<u>0.0319</u>	<u>0.0292</u>	<u>0.0314</u>	<u>0.0310</u>	<u>0.0331</u>	<u>0.0320</u>	<u>0.0335</u>	<u>0.0314</u>	<u>0.0331</u>	<u>0.0332</u>	<u>0.0328</u>
	Sulphur (S)	mg/L	-	-	-	12.5	12.6	11.8	12.4	12.2	13.2	12.8	12.7	12.2	12.5	12.3	12.8
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.00215	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000370
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00306</u>	<u>0.00321</u>	<u>0.00287</u>	<u>0.00313</u>	<u>0.00292</u>	<u>0.00324</u>	<u>0.00322</u>	<u>0.00329</u>	<u>0.00306</u>	<u>0.00316</u>	<u>0.00306</u>	<u>0.00314</u>
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.001	<0.001	<0.001	0.00110	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLDIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underlineIndicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

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^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.19: Water Chemistry at Sheardown Lake Northwest (NW; DL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						DD-HAB9-STN1	DL0-01-2	DL0-01-7			DD-HAB9-STN1	DL0-01-2		DL0-01-7
						surface	surface	surface			surface	bottom	surface	surface
						24-Jul-25	24-Jul-25	24-Jul-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	128	79.7	<u>203</u>	<u>203</u>	<u>203</u>	130	83.5	<u>227</u>	-	<u>226</u>	<u>227</u>
	Specific Conductivity	µS/cm	-	126	-	<u>200</u>	<u>200</u>	<u>203</u>	134	-	-	<u>209</u>	<u>206</u>	-
	pH (lab)	pH	-	-	-	7.94	7.91	7.96	-	-	7.90	-	7.90	7.89
	pH (field)	pH	6.5 - 9.0	-	-	8.18	8.03	8.19	-	-	-	7.93	8.08	-
	Temperature, Field	mg/L	-	7.98 - 11.6	4.30 - 12.5	11.1	10.7	10.1	5.45 - 8.66	5.75 - 7.85	-	7.40	8.00	-
	Hardness (as CaCO ₃) -Total	mg/L	-	63.2	37.7	<u>95.4</u>	<u>94.8</u>	<u>95.8</u>	63.4	38.6	<u>95.4</u>	-	<u>93.4</u>	<u>94.5</u>
	Total Suspended Solids (TSS)	mg/L	-	5.00	-	<1.1	1.30	1.10	-	-	<1	-	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	83.5	58.0	<u>113</u>	<u>117</u>	<u>110</u>	84.0	59.0	<u>108</u>	-	<u>100</u>	<u>105</u>
	Dissolved Oxygen	mg/L	-	9.78	10.8	11.5	11.4	11.5	9.28	11.3	-	11.2	11.7	-
	Dissolved Oxygen	%	-	-	96.9	104	102	102	-	89.6	-	94.2	100	-
	Turbidity (lab)	NTU	-	-	-	2.07	2.74	2.56	-	-	1.00	-	0.910	0.900
	Turbidity (field)	NTU	-	-	353	2.72	2.87	3.03	-	3.79	-	2.40	1.04	-
	Alkalinity (as CaCO ₃)	mg/L	-	44.0 - 63.0	30.0 - 47.9	59.0	58.6	59.3	49.0 - 64.0	29.5 - 49.4	58.2	-	58.1	58.8
Nutrients and Organics	Total Ammonia	mg/L	1.92 - 6.02	0.180	-	0.0143	0.0215	0.0159	0.0900	0.0550	0.0100	-	0.0213	0.00920
	Nitrate ^e	mg/L	3.00	-	-	0.992	0.978	1.02	-	-	1.08	-	1.08	1.09
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.395	0.235	0.332	0.362	0.223	0.445	0.210	0.401	-	0.154	0.263
	Dissolved Organic Carbon	mg/L	-	2.00	3.65	1.86	<u>2.24</u>	1.54	1.90	3.82	<u>2.20</u>	-	<u>2.15</u>	<u>2.18</u>
	Total Organic Carbon	mg/L	-	2.05	4.81	<u>2.83</u>	<u>2.35</u>	<u>2.12</u>	2.00	3.86	<u>2.05</u>	-	<u>2.30</u>	<u>2.24</u>
	Total Phosphorus	mg/L	-	0.0160	0.00700	0.00460	0.00530	0.00400	0.00950	0.0235	0.00220	-	<0.002	0.00230
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	-	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	3.50	1.42	<u>6.30</u>	<u>6.46</u>	<u>6.31</u>	5.00	1.38	<u>6.50</u>	-	<u>6.50</u>	<u>6.52</u>
	Sulphate (SO ₄)	mg/L	309	4.00	4.48	<u>27.6</u>	<u>27.4</u>	<u>28.0</u>	4.00	4.37	<u>29.3</u>	-	<u>29.1</u>	<u>29.4</u>
Total Metals	Aluminum (Al) ^e	mg/L	0.173	0.171	0.00850	0.0341	0.0330	0.0381	0.200	0.0128	0.0143	-	0.0139	0.0180
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00593	0.00692	<u>0.00991</u>	<u>0.00996</u>	<u>0.0101</u>	0.00652	0.00670	<u>0.0103</u>	-	<u>0.0101</u>	<u>0.0106</u>
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	0.0210	0.0270	0.0160	-	-	0.0140	-	0.0140	0.0140
	Cadmium (Cd)	mg/L	0.000163 - 0.000181	-	-	0.00000960	0.0000124	0.0000134	-	-	0.00000760	-	0.00000700	0.00000840
	Calcium (Ca)	mg/L	-	12.5	7.42	<u>17.6</u>	<u>17.5</u>	<u>17.6</u>	12.8	7.49	<u>17.6</u>	-	<u>17.3</u>	<u>17.4</u>
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	0.000810	-	<0.0005	-	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.00103 - 0.00109	-	-	0.000130	0.000130	0.000130	-	-	0.000110	-	0.000110	0.000110

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						surface	surface	surface			surface	bottom	surface	surface
						24-Jul-25	24-Jul-25	24-Jul-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
Total Metals	Copper (Cu)	mg/L	0.00243 - 0.00272	0.00242	0.000990	0.00139	0.00156	0.00115	0.00187	0.000905	0.000950	-	0.000910	0.000930
	Iron (Fe)	mg/L	0.300	0.208	-	0.0360	0.0370	0.0420	0.215	0.0190	0.0140	-	0.0130	0.0180
	Lead (Pb)	mg/L	0.00331 - 0.00391	0.000230	-	0.0000640	0.0000710	0.0000610	0.000500	-	<0.00005	-	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00240	0.00230	0.00240	0.00500	-	0.00190	-	0.00190	0.00190
	Magnesium (Mg)	mg/L	-	7.76	4.67	<u>12.5</u>	<u>12.4</u>	<u>12.6</u>	7.83	4.82	<u>12.5</u>	-	<u>12.2</u>	<u>12.4</u>
	Manganese (Mn)	mg/L	1.06 - 1.12	0.00622	0.000990	<u>0.0109</u>	<u>0.0106</u>	<u>0.0129</u>	0.0209	0.000980	0.00200	-	0.00201	0.00210
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000752	0.000164	<u>0.00198</u>	<u>0.00199</u>	<u>0.00199</u>	0.000788	0.000164	<u>0.00213</u>	-	<u>0.00206</u>	<u>0.00204</u>
	Nickel (Ni)	mg/L	0.0979 - 0.108	0.000840	-	<u>0.000980</u>	0.000780	<u>0.00106</u>	0.00103	-	0.000650	-	0.000600	0.000620
	Potassium (K)	mg/L	-	0.884	0.960	<u>2.17</u>	<u>2.16</u>	<u>2.18</u>	0.895	0.945	<u>2.28</u>	-	<u>2.40</u>	<u>2.32</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00363	0.00360	0.00350	-	-	0.00376	-	0.00366	0.00373
	Selenium (Se)	mg/L	0.001	-	-	0.000134	0.000103	0.000116	-	-	0.000107	-	0.000110	0.000108
	Silicon (Si)	mg/L	-	0.902	0.520	0.690	0.680	0.700	1.03	0.500	0.610	-	0.600	0.610
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	1.00	<u>2.35</u>	<u>2.32</u>	<u>2.33</u>	2.00	0.968	<u>2.43</u>	-	<u>2.42</u>	<u>2.44</u>
	Strontium (Sr)	mg/L	-	0.00856	0.00875	<u>0.0256</u>	<u>0.0256</u>	<u>0.0257</u>	0.0124	0.00861	<u>0.0289</u>	-	<u>0.0270</u>	<u>0.0270</u>
	Sulphur (S)	mg/L	-	-	-	9.46	9.50	9.54	-	-	10.1	-	9.96	10.0
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.000340	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0130	-	0.00163	0.00163	0.00186	-	-	<0.0006	-	<0.0006	<0.0009
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00239</u>	<u>0.00241</u>	<u>0.00241</u>	-	-	<u>0.00269</u>	-	<u>0.00268</u>	<u>0.00269</u>
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<u>0.00340</u>	<0.003	-	-	<0.003	-	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0237	0.00430	0.00680	0.00700	0.00680	0.0112	0.0122	0.00440	-	0.00410	0.00750
	Antimony (Sb)	mg/L	-	0.000255	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00532	0.00683	<u>0.00958</u>	<u>0.00960</u>	<u>0.00979</u>	0.00568	0.00674	<u>0.0109</u>	-	<u>0.0106</u>	<u>0.0108</u>
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	0.0200	0.0460	0.0140	-	-	0.0140	-	0.0140	0.0140
	Cadmium (Cd)	mg/L	0.000217 - 0.000238	-	-	0.00000920	0.0000142	0.00000960	-	-	0.00000630	-	0.00000600	0.00000580
	Calcium (Ca)	mg/L	-	12.3	7.34	<u>16.1</u>	<u>16.0</u>	<u>16.4</u>	13.0	7.40	<u>18.4</u>	-	<u>18.2</u>	<u>18.6</u>

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.19: Water Chemistry at Sheardown Lake Northwest (NW; DL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						DD-HAB9-STN1	DL0-01-2	DL0-01-7			DD-HAB9-STN1	DL0-01-2		DL0-01-7
						surface	surface	surface			surface	bottom	surface	surface
						24-Jul-25	24-Jul-25	24-Jul-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
Dissolved Metals	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000517 - 0.000545	-	-	0.000100	0.000110	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00183 - 0.00336	0.00107	0.000950	<u>0.00178</u>	0.00525	0.00101	0.000940	0.000890	0.000730	-	0.000740	0.000720
	Iron (Fe)	mg/L	-	-	-	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	<0.01
	Lead (Pb)	mg/L	0.00636 - 0.00715	0.0000710	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00270	0.00270	0.00270	0.00107	-	<u>0.00220</u>	-	<u>0.00240</u>	<u>0.00220</u>
	Magnesium (Mg)	mg/L	-	7.50	4.60	<u>11.8</u>	<u>11.7</u>	<u>12.0</u>	7.83	4.88	<u>13.5</u>	-	<u>13.5</u>	<u>13.5</u>
	Manganese (Mn)	mg/L	0.370 - 0.530	0.00432	0.000345	<u>0.00672</u>	<u>0.00594</u>	<u>0.00802</u>	0.00204	0.000594	0.000190	-	0.000220	0.000200
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000702	0.000157	<u>0.00195</u>	<u>0.00196</u>	<u>0.00200</u>	0.000754	0.000166	<u>0.00190</u>	-	<u>0.00188</u>	<u>0.00192</u>
	Nickel (Ni)	mg/L	0.00200 - 0.00240	0.000650	-	0.000590	<u>0.000680</u>	0.000590	0.000670	-	0.000510	-	0.000500	0.000510
	Potassium (K)	mg/L	-	0.870	0.945	<u>2.13</u>	<u>2.14</u>	<u>2.17</u>	0.884	0.950	<u>2.21</u>	-	<u>2.19</u>	<u>2.23</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00343	0.00344	0.00347	-	0.000970	0.00362	-	0.00364	0.00365
	Selenium (Se)	mg/L	-	-	-	0.000105	0.000117	0.000131	-	-	0.000119	-	0.000116	0.000121
	Silicon (Si)	mg/L	-	0.630	0.510	<u>0.640</u>	<u>0.652</u>	<u>0.654</u>	0.692	0.506	0.602	-	0.616	0.604
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	0.980	<u>2.25</u>	<u>2.23</u>	<u>2.28</u>	2.00	1.01	<u>2.45</u>	-	<u>2.44</u>	<u>2.46</u>
	Strontium (Sr) ^e	mg/L	2.50	0.00813	0.00858	<u>0.0255</u>	<u>0.0258</u>	<u>0.0264</u>	0.0122	0.00860	<u>0.0270</u>	-	<u>0.0269</u>	<u>0.0274</u>
	Sulphur (S)	mg/L	-	-	-	9.15	9.04	9.39	-	1.65	10.2	-	10.3	10.2
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	0.000110	0.000330	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	-	-	<0.0003	-	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00239</u>	<u>0.00239</u>	<u>0.00250</u>	-	-	<u>0.00238</u>	-	<u>0.00238</u>	<u>0.00244</u>
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	0.00150	<u>0.00670</u>	0.00130	-	-	<0.001	-	<0.001	0.00100
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	-	-	<0.0003	-	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.20: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Southeast (SE; DL0-02) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	Temperature (°C)						Dissolved Oxygen (mg/L)					Dissolved Oxygen (% Saturation)				
	DL0-02-6	DL0-02-7	DL0-02-8	DL0-02-9	DL0-02-4	DL0-02-3	DL0-02-6	DL0-02-7	DL0-02-8	DL0-02-4	DL0-02-3	DL0-02-6	DL0-02-7	DL0-02-8	DL0-02-4	DL0-02-3
	19-Apr-25	19-Apr-25	19-Apr-25	-	19-Apr-25	16-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	1.39	1.000	3.28	-	0.222	0.0556	12.1	12.2	11.8	13.7	13.6	86.0	85.9	88.4	94.1	93.1
2.0	0.500	0.722	1.06	-	0.722	0.611	12.4	12.5	13.0	13.5	13.4	85.9	87.3	91.4	94.5	93.2
3.0	0.667	-	1.17	-	0.889	0.833	12.2	-	12.9	13.4	13.0	85.1	-	91.5	94.0	91.2
4.0	0.667	-	1.000	-	0.944	0.833	11.9	-	13.1	13.4	13.0	83.4	-	92.0	94.0	91.2
5.0	0.722	-	0.944	-	0.889	-	11.3	-	13.2	13.4	-	79.1	-	92.8	94.0	-
6.0	-	-	0.944	-	0.889	0.889	-	-	13.3	13.4	13.1	-	-	93.4	94.0	91.6
7.0	-	-	-	-	-	0.889	-	-	-	-	13.0	-	-	-	-	91.2
8.0	-	-	0.889	-	0.944	0.944	-	-	13.4	13.4	12.4	-	-	93.9	94.2	86.8
9.0	-	-	0.889	-	-	0.944	-	-	13.4	-	11.7	-	-	94.0	-	82.4
10.0	-	-	1.000	-	-	1.06	-	-	12.9	-	11.2	-	-	90.9	-	79.3
11.0	-	-	1.17	-	-	1.17	-	-	11.7	-	10.2	-	-	82.7	-	72.3
12.0	-	-	1.33	-	-	1.39	-	-	9.15	-	8.52	-	-	65.0	-	60.6
13.0	-	-	-	-	-	1.50	-	-	-	-	6.25	-	-	-	-	44.6

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.20: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Southeast (SE; DL0-02) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Winter 2025

Depth (m)	pH (pH units)					Specific Conductance (µS/cm)					Turbidity (NTU)				
	DL0-02-6	DL0-02-7	DL0-02-8	DL0-02-4	DL0-02-3	DL0-02-6	DL0-02-7	DL0-02-8	DL0-02-4	DL0-02-3	DL0-02-6	DL0-02-7	DL0-02-8	DL0-02-4	DL0-02-3
	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	7.38	7.52	7.53	7.49	7.43	247	248	236	242	236	-0.210	-0.420	-0.340	-0.0300	-0.0500
2.0	7.33	7.45	7.49	7.47	7.42	248	238	232	233	230	-0.240	-0.310	-0.320	-0.210	-0.0800
3.0	7.32	-	7.35	7.47	7.41	245	-	227	228	226	-0.170	-	-0.200	-0.160	-0.0700
4.0	7.31	-	7.35	7.47	7.42	245	-	227	228	226	-0.180	-	-0.190	-0.150	-0.120
5.0	7.27	-	7.34	7.47	-	246	-	228	228	-	-0.170	-	-0.190	-0.140	-
6.0	-	-	7.34	7.47	7.42	-	-	228	229	227	-	-	-0.200	-0.180	-0.0900
7.0	-	-	-	-	7.42	-	-	-	-	227	-	-	-	-	-0.110
8.0	-	-	7.34	7.47	7.38	-	-	228	229	226	-	-	-0.200	-0.150	-0.0700
9.0	-	-	7.34	-	7.34	-	-	228	-	225	-	-	-0.200	-	-0.0900
10.0	-	-	7.31	-	7.31	-	-	226	-	223	-	-	-0.190	-	-0.0500
11.0	-	-	7.24	-	7.26	-	-	223	-	223	-	-	-0.210	-	-0.0300
12.0	-	-	7.10	-	7.19	-	-	223	-	224	-	-	-0.0700	-	-0.0400
13.0	-	-	-	-	7.08	-	-	-	-	229	-	-	-	-	0.200

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.21: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Southeast (SE; DL0-02) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Summer 2025

Depth (m)	Temperature (°C)									Dissolved Oxygen (mg/L)								
	DL0-02-6	DL0-02-9	DL0-02-4	DL0-02-3			DL0-02-1	DL0-02-11	DL0-02-13	DL0-02-6	DL0-02-9	DL0-02-4	DL0-02-3			DL0-02-1	DL0-02-11	DL0-02-13
	28-Jul-25	8-Aug-25	28-Jul-25	24-Jul-25	28-Jul-25	9-Aug-25	9-Aug-25	8-Aug-25	9-Aug-25	28-Jul-25	8-Aug-25	28-Jul-25	24-Jul-25	28-Jul-25	9-Aug-25	9-Aug-25	8-Aug-25	9-Aug-25
0.0	-	7.70	13.4	11.7	-	7.50	7.30	7.70	7.50	-	10.9	10.6	10.6	-	11.1	11.1	11.4	11.2
1.0	-	-	-	-	13.2	7.50	-	-	-	-	-	-	-	10.5	11.1	-	-	-
2.0	10.7	-	10.4	10.1	11.1	7.50	-	-	-	10.8	-	10.6	11.0	10.9	11.1	-	-	-
3.0	-	-	-	7.89	9.00	7.50	-	-	-	-	-	-	11.3	11.0	11.0	-	-	-
4.0	-	-	-	7.00	7.50	7.50	-	-	-	-	-	-	11.3	11.1	11.0	-	-	-
5.0	-	-	-	6.67	6.83	7.50	-	-	-	-	-	-	11.3	11.1	11.0	-	-	-
6.0	-	-	-	6.39	6.39	7.50	-	-	-	-	-	-	11.4	11.2	11.0	-	-	-
7.0	-	-	-	6.22	6.17	7.50	-	-	-	-	-	-	11.4	11.3	11.0	-	-	-
8.0	-	-	-	6.00	-	7.50	7.40	7.60	-	-	-	-	11.3	-	11.0	11.2	10.9	-
9.0	-	7.80	-	5.89	5.94	7.50	-	-	-	-	11.0	-	11.2	11.2	11.0	-	-	-
10.0	-	-	-	-	5.83	7.50	-	-	-	-	-	-	-	11.1	11.0	-	-	-
11.0	-	-	-	5.83	5.78	7.50	-	-	-	-	-	-	11.1	10.8	11.0	-	-	-
12.0	-	-	-	5.78	5.78	7.50	-	-	7.50	-	-	-	10.9	10.6	11.0	-	-	11.0
13.0	-	-	-	-	5.78	7.50	-	-	-	-	-	-	-	10.5	10.9	-	-	-

Inidcates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = meters. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom. Stations DL0-02-6, DL0-02-9, DL0-02-4, DL0-02-3, DL0-02-1, DL0-02-11, DL0-02-13 are BIC monitoring stations for which top and bottom measures were taken at the time of the sample collection.

Table B.21: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Southeast (SE; DL0-02) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Summer 2025

Depth (m)	Dissolved Oxygen (% Saturation)									pH (pH units)								
	DL0-02-6	DL0-02-9	DL0-02-4	DL0-02-3			DL0-02-1	DL0-02-11	DL0-02-13	DL0-02-6	DL0-02-9	DL0-02-4	DL0-02-3			DL0-02-1	DL0-02-11	DL0-02-13
	28-Jul-25	8-Aug-25	28-Jul-25	24-Jul-25	28-Jul-25	9-Aug-25	9-Aug-25	8-Aug-25	9-Aug-25	28-Jul-25	8-Aug-25	28-Jul-25	24-Jul-25	28-Jul-25	9-Aug-25	9-Aug-25	8-Aug-25	9-Aug-25
0.0	-	94.3	101	97.7	-	95.4	95.5	96.7	96.4	-	7.88	8.06	8.18	-	7.78	7.89	7.85	7.82
1.0	-	-	-	-	99.9	95.4	-	-	-	-	-	-	-	8.05	7.78	-	-	-
2.0	97.1	-	95.0	97.9	99.1	95.8	-	-	-	7.96	-	7.99	8.07	8.01	7.78	-	-	-
3.0	-	-	-	94.8	95.2	95.3	-	-	-	-	-	-	8.04	7.84	7.77	-	-	-
4.0	-	-	-	92.9	92.4	95.2	-	-	-	-	-	-	7.95	7.75	7.70	-	-	-
5.0	-	-	-	92.6	91.2	95.1	-	-	-	-	-	-	7.91	7.48	7.77	-	-	-
6.0	-	-	-	92.5	91.0	95.0	-	-	-	-	-	-	7.88	7.43	7.77	-	-	-
7.0	-	-	-	92.5	91.2	94.9	-	-	-	-	-	-	7.88	7.40	7.77	-	-	-
8.0	-	-	-	91.0	-	94.9	96.6	94.5	-	-	-	-	7.83	-	7.77	7.91	7.80	-
9.0	-	95.5	-	89.6	90.4	94.8	-	-	-	-	7.90	-	7.77	7.37	7.76	-	-	-
10.0	-	-	-	-	88.8	94.7	-	-	-	-	-	-	-	7.34	7.76	-	-	-
11.0	-	-	-	88.7	86.0	94.7	-	-	-	-	-	-	7.70	7.30	7.76	-	-	-
12.0	-	-	-	87.1	85.0	94.6	-	-	94.9	-	-	-	7.60	7.28	7.76	-	-	7.80
13.0	-	-	-	-	84.2	94.4	-	-	-	-	-	-	-	7.27	7.76	-	-	-

Inidcates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = meters. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom. Stations DL0-02-6, DL0-02-9, DL0-02-4, DL0-02-3, DL0-02-1, DL0-02-11, DL0-02-13 are BIC monitoring stations for which top and bottom measures were taken at the time of the sample collection.

Table B.21: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Southeast (SE; DL0-02) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Summer 2025

Depth (m)	Specific Conductance (µS/cm)									Turbidity (NTU)								
	DL0-02-6	DL0-02-9	DL0-02-4	DL0-02-3			DL0-02-1	DL0-02-11	DL0-02-13	DL0-02-6	DL0-02-9	DL0-02-4	DL0-02-3			DL0-02-1	DL0-02-11	DL0-02-13
	28-Jul-25	8-Aug-25	28-Jul-25	24-Jul-25	28-Jul-25	9-Aug-25	9-Aug-25	8-Aug-25	9-Aug-25	28-Jul-25	8-Aug-25	28-Jul-25	24-Jul-25	28-Jul-25	9-Aug-25	9-Aug-25	8-Aug-25	9-Aug-25
0.0	-	141	73.4	149	-	143	149	141	143	-	22.6	0.160	16.7	-	19.0	19.3	20.1	18.3
1.0	-	-	-	-	154	143	-	-	-	-	-	-	-	5.12	19.0	-	-	-
2.0	160	-	156	155	158	143	-	-	-	9.32	-	14.4	15.3	9.25	17.8	-	-	-
3.0	-	-	-	143	147	143	-	-	-	-	-	-	22.2	15.3	17.9	-	-	-
4.0	-	-	-	129	136	143	-	-	-	-	-	-	27.3	20.2	17.4	-	-	-
5.0	-	-	-	125	128	143	-	-	-	-	-	-	28.2	23.0	19.3	-	-	-
6.0	-	-	-	122	122	143	-	-	-	-	-	-	30.0	26.3	17.7	-	-	-
7.0	-	-	-	120	120	143	-	-	-	-	-	-	32.1	28.1	18.9	-	-	-
8.0	-	-	-	118	-	143	147	142	-	-	-	-	31.8	-	17.1	16.7	21.9	-
9.0	-	141	-	117	118	143	-	-	-	-	20.3	-	31.7	27.6	19.0	-	-	-
10.0	-	-	-	-	119	143	-	-	-	-	-	-	-	27.2	18.1	-	-	-
11.0	-	-	-	117	119	143	-	-	-	-	-	-	33.0	27.0	17.6	-	-	-
12.0	-	-	-	118	120	143	-	-	143	-	-	-	31.7	26.4	19.9	-	-	17.9
13.0	-	-	-	-	120	143	-	-	-	-	-	-	-	26.8	19.6	-	-	-

Inidcates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = meters. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1m of lake bottom. Stations DL0-02-6, DL0-02-9, DL0-02-4, DL0-02-3, DL0-02-1, DL0-02-11, DL0-02-13 are BIC monitoring stations for which top and bottom measures were taken at the time of the sample collection.

Table B.22: *In Situ* Water Quality Profile Data Collected at Sheardown Lake Southeast (SE; DL0-02) Water Quality Monitoring Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), Fall 2025

Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	pH (pH units)	Turbidity (NTU)
	DL0-02-3	DL0-02-3	DL0-02-3	DL0-02-3	DL0-02-3
	21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
0.0	-	-	-	-	-
1.0	7.80	11.4	97.4	7.97	6.54
2.0	7.80	11.4	96.8	7.94	6.77
3.0	7.80	11.4	96.6	7.93	6.77
4.0	7.80	11.3	96.5	7.92	6.66
5.0	-	-	-	-	-
6.0	7.80	11.3	96.5	7.92	6.66
7.0	7.70	11.3	95.7	7.92	6.88
8.0	7.60	11.2	94.7	7.90	7.19
9.0	-	-	-	-	-
10.0	7.60	11.1	93.7	7.87	7.20
11.0	7.60	11.1	93.5	7.86	7.35
12.0	7.50	11.0	93.2	7.85	7.40
13.0	-	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.23: Water Chemistry at Sheardown Lake Southeast (SE; DL0-02) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						Spring Sampling Event			
						DL0-02-6		DL0-02-7		DL0-02-4		DL0-02-8		DL0-02-3	
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface
						19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	16-Apr-25
Conventional	Conductivity (lab)	µS/cm	-	167	-	<u>246</u>	<u>249</u>	<u>233</u>	<u>242</u>	<u>228</u>	<u>234</u>	<u>223</u>	<u>231</u>	<u>229</u>	<u>233</u>
	Specific Conductivity	µS/cm	-	-	-	246	247	238	248	229	242	223	236	229	236
	pH (lab)	pH	-	-	-	7.17	7.25	7.28	7.25	7.36	7.37	7.16	7.34	7.09	7.40
	pH (field)	pH	6.5 - 9.0	-	-	7.27	7.38	7.45	7.52	7.47	7.49	7.10	7.53	7.08	7.43
	Temperature, Field	mg/L	-	-	-	0.722	1.39	0.722	1.00	0.944	0.222	1.33	3.28	1.50	0.0556
	Hardness (as CaCO ₃) -Total	mg/L	-	83.9	-	<u>114</u>	<u>112</u>	<u>107</u>	<u>112</u>	<u>108</u>	<u>112</u>	<u>103</u>	<u>106</u>	<u>107</u>	<u>109</u>
	Total Suspended Solids (TSS)	mg/L	-	-	-	1.60	1.60	1.60	1.70	<1	1.50	2.80	1.20	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	108	-	<u>121</u>	<u>123</u>	<u>114</u>	<u>121</u>	<u>114</u>	<u>119</u>	<u>110</u>	<u>118</u>	<u>129</u>	<u>135</u>
	Dissolved Oxygen	mg/L	-	-	-	11.3	12.1	12.5	12.2	13.4	13.7	9.15	11.8	6.25	13.6
	Dissolved Oxygen	%	-	-	-	79.1	86.0	87.3	85.9	94.2	94.1	65.0	88.4	44.6	93.1
	Turbidity (lab)	NTU	-	-	-	0.370	0.330	0.420	0.300	0.400	0.340	0.450	0.340	0.720	0.460
	Turbidity (field)	NTU	-	-	-	-0.170	-0.210	-0.310	-0.420	-0.150	-0.0300	-0.0700	-0.340	0.200	-0.0500
	Alkalinity (as CaCO ₃)	mg/L	-	61.5 - 80.0	-	<u>81.7</u>	<u>80.3</u>	78.3	<u>81.6</u>	76.2	78.5	76.0	78.2	76.3	77.4
Nutrients and Organics	Total Ammonia	mg/L	1.27 - 6.02	0.395	-	0.0147	<0.005	<0.005	0.0194	0.0251	<0.005	<0.005	<0.005	0.0102	0.0103
	Nitrate ^e	mg/L	3.00	-	-	0.792	0.847	0.792	0.831	0.784	0.810	0.733	0.803	0.664	0.838
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.525	-	0.224	0.146	0.291	0.206	0.183	0.156	0.138	0.152	0.144	0.151
	Dissolved Organic Carbon	mg/L	-	-	-	2.19	2.45	2.32	2.60	2.56	2.59	1.89	2.15	2.50	2.75
	Total Organic Carbon	mg/L	-	-	-	2.11	2.30	2.08	2.00	2.08	2.16	1.82	2.02	1.95	1.86
	Total Phosphorus	mg/L	-	0.00900	-	<0.002	<0.002	0.00220	<0.002	<u>0.0114</u>	0.00250	0.00220	0.00440	<0.002	0.00280
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	0.110	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	4.00	-	<u>7.66</u>	<u>7.74</u>	<u>7.22</u>	<u>7.54</u>	<u>7.05</u>	<u>7.28</u>	<u>6.78</u>	<u>7.18</u>	<u>6.90</u>	<u>7.13</u>
	Sulphate (SO ₄)	mg/L	309	5.00	-	<u>27.1</u>	<u>27.5</u>	<u>25.7</u>	<u>26.8</u>	<u>25.2</u>	<u>26.0</u>	<u>23.6</u>	<u>25.6</u>	<u>23.0</u>	<u>25.4</u>
Total Metals	Aluminum (Al) ^e	mg/L	0.173	0.0114	-	0.00690	0.00870	0.00680	0.00630	0.0100	0.00750	0.00710	0.00670	0.00920	0.00630
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00730	-	<u>0.0127</u>	<u>0.0129</u>	<u>0.0118</u>	<u>0.0128</u>	<u>0.0120</u>	<u>0.0126</u>	<u>0.0118</u>	<u>0.0116</u>	<u>0.0121</u>	<u>0.0120</u>
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	0.0130	-	<u>0.0200</u>	<u>0.0180</u>	<u>0.0180</u>	<u>0.0180</u>	<u>0.0180</u>	<u>0.0190</u>	<u>0.0160</u>	<u>0.0180</u>	<u>0.0150</u>	<u>0.0170</u>
	Cadmium (Cd)	mg/L	0.000161 - 0.000175	-	-	0.00000500	0.00000520	0.00000540	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00000710	0.00000530
	Calcium (Ca)	mg/L	-	16.6	-	<u>21.1</u>	<u>21.1</u>	<u>20.1</u>	<u>21.0</u>	<u>20.4</u>	<u>21.3</u>	<u>19.4</u>	<u>20.2</u>	<u>20.9</u>	<u>21.1</u>

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.23: Water Chemistry at Sheardown Lake Southeast (SE; DL0-02) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						Spring Sampling Event			
						DL0-02-6		DL0-02-7		DL0-02-4		DL0-02-8		DL0-02-3	
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface
						19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	16-Apr-25
Total Metals	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.00103 - 0.00107	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00241 - 0.00261	0.00152	-	0.00101	0.000970	0.000960	<u>0.00163</u>	0.00104	0.00134	0.000980	0.000990	0.00102	0.00103
	Iron (Fe)	mg/L	0.300	0.0850	-	0.0370	0.0220	0.0150	0.0150	0.0140	0.0120	0.0140	0.0170	0.0250	0.0120
	Lead (Pb)	mg/L	0.00327 - 0.00369	0.000168	-	<0.00005	<0.00005	<0.00005	0.0000520	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00100	-	<u>0.00300</u>	<u>0.00210</u>	<u>0.00220</u>	<u>0.00230</u>	<u>0.00250</u>	<u>0.00300</u>	<u>0.00180</u>	<u>0.00220</u>	<u>0.00150</u>	<u>0.00180</u>
	Magnesium (Mg)	mg/L	-	10.3	-	<u>15.0</u>	<u>14.3</u>	<u>13.7</u>	<u>14.4</u>	<u>13.9</u>	<u>14.4</u>	<u>13.2</u>	<u>13.5</u>	<u>13.4</u>	<u>13.6</u>
	Manganese (Mn)	mg/L	1.05 - 1.10	0.0290	-	0.00525	0.00265	0.00196	0.00194	0.00156	0.00139	0.00174	0.00138	0.00604	0.00157
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000894	-	<u>0.00170</u>	<u>0.00168</u>	<u>0.00159</u>	<u>0.00165</u>	<u>0.00171</u>	<u>0.00177</u>	<u>0.00138</u>	<u>0.00163</u>	<u>0.00127</u>	<u>0.00158</u>
	Nickel (Ni)	mg/L	0.0972 - 0.104	0.000950	-	<u>0.000960</u>	0.000860	0.000810	0.000900	0.000900	0.000900	0.000750	0.000820	0.000830	0.000810
	Potassium (K)	mg/L	-	1.06	-	<u>2.28</u>	<u>2.39</u>	<u>2.20</u>	<u>2.36</u>	<u>2.12</u>	<u>2.19</u>	<u>2.06</u>	<u>2.19</u>	<u>2.02</u>	<u>2.18</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00437	0.00454	0.00407	0.00437	0.00386	0.00407	0.00373	0.00406	0.00423	0.00407
	Selenium (Se)	mg/L	0.001	-	-	0.0000970	0.0000820	0.0000730	0.0000870	0.0000790	0.0000880	0.0000730	0.0000830	0.0000540	0.0000790
	Silicon (Si)	mg/L	-	1.28	-	1.17	1.07	0.960	1.03	0.940	1.00	1.02	0.940	<u>1.36</u>	0.960
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	-	<u>2.98</u>	<u>2.79</u>	<u>2.74</u>	<u>2.86</u>	<u>2.84</u>	<u>2.97</u>	<u>2.66</u>	<u>2.66</u>	<u>2.48</u>	<u>2.55</u>
	Strontium (Sr)	mg/L	-	0.0127	-	<u>0.0295</u>	<u>0.0294</u>	<u>0.0269</u>	<u>0.0288</u>	<u>0.0276</u>	<u>0.0290</u>	<u>0.0252</u>	<u>0.0270</u>	<u>0.0254</u>	<u>0.0274</u>
	Sulphur (S)	mg/L	-	-	-	9.81	9.51	8.97	9.47	9.08	9.66	8.25	8.85	7.79	8.71
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.00235	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00266</u>	<u>0.00256</u>	<u>0.00241</u>	<u>0.00252</u>	<u>0.00259</u>	<u>0.00266</u>	<u>0.00220</u>	<u>0.00242</u>	<u>0.00213</u>	<u>0.00246</u>
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	3.00	-	0.00250	0.00310	0.00400	0.00280	0.00330	0.00330	0.00290	0.00300	0.00300	0.00340
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	6.94	-	0.0130	0.0133	0.0123	0.0123	0.0121	0.0127	0.0117	0.0122	0.0120	0.0118
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.23: Water Chemistry at Sheardown Lake Southeast (SE; DL0-02) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event						Spring Sampling Event			
						DL0-02-6		DL0-02-7		DL0-02-4		DL0-02-8		DL0-02-3	
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface
						19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	16-Apr-25
Dissolved Metals	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	0.0180	0.0180	0.0170	0.0180	0.0170	0.0170	0.0160	0.0170	0.0160	0.0170
	Cadmium (Cd)	mg/L	0.000215 - 0.000230	-	-	0.00000530	<0.000005	<0.000005	<0.000005	0.00000530	<0.000005	0.00000590	<0.000005	0.00000570	<0.000005
	Calcium (Ca)	mg/L	-	16.4	-	<u>20.9</u>	<u>20.3</u>	<u>19.8</u>	<u>20.3</u>	<u>19.6</u>	<u>19.6</u>	<u>19.5</u>	<u>19.8</u>	<u>20.1</u>	<u>19.2</u>
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000515 - 0.000535	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.000888 - 0.00230	0.00120	-	0.000840	0.000880	0.000890	0.000910	0.000940	0.000990	0.000850	0.000910	0.000940	0.000930
	Iron (Fe)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Lead (Pb)	mg/L	0.00577 - 0.00703	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00230	0.00240	0.00210	0.00220	0.00220	0.00200	0.00210	0.00220	0.00210	0.00210
	Magnesium (Mg)	mg/L	-	9.97	-	<u>14.6</u>	<u>14.8</u>	<u>13.6</u>	<u>14.2</u>	<u>13.6</u>	<u>14.0</u>	<u>13.0</u>	<u>13.7</u>	<u>13.4</u>	<u>13.8</u>
	Manganese (Mn)	mg/L	0.470 - 0.610	0.0203	-	0.00113	0.000740	0.000510	0.000580	0.000190	0.000350	<0.0001	0.000330	0.00121	0.000310
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000860	-	<u>0.00157</u>	<u>0.00169</u>	<u>0.00159</u>	<u>0.00167</u>	<u>0.00164</u>	<u>0.00164</u>	<u>0.00138</u>	<u>0.00159</u>	<u>0.00125</u>	<u>0.00159</u>
	Nickel (Ni)	mg/L	0.00190 - 0.00200	0.000830	-	<u>0.000840</u>	<u>0.000860</u>	0.000810	<u>0.000850</u>	0.000770	0.000820	0.000700	0.000770	0.000710	<u>0.000840</u>
	Potassium (K)	mg/L	-	1.04	-	<u>2.36</u>	<u>2.37</u>	<u>2.20</u>	<u>2.30</u>	<u>2.16</u>	<u>2.24</u>	<u>2.02</u>	<u>2.19</u>	<u>2.03</u>	<u>2.20</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00440	0.00426	0.00394	0.00410	0.00384	0.00408	0.00366	0.00385	0.00387	0.00401
	Selenium (Se)	mg/L	-	-	-	0.0000950	0.000102	0.0000990	0.000103	0.0000910	0.000102	0.0000790	0.0000990	0.0000680	0.0000950
	Silicon (Si)	mg/L	-	1.25	-	1.12	1.06	0.935	0.971	0.884	0.916	0.990	0.904	<u>1.28</u>	0.906
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.00	-	<u>2.86</u>	<u>2.84</u>	<u>2.70</u>	<u>2.75</u>	<u>2.60</u>	<u>2.76</u>	<u>2.59</u>	<u>2.71</u>	<u>2.63</u>	<u>2.71</u>
	Strontium (Sr) ^e	mg/L	2.50	0.0126	-	<u>0.0286</u>	<u>0.0300</u>	<u>0.0279</u>	<u>0.0284</u>	<u>0.0271</u>	<u>0.0285</u>	<u>0.0258</u>	<u>0.0279</u>	<u>0.0249</u>	<u>0.0280</u>
	Sulphur (S)	mg/L	-	-	-	9.49	9.64	9.02	9.12	8.94	9.05	8.12	8.81	7.94	8.82
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.00215	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00242</u>	<u>0.00252</u>	<u>0.00247</u>	<u>0.00248</u>	<u>0.00238</u>	<u>0.00245</u>	<u>0.00214</u>	<u>0.00241</u>	<u>0.00203</u>	<u>0.00241</u>
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.23: Water Chemistry at Sheardown Lake Southeast (SE; DL0-02) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						DL0-02-6	DL0-02-4	DL0-02-3			DL0-02-6	DL0-02-4	DL0-02-3	
						surface	surface	surface			surface	surface	bottom	surface
						28-Jul-25	28-Jul-25	24-Jul-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	128	79.7	<u>162</u>	-	-	130	83.5	<u>171</u>	<u>169</u>	-	<u>171</u>
	Specific Conductivity	µS/cm	-	126	-	<u>160</u>	-	<u>149</u>	134	-	-	-	<u>151</u>	<u>153</u>
	pH (lab)	pH	-	-	-	7.93	-	-	-	-	7.81	7.77	-	7.73
	pH (field)	pH	6.5 - 9.0	-	-	7.96	-	8.18	-	-	-	-	7.85	7.97
	Temperature, Field	mg/L	-	7.98 - 11.6	4.30 - 12.5	10.7	-	<u>11.7</u>	5.45 - 8.66	5.75 - 7.85	-	-	7.50	7.80
	Hardness (as CaCO ₃) -Total	mg/L	-	63.2	37.7	<u>74.2</u>	-	-	63.4	38.6	<u>74</u>	<u>73.6</u>	-	<u>73.7</u>
	Total Suspended Solids (TSS)	mg/L	-	5.00	-	<1	-	-	-	-	2.70	2.60	-	2.40
	Total Dissolved Solids (TDS)	mg/L	-	83.5	58.0	<u>118</u>	-	-	84.0	59.0	<u>79.0</u>	<u>74.0</u>	-	<u>76.0</u>
	Dissolved Oxygen	mg/L	-	9.78	10.8	<u>10.8</u>	-	<u>10.6</u>	9.28	11.3	-	-	<u>11.0</u>	11.4
	Dissolved Oxygen	%	-	-	96.9	97.1	-	97.7	-	89.6	-	-	93.2	97.4
	Turbidity (lab)	NTU	-	-	-	<u>11.2</u>	-	-	-	-	<u>7.82</u>	<u>8.26</u>	-	<u>8.22</u>
	Turbidity (field)	NTU	-	-	353	9.32	5.12	16.7	-	3.79	-	-	<u>7.40</u>	<u>6.54</u>
	Alkalinity (as CaCO ₃)	mg/L	-	44.0 - 63.0	30.0 - 47.9	<u>52.9</u>	-	-	49.0 - 64.0	29.5 - 49.4	<u>51.4</u>	<u>50.7</u>	-	<u>50.6</u>
Nutrients and Organics	Total Ammonia	mg/L	1.27 - 6.02	0.180	-	<0.005	-	-	0.0900	0.0550	0.0202	0.0158	-	0.0155
	Nitrate ^e	mg/L	3.00	-	-	0.603	-	-	-	-	0.552	0.542	-	0.544
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	-	-	-	-	<0.01	<0.01	-	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.395	0.235	0.0960	-	-	0.445	0.210	0.154	0.144	-	0.208
	Dissolved Organic Carbon	mg/L	-	2.00	3.65	<u>2.67</u>	-	-	1.90	3.82	1.86	1.74	-	1.89
	Total Organic Carbon	mg/L	-	2.05	4.81	<u>2.52</u>	-	-	2.00	3.86	<u>2.12</u>	<u>3.03</u>	-	<u>2.40</u>
	Total Phosphorus	mg/L	-	0.0160	0.00700	<u>0.0180</u>	-	-	0.00950	0.0235	0.00620	0.00500	-	0.00470
	Phenols	mg/L	0.00400	-	-	<0.001	-	-	-	-	<0.001	<0.001	-	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	-	-	-	-	<0.1	<0.1	-	<0.1
	Chloride (Cl) ^e	mg/L	120	3.50	1.42	<u>4.44</u>	-	-	5.00	1.38	<u>4.11</u>	<u>4.01</u>	-	<u>4.03</u>
	Sulphate (SO ₄)	mg/L	309	4.00	4.48	<u>18.0</u>	-	-	4.00	4.37	<u>16.3</u>	<u>15.8</u>	-	<u>15.9</u>
Total Metals	Aluminum (Al) ^e	mg/L	0.173	0.171	0.00850	<u>0.171</u>	-	-	0.200	0.0128	<u>0.170</u>	<u>0.146</u>	-	<u>0.188</u>
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	-	-	-	-	0.000100	<0.0001	-	<0.0001
	Barium (Ba)	mg/L	1.00	0.00593	0.00692	<u>0.00962</u>	-	-	0.00652	0.00670	<u>0.00991</u>	<u>0.00981</u>	-	<u>0.00982</u>
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	-	-	-	-	<0.00002	<0.00002	-	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	-	-	-	-	<0.00005	<0.00005	-	<0.00005
	Boron (B)	mg/L	1.50	-	-	0.0120	-	-	-	-	0.0110	0.0100	-	0.0100
	Cadmium (Cd)	mg/L	0.000161 - 0.000175	-	-	0.00000520	-	-	-	-	<0.000005	<0.000005	-	<0.000005
	Calcium (Ca)	mg/L	-	12.5	7.42	<u>13.7</u>	-	-	12.8	7.49	<u>14.1</u>	<u>14.1</u>	-	<u>13.8</u>

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

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Table B.23: Water Chemistry at Sheardown Lake Southeast (SE; DL0-02) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						DL0-02-6	DL0-02-4	DL0-02-3			DL0-02-6	DL0-02-4	DL0-02-3	
						surface	surface	surface			surface	surface	bottom	surface
						28-Jul-25	28-Jul-25	24-Jul-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
Total Metals	Cesium (Cs)	mg/L	-	-	-	0.0000280	-	-	-	-	0.0000250	0.0000240	-	0.0000290
	Chromium (Cr)	mg/L	0.00500	-	-	0.000540	-	-	0.000810	-	0.000550	0.000680	-	0.000540
	Cobalt (Co)	mg/L	0.00103 - 0.00107	-	-	0.000150	-	-	-	-	0.000120	0.000120	-	0.000130
	Copper (Cu)	mg/L	0.00241 - 0.00261	0.00242	0.000990	0.00120	-	-	0.00187	0.000905	0.00110	0.00110	-	0.00111
	Iron (Fe)	mg/L	0.300	0.208	-	0.168	-	-	0.215	0.0190	0.162	0.149	-	0.181
	Lead (Pb)	mg/L	0.00327 - 0.00369	0.000230	-	0.000227	-	-	0.000500	-	0.000166	0.000162	-	0.000170
	Lithium (Li)	mg/L	-	-	-	0.00210	-	-	0.00500	-	0.00150	0.00160	-	0.00140
	Magnesium (Mg)	mg/L	-	7.76	4.67	<u>9.72</u>	-	-	7.83	4.82	<u>9.41</u>	<u>9.32</u>	-	<u>9.54</u>
	Manganese (Mn)	mg/L	1.05 - 1.10	0.00622	0.000990	<u>0.00710</u>	-	-	0.0209	0.000980	0.00607	0.00534	-	0.00567
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	-	-	-	-	<0.000005	<0.000005	-	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000752	0.000164	0.00125	-	-	0.000788	0.000164	<u>0.00119</u>	<u>0.00114</u>	-	<u>0.00118</u>
	Nickel (Ni)	mg/L	0.0972 - 0.104	0.000840	-	<u>0.000970</u>	-	-	0.00103	-	0.000940	0.000840	-	0.000860
	Potassium (K)	mg/L	-	0.884	0.960	<u>1.72</u>	-	-	0.895	0.945	<u>1.60</u>	<u>1.59</u>	-	<u>1.62</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00316	-	-	-	-	0.00324	0.00297	-	0.00320
	Selenium (Se)	mg/L	0.001	-	-	0.0000770	-	-	-	-	0.0000550	0.0000720	-	0.0000650
	Silicon (Si)	mg/L	-	0.902	0.520	<u>0.940</u>	-	-	1.03	0.500	0.940	0.910	-	0.990
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	-	-	-	-	<0.00001	<0.00001	-	<0.00001
	Sodium (Na)	mg/L	-	2.00	1.00	1.79	-	-	2.00	0.968	1.83	1.82	-	1.88
	Strontium (Sr)	mg/L	-	0.00856	0.00875	<u>0.0199</u>	-	-	0.0124	0.00861	<u>0.0186</u>	<u>0.0184</u>	-	<u>0.0188</u>
	Sulphur (S)	mg/L	-	-	-	6.21	-	-	-	-	5.39	5.40	-	5.58
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	-	-	-	-	<0.00001	<0.00001	-	<0.00001
	Thorium (Th)	mg/L	-	-	-	0.000190	-	-	-	-	0.000150	0.000130	-	0.000160
	Tin (Sn)	mg/L	-	0.000340	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Titanium (Ti)	mg/L	-	0.0130	-	0.00825	-	-	-	-	0.00804	0.00726	-	0.00904
	Tungsten (W)	mg/L	-	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Uranium (U)	mg/L	-	-	-	<u>0.00189</u>	-	-	-	-	<u>0.00172</u>	<u>0.00170</u>	-	<u>0.00170</u>
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	-	-	-	-	<0.0005	<0.0005	-	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	-	-	-	-	<0.003	<0.003	-	<0.003
	Zirconium (Zr)	mg/L	-	-	-	0.000440	-	-	-	-	0.000340	0.000340	-	0.000370
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0237	0.00430	<u>0.0334</u>	-	-	0.0112	0.0122	<u>0.0396</u>	<u>0.0365</u>	-	<u>0.0527</u>
	Antimony (Sb)	mg/L	-	0.000255	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Barium (Ba)	mg/L	-	0.00532	0.00683	<u>0.00885</u>	-	-	0.00568	0.00674	<u>0.00923</u>	<u>0.00923</u>	-	<u>0.00924</u>
	Beryllium (Be)	mg/L	-	-	-	<0.00002	-	-	-	-	<0.00002	<0.00002	-	<0.00002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.23: Water Chemistry at Sheardown Lake Southeast (SE; DL0-02) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						DL0-02-6	DL0-02-4	DL0-02-3			DL0-02-6	DL0-02-4	DL0-02-3	
						surface	surface	surface			surface	surface	bottom	surface
						28-Jul-25	28-Jul-25	24-Jul-25			21-Aug-25	21-Aug-25	21-Aug-25	21-Aug-25
Dissolved Metals	Bismuth (Bi)	mg/L	-	-	-	<0.00005	-	-	-	-	<0.00005	<0.00005	-	<0.00005
	Boron (B)	mg/L	-	-	-	0.0140	-	-	-	-	0.0110	0.0100	-	0.0100
	Cadmium (Cd)	mg/L	0.000215 - 0.000230	-	-	<0.000005	-	-	-	-	<0.000005	<0.000005	-	<0.000005
	Calcium (Ca)	mg/L	-	12.3	7.34	14.0	-	-	13.0	7.40	14.5	14.3	-	14.5
	Cesium (Cs)	mg/L	-	-	-	<0.00001	-	-	-	-	<0.00001	<0.00001	-	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	-	-	-	-	<0.0005	<0.0005	-	<0.0005
	Cobalt (Co)	mg/L	0.000515 - 0.000535	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Copper (Cu)	mg/L	0.000888 - 0.00230	0.00107	0.000950	0.00101	-	-	0.000940	0.000890	0.000770	0.000760	-	0.000780
	Iron (Fe)	mg/L	-	-	-	0.0230	-	-	-	-	0.0190	0.0170	-	0.0200
	Lead (Pb)	mg/L	0.00577 - 0.00703	0.0000710	-	<0.00005	-	-	-	-	<0.00005	<0.00005	-	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00110	-	-	0.00107	-	<u>0.00150</u>	<u>0.00140</u>	-	<u>0.00150</u>
	Magnesium (Mg)	mg/L	-	7.50	4.60	9.55	-	-	7.83	4.88	10.0	10.1	-	10.0
	Manganese (Mn)	mg/L	0.470 - 0.610	0.00432	0.000345	0.00130	-	-	0.00204	0.000594	0.00108	0.000560	-	0.000740
	Mercury (Hg)	mg/L	-	-	-	<0.000005	-	-	-	-	<0.000005	<0.000005	-	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000702	0.000157	0.00133	-	-	0.000754	0.000166	0.00114	0.00111	-	0.00113
	Nickel (Ni)	mg/L	0.00190 - 0.00200	0.000650	-	<u>0.000680</u>	-	-	0.000670	-	0.000520	0.000530	-	0.000520
	Potassium (K)	mg/L	-	0.870	0.945	1.76	-	-	0.884	0.950	1.53	1.53	-	1.54
	Rubidium (Rb)	mg/L	-	-	-	0.00299	-	-	-	0.000970	0.00272	0.00262	-	0.00253
	Selenium (Se)	mg/L	-	-	-	0.0000970	-	-	-	-	0.0000650	0.0000600	-	0.0000710
	Silicon (Si)	mg/L	-	0.630	0.510	0.682	-	-	0.692	0.506	0.743	0.740	-	0.738
	Silver (Ag)	mg/L	-	-	-	<0.00001	-	-	-	-	<0.00001	<0.00001	-	0.0000110
	Sodium (Na)	mg/L	-	2.00	0.980	1.83	-	-	2.00	1.01	1.82	1.82	-	1.84
	Strontium (Sr) ^e	mg/L	2.50	0.00813	0.00858	0.0197	-	-	0.0122	0.00860	0.0186	0.0182	-	0.0186
	Sulphur (S)	mg/L	-	-	-	6.47	-	-	-	1.65	5.62	5.52	-	5.60
	Tellurium (Te)	mg/L	-	-	-	<0.0002	-	-	-	-	<0.0002	<0.0002	-	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	-	-	-	-	<0.00001	<0.00001	-	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.00121	-	-	-	-	0.000940	0.000890	-	<0.001
	Tungsten (W)	mg/L	-	-	-	<0.0001	-	-	-	-	<0.0001	<0.0001	-	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00180	-	-	-	-	0.00153	0.00149	-	0.00153
	Vanadium (V)	mg/L	-	-	-	<0.0005	-	-	-	-	<0.0005	<0.0005	-	<0.0005
	Zinc (Zn)	mg/L	-	-	-	0.00140	-	-	-	-	<0.001	<0.001	-	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	-	-	-	-	<0.0003	<0.0003	-	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.24: Water Chemistry at Mine-exposed Tom River Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event		Summer Sampling Event		Fall Sampling Event	
						I0-01	I0-02	I0-01	I0-02	I0-01	I0-02
						01-Jul-25	01-Jul-25	03-Aug-25	04-Aug-25	28-Aug-25	28-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	-	59.5	50.0	133	161	163	201	203
	Specific Conductivity	µS/cm	-	-	48.0	49.7	130	167	167	211	210
	pH (lab)	pH	-	-	-	7.10	7.38	8.10	8.12	8.05	8.06
	pH (field)	pH	6.5 - 9.0	-	7.09 - 7.66	7.93	7.77	8.09	8.19	8.15	8.07
	Temperature, Field	mg/L	-	-	0.330 - 6.40	4.60	4.60	8.90	7.70	1.00	1.40
	Hardness (as CaCO ₃) -Total	mg/L	-	-	28.3	23.6	65.7	82.1	81.3	102	103
	Total Suspended Solids (TSS)	mg/L	-	-	-	<1	1.40	<1	<1	<1.1	<1.3
	Total Dissolved Solids (TDS)	mg/L	-	-	-	23.0	69.0	86.0	85.0	119	118
	Dissolved Oxygen	mg/L	> 9.5	-	11.7	12.5	12.6	11.1	11.5	13.9	13.7
	Dissolved Oxygen	%	-	-	90.1	97.0	97.4	96.3	96.7	97.7	97.5
	Turbidity (lab)	NTU	-	-	-	1.08	0.820	0.440	0.670	0.550	0.790
	Turbidity (field)	NTU	-	-	-	1.38	0.770	0.0200	0.280	0.360	1.88
	Alkalinity (as CaCO ₃)	mg/L	-	-	4.60 - 29.0	25.8	59.4	77.7	77.9	91.9	94.7
Nutrients and Organics	Total Ammonia ^e	mg/L	1.27 - 3.98	-	-	0.0195	<0.005	0.00640	0.00790	<0.005	<0.005
	Nitrate ^e	mg/L	3.00	-	-	<0.02	0.0220	<0.02	<0.02	<0.02	<0.02
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	-	0.0660	0.0780	0.106	0.128	0.0930	0.0970
	Dissolved Organic Carbon	mg/L	-	-	3.40	1.11	2.11	1.60	1.92	1.98	1.76
	Total Organic Carbon	mg/L	-	-	-	1.29	2.22	2.26	2.50	3.37	1.77
	Total Phosphorus	mg/L	-	-	0.00970	0.00310	0.00300	<0.002	<0.002	<0.002	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	-	1.79	0.540	3.50	2.17	2.32	5.62	5.71
	Sulphate (SO ₄) ^e	mg/L	128 - 218	-	2.75	<0.3	3.40	0.900	1.00	1.73	1.77
Total Metals	Aluminum (Al) ^e	mg/L	0.179	-	0.202	0.0351	0.0254	0.0108	0.0215	0.0100	0.0128
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	0.000100	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	0.000110	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	-	0.00386	0.00270	0.00693	0.00797	0.00787	0.00907	0.00926
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000400 - 0.000114	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	-	5.59	4.71	13.0	16.4	16.2	19.3	19.3
	Cesium (Cs)	mg/L	-	-	0.0000360	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co) ^e	mg/L	0.000778 - 0.000866	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200	-	0.00104	<0.0005	0.000850	0.000980	0.000980	0.000870	0.000870
	Iron (Fe) ^e	mg/L	0.326	-	0.232	0.0330	0.0320	0.0110	0.0200	0.0130	0.0130
	Lead (Pb)	mg/L	0.00100 - 0.00192	-	0.000222	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	-	3.40	2.87	8.06	10.0	9.92	13.1	13.2
	Manganese (Mn)	mg/L	0.768 - 0.901	-	0.00377	0.000700	0.00192	0.000380	0.000580	0.000680	0.000700
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	-	0.000233	0.0000780	0.000416	0.000269	0.000260	0.000268	0.000286
	Nickel (Ni) ^e	mg/L	0.0250 - 0.0708	-	-	<0.0005	0.000650	<0.0005	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	-	0.520	0.352	1.18	0.933	0.915	0.997	1.00
	Rubidium (Rb)	mg/L	-	-	0.00138	0.000550	0.00248	0.00151	0.00144	0.00118	0.00128
	Selenium (Se)	mg/L	0.00200	-	-	<0.00005	<0.00005	0.0000750	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	0.710	0.470	0.520	0.790	0.820	0.980	1.00
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	0.995	0.460	1.81	2.34	2.33	3.53	3.59
	Strontium (Sr)	mg/L	-	-	0.00528	0.00325	0.0100	0.0112	0.0112	0.0138	0.0141
	Sulphur (S)	mg/L	-	-	-	<0.5	1.07	<0.5	<0.5	0.820	0.870
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	0.0000180	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.00142	0.00106	0.000320	0.00110	0.000360	0.000410
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000136	0.00124	0.00179	0.00190	0.00254	0.00258
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.24: Water Chemistry at Mine-exposed Tom River Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event		Summer Sampling Event		Fall Sampling Event	
						I0-01	I0-02	I0-01	I0-02	I0-01	I0-02
						01-Jul-25	01-Jul-25	03-Aug-25	04-Aug-25	28-Aug-25	28-Aug-25
Dissolved Metals	Aluminum (Al)	mg/L	-	-	0.0357	0.0130	0.00500	0.00700	0.00450	0.00440	0.00390
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	-	0.00323	0.00251	0.00670	0.00832	0.00816	0.00938	0.00954
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000329 - 0.000158	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	-	5.61	4.73	13.0	14.8	14.8	19.3	19.3
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000433	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00267	-	0.000940	0.000390	0.000830	0.000960	0.000910	0.000820	0.000860
	Iron (Fe)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Lead (Pb) ^e	mg/L	0.00294 - 0.00559	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	0.00110	0.00110	<0.001
	Magnesium (Mg)	mg/L	-	-	3.32	3.22	8.48	9.59	9.53	13.2	13.1
	Manganese (Mn) ^e	mg/L	0.240 - 0.320	-	0.00265	0.000330	0.000900	0.000280	0.000250	0.000560	0.000550
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	-	0.000241	0.0000960	0.000395	0.000268	0.000260	0.000288	0.000277
	Nickel (Ni)	mg/L	0.000600 - 0.00170	-	-	<0.0005	0.000570	<0.0005	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	-	0.470	0.357	1.23	0.959	0.946	1.01	1.02
	Rubidium (Rb)	mg/L	-	-	0.00110	0.000470	0.00264	0.00147	0.00136	0.00117	0.00128
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	0.635	0.424	0.513	0.787	0.777	0.939	0.964
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	0.968	0.485	1.89	2.31	2.31	3.55	3.55
	Strontium (Sr) ^e	mg/L	2.50	-	0.00504	0.00303	0.00988	0.0113	0.0112	0.0140	0.0142
	Sulphur (S)	mg/L	-	-	-	<0.5	1.15	<0.5	<0.5	0.840	0.790
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.000340	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000135	0.00125	0.00180	0.00186	0.00252	0.00253
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event												
						G0-09-A	G0-09	G0-09-B	G0-03	G0-01	F0-01	E0-10	E0-03	E0-21	E0-20	C0-10	C0-05	C0-01
						30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	01-Jul-25	01-Jul-25	01-Jul-25
Conventional	Conductivity (lab)	µS/cm	-	99.0	70.0	52.6	29.9	36.2	36.1	34.2	75.4	37.2	34.8	34.5	36.7	39.4	55.9	45.8
	Specific Conductivity	µS/cm	-	96.0	65.0	31.2	29.2	35.4	35.6	33.2	73.5	36.6	34.5	34.2	36.6	39.3	54.3	43.8
	pH (lab)	pH	-	-	-	7.24	6.96	7.03	7.05	7.09	7.29	6.95	6.86	6.93	6.94	7.09	7.13	7.00
	pH (field)	pH	6.5 - 9.0	-	-	7.46	7.41	7.28	7.48	7.52	7.64	7.55	7.39	7.49	7.67	8.14	8.10	8.07
	Temperature, Field	mg/L	-	-0.0900 - 11.8	-0.0400 - 9.84	7.80	6.80	7.10	6.50	6.10	6.10	5.70	5.30	5.20	5.50	4.10	4.40	4.80
	Hardness (as CaCO ₃) -Total	mg/L	-	47.5	33.3	26.0	13.9	16.9	17.0	16.5	38.0	17.4	16.2	16.3	17.4	17.7	25.4	19.9
	Total Suspended Solids (TSS)	mg/L	-	30.0	15.6	<1	5.60	<1	1.50	1.90	<1	1.80	1.70	2.00	3.00	1.30	1.60	2.50
	Total Dissolved Solids (TDS)	mg/L	-	68.5	60.0	29.0	33.0	23.0	25.0	25.0	40.0	21.0	24.0	<17	19.0	30.0	32.0	34.0
	Dissolved Oxygen	mg/L	> 9.5	10.7	11.2	11.2	11.5	11.5	11.8	12.1	12.0	12.3	12.4	12.4	12.2	12.5	12.5	12.1
	Dissolved Oxygen	%	-	-	-	94.2	94.0	95.1	95.7	97.7	96.2	97.9	98.0	97.2	97.3	95.8	96.2	94.6
	Turbidity (lab)	NTU	-	-	-	1.00	<u>10.0</u>	6.55	4.95	4.95	0.500	4.55	4.94	5.08	5.11	4.94	4.96	5.26
	Turbidity (field)	NTU	-	-	-	0.800	7.87	5.70	4.72	4.26	0.930	4.40	4.97	4.82	5.22	5.09	4.51	4.82
	Alkalinity (as CaCO ₃)	mg/L	-	5.00 - 43.0	5.00 - 34.0	27.1	14.2	17.5	17.0	15.4	36.1	18.4	16.5	16.0	18.0	19.6	23.4	20.9
Nutrients and Organics	Total Ammonia ^e	mg/L	0.413 - 3.98	0.600	0.100	<0.005	0.00990	0.00580	0.00810	0.00590	<0.005	<0.005	<0.005	0.0342	0.00520	<0.005	<0.005	<0.005
	Nitrate ^e	mg/L	3.00	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	0.104	<0.02	<0.02	<0.02	<0.02	<0.02	0.0830	0.0350
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	1.19	0.280	0.0970	0.0620	0.0620	0.0760	0.0700	0.0700	0.0630	0.0630	0.113	0.134	<0.05	0.0620	0.113
	Dissolved Organic Carbon	mg/L	-	3.40	4.70	1.42	1.80	1.50	1.10	1.17	0.880	1.32	1.71	1.12	1.08	1.26	1.93	4.92
	Total Organic Carbon	mg/L	-	3.70	4.80	1.78	1.86	1.79	1.90	1.68	2.02	1.71	1.85	1.25	1.31	1.57	1.75	1.88
	Total Phosphorus	mg/L	-	0.0400	0.0300	0.0171	0.00800	0.00560	0.00420	0.00390	0.00220	0.00450	0.00450	0.00410	0.00480	0.00410	0.00420	0.00570
	Phenols	mg/L	0.00400	-	-	<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
Anions	Bromide (Br)	mg/L	-	-	-	<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
	Chloride (Cl) ^e	mg/L	120	9.00	1.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.590	1.17	0.800
	Sulphate (SO ₄) ^e	mg/L	128 - 218	2.00	2.00	<0.3	<0.3	<0.3	<0.3	<0.3	2.01	0.390	0.320	0.300	0.360	0.630	2.99	1.50
Total Metals	Aluminum (Al) ^e	mg/L	0.966	0.507	0.374	0.0379	0.188	0.139	0.128	0.117	0.0186	0.130	0.106	0.104	0.132	0.180	0.131	0.153
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00685	0.00530	0.00322	0.00358	0.00347	0.00326	0.00316	0.00301	0.00311	0.00300	0.00302	0.00329	0.00377	0.00424	0.00377
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000370 - 0.0000729	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	10.0	6.95	5.22	2.81	3.46	3.49	3.40	6.92	3.54	3.32	3.30	3.50	3.60	4.81	3.99
	Cesium (Cs)	mg/L	-	-	-	<0.00001	0.0000300	0.0000210	0.0000160	0.0000180	<0.00001	0.0000170	0.0000160	0.0000150	0.0000180	0.0000220	0.0000180	0.0000230
	Chromium (Cr)	mg/L	0.00500	-	-	0.000700	0.000670	0.000580	0.000500	0.000500	<0.0005	0.000510	<0.0005	0.000500	0.000590	<0.0005	<0.0005	<0.0005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event												
						G0-09-A	G0-09	G0-09-B	G0-03	G0-01	F0-01	E0-10	E0-03	E0-21	E0-20	C0-10	C0-05	C0-01
						30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	01-Jul-25	01-Jul-25	01-Jul-25
Total Metals	Cobalt (Co) ^e	mg/L	0.000778	-	-	<0.0001	0.000120	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200	0.00154	0.00120	<0.0005	0.000810	0.000680	0.000640	0.000600	<0.0005	0.000590	0.000610	0.000600	0.000620	0.000600	0.000590	0.000600
	Iron (Fe) ^e	mg/L	0.874	0.505	0.380	0.0310	0.217	0.143	0.109	0.109	0.0220	0.115	0.0980	0.100	0.130	0.134	0.112	0.138
	Lead (Pb)	mg/L	0.00100	0.000540	0.000359	<0.00005	0.000205	0.000135	0.000102	0.000105	<0.00005	0.000109	0.000102	0.000102	0.000129	0.000119	0.000104	0.000124
	Lithium (Li)	mg/L	-	0.00130	-	<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
	Magnesium (Mg)	mg/L	-	5.00	3.85	3.15	1.68	2.00	2.00	1.95	<u>5.02</u>	2.08	1.93	1.95	2.11	2.12	3.24	2.42
	Manganese (Mn)	mg/L	0.768 - 0.777	0.0141	0.00763	0.000530	0.00350	0.00220	0.00148	0.00164	0.000730	0.00160	0.00153	0.00158	0.00211	0.00187	0.00232	0.00253
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000165	0.000106	0.000106	0.0000650	0.0000640	0.0000850	0.0000820	<u>0.000127</u>	0.0000730	0.0000700	0.0000800	0.0000810	0.000100	<u>0.000239</u>	<u>0.000143</u>
	Nickel (Ni) ^e	mg/L	0.0250	0.00255	-	<0.0005	0.00144	<0.0005	<0.0005	<0.0005	<0.0005	0.000760	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.682	0.663	0.413	0.409	0.415	0.403	0.394	0.442	0.390	0.368	0.364	0.389	0.437	0.568	0.483
	Rubidium (Rb)	mg/L	-	-	-	0.000700	0.00127	0.00102	0.00103	0.000900	0.000750	0.000940	0.000900	0.000900	0.000950	0.00112	0.00116	0.00110
	Selenium (Se)	mg/L	0.00200	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	1.59	0.790	0.570	0.700	0.650	0.660	0.630	0.450	0.640	0.580	0.570	0.650	0.790	0.640	0.680
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	0.773	0.818	0.435	0.420	0.471	0.435	0.507	0.311	0.423	0.415	0.420	0.431	0.474	0.629	0.539
	Strontium (Sr)	mg/L	-	0.0130	0.00571	0.00394	0.00313	0.00339	0.00361	0.00324	0.00439	0.00321	0.00306	0.00307	0.00318	0.00364	0.00546	0.00422
	Sulphur (S)	mg/L	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	0.680	<0.5	<0.5	<0.5	<0.5	<0.5	0.760	<0.5
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	0.000170	0.000120	0.000100	<0.0001	<0.0001	0.000110	<0.0001	<0.0001	0.000110	0.000140	0.000100	0.000120
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0500	0.0180	0.00146	0.0112	0.00760	0.00653	0.00570	0.000890	0.00631	0.00533	0.00514	0.00682	0.00792	0.00613	0.00726
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000184	0.000195	0.000183	0.000168	0.000192	0.000228	0.000163	0.000155	0.000155	0.000163	0.000168	0.000360	0.000232
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	0.000250	0.000210	0.000200	<0.0002	<0.0002	0.000200	<0.0002	<0.0002	0.000270	0.000310	0.000240	0.000240
Dissolved Metals	Aluminum (Al)	mg/L	-	0.479	0.120	0.0149	0.0448	0.0368	0.0439	0.0296	0.00450	0.0191	0.0364	0.0237	0.0240	0.0410	0.0363	0.0541
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0100	0.00954	0.00306	0.00224	0.00249	0.00266	0.00244	0.00293	0.00237	0.00241	0.00239	0.00251	0.00271	0.00346	0.00311
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000483 - 0.000106	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Spring Sampling Event												
						G0-09-A	G0-09	G0-09-B	G0-03	G0-01	F0-01	E0-10	E0-03	E0-21	E0-20	C0-10	C0-05	C0-01
						30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	01-Jul-25	01-Jul-25	01-Jul-25
Dissolved Metals	Calcium (Ca)	mg/L	-	15.0	16.2	5.20	2.70	3.37	3.46	3.23	6.96	3.49	3.27	3.27	3.47	3.66	4.87	4.04
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00449	0.00200	0.000850	0.000390	0.000480	0.000450	0.000470	0.000430	0.000260	0.000380	0.000420	0.000430	0.000430	0.000450	0.000480	0.000480
	Iron (Fe)	mg/L	-	0.470	0.120	<0.01	0.0290	0.0240	0.0280	0.0190	<0.01	0.0140	0.0220	0.0160	0.0180	0.0260	0.0260	0.0320
	Lead (Pb) ^e	mg/L	0.00296 - 0.00667	0.000500	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	0.00130	-	<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
	Magnesium (Mg)	mg/L	-	8.00	9.21	3.28	1.63	1.99	1.98	1.89	5.30	2.14	1.98	1.97	2.11	2.18	3.38	2.46
	Manganese (Mn) ^e	mg/L	0.160 - 0.350	0.0129	0.00299	0.000250	0.000630	0.000500	0.000380	0.000320	0.000130	0.000350	0.000360	0.000350	0.000410	0.000410	0.00108	0.000800
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000499	0.000316	0.0000670	0.0000760	0.0000760	0.0000790	0.0000810	0.000124	0.0000780	0.0000700	0.0000720	0.0000810	0.0000970	0.000242	0.000148
	Nickel (Ni)	mg/L	0.000600 - 0.00190	0.00500	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.800	0.910	0.414	0.366	0.382	0.384	0.360	0.462	0.357	0.356	0.351	0.356	0.390	0.538	0.446
	Rubidium (Rb)	mg/L	-	-	0.000660	0.000560	0.000640	0.000580	0.000640	0.000530	0.000700	0.000500	0.000520	0.000520	0.000560	0.000690	0.000900	0.000810
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	1.98	1.10	0.528	0.452	0.473	0.496	0.429	0.428	0.413	0.452	0.425	0.448	0.495	0.492	0.521
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.82	2.40	0.457	0.437	0.481	0.447	0.489	0.333	0.448	0.435	0.431	0.451	0.497	0.664	0.556
	Strontium (Sr) ^e	mg/L	2.50	0.0189	0.0170	0.00385	0.00288	0.00322	0.00344	0.00299	0.00436	0.00301	0.00293	0.00294	0.00305	0.00326	0.00507	0.00386
	Sulphur (S)	mg/L	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	0.820	<0.5	<0.5	<0.5	<0.5	<0.5	0.890	<0.5
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0400	0.00158	0.000420	0.00158	0.00116	0.00149	0.00102	<0.0003	0.000640	0.00111	0.000650	0.000830	0.00133	0.00124	0.00161
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000173	0.000132	0.000143	0.000140	0.000138	0.000211	0.000128	0.000121	0.000125	0.000129	0.000143	0.000327	0.000201
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	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
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event											
						G0-09-A	G0-09	G0-09-B	G0-03	G0-01	F0-01	E0-10	E0-03	E0-03	E0-21	E0-21	E0-20
						03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	02-Aug-25	03-Aug-25	02-Aug-25	03-Aug-25	02-Aug-25
Conventional	Conductivity (lab)	µS/cm	-	171	180	117	127	123	117	124	279	133	126	130	126	131	129
	Specific Conductivity	µS/cm	-	168	154	120	131	127	121	126	209	136	130	134	131	134	134
	pH (lab)	pH	-	-	-	7.95	8.09	8.10	8.00	8.01	8.17	8.03	8.05	8.03	8.07	8.06	8.11
	pH (field)	pH	6.5 - 9.0	-	-	7.91	8.11	8.09	8.09	8.10	8.24	8.11	8.13	8.16	8.13	8.20	8.15
	Temperature, Field	mg/L	-	5.57 - 14.4	4.60 - 12.5	<u>5.50</u>	6.20	6.70	6.90	7.40	8.10	7.20	10.7	8.20	10.6	8.30	11.2
	Hardness (as CaCO ₃) -Total	mg/L	-	86.1	78.1	55.6	62.4	60.2	57.7	60.3	145	65.6	65.4	63.5	66	63.9	68
	Total Suspended Solids (TSS)	mg/L	-	14.0	21.2	3.00	1.20	1.20	1.30	<1	<1	<1	2.70	<1	1.90	<1	2.40
	Total Dissolved Solids (TDS)	mg/L	-	111	105	76.0	80.0	80.0	77.0	71.0	153	80.0	64.0	80.0	70.0	81.0	68.0
	Dissolved Oxygen	mg/L	> 9.5	9.74	10.8	11.8	11.6	11.6	11.5	11.5	11.1	11.5	10.7	11.3	10.8	11.4	10.6
	Dissolved Oxygen	%	-	-	-	93.7	94.1	94.9	94.9	95.9	94.3	95.6	96.2	96.1	96.8	96.7	97.0
	Turbidity (lab)	NTU	-	-	-	<u>23.4</u>	15.2	18.2	15.2	15.0	0.140	14.4	<u>26.1</u>	12.2	<u>26.9</u>	14.2	21.8
	Turbidity (field)	NTU	-	-	-	20.3	12.7	17.1	13.2	12.1	-0.130	11.6	24.7	10.5	25.6	11.2	18.9
	Alkalinity (as CaCO ₃)	mg/L	-	26.0 - 84.0	26.0 - 80.0	53.4	59.6	57.9	56.2	57.6	91.6	60.9	55.7	59.9	58.0	59.7	59.3
Nutrients and Organics	Total Ammonia ^e	mg/L	0.413 - 3.98	0.200	0.130	0.00820	0.0216	0.00760	0.0200	0.00580	0.00520	0.0104	0.00950	<0.005	0.00900	0.00600	<0.005
	Nitrate ^e	mg/L	3.00	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	2.02	0.119	0.0960	0.0820	0.0950	0.0850	0.114
	Nitrite ^e	mg/L	0.0600	0.0170	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.270	0.220	0.0980	0.106	0.144	<0.5	0.0900	0.281	0.125	0.0940	0.0910	0.110	0.104	0.0890
	Dissolved Organic Carbon	mg/L	-	1.50	3.81	0.950	1.26	1.29	1.46	10.7	1.35	1.42	<u>1.63</u>	0.950	<u>2.09</u>	1.06	<u>1.98</u>
	Total Organic Carbon	mg/L	-	1.60	2.50	<u>1.81</u>	1.60	<u>1.73</u>	<u>1.79</u>	<u>1.74</u>	<u>2.09</u>	<u>2.25</u>	<u>2.45</u>	<u>1.63</u>	<u>2.12</u>	1.45	<u>2.16</u>
	Total Phosphorus	mg/L	-	0.0320	0.0273	0.0127	0.00920	0.0103	0.00660	0.00720	<0.002	0.00710	0.0166	0.00660	0.0144	0.00730	0.0117
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	13.0	8.36	2.26	1.93	2.05	1.67	1.71	2.54	1.75	1.64	1.77	1.65	1.82	1.68
	Sulphate (SO ₄) ^e	mg/L	128 - 218	4.00	5.19	1.73	1.50	1.56	1.34	1.41	37.2	3.71	3.25	3.05	3.26	3.05	3.36
Total Metals	Aluminum (Al) ^e	mg/L	0.966	1.04	1.27	0.707	0.304	0.555	0.396	0.350	0.00880	0.431	0.758	0.224	0.798	0.313	0.497
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	0.000130	<0.0001	0.000110	<0.0001	<0.0001	<0.0001	0.000100	0.000170	0.000110	0.000180	0.000110	0.000150
	Barium (Ba)	mg/L	1.00	0.0144	0.0155	0.0114	0.00968	0.0110	0.00977	0.00998	0.0128	0.0109	0.0122	0.00978	0.0126	0.0104	0.0113
	Beryllium (Be)	mg/L	0.000130	-	-	0.0000320	<0.00002	0.0000250	<0.00002	<0.00002	<0.00002	0.0000220	0.0000300	<0.00002	0.0000310	<0.00002	0.0000230
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000370 - 0.0000729	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00000680	0.00000610	0.00000640	<0.000005	0.00000570
	Calcium (Ca)	mg/L	-	18.4	16.4	11.5	12.9	12.4	11.9	12.3	24.4	13.0	12.5	12.9	12.6	12.9	13.0
	Cesium (Cs)	mg/L	-	-	-	0.0000880	0.0000380	0.0000680	0.0000510	0.0000440	0.0000200	0.0000560	0.000109	0.0000410	0.000109	0.0000480	0.0000770
	Chromium (Cr)	mg/L	0.00500	0.00219	0.00256	0.00135	0.000620	0.00109	0.000820	0.000920	<0.0005	0.000880	0.00173	0.000570	0.00177	0.000780	0.00118

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event											
						G0-09-A	G0-09	G0-09-B	G0-03	G0-01	F0-01	E0-10	E0-03	E0-03	E0-21	E0-21	E0-20
						03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	02-Aug-25	03-Aug-25	02-Aug-25	03-Aug-25	02-Aug-25
Total Metals	Cobalt (Co) ^e	mg/L	0.000778	0.000420	0.000450	0.000240	0.000120	0.000200	0.000140	0.000120	0.000140	0.000150	0.000340	0.000110	0.000350	0.000140	0.000240
	Copper (Cu)	mg/L	0.00200	0.00261	0.00238	0.00168	0.00132	0.00150	0.00132	0.00129	0.000750	0.00134	0.00192	0.00121	0.00196	0.00131	0.00171
	Iron (Fe) ^e	mg/L	0.874	0.947	1.22	0.586	0.263	0.445	0.335	0.290	<0.01	0.346	0.796	0.202	0.832	0.275	0.562
	Lead (Pb)	mg/L	0.00100	0.000780	0.000780	0.000461	0.000255	0.000371	0.000279	0.000257	<0.00005	0.000287	0.000534	0.000223	0.000547	0.000267	0.000416
	Lithium (Li)	mg/L	-	-	-	0.00140	<0.001	0.00130	0.00100	0.00100	0.00180	0.00110	0.00110	0.00100	0.00120	0.00110	<0.001
	Magnesium (Mg)	mg/L	-	10.0	9.03	6.53	7.34	7.11	6.80	7.18	20.4	8.04	8.30	7.60	8.38	7.70	8.62
	Manganese (Mn)	mg/L	0.768 - 0.777	0.0131	0.0127	0.00650	0.00317	0.00487	0.00365	0.00330	0.000190	0.00375	0.00970	0.00298	0.00951	0.00423	0.00680
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000383	0.000449	<u>0.000449</u>	0.000372	<u>0.000399</u>	0.000347	0.000368	0.000572	0.000376	<u>0.000405</u>	0.000454	<u>0.000412</u>	0.000457	0.000374
	Nickel (Ni) ^e	mg/L	0.0250	0.00182	0.00149	0.000860	<0.0005	0.000710	0.000620	0.000690	<0.0005	0.000800	0.00150	0.000830	0.00156	0.000880	0.00138
	Potassium (K)	mg/L	-	1.41	1.63	1.30	1.13	1.24	1.11	1.13	<u>1.51</u>	1.20	1.38	1.13	1.40	1.16	1.29
	Rubidium (Rb)	mg/L	-	-	-	0.00347	0.00231	0.00302	0.00251	0.00258	0.00258	0.00289	0.00442	0.00251	0.00451	0.00267	0.00375
	Selenium (Se)	mg/L	0.00200	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000433	0.0000610	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	2.88	2.72	2.11	1.32	1.82	1.54	1.47	0.990	1.65	2.08	1.22	2.10	1.38	1.58
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.21	4.29	<u>2.44</u>	<u>2.34</u>	<u>2.42</u>	2.03	2.05	2.00	2.06	2.19	2.04	2.19	2.04	<u>2.29</u>
	Strontium (Sr)	mg/L	-	0.0279	0.0207	0.0147	0.0139	0.0142	0.0129	0.0128	0.0192	0.0133	0.0138	0.0131	0.0136	0.0132	0.0132
	Sulphur (S)	mg/L	-	-	-	0.620	0.520	0.520	<0.5	<0.5	13.1	1.29	1.02	1.14	1.09	1.04	1.12
	Thallium (Tl) ^e	mg/L	0.000800	-	-	0.0000160	<0.00001	0.0000130	0.0000110	0.0000100	<0.00001	0.0000110	0.0000180	<0.00001	0.0000200	0.0000100	0.0000150
	Thorium (Th)	mg/L	-	-	-	0.000740	0.000360	0.000570	0.000440	0.000370	<0.0001	0.000450	0.000900	0.000250	0.000940	0.000360	0.000630
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0640	0.0593	0.0330	0.0139	0.0252	0.0180	0.0158	<0.0003	0.0185	0.0399	0.0102	0.0426	0.0144	0.0276
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00293	0.00270	0.00274	0.00217	0.00212	0.00225	0.00216	0.00192	0.00208	0.00189	0.00212	0.00177
	Vanadium (V) ^e	mg/L	-	-	-	0.00129	0.000690	0.00101	0.000790	0.000700	<0.0005	0.000810	0.00154	0.000540	0.00162	0.000680	0.00113
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	0.000930	0.000580	0.000810	0.000640	0.000580	<0.0002	0.000640	0.000880	0.000470	0.000760	0.000530	0.000660
Dissolved Metals	Aluminum (Al)	mg/L	-	0.989	0.522	0.0296	0.0186	0.0332	0.0373	0.0309	0.00320	0.0332	0.137	0.0280	0.0338	0.0441	0.0514
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0144	0.0117	0.00723	0.00761	0.00764	0.00760	0.00777	0.0128	0.00845	0.00937	0.00873	0.00848	0.00870	0.00878
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000483 - 0.000106	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005

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						G0-09-A	G0-09	G0-09-B	G0-03	G0-01	F0-01	E0-10	E0-03	E0-03	E0-21	E0-21	E0-20
						03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	03-Aug-25	02-Aug-25	03-Aug-25	02-Aug-25	03-Aug-25	02-Aug-25
Dissolved Metals	Calcium (Ca)	mg/L	-	19.0	17.3	10.4	11.6	11.0	10.6	10.9	<u>21.5</u>	11.6	12.6	11.7	12.6	11.9	12.9
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0000190	<0.00001	0.0000250	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	0.00219	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389	0.000420	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000140	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00449	0.00303	0.00200	0.000840	0.000860	0.000860	0.000890	0.000870	0.000710	0.000830	0.00110	0.000890	0.000890	0.000900	0.000950
	Iron (Fe)	mg/L	-	0.860	0.450	0.0130	<0.01	0.0130	0.0160	0.0110	<0.01	0.0150	0.148	0.0130	0.0150	0.0170	0.0200
	Lead (Pb) ^e	mg/L	0.00296 - 0.00667	0.000750	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000163	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	0.00200	<0.001	0.00110	<0.001	0.00100	<0.001	0.00100
	Magnesium (Mg)	mg/L	-	10.0	9.54	6.17	6.92	6.65	6.36	6.64	<u>19.0</u>	7.51	7.30	7.34	7.24	7.41	7.54
	Manganese (Mn) ^e	mg/L	0.160 - 0.350	0.0131	0.00712	0.000240	0.000160	0.000210	0.000240	0.000180	<0.0001	0.000220	0.00305	0.000930	0.00114	0.00114	0.000860
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000383	0.000562	<u>0.000510</u>	<u>0.000444</u>	<u>0.000426</u>	<u>0.000389</u>	<u>0.000405</u>	<u>0.000582</u>	<u>0.000412</u>	<u>0.000400</u>	<u>0.000518</u>	<u>0.000485</u>	<u>0.000497</u>	<u>0.000501</u>
	Nickel (Ni)	mg/L	0.000600 - 0.00190	0.00500	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000620	0.000520	<0.0005	<0.0005	0.000610
	Potassium (K)	mg/L	-	1.41	1.39	1.10	1.06	1.07	1.01	1.03	<u>1.55</u>	1.08	1.11	1.12	1.07	1.14	1.10
	Rubidium (Rb)	mg/L	-	-	0.00188	0.00147	0.00140	0.00142	0.00148	0.00160	0.00246	0.00164	0.00220	0.00177	0.00189	0.00176	0.00198
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000543	0.0000580	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	2.88	1.17	0.802	0.816	0.845	0.876	0.871	0.988	0.916	0.999	0.874	0.820	0.921	0.874
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.21	4.70	<u>2.44</u>	<u>2.30</u>	<u>2.37</u>	1.98	1.98	1.92	2.00	1.96	2.02	1.95	2.07	2.06
	Strontium (Sr) ^e	mg/L	2.50	0.0279	0.0209	0.0139	0.0133	0.0130	0.0121	0.0120	0.0185	0.0125	0.0125	0.0128	0.0125	0.0131	0.0123
	Sulphur (S)	mg/L	-	-	2.59	0.660	0.550	0.580	0.500	<0.5	13.2	1.38	1.26	1.15	1.24	1.18	1.26
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000200	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0640	0.0210	0.000790	0.000510	0.000830	0.000980	0.000650	<0.0003	0.000780	0.00844	0.000740	0.000820	0.00100	0.00116
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00278	0.00263	0.00260	0.00204	0.00198	0.00220	0.00203	0.00184	0.00204	0.00176	0.00210	0.00166
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	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
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000480	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

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Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event				Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						E0-20	C0-10	C0-05	C0-01			G0-09-A	G0-09	G0-09-B	G0-03
						00-Jan-00	03-Aug-25	03-Aug-25	03-Aug-25			26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25
Conventional	Conductivity (lab)	µS/cm	-	171	180	-	135	135	134	280	243	148	147	156	145
	Specific Conductivity	µS/cm	-	168	154	-	107	114	138	262	218	155	156	163	155
	pH (lab)	pH	-	-	-	-	8.16	8.08	8.10	-	-	7.95	7.96	7.96	7.93
	pH (field)	pH	6.5 - 9.0	-	-	-	8.25	8.20	8.27	-	-	8.14	8.07	8.07	8.12
	Temperature, Field	mg/L	-	5.57 - 14.4	4.60 - 12.5	-	10.4	9.30	9.25	0.0100 - 8.26	-0.100 - 7.73	3.70	2.90	2.40	1.60
	Hardness (as CaCO ₃) -Total	mg/L	-	86.1	78.1	-	66.1	65.6	65.7	141	113	70.8	70.9	75.5	72.4
	Total Suspended Solids (TSS)	mg/L	-	14.0	21.2	-	1.00	1.10	<1	6.00	5.60	3.40	2.30	1.80	3.20
	Total Dissolved Solids (TDS)	mg/L	-	111	105	-	78.0	80.0	84.0	182	142	78.0	82.0	79.0	85.0
	Dissolved Oxygen	mg/L	> 9.5	9.74	10.8	-	11.0	11.5	11.3	11.0	11.0	12.7	13.0	13.2	13.5
	Dissolved Oxygen	%	-	-	-	-	98.5	99.9	98.9	-	-	96.4	96.6	96.6	96.4
	Turbidity (lab)	NTU	-	-	-	-	12.8	10.8	11.0	-	-	<u>11.3</u>	<u>11.5</u>	9.41	10.0
	Turbidity (field)	NTU	-	-	-	-	10.5	8.23	9.48	-	-	10.6	10.6	8.05	8.92
	Alkalinity (as CaCO ₃)	mg/L	-	26.0 - 84.0	26.0 - 80.0	-	60.0	59.9	60.3	52.5 - 108	48.0 - 111	112	122	101	64.4
Nutrients and Organics	Total Ammonia ^e	mg/L	0.413 - 3.98	0.200	0.130	-	0.00700	0.00580	0.00760	0.400	-	0.00540	0.00560	<0.005	<0.005
	Nitrate ^e	mg/L	3.00	-	-	-	0.0920	0.111	0.0970	-	0.140	<0.02	<0.02	<0.02	<0.02
	Nitrite ^e	mg/L	0.0600	0.0170	-	-	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.270	0.220	-	0.0980	0.123	0.0950	0.280	0.200	0.110	0.0740	0.0790	0.0740
	Dissolved Organic Carbon	mg/L	-	1.50	3.81	-	<u>1.77</u>	<u>1.84</u>	1.31	1.80	2.55	1.54	1.65	1.63	<u>1.92</u>
	Total Organic Carbon	mg/L	-	1.60	2.50	-	<u>2.05</u>	<u>2.15</u>	<u>2.00</u>	1.80	2.45	<u>1.83</u>	<u>2.14</u>	<u>1.83</u>	<u>2.02</u>
	Total Phosphorus	mg/L	-	0.0320	0.0273	-	0.00800	0.00630	0.00510	0.0300	0.0280	0.00720	0.00480	0.00560	0.00540
	Phenols	mg/L	0.00400	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	13.0	8.36	-	1.80	1.85	1.82	25.0	14.4	4.61	4.52	4.31	3.94
	Sulphate (SO ₄) ^e	mg/L	128 - 218	4.00	5.19	-	3.18	3.70	3.77	8.00	7.90	2.47	2.46	2.44	2.29
Total Metals	Aluminum (Al) ^e	mg/L	0.966	1.04	1.27	-	0.225	0.149	0.164	0.420	0.695	0.241	0.230	0.199	0.212
	Antimony (Sb)	mg/L	0.0740	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	-	<0.0001	<0.0001	0.000100	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.0144	0.0155	-	0.00999	0.00942	0.00949	0.0150	0.0147	0.0103	0.0102	0.0101	0.0103
	Beryllium (Be)	mg/L	0.000130	-	-	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	-	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000370 - 0.0000729	-	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	18.4	16.4	-	13.2	13.1	13.1	31.1	23.7	14.4	14.4	15.4	14.8
	Cesium (Cs)	mg/L	-	-	-	-	0.0000380	0.0000270	0.0000280	-	0.0000970	0.0000380	0.0000330	0.0000280	0.0000300
	Chromium (Cr)	mg/L	0.00500	0.00219	0.00256	-	0.000570	<0.0005	<0.0005	0.00200	0.00200	0.000630	0.000610	0.000520	0.000610

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						00-Jan-00	03-Aug-25	03-Aug-25	03-Aug-25			26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25
Total Metals	Cobalt (Co) ^e	mg/L	0.000778	0.000420	0.000450	-	0.000110	<0.0001	<0.0001	-	-	0.000130	0.000120	<0.0001	0.000100
	Copper (Cu)	mg/L	0.00200	0.00261	0.00238	-	0.00141	0.00116	0.00118	0.00180	0.00190	0.00132	0.00126	0.00113	0.00113
	Iron (Fe) ^e	mg/L	0.874	0.947	1.22	-	0.216	0.152	0.157	0.355	0.460	0.284	0.252	0.212	0.223
	Lead (Pb)	mg/L	0.00100	0.000780	0.000780	-	0.000231	0.000189	0.000180	0.000280	0.000376	0.000233	0.000209	0.000180	0.000192
	Lithium (Li)	mg/L	-	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	10.0	9.03	-	8.04	7.99	8.02	15.5	13.1	8.45	8.49	8.99	8.60
	Manganese (Mn)	mg/L	0.768 - 0.777	0.0131	0.0127	-	0.00329	0.00298	0.00286	0.00436	0.00587	0.00362	0.00304	0.00258	0.00270
	Mercury (Hg)	mg/L	0.0000260	-	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000383	0.000449	-	<u>0.000448</u>	<u>0.000436</u>	0.000454	0.000638	0.000592	0.000406	0.000420	0.000384	0.000347
	Nickel (Ni) ^e	mg/L	0.0250	0.00182	0.00149	-	0.000920	0.000830	0.000860	0.00105	-	0.000540	<0.0005	<0.0005	0.000550
	Potassium (K)	mg/L	-	1.41	1.63	-	1.16	1.12	1.15	1.53	1.68	1.24	1.24	1.20	1.15
	Rubidium (Rb)	mg/L	-	-	-	-	0.00252	0.00222	0.00238	-	0.00413	0.00226	0.00211	0.00197	0.00198
	Selenium (Se)	mg/L	0.00200	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	2.88	2.72	-	1.16	1.00	0.990	1.47	1.79	1.23	1.24	1.24	1.28
	Silver (Ag) ^e	mg/L	0.000100	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.21	4.29	-	2.15	2.08	2.09	3.98	6.73	3.42	3.39	3.23	2.81
	Strontium (Sr)	mg/L	-	0.0279	0.0207	-	0.0129	0.0128	0.0128	0.0524	0.0270	0.0171	0.0170	0.0166	0.0160
	Sulphur (S)	mg/L	-	-	-	-	1.12	1.28	1.29	-	1.97	0.890	0.880	0.840	0.880
	Thallium (Tl) ^e	mg/L	0.000800	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	-	0.000300	0.000200	0.000210	-	0.000910	0.000320	0.000290	0.000240	0.000250
	Tin (Sn)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0640	0.0593	-	0.0108	0.00664	0.00703	-	0.0300	0.0157	0.0132	0.0112	0.0130
	Tungsten (W)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	-	0.00198	0.00189	0.00184	-	-	0.00378	0.00373	0.00368	0.00311
	Vanadium (V) ^e	mg/L	-	-	-	-	0.000570	<0.0005	<0.0005	-	-	0.000660	0.000610	0.000580	0.000570
	Zinc (Zn)	mg/L	-	-	-	-	<0.003	<0.003	<0.003	-	-	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	-	0.000510	0.000410	0.000440	-	-	0.000490	0.000510	0.000450	0.000460
Dissolved Metals	Aluminum (Al)	mg/L	-	0.989	0.522	-	0.0192	0.0361	0.0310	0.526	0.615	0.0118	0.0246	0.0195	0.0290
	Antimony (Sb)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0144	0.0117	-	0.00844	0.00862	0.00869	0.0151	0.0137	0.00915	0.00917	0.00918	0.00897
	Beryllium (Be)	mg/L	-	-	-	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	-	<0.01	<0.01	<0.01	-	-	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000483 - 0.000106	-	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	<0.000005	<0.000005	<0.000005

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						00-Jan-00	03-Aug-25	03-Aug-25	03-Aug-25			26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25
Dissolved Metals	Calcium (Ca)	mg/L	-	19.0	17.3	-	11.6	11.7	11.7	30.9	22.6	14.5	14.5	15.4	14.7
	Cesium (Cs)	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	0.00219	-	-	<0.0005	<0.0005	<0.0005	0.00200	-	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389	0.000420	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00449	0.00303	0.00200	-	0.000880	0.000960	0.000940	0.00200	0.00200	0.000820	0.000830	0.000780	0.000770
	Iron (Fe)	mg/L	-	0.860	0.450	-	0.0100	0.0170	0.0160	0.460	0.480	<0.01	<0.01	<0.01	0.0120
	Lead (Pb) ^e	mg/L	0.00296 - 0.00667	0.000750	-	-	<0.00005	<0.00005	<0.00005	0.000280	-	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	10.0	9.54	-	7.45	7.51	7.55	16.4	14.1	7.94	7.88	8.25	7.77
	Manganese (Mn) ^e	mg/L	0.160 - 0.350	0.0131	0.00712	-	0.000720	0.00110	0.000880	0.00498	0.00380	0.000270	0.000270	0.000220	0.000230
	Mercury (Hg)	mg/L	-	-	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000383	0.000562	-	<u>0.000498</u>	<u>0.000513</u>	<u>0.000502</u>	0.000638	0.000620	0.000490	0.000470	0.000435	0.000376
	Nickel (Ni)	mg/L	0.000600 - 0.00190	0.00500	-	-	0.000520	0.000620	0.000610	0.00145	-	<0.0005	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	1.41	1.39	-	1.09	1.14	1.13	1.53	1.61	1.14	1.14	1.10	1.03
	Rubidium (Rb)	mg/L	-	-	0.00188	-	0.00181	0.00186	0.00196	-	0.00214	0.00138	0.00139	0.00138	0.00134
	Selenium (Se)	mg/L	-	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	2.88	1.17	-	0.801	0.842	0.790	1.54	1.43	0.819	0.871	0.885	0.910
	Silver (Ag)	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	2.21	4.70	-	2.06	2.05	2.04	3.61	7.01	3.15	3.10	2.91	2.51
	Strontium (Sr) ^e	mg/L	2.50	0.0279	0.0209	-	0.0123	0.0124	0.0126	0.0524	0.0264	0.0172	0.0171	0.0169	0.0161
	Sulphur (S)	mg/L	-	-	2.59	-	1.22	1.38	1.44	-	2.76	0.890	0.880	0.810	0.730
	Tellurium (Te)	mg/L	-	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0640	0.0210	-	0.000420	0.000730	0.000690	0.0200	-	0.000360	0.000640	0.000480	0.000690
	Tungsten (W)	mg/L	-	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	-	0.00186	0.00179	0.00177	-	-	0.00395	0.00389	0.00382	0.00321
	Vanadium (V)	mg/L	-	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	-	<0.0003	<0.0003	<0.0003	-	-	<0.0003	<0.0003	<0.0003	<0.0003

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Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

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Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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Table B.25: Water Chemistry at Mine-exposed Mary River (G0, E0, F0, and C0 Series) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event								
						G0-01	F0-01	E0-10	E0-03	E0-21	E0-20	C0-10	C0-05	C0-01
						26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25
Conventional	Conductivity (lab)	µS/cm	-	280	243	151	<u>306</u>	161	161	160	161	172	166	166
	Specific Conductivity	µS/cm	-	262	218	157	<u>323</u>	169	169	169	169	176	171	172
	pH (lab)	pH	-	-	-	7.96	8.10	8.01	7.98	8.00	8.02	7.98	7.94	7.88
	pH (field)	pH	6.5 - 9.0	-	-	8.14	8.32	8.16	8.18	8.16	8.16	8.08	8.11	8.02
	Temperature, Field	mg/L	-	0.0100 - 8.26	-0.100 - 7.73	2.90	3.20	2.70	3.00	3.00	3.50	2.40	2.70	2.70
	Hardness (as CaCO ₃) -Total	mg/L	-	141	113	74.8	<u>163</u>	80.7	79.5	79.8	79.5	84.4	82.1	82.1
	Total Suspended Solids (TSS)	mg/L	-	6.00	5.60	1.30	<1	1.70	2.10	4.80	1.80	<1	<1	1.20
	Total Dissolved Solids (TDS)	mg/L	-	182	142	79.0	170	97.0	88.0	80.0	84.0	85.0	86.0	80.0
	Dissolved Oxygen	mg/L	> 9.5	11.0	11.0	13.2	13.0	13.3	13.3	13.3	13.1	13.4	13.0	12.9
	Dissolved Oxygen	%	-	-	-	97.7	97.5	98.0	98.9	98.9	98.9	97.8	96.0	94.8
	Turbidity (lab)	NTU	-	-	-	8.87	0.620	8.53	8.45	8.71	7.77	4.47	4.75	5.41
	Turbidity (field)	NTU	-	-	-	7.55	0.270	7.85	6.76	7.06	6.77	4.51	4.29	4.53
	Alkalinity (as CaCO ₃)	mg/L	-	52.5 - 108	48.0 - 111	88.2	<u>114</u>	108	86.8	70.6	<u>118</u>	73.5	71.4	71.5
Nutrients and Organics	Total Ammonia ^e	mg/L	0.413 - 3.98	0.400	-	<0.005	0.00690	<0.005	0.00690	0.0158	<0.005	<0.005	<0.005	0.0328
	Nitrate ^e	mg/L	3.00	-	0.140	<0.02	1.78	0.106	0.0910	0.0910	0.0830	0.154	0.160	0.144
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.280	0.200	0.0780	0.195	0.0940	0.0890	0.0880	0.0730	0.0820	0.106	0.126
	Dissolved Organic Carbon	mg/L	-	1.80	2.55	1.52	1.46	1.42	1.61	<u>1.85</u>	<u>10.1</u>	1.61	1.37	1.64
	Total Organic Carbon	mg/L	-	1.80	2.45	1.73	<u>1.87</u>	<u>2.22</u>	<u>2.21</u>	1.78	<u>2.04</u>	1.80	<u>1.81</u>	<u>1.84</u>
	Total Phosphorus	mg/L	-	0.0300	0.0280	0.00410	<0.002	0.00330	0.00320	0.00320	0.00330	0.00310	0.00260	0.00300
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	25.0	14.4	3.71	2.69	3.59	3.66	3.65	3.59	3.83	3.75	3.91
	Sulphate (SO ₄) ^e	mg/L	128 - 218	8.00	7.90	2.23	<u>45.8</u>	5.33	4.96	4.84	4.64	6.19	6.11	6.01
Total Metals	Aluminum (Al) ^e	mg/L	0.966	0.420	0.695	0.151	0.0120	0.170	0.155	0.184	0.149	0.0788	0.0810	0.114
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.0150	0.0147	0.00992	0.0113	0.0102	0.0101	0.0104	0.0102	0.0104	0.0102	0.0104
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000370 - 0.0000729	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	31.1	23.7	15.2	25.7	16.0	15.6	15.7	15.6	16.0	15.4	15.4
	Cesium (Cs)	mg/L	-	-	0.0000970	0.0000240	0.0000100	0.0000270	0.0000240	0.0000260	0.0000260	0.0000130	0.0000130	0.0000170
	Chromium (Cr)	mg/L	0.00500	0.00200	0.00200	<0.0005	<0.0005	<0.0005	<0.0005	0.000500	<0.0005	<0.0005	<0.0005	<0.0005

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						26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25
Total Metals	Cobalt (Co) ^e	mg/L	0.000778	-	-	<0.0001	0.000160	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200	0.00180	0.00190	0.00106	0.000610	0.00105	0.00107	0.00107	0.00104	0.000990	0.000960	0.00102
	Iron (Fe) ^e	mg/L	0.874	0.355	0.460	0.158	0.0140	0.168	0.154	0.178	0.144	0.0700	0.0740	0.109
	Lead (Pb)	mg/L	0.00100	0.000280	0.000376	0.000152	<0.00005	0.000154	0.000144	0.000159	0.000142	0.0000750	0.0000780	0.0000970
	Lithium (Li)	mg/L	-	-	-	<0.001	0.00110	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	15.5	13.1	8.95	23.9	9.90	9.85	9.86	9.84	10.8	10.6	10.6
	Manganese (Mn)	mg/L	0.768 - 0.777	0.00436	0.00587	0.00195	0.00125	0.00220	0.00207	0.00239	0.00208	0.00138	0.00181	0.00213
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000638	0.000592	0.000354	0.000338	0.000372	0.000390	0.000425	0.000397	0.000452	0.000450	0.000451
	Nickel (Ni) ^e	mg/L	0.0250	0.00105	-	<0.0005	<0.0005	<0.0005	<0.0005	0.000530	0.000540	0.000630	0.000670	0.000710
	Potassium (K)	mg/L	-	1.53	1.68	1.13	1.39	1.14	1.17	1.17	1.15	1.14	1.13	1.16
	Rubidium (Rb)	mg/L	-	-	0.00413	0.00187	0.00182	0.00186	0.00189	0.00202	0.00193	0.00180	0.00186	0.00194
	Selenium (Se)	mg/L	0.00200	-	-	<0.00005	0.000377	<0.00005	0.0000520	<0.00005	<0.00005	<0.00005	<0.00005	0.0000510
	Silicon (Si)	mg/L	-	1.47	1.79	1.16	0.810	1.17	1.12	1.19	1.14	1.04	1.02	1.10
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	3.98	6.73	2.85	1.81	2.77	2.78	2.78	2.81	2.77	2.76	2.82
	Strontium (Sr)	mg/L	-	0.0524	0.0270	0.0156	0.0197	0.0161	0.0156	0.0160	0.0154	0.0160	0.0156	0.0158
	Sulphur (S)	mg/L	-	-	1.97	0.860	16.2	1.92	1.85	1.75	1.72	2.37	2.26	2.27
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	0.000910	0.000200	<0.0001	0.000200	0.000180	0.000190	0.000160	<0.0001	<0.0001	0.000110
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	0.0300	0.00814	0.000900	0.00917	0.00848	0.00976	0.00815	0.00325	0.00371	0.00513
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00316	0.00298	0.00316	0.00309	0.00310	0.00292	0.00281	0.00269	0.00264
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	0.000390	<0.0002	0.000400	0.000360	0.000390	0.000360	0.000240	0.000240	0.000300
Dissolved Metals	Aluminum (Al)	mg/L	-	0.526	0.615	0.0233	0.00220	0.0227	0.0129	0.0271	0.0225	0.0106	0.00990	0.0139
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.0151	0.0137	0.00945	0.0118	0.00954	0.00967	0.00978	0.0100	0.00995	0.00980	0.00952
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000483 - 0.000106	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005

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						26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25
Dissolved Metals	Calcium (Ca)	mg/L	-	30.9	22.6	15.0	25.6	15.7	15.7	15.6	15.7	15.9	15.7	14.9
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	0.00200	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389	-	-	<0.0001	0.000120	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000568 - 0.00449	0.00200	0.00200	0.000790	0.000560	0.000770	0.000790	0.000800	0.000820	0.000870	0.000840	0.000830
	Iron (Fe)	mg/L	-	0.460	0.480	<0.01	<0.01	<0.01	<0.01	0.0110	0.0110	<0.01	<0.01	0.0120
	Lead (Pb) ^e	mg/L	0.00296 - 0.00667	0.000280	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0000790	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	0.00160	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	16.4	14.1	8.24	<u>21.6</u>	9.26	9.15	8.92	9.14	9.79	9.37	9.37
	Manganese (Mn) ^e	mg/L	0.160 - 0.350	0.00498	0.00380	0.000210	0.000920	0.000270	0.000300	0.000310	0.000460	0.000550	0.000860	0.000760
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000638	0.000620	0.000414	0.000345	0.000383	0.000448	0.000445	0.000449	0.000476	0.000477	0.000483
	Nickel (Ni)	mg/L	0.000600 - 0.00190	0.00145	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000510	0.000530	0.000510
	Potassium (K)	mg/L	-	1.53	1.61	1.05	1.33	1.08	1.09	1.07	1.09	1.09	1.08	1.08
	Rubidium (Rb)	mg/L	-	-	0.00214	0.00140	0.00197	0.00138	0.00148	0.00149	0.00160	0.00158	0.00157	0.00154
	Selenium (Se)	mg/L	-	-	-	<0.00005	0.000392	0.0000500	<0.00005	<0.00005	0.0000610	<0.00005	0.0000560	<0.00005
	Silicon (Si)	mg/L	-	1.54	1.43	0.906	0.765	0.904	0.888	0.895	0.894	0.836	0.843	0.837
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	3.61	7.01	2.58	1.59	2.52	2.54	2.48	2.55	2.70	2.66	2.68
	Strontium (Sr) ^e	mg/L	2.50	0.0524	0.0264	0.0155	0.0200	0.0159	0.0160	0.0159	0.0157	0.0158	0.0156	0.0155
	Sulphur (S)	mg/L	-	-	2.76	0.730	15.4	1.94	1.75	1.63	1.59	2.31	2.23	2.11
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	0.0200	-	0.000610	<0.0003	0.000630	0.000360	0.000640	0.000660	0.000320	<0.0003	0.000450
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00327	0.00313	0.00327	0.00324	0.00319	0.00305	0.00290	0.00282	0.00279
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.26: Water Chemistry Baseline Normal Ranges Calculated for Mary River (Stations G0-01, G0-03, G0-09-B, E0-03, E0-10, E0-20, E0-21, C0-01, C0-05, C0-10, and F0-01), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventional	Conductivity (lab)	µS/cm	120	-	99.0	137	-	171	142	-	280
	Specific Conductance (field)	µS/cm	107	-	96.0	117	-	168	124	-	262
	pH (lab)	pH	109	-	8.35	113	-	8.11	129	-	8.31
	pH (field) ^a	pH	0	-	-	0	-	-	0	-	-
	Temperature, Field ^a	pH	108	-0.0900	11.8	117	5.57	14.4	124	0.0100	8.26
	Hardness (as CaCO ₃) -Total	mg/L	120	-	47.5	137	-	86.1	142	-	141
	Total Suspended Solids (TSS)	mg/L	84	-	30.0	105	-	14.0	116	-	6.00
	Total Dissolved Solids (TDS)	mg/L	120	-	68.5	137	-	111	142	-	182
	Dissolved Oxygen ^b	mg/L	97	10.7	-	88	9.74	-	119	11.0	-
	Dissolved Oxygen ^b	%	0	-	-	0	-	-	0	-	-
	Turbidity (lab)	NTU	120	-	7.10	131	-	22.1	129	-	11.0
Nutrients and Organics	Turbidity (field)	NTU	0	-	-	0	-	-	0	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	119	5.00	43.0	135	26.0	84.0	140	52.5	108
	Total Ammonia	mg/L	91	-	0.600	123	-	0.200	128	-	0.400
	Nitrate	mg/L	119	-	LRL	135	-	LRL	140	-	LRL
	Nitrite	mg/L	91	-	LRL	123	-	0.0170	128	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	55	-	1.19	91	-	0.270	102	-	0.280
	Dissolved Organic Carbon	mg/L	68	-	3.40	91	-	1.50	102	-	1.80
	Total Organic Carbon	mg/L	68	-	3.70	91	-	1.60	102	-	1.80
Anions	Total Phosphorus	mg/L	98	-	0.0400	135	-	0.0320	140	-	0.0300
	Phenols	mg/L	0	-	-	0	-	-	0	-	-
	Bromide (Br)	mg/L	91	-	LRL	123	-	LRL	128	-	LRL
Total Metals	Chloride (Cl)	mg/L	112	-	9.00	123	-	13.0	128	-	25.0
	Sulphate (SO ₄)	mg/L	108	-	2.00	119	-	4.00	123	-	8.00
	Aluminum (Al)	mg/L	119	-	0.507	135	-	1.04	140	-	0.420
	Antimony (Sb)	mg/L	42	-	LRL	75	-	LRL	108	-	LRL
	Arsenic (As)	mg/L	119	-	LRL	135	-	LRL	140	-	LRL
	Barium (Ba)	mg/L	119	-	0.00685	135	-	0.0144	140	-	0.0150
	Beryllium (Be)	mg/L	42	-	LRL	75	-	LRL	108	-	LRL
	Bismuth (Bi)	mg/L	42	-	LRL	75	-	LRL	108	-	LRL
	Boron (B)	mg/L	114	-	LRL	135	-	LRL	140	-	LRL
	Cadmium (Cd)	mg/L	119	-	LRL	135	-	LRL	140	-	LRL
	Calcium (Ca)	mg/L	119	-	10.0	134	-	18.4	139	-	31.1
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	119	-	LRL	135	-	0.00219	139	-	0.00200
	Cobalt (Co)	mg/L	114	-	LRL	135	-	0.000420	140	-	LRL
	Copper (Cu)	mg/L	43	-	0.00154	99	-	0.00261	125	-	0.00180
	Iron (Fe)	mg/L	119	-	0.505	135	-	0.947	140	-	0.355
	Lead (Pb)	mg/L	44	-	0.000540	75	-	0.000780	106	-	0.000280
	Lithium (Li)	mg/L	35	-	0.00130	69	-	LRL	102	-	LRL
	Magnesium (Mg)	mg/L	119	-	5.00	134	-	10.0	139	-	15.5
	Manganese (Mn)	mg/L	42	-	0.0141	76	-	0.0131	108	-	0.00436
	Mercury (Hg)	mg/L	103	-	LRL	134	-	LRL	140	-	LRL
	Molybdenum (Mo)	mg/L	42	-	0.000165	75	-	0.000383	108	-	0.000638
	Nickel (Ni)	mg/L	40	-	0.00255	68	-	0.00182	101	-	0.00105
	Potassium (K)	mg/L	114	-	0.682	134	-	1.41	139	-	1.53
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	119	-	LRL	135	-	LRL	140	-	LRL
	Silicon (Si)	mg/L	36	-	1.59	69	-	2.88	102	-	1.47
	Silver (Ag)	mg/L	114	-	LRL	135	-	LRL	140	-	LRL
	Sodium (Na)	mg/L	119	-	0.773	134	-	2.21	139	-	3.98
	Strontium (Sr)	mg/L	114	-	0.0130	135	-	0.0279	140	-	0.0524
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	58	-	LRL	108	-	LRL	120	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	114	-	LRL	135	-	LRL	140	-	LRL
	Titanium (Ti)	mg/L	42	-	0.0500	75	-	0.0640	108	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	37	-	0.00100	69	-	0.00309	102	-	0.00559
	Vanadium (V)	mg/L	114	-	LRL	135	-	LRL	140	-	LRL
	Zinc (Zn)	mg/L	55	-	0.0100	75	-	0.00610	108	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.26: Water Chemistry Baseline Normal Ranges Calculated for Mary River (Stations G0-01, G0-03, G0-09-B, E0-03, E0-10, E0-20, E0-21, C0-01, C0-05, C0-10, and F0-01), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	118	-	0.479	135	-	0.989	140	-	0.526
	Antimony (Sb)	mg/L	42	-	LRL	75	-	LRL	107	-	LRL
	Arsenic (As)	mg/L	118	-	LRL	135	-	LRL	140	-	LRL
	Barium (Ba)	mg/L	118	-	0.0100	135	-	0.0144	140	-	0.0151
	Beryllium (Be)	mg/L	42	-	LRL	75	-	LRL	107	-	LRL
	Bismuth (Bi)	mg/L	42	-	LRL	75	-	LRL	107	-	LRL
	Boron (B)	mg/L	113	-	LRL	135	-	LRL	140	-	LRL
	Cadmium (Cd)	mg/L	117	-	LRL	135	-	LRL	140	-	LRL
	Calcium (Ca)	mg/L	118	-	15.0	134	-	19.0	139	-	30.9
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	118	-	LRL	135	-	0.00219	139	-	0.00200
	Cobalt (Co)	mg/L	113	-	LRL	135	-	0.000420	140	-	LRL
	Copper (Cu)	mg/L	45	-	0.00200	98	-	0.00303	126	-	0.00200
	Iron (Fe)	mg/L	118	-	0.470	135	-	0.860	140	-	0.460
	Lead (Pb)	mg/L	44	-	0.000500	75	-	0.000750	105	-	0.000280
	Lithium (Li)	mg/L	36	-	0.00130	69	-	LRL	101	-	LRL
	Magnesium (Mg)	mg/L	118	-	8.00	134	-	10.0	139	-	16.4
	Manganese (Mn)	mg/L	41	-	0.0129	76	-	0.0131	107	-	0.00498
	Mercury (Hg)	mg/L	92	-	LRL	124	-	LRL	134	-	LRL
	Molybdenum (Mo)	mg/L	42	-	0.000499	75	-	0.000383	107	-	0.000638
	Nickel (Ni)	mg/L	51	-	0.00500	79	-	0.00500	106	-	0.00145
	Potassium (K)	mg/L	113	-	0.800	134	-	1.41	139	-	1.53
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	118	-	LRL	135	-	LRL	140	-	LRL
	Silicon (Si)	mg/L	36	-	1.98	69	-	2.88	101	-	1.54
	Silver (Ag)	mg/L	113	-	LRL	135	-	LRL	140	-	LRL
	Sodium (Na)	mg/L	118	-	1.82	134	-	2.21	139	-	3.61
	Strontium (Sr)	mg/L	113	-	0.0189	135	-	0.0279	140	-	0.0524
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Tellurium (Te)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	58	-	LRL	107	-	LRL	120	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	113	-	LRL	135	-	LRL	140	-	LRL
	Titanium (Ti)	mg/L	42	-	0.0400	75	-	0.0640	107	-	0.0200
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	36	-	0.00568	69	-	0.00309	101	-	0.00552
	Vanadium (V)	mg/L	113	-	LRL	135	-	LRL	140	-	LRL
	Zinc (Zn)	mg/L	54	-	0.0100	74	-	0.00600	107	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.27: Water Chemistry Background Normal Ranges Calculated from Mary River Reference Stations (G0-09, G0-09-A, and G0-09-B), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventional	Conductivity (lab)	µS/cm	52	-	70.0	54	-	180	54	-	243
	Specific Conductance (field)	µS/cm	26	-	65.0	27	-	154	24	-	218
	pH (lab)	pH	50	-	8.09	50	-	8.22	51	-	8.37
	pH (field) ^a	pH	9	-	-	9	-	-	9	-	-
	Temperature, Field ^a	pH	26	-0.0400	9.84	27	4.60	12.5	27	-0.100	7.73
	Hardness (as CaCO ₃) -Total	mg/L	52	-	33.3	54	-	78.1	54	-	113
	Total Suspended Solids (TSS)	mg/L	48	-	15.6	50	-	21.2	51	-	5.60
	Total Dissolved Solids (TDS)	mg/L	52	-	60.0	54	-	105	54	-	142
	Dissolved Oxygen ^b	mg/L	24	11.2	-	23	10.8	-	27	11.0	-
	Dissolved Oxygen ^b	%	9	-	-	9	-	-	9	-	-
	Turbidity (lab)	NTU	52	-	10.0	53	-	34.6	52	-	17.7
	Turbidity (field)	NTU	9	-	-	9	-	-	9	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	52	5.00	34.0	54	26.0	80.0	54	48.0	111
Nutrients and Organics	Total Ammonia	mg/L	47	-	0.100	51	-	0.130	51	-	LRL
	Nitrate	mg/L	52	-	LRL	54	-	LRL	54	-	0.140
	Nitrite	mg/L	47	-	LRL	51	-	LRL	51	-	LRL
	Total Kjeldahl Nitrogen (TKN)	mg/L	43	-	0.280	47	-	0.220	48	-	0.200
	Dissolved Organic Carbon	mg/L	45	-	4.70	47	-	3.81	48	-	2.55
	Total Organic Carbon	mg/L	45	-	4.80	47	-	2.50	48	-	2.45
	Total Phosphorus	mg/L	49	-	0.0300	54	-	0.0273	54	-	0.0280
	Phenols	mg/L	9	-	LRL	9	-	LRL	9	-	LRL
Anions	Bromide (Br)	mg/L	47	-	LRL	51	-	LRL	51	-	LRL
	Chloride (Cl)	mg/L	50	-	1.05	51	-	8.36	51	-	14.4
	Sulphate (SO ₄)	mg/L	50	-	2.00	51	-	5.19	51	-	7.90
Total Metals	Aluminum (Al)	mg/L	52	-	0.374	54	-	1.27	54	-	0.695
	Antimony (Sb)	mg/L	41	-	LRL	45	-	LRL	49	-	LRL
	Arsenic (As)	mg/L	52	-	LRL	54	-	LRL	54	-	LRL
	Barium (Ba)	mg/L	52	-	0.00530	54	-	0.0155	54	-	0.0147
	Beryllium (Be)	mg/L	41	-	LRL	45	-	LRL	49	-	LRL
	Bismuth (Bi)	mg/L	41	-	LRL	45	-	LRL	49	-	LRL
	Boron (B)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Cadmium (Cd)	mg/L	52	-	LRL	54	-	LRL	54	-	LRL
	Calcium (Ca)	mg/L	52	-	6.95	54	-	16.4	54	-	23.7
	Cesium (Cs)	mg/L	9	-	-	9	-	-	15	-	0.0000970
	Chromium (Cr)	mg/L	52	-	LRL	54	-	0.00256	54	-	0.00200
	Cobalt (Co)	mg/L	51	-	LRL	54	-	0.000450	54	-	LRL
	Copper (Cu)	mg/L	41	-	0.00120	51	-	0.00238	52	-	0.00190
	Iron (Fe)	mg/L	52	-	0.380	54	-	1.22	54	-	0.460
	Lead (Pb)	mg/L	41	-	0.000359	45	-	0.000780	49	-	0.000376
	Lithium (Li)	mg/L	41	-	LRL	45	-	LRL	49	-	LRL
	Magnesium (Mg)	mg/L	52	-	3.85	54	-	9.03	54	-	13.1
	Manganese (Mn)	mg/L	41	-	0.00763	46	-	0.0127	49	-	0.00587
	Mercury (Hg)	mg/L	50	-	LRL	54	-	LRL	54	-	LRL
	Molybdenum (Mo)	mg/L	41	-	0.000106	45	-	0.000449	49	-	0.000592
	Nickel (Ni)	mg/L	41	-	LRL	45	-	0.00149	49	-	LRL
	Potassium (K)	mg/L	51	-	0.663	54	-	1.63	54	-	1.68
	Rubidium (Rb)	mg/L	9	-	-	9	-	-	15	-	0.00413
	Selenium (Se)	mg/L	52	-	LRL	54	-	LRL	54	-	LRL
	Silicon (Si)	mg/L	41	-	0.790	45	-	2.72	49	-	1.79
	Silver (Ag)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Sodium (Na)	mg/L	52	-	0.818	54	-	4.29	54	-	6.73
	Strontium (Sr)	mg/L	51	-	0.00571	54	-	0.0207	54	-	0.0270
	Sulphur (S)	mg/L	9	-	LRL	9	-	-	15	-	1.97
	Thallium (Tl)	mg/L	43	-	LRL	50	-	LRL	51	-	LRL
	Thorium (Th)	mg/L	9	-	-	9	-	-	15	-	0.000910
	Tin (Sn)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Titanium (Ti)	mg/L	41	-	0.0180	45	-	0.0593	46	-	0.0300
	Tungsten (W)	mg/L	9	-	LRL	15	-	LRL	18	-	LRL
	Uranium (U)	mg/L	41	-	0.000389	45	-	0.00509	49	-	0.00720
	Vanadium (V)	mg/L	51	-	LRL	54	-	0.00210	54	-	LRL
	Zinc (Zn)	mg/L	43	-	LRL	45	-	LRL	49	-	LRL
	Zirconium (Zr)	mg/L	12	-	LRL	18	-	0.00113	21	-	0.00117

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a reference normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus

^a Concentrations were required to be between the 5th and 95th percentiles to be within the reference normal range.

^b Concentrations were required to be above the 5th percentile to be within the reference normal range.

Table B.27: Water Chemistry Background Normal Ranges Calculated from Mary River Reference Stations (G0-09, G0-09-A, and G0-09-B), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Parameters		Units	Spring			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	51	-	0.120	54	-	0.522	54	-	0.615
	Antimony (Sb)	mg/L	41	-	LRL	45	-	LRL	48	-	LRL
	Arsenic (As)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Barium (Ba)	mg/L	51	-	0.00954	54	-	0.0117	54	-	0.0137
	Beryllium (Be)	mg/L	41	-	LRL	45	-	LRL	48	-	LRL
	Bismuth (Bi)	mg/L	41	-	LRL	45	-	LRL	48	-	LRL
	Boron (B)	mg/L	50	-	LRL	54	-	LRL	54	-	LRL
	Cadmium (Cd)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Calcium (Ca)	mg/L	51	-	16.2	54	-	17.3	54	-	22.6
	Cesium (Cs)	mg/L	12	-	LRL	18	-	LRL	12	-	LRL
	Chromium (Cr)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Cobalt (Co)	mg/L	50	-	LRL	54	-	LRL	54	-	LRL
	Copper (Cu)	mg/L	41	-	0.000850	49	-	0.00200	53	-	0.00200
	Iron (Fe)	mg/L	51	-	0.120	54	-	0.450	54	-	0.480
	Lead (Pb)	mg/L	41	-	LRL	45	-	LRL	48	-	LRL
	Lithium (Li)	mg/L	41	-	LRL	45	-	LRL	48	-	LRL
	Magnesium (Mg)	mg/L	51	-	9.21	54	-	9.54	54	-	14.1
	Manganese (Mn)	mg/L	41	-	0.00299	46	-	0.00712	48	-	0.00380
	Mercury (Hg)	mg/L	49	-	LRL	54	-	LRL	54	-	LRL
	Molybdenum (Mo)	mg/L	41	-	0.000316	45	-	0.000562	48	-	0.000620
	Nickel (Ni)	mg/L	41	-	LRL	45	-	LRL	48	-	LRL
	Potassium (K)	mg/L	50	-	0.910	54	-	1.39	54	-	1.61
	Rubidium (Rb)	mg/L	12	-	0.000660	18	-	0.00188	12	-	0.00214
	Selenium (Se)	mg/L	51	-	LRL	54	-	LRL	54	-	LRL
	Silicon (Si)	mg/L	41	-	1.10	45	-	1.17	48	-	1.43
	Silver (Ag)	mg/L	50	-	LRL	54	-	LRL	54	-	LRL
	Sodium (Na)	mg/L	51	-	2.40	54	-	4.70	54	-	7.01
	Strontium (Sr)	mg/L	50	-	0.0170	54	-	0.0209	54	-	0.0264
	Sulphur (S)	mg/L	15	-	LRL	18	-	2.59	12	-	2.76
	Tellurium (Te)	mg/L	12	-	LRL	18	-	LRL	12	-	LRL
	Thallium (Tl)	mg/L	43	-	LRL	49	-	LRL	51	-	LRL
	Thorium (Th)	mg/L	12	-	LRL	18	-	LRL	12	-	LRL
	Tin (Sn)	mg/L	50	-	LRL	54	-	LRL	54	-	LRL
	Titanium (Ti)	mg/L	41	-	0.00158	45	-	0.0210	48	-	LRL
	Tungsten (W)	mg/L	12	-	LRL	18	-	LRL	12	-	LRL
	Uranium (U)	mg/L	41	-	0.00531	45	-	0.00491	48	-	0.00688
	Vanadium (V)	mg/L	50	-	LRL	54	-	LRL	54	-	LRL
	Zinc (Zn)	mg/L	44	-	LRL	44	-	LRL	48	-	LRL
	Zirconium (Zr)	mg/L	15	-	LRL	18	-	LRL	12	-	LRL

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a reference normal range. CaCO₃ = calcium carbonate.
mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus
^a Concentrations were required to be between the 5th and 95th percentiles to be within the reference normal range.
^b Concentrations were required to be above the 5th percentile to be within the reference normal range.

Table B.28: *In Situ* Water Quality Measurements Collected at Mary River (G0, E0, and C0 Series) Benthic Invertebrate Community (BIC) Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Sampling Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% saturation)	pH (pH units)	Specific Conductance (µS/cm)
Mary River Upstream Reference	G0-09-B1	08-Aug-25	3.30	12.6	94.2	8.01	118
	G0-09-B2	08-Aug-25	3.10	12.7	94.7	7.96	118
	G0-09-B3	08-Aug-25	2.80	12.8	94.5	8.01	118
	G0-09-B4	08-Aug-25	3.10	12.7	94.3	8.12	74.5
	G0-09-B5	08-Aug-25	3.00	12.6	93.5	8.05	169
Mary River Upstream Mine-exposed	G0-03-B1	13-Aug-25	6.30	11.8	95.5	7.35	126
	G0-03-B2	13-Aug-25	6.20	11.8	94.9	7.51	126
	G0-03-B3	13-Aug-25	5.90	11.9	95.6	7.41	126
	G0-03-B4	13-Aug-25	5.70	12.0	95.5	7.44	126
	G0-03-B5	13-Aug-25	5.30	12.1	95.6	7.58	126
Mary River Downstream Mine-exposed	E0-01-B1	09-Aug-25	2.70	13.2	97.4	8.10	137
	E0-01-B2	10-Aug-25	5.10	12.1	95.0	8.10	144
	E0-01-B3	09-Aug-25	2.50	13.1	96.5	8.11	137
	E0-01-B4	09-Aug-25	2.50	13.2	96.2	8.11	136
	E0-01-B5	09-Aug-25	2.50	13.1	95.9	8.00	136
Mary River Downstream Mine-exposed	E0-20-B1	10-Aug-25	4.40	12.5	96.7	8.09	144
	E0-20-B2	10-Aug-25	4.60	12.4	96.5	8.09	144
	E0-20-B3	10-Aug-25	4.40	12.4	96.0	8.07	145
	E0-20-B4	10-Aug-25	4.10	12.4	95.1	8.07	144
	E0-20-B5	10-Aug-25	3.80	12.7	96.6	8.15	144
Mary River Downstream Mine-exposed	C0-05-B1	13-Aug-25	5.30	12.3	97.0	7.43	147
	C0-05-B2	13-Aug-25	5.20	12.2	96.5	7.39	147
	C0-05-B3	13-Aug-25	5.10	12.1	95.2	7.31	146
	C0-05-B4	13-Aug-25	5.00	12.3	96.7	7.45	147
	C0-05-B5	13-Aug-25	4.90	12.2	95.3	7.47	147

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. CCME = Canadian Council of Ministers of the Environment. WQG = Water Quality Guideline.

Table B.29: *In Situ* Water Quality Profile Data Collected at Mary Lake (North Basin [BL0-01] and South Basin [BL0]) Water Quality Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), Winter 2025

Depth (m)	Temperature (°C)										Dissolved Oxygen (mg/L)									
	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06
	14-Apr-25	14-Apr-25	14-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	-1.6	0.278	0.0556	0	0	0	0	-0.0556	0.111	0.944	13.6	14.2	14.2	14.6	14.2	14.5	14.4	14.9	14.4	13.6
2.0	0.167	0.111	0.111	0.222	0.222	0.167	0.167	0.111	0.389	0.611	13.9	14.5	14.4	14.4	14.1	14.7	14.6	14.5	14.2	14.0
3.0	0.222	0.167	0.167	0.444	0.444	0.444	0.444	0.389	0.556	0.500	13.9	14.4	14.4	14.3	14.0	14.5	14.4	14.3	14.1	14.1
4.0	0.333	0.278	0.278	0.556	0.556	0.500	0.556	0.556	0.556	-	13.8	14.4	13.7	14.2	14.0	14.5	14.2	14.1	14.0	-
5.0	0.444	0.389	0.278	-	-	-	-	0.667	-	0.556	13.7	14.3	13.1	-	-	-	-	13.9	-	14.1
6.0	0.556	-	-	0.667	0.667	0.556	0.556	-	0.611	0.667	13.6	-	-	14.0	13.9	14.5	14.1	-	13.9	14.0
7.0	-	0.500	-	0.722	0.667	0.722	0.667	0.722	0.722	0.667	-	14.2	-	13.9	13.8	14.3	13.9	13.8	13.8	13.9
8.0	0.611	0.611	-	0.722	0.722	-	0.722	0.778	0.722	0.667	13.1	14.1	-	13.8	13.7	-	13.8	13.7	13.7	13.9
9.0	0.722	0.667	-	0.778	0.778	-	0.778	0.833	0.778	0.778	11.3	13.9	-	13.7	13.6	-	13.7	13.5	13.6	13.6
10.0	0.889	-	-	0.833	0.833	-	0.833	0.889	0.833	-	8.02	-	-	13.6	13.5	-	13.6	13.4	13.5	-
11.0	1.06	-	-	0.889	0.889	-	0.833	0.944	0.889	-	5.56	-	-	13.6	13.3	-	13.5	13.3	13.3	-
12.0	1.11	-	-	0.889	0.944	-	0.889	1.000	0.944	-	3.07	-	-	12.9	13.2	-	13.4	13.2	13.2	-
13.0	1.28	-	-	-	1.000	-	0.944	1.06	1.000	-	1.73	-	-	-	13.1	-	13.2	13.1	13.1	-
14.0	1.39	-	-	-	1.06	-	1.06	1.06	1.06	-	1.13	-	-	-	13.0	-	13.1	13.0	13.0	-
15.0	1.56	-	-	-	1.06	-	1.06	1.11	1.11	-	0.810	-	-	-	12.8	-	13.0	12.9	12.9	-
16.0	-	-	-	-	1.11	-	1.11	-	1.17	-	-	-	-	-	12.6	-	12.9	-	12.8	-
17.0	-	-	-	-	1.17	-	-	1.22	1.22	-	-	-	-	-	12.5	-	-	12.8	12.6	-
18.0	-	-	-	-	1.22	-	-	1.28	-	-	-	-	-	-	12.3	-	-	12.5	-	-
19.0	-	-	-	-	-	-	-	-	1.28	-	-	-	-	-	-	-	-	-	12.5	-
20.0	-	-	-	-	1.22	-	-	1.28	1.33	-	-	-	-	-	12.0	-	-	12.4	12.4	-
21.0	-	-	-	-	-	-	-	-	1.39	-	-	-	-	-	-	-	-	-	12.3	-
22.0	-	-	-	-	-	-	-	-	1.44	-	-	-	-	-	-	-	-	-	12.3	-
23.0	-	-	-	-	-	-	-	-	1.50	-	-	-	-	-	-	-	-	-	12.0	-
24.0	-	-	-	-	-	-	-	-	1.56	-	-	-	-	-	-	-	-	-	11.6	-
25.0	-	-	-	-	-	-	-	-	1.61	-	-	-	-	-	-	-	-	-	11.1	-
26.0	-	-	-	-	-	-	-	-	1.67	-	-	-	-	-	-	-	-	-	10.7	-
27.0	-	-	-	-	-	-	-	-	1.78	-	-	-	-	-	-	-	-	-	10.4	-
28.0	-	-	-	-	-	-	-	-	1.89	-	-	-	-	-	-	-	-	-	9.81	-
29.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).
Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.29: *In Situ* Water Quality Profile Data Collected at Mary Lake (North Basin [BL0-01] and South Basin [BL0]) Water Quality Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), Winter 2025

Depth (m)	Dissolved Oxygen (% Saturation)										pH (pH units)									
	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06
	14-Apr-25	14-Apr-25	14-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	94.3	97.8	97.4	99.5	97.1	99.5	98.9	102	98.8	95.3	7.70	7.72	7.70	7.80	7.89	7.71	7.75	7.68	7.62	7.73
2.0	95.6	99.4	99.0	99.5	96.8	101	100	99.7	98.4	97.4	7.68	7.72	7.67	7.71	7.74	7.70	7.70	7.67	7.61	7.72
3.0	95.5	99.4	98.7	99.0	97.3	100	99.9	99.2	97.9	98.1	7.68	7.71	7.65	7.70	7.70	7.67	7.66	7.67	7.61	7.70
4.0	95.2	99.2	94.6	98.4	97.3	100	98.3	98.2	97.5	-	7.66	7.69	7.55	7.69	7.69	7.66	7.67	7.68	7.61	-
5.0	94.9	98.9	90.3	-	-	-	-	97.0	-	98.2	7.63	7.66	7.42	-	-	-	-	7.68	-	7.69
6.0	94.4	-	-	97.7	96.7	101	97.9	-	96.9	97.7	7.61	-	-	7.68	7.69	7.62	7.66	-	7.60	7.64
7.0	-	98.5	-	97.3	96.4	100	97.1	96.2	96.3	97.0	-	7.65	-	7.68	7.68	7.42	7.65	7.69	7.60	7.58
8.0	91.5	98.2	-	96.6	96.0	-	96.2	95.6	96.0	96.7	7.54	7.64	-	7.67	7.68	-	7.67	7.69	7.59	7.51
9.0	79.1	97.1	-	96.1	95.5	-	95.5	94.8	95.3	95.3	7.36	7.62	-	7.67	7.67	-	7.66	7.68	7.59	7.39
10.0	56.3	-	-	95.2	94.7	-	94.9	94.1	94.6	-	7.19	-	-	7.66	7.67	-	7.66	7.67	7.59	-
11.0	39.1	-	-	95.0	93.2	-	94.4	93.4	93.5	-	7.04	-	-	7.65	7.67	-	7.65	7.66	7.59	-
12.0	21.7	-	-	90.5	93.0	-	93.8	92.7	92.8	-	6.95	-	-	7.57	7.65	-	7.65	7.66	7.60	-
13.0	12.3	-	-	-	92.4	-	93.1	92.2	92.2	-	6.93	-	-	-	7.64	-	7.65	7.66	7.59	-
14.0	8.00	-	-	-	91.7	-	92.4	91.7	91.6	-	6.92	-	-	-	7.64	-	7.64	7.65	7.59	-
15.0	5.80	-	-	-	90.2	-	91.7	91.1	90.8	-	7.07	-	-	-	7.62	-	7.62	7.65	7.53	-
16.0	-	-	-	-	89.1	-	90.8	-	90.1	-	-	-	-	-	7.59	-	7.61	-	7.39	-
17.0	-	-	-	-	88.6	-	-	90.2	89.5	-	-	-	-	-	7.57	-	-	7.62	7.37	-
18.0	-	-	-	-	87.2	-	-	88.8	-	-	-	-	-	-	7.53	-	-	7.59	-	-
19.0	-	-	-	-	-	-	-	-	88.9	-	-	-	-	-	-	-	-	-	7.36	-
20.0	-	-	-	-	84.7	-	-	87.9	88.3	-	-	-	-	-	7.48	-	-	7.56	7.34	-
21.0	-	-	-	-	-	-	-	-	87.6	-	-	-	-	-	-	-	-	-	7.33	-
22.0	-	-	-	-	-	-	-	-	87.3	-	-	-	-	-	-	-	-	-	7.31	-
23.0	-	-	-	-	-	-	-	-	85.3	-	-	-	-	-	-	-	-	-	7.28	-
24.0	-	-	-	-	-	-	-	-	82.5	-	-	-	-	-	-	-	-	-	7.22	-
25.0	-	-	-	-	-	-	-	-	79.5	-	-	-	-	-	-	-	-	-	7.17	-
26.0	-	-	-	-	-	-	-	-	76.9	-	-	-	-	-	-	-	-	-	7.12	-
27.0	-	-	-	-	-	-	-	-	75.0	-	-	-	-	-	-	-	-	-	7.08	-
28.0	-	-	-	-	-	-	-	-	70.7	-	-	-	-	-	-	-	-	-	7.03	-
29.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.29: *In Situ* Water Quality Profile Data Collected at Mary Lake (North Basin [BL0-01] and South Basin [BL0]) Water Quality Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), Winter 2025

Depth (m)	Specific Conductance (µS/cm)										Turbidity (NTU)									
	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06
	14-Apr-25	14-Apr-25	14-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	209	213	210	110	108	114	111	114	110	112	-0.280	-0.230	-0.0400	0.210	28.7	0.160	0.110	7.73	0.190	0.0400
2.0	208	212	209	108	107	112	109	109	107	110	-0.200	-0.180	0.0300	0.180	0.310	0.180	0.120	0.520	0.160	0.0400
3.0	206	211	210	106	106	110	107	107	106	109	-0.230	-0.190	-0.0300	0.200	0.230	0.170	0.150	0.210	0.120	0.100
4.0	205	209	211	106	105	110	106	105	106	-	-0.210	-0.150	0.100	0.230	0.230	0.160	0.140	0.210	0.120	-
5.0	204	209	217	-	-	-	-	103	-	108	-0.200	-0.160	3.54	-	-	-	-	0.200	-	0.130
6.0	204	-	-	105	104	113	105	-	105	108	-0.180	-	-	0.210	0.240	0.180	0.140	-	0.180	0.120
7.0	-	208	-	104	104	121	104	103	104	108	-	-0.170	-	0.210	0.280	0.190	0.160	0.220	0.190	0.180
8.0	203	207	-	104	104	-	103	102	104	112	-0.190	-0.160	-	0.200	0.240	-	0.150	0.200	0.190	0.210
9.0	202	206	-	104	103	-	102	102	103	113	-0.0800	-0.140	-	0.200	0.210	-	0.180	0.260	0.190	0.310
10.0	201	-	-	103	102	-	102	101	102	-	-0.0100	-	-	0.200	0.230	-	0.160	0.230	0.220	-
11.0	203	-	-	103	102	-	102	101	102	-	0.290	-	-	0.290	0.250	-	0.200	0.240	0.230	-
12.0	206	-	-	105	102	-	101	100	101	-	1.06	-	-	0.910	0.240	-	0.160	0.270	0.180	-
13.0	211	-	-	-	101	-	100	99.6	100	-	0.540	-	-	-	0.260	-	0.150	0.260	0.180	-
14.0	222	-	-	-	101	-	99.7	99.0	99.6	-	0.180	-	-	-	0.280	-	0.210	0.290	0.180	-
15.0	244	-	-	-	100	-	99.7	98.6	99.1	-	1.32	-	-	-	0.280	-	0.230	0.250	0.220	-
16.0	-	-	-	-	101	-	99.6	-	98.7	-	-	-	-	-	0.310	-	0.230	-	0.250	-
17.0	-	-	-	-	101	-	-	98.2	98.4	-	-	-	-	-	0.340	-	-	0.310	0.230	-
18.0	-	-	-	-	102	-	-	98.9	-	-	-	-	-	-	0.320	-	-	0.380	-	-
19.0	-	-	-	-	-	-	-	-	98.2	-	-	-	-	-	-	-	-	-	0.250	-
20.0	-	-	-	-	103	-	-	99.7	97.9	-	-	-	-	-	0.510	-	-	0.440	0.210	-
21.0	-	-	-	-	-	-	-	-	97.5	-	-	-	-	-	-	-	-	-	0.180	-
22.0	-	-	-	-	-	-	-	-	97.3	-	-	-	-	-	-	-	-	-	0.280	-
23.0	-	-	-	-	-	-	-	-	97.5	-	-	-	-	-	-	-	-	-	0.180	-
24.0	-	-	-	-	-	-	-	-	98.3	-	-	-	-	-	-	-	-	-	0.220	-
25.0	-	-	-	-	-	-	-	-	99.5	-	-	-	-	-	-	-	-	-	0.270	-
26.0	-	-	-	-	-	-	-	-	101	-	-	-	-	-	-	-	-	-	0.330	-
27.0	-	-	-	-	-	-	-	-	101	-	-	-	-	-	-	-	-	-	0.340	-
28.0	-	-	-	-	-	-	-	-	102	-	-	-	-	-	-	-	-	-	0.420	-
29.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units. - = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom.

Table B.30: *In Situ* Water Quality Profile Data Collected at Mary Lake (North Basin [BL0-01] and South Basin [BL0]) Water Quality Monitoring Stations and Benthic Invertebrate Community (BIC) Monitoring Stations, Mary River Project Core Receiving Environmental Monitroing Program (CREMP), Summer 2025

Depth (m)	Temperature (°C)									Dissolved Oxygen (mg/L)									Dissolved Oxygen (% Saturation)					
	BL0-01-A	BL0-01	BL0-01-B	BL0-05	BL0-09		BL0-06	BL0-20	BL0-21	BL0-01-A	BL0-01	BL0-01-B	BL0-05	BL0-09		BL0-06	BL0-20	BL0-21	BL0-01-A	BL0-01	BL0-01-B	BL0-05	BL0-09	
	27-Jul-25	27-Jul-25	27-Jul-25	26-Jul-25	26-Jul-25	14-Aug-25	14-Aug-25	14-Aug-25	14-Aug-25	27-Jul-25	27-Jul-25	27-Jul-25	26-Jul-25	26-Jul-25	14-Aug-25	14-Aug-25	14-Aug-25	14-Aug-25	27-Jul-25	27-Jul-25	27-Jul-25	26-Jul-25	26-Jul-25	14-Aug-25
0.0	12.7	12.7	-	-	-	7.00	7.30	7.40	7.10	10.6	10.5	-	-	-	11.6	11.5	11.5	11.6	100	98.7	-	-	-	96.9
1.0	12.4	7.00	-	-	12.2	7.00	-	-	-	10.7	11.9	-	-	11.2	11.5	-	-	-	100	99.1	-	-	104	96.9
2.0	12.2	12.1	11.8	11.1	11.6	6.90	-	-	-	10.6	10.6	10.6	10.9	11.3	11.6	-	-	-	99.5	98.8	98.3	99.0	104	96.8
3.0	10.6	6.80	-	-	9.61	6.90	-	-	-	10.9	11.9	-	-	11.5	11.6	-	-	-	97.5	99.1	-	-	101	96.8
4.0	9.61	6.80	-	-	8.00	6.90	-	-	-	11.0	11.9	-	-	11.6	11.5	-	-	-	96.6	98.9	-	-	97.8	96.5
5.0	7.17	6.70	-	-	7.17	6.80	6.70	-	-	11.4	11.9	-	-	11.6	11.5	11.4	-	-	94.0	98.9	-	-	96.2	96.3
6.0	6.11	6.70	-	-	6.56	6.80	-	-	-	11.6	11.9	-	-	11.7	11.5	-	-	-	93.5	98.7	-	-	95.3	96.1
7.0	-	6.40	-	-	-	6.70	-	-	-	-	11.9	-	-	-	11.5	-	-	-	-	97.5	-	-	-	95.6
8.0	5.61	6.20	-	-	-	6.70	-	-	-	11.9	11.9	-	-	-	11.4	-	-	-	94.6	97.0	-	-	-	95.3
9.0	5.50	6.10	-	-	5.78	6.70	-	-	-	11.9	11.9	-	-	11.8	11.4	-	-	-	94.1	96.7	-	-	94.4	95.1
10.0	5.44	-	-	-	5.61	6.70	-	-	-	11.8	-	-	-	11.8	11.4	-	-	-	93.3	-	-	-	93.9	95.0
11.0	5.39	-	-	-	5.33	6.70	-	6.80	7.00	11.6	-	-	-	11.8	11.4	-	11.3	11.5	91.6	-	-	-	93.6	94.9
12.0	5.39	-	-	-	5.00	6.60	-	-	-	11.4	-	-	-	11.9	11.4	-	-	-	90.1	-	-	-	93.1	94.8
13.0	5.33	-	-	-	4.78	6.60	-	-	-	11.3	-	-	-	11.9	11.4	-	-	-	89.5	-	-	-	92.8	94.7
14.0	5.28	-	-	-	4.72	6.60	-	-	-	11.1	-	-	-	11.9	11.4	-	-	-	87.5	-	-	-	92.6	94.6
15.0	-	-	-	-	4.61	6.60	-	-	-	-	-	-	-	11.9	11.4	-	-	-	-	-	-	-	92.2	94.5
16.0	-	-	-	-	4.44	6.60	-	-	-	-	-	-	-	11.9	11.3	-	-	-	-	-	-	-	91.8	94.4
17.0	-	-	-	-	4.39	6.60	-	-	-	-	-	-	-	11.9	11.3	-	-	-	-	-	-	-	91.6	94.3
18.0	-	-	-	-	4.33	6.60	-	-	-	-	-	-	-	11.9	11.3	-	-	-	-	-	-	-	91.4	94.1
19.0	-	-	-	-	4.28	6.50	-	-	-	-	-	-	-	11.8	11.3	-	-	-	-	-	-	-	91.1	93.7
20.0	-	-	-	-	4.28	6.50	-	-	-	-	-	-	-	11.8	11.3	-	-	-	-	-	-	-	90.8	93.6
21.0	-	-	-	-	-	6.50	-	-	-	-	-	-	-	-	11.3	-	-	-	-	-	-	-	-	93.5
22.0	-	-	-	-	4.22	6.40	-	-	-	-	-	-	-	11.8	11.3	-	-	-	-	-	-	-	90.7	93.4
23.0	-	-	-	-	4.22	6.40	-	-	-	-	-	-	-	11.8	11.3	-	-	-	-	-	-	-	90.6	93.3
24.0	-	-	-	-	4.17	6.40	-	-	-	-	-	-	-	11.8	11.3	-	-	-	-	-	-	-	90.5	93.1
25.0	-	-	-	-	4.17	6.40	-	-	-	-	-	-	-	11.8	11.2	-	-	-	-	-	-	-	90.3	92.9
26.0	-	-	-	-	4.11	6.30	-	-	-	-	-	-	-	11.8	11.2	-	-	-	-	-	-	-	90.2	92.4
27.0	-	-	-	-	4.06	-	-	-	-	-	-	-	-	11.7	-	-	-	-	-	-	-	-	89.6	-
28.0	-	-	-	-	4.00	-	-	-	-	-	-	-	-	11.7	-	-	-	-	-	-	-	-	89.3	-
29.0	-	-	-	-	3.94	-	-	-	-	-	-	-	-	11.7	-	-	-	-	-	-	-	-	89.0	-
30.0	-	-	-	-	3.94	-	-	-	-	-	-	-	-	11.6	-	-	-	-	-	-	-	-	88.5	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. Stations BL0-01, BL0-01-B, BL0-05, BL0-09, BL0-06, BL0-20, BL0-21 are BIC monitoring stations for which top and bottom measures were taken at the time of sample collection.

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Depth (m)	Dissolved Oxygen (% Saturation)			pH (pH units)									Specific Conductance (µS/cm)								
	BL0-06	BL0-20	BL0-21	BL0-01-A	BL0-01	BL0-01-B	BL0-05	BL0-09		BL0-06	BL0-20	BL0-21	BL0-01-A	BL0-01	BL0-01-B	BL0-05	BL0-09		BL0-06	BL0-20	BL0-21
	14-Aug-25	14-Aug-25	14-Aug-25	27-Jul-25	27-Jul-25	27-Jul-25	26-Jul-25	26-Jul-25	14-Aug-25	14-Aug-25	14-Aug-25	14-Aug-25	27-Jul-25	27-Jul-25	27-Jul-25	26-Jul-25	26-Jul-25	14-Aug-25	14-Aug-25	14-Aug-25	14-Aug-25
0.0	97.3	97.4	97.2	8.09	8.14	-	-	-	7.70	7.39	7.81	7.82	119	121	-	-	-	73.2	73.4	78.2	73.6
1.0	-	-	-	8.09	7.86	-	-	7.95	7.70	-	-	-	119	151	-	-	74.2	73.2	-	-	-
2.0	-	-	-	8.09	8.11	8.08	7.87	7.91	7.75	-	-	-	119	120	121	92.3	74.0	73.3	-	-	-
3.0	-	-	-	8.05	7.84	-	-	7.90	7.76	-	-	-	118	150	-	-	73.9	73.3	-	-	-
4.0	-	-	-	8.03	7.84	-	-	7.84	7.74	-	-	-	115	149	-	-	68.4	73.4	-	-	-
5.0	94.9	-	-	8.00	7.84	-	-	7.72	7.74	7.19	-	-	98.0	149	-	-	67.7	73.4	74.4	-	-
6.0	-	-	-	7.88	7.84	-	-	7.57	7.73	-	-	-	89.5	149	-	-	67.1	73.8	-	-	-
7.0	-	-	-	-	7.82	-	-	-	7.70	-	-	-	-	148	-	-	-	74.2	-	-	-
8.0	-	-	-	7.72	7.80	-	-	-	7.77	-	-	-	87.8	147	-	-	-	74.2	-	-	-
9.0	-	-	-	7.69	7.79	-	-	7.45	7.68	-	-	-	88.0	147	-	-	65.8	74.3	-	-	-
10.0	-	-	-	7.65	-	-	-	7.41	7.63	-	-	-	88.9	-	-	-	65.8	74.1	-	-	-
11.0	-	94.3	96.6	7.61	-	-	-	7.39	7.61	-	7.75	7.78	89.6	-	-	-	65.2	74.4	-	79.4	73.6
12.0	-	-	-	7.56	-	-	-	7.37	7.58	-	-	-	90.1	-	-	-	64.2	74.5	-	-	-
13.0	-	-	-	7.55	-	-	-	7.35	7.56	-	-	-	90.6	-	-	-	64.0	74.6	-	-	-
14.0	-	-	-	7.51	-	-	-	7.32	7.54	-	-	-	92.0	-	-	-	64.2	74.6	-	-	-
15.0	-	-	-	-	-	-	-	7.30	7.52	-	-	-	-	-	-	-	64.1	74.6	-	-	-
16.0	-	-	-	-	-	-	-	7.29	7.51	-	-	-	-	-	-	-	64.0	74.6	-	-	-
17.0	-	-	-	-	-	-	-	7.27	7.50	-	-	-	-	-	-	-	63.9	74.7	-	-	-
18.0	-	-	-	-	-	-	-	7.25	7.48	-	-	-	-	-	-	-	63.8	75.1	-	-	-
19.0	-	-	-	-	-	-	-	7.24	7.47	-	-	-	-	-	-	-	63.8	76.0	-	-	-
20.0	-	-	-	-	-	-	-	7.23	7.46	-	-	-	-	-	-	-	63.7	76.2	-	-	-
21.0	-	-	-	-	-	-	-	-	7.44	-	-	-	-	-	-	-	-	77.4	-	-	-
22.0	-	-	-	-	-	-	-	7.22	7.43	-	-	-	-	-	-	-	63.7	77.8	-	-	-
23.0	-	-	-	-	-	-	-	7.22	7.42	-	-	-	-	-	-	-	63.7	78.3	-	-	-
24.0	-	-	-	-	-	-	-	7.21	7.40	-	-	-	-	-	-	-	63.6	79.5	-	-	-
25.0	-	-	-	-	-	-	-	7.21	7.39	-	-	-	-	-	-	-	63.6	79.6	-	-	-
26.0	-	-	-	-	-	-	-	7.21	7.37	-	-	-	-	-	-	-	63.5	80.1	-	-	-
27.0	-	-	-	-	-	-	-	7.20	-	-	-	-	-	-	-	-	63.6	-	-	-	-
28.0	-	-	-	-	-	-	-	7.19	-	-	-	-	-	-	-	-	63.5	-	-	-	-
29.0	-	-	-	-	-	-	-	7.18	-	-	-	-	-	-	-	-	63.5	-	-	-	-
30.0	-	-	-	-	-	-	-	7.11	-	-	-	-	-	-	-	-	64.2	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. Stations BL0-01, BL0-01-B, BL0-05, BL0-09, BL0-06, BL0-20, BL0-21 are BIC monitoring stations for which top and bottom measures were taken at the time of sample collection.

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Depth (m)	Turbidity (NTU)												
	BL0-01-A	BL0-01	BL0-01-B	BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09		BL0-06	BL0-20	BL0-21
	27-Jul-25	27-Jul-25	27-Jul-25	-	26-Jul-25	-	-	-	26-Jul-25	14-Aug-25	14-Aug-25	14-Aug-25	14-Aug-25
0.0	2.64	2.52	-	-	-	-	-	-	-	5.22	0.510	5.66	5.04
1.0	2.71	1.56	-	-	-	-	-	-	6.36	5.12	-	-	-
2.0	2.70	2.65	2.56	-	8.38	-	-	-	6.32	5.31	-	-	-
3.0	3.39	1.73	-	-	-	-	-	-	6.49	5.48	-	-	-
4.0	3.72	1.77	-	-	-	-	-	-	7.27	5.39	-	-	-
5.0	6.44	1.70	-	-	-	-	-	-	8.18	5.42	0.400	-	-
6.0	7.36	1.82	-	-	-	-	-	-	8.98	5.65	-	-	-
7.0	-	2.10	-	-	-	-	-	-	-	5.91	-	-	-
8.0	8.54	1.86	-	-	-	-	-	-	-	5.92	-	-	-
9.0	8.59	1.93	-	-	-	-	-	-	10.2	6.05	-	-	-
10.0	8.78	-	-	-	-	-	-	-	9.58	6.16	-	-	-
11.0	8.81	-	-	-	-	-	-	-	10.3	6.12	-	6.28	5.32
12.0	8.87	-	-	-	-	-	-	-	10.5	6.22	-	-	-
13.0	9.09	-	-	-	-	-	-	-	11.3	6.31	-	-	-
14.0	9.02	-	-	-	-	-	-	-	12.9	6.17	-	-	-
15.0	-	-	-	-	-	-	-	-	13.6	6.15	-	-	-
16.0	-	-	-	-	-	-	-	-	15.9	6.28	-	-	-
17.0	-	-	-	-	-	-	-	-	15.9	6.28	-	-	-
18.0	-	-	-	-	-	-	-	-	16.7	6.27	-	-	-
19.0	-	-	-	-	-	-	-	-	19.1	6.52	-	-	-
20.0	-	-	-	-	-	-	-	-	17.8	6.45	-	-	-
21.0	-	-	-	-	-	-	-	-	-	6.63	-	-	-
22.0	-	-	-	-	-	-	-	-	18.4	6.72	-	-	-
23.0	-	-	-	-	-	-	-	-	19.4	6.56	-	-	-
24.0	-	-	-	-	-	-	-	-	20.6	7.01	-	-	-
25.0	-	-	-	-	-	-	-	-	20.7	6.58	-	-	-
26.0	-	-	-	-	-	-	-	-	21.1	7.10	-	-	-
27.0	-	-	-	-	-	-	-	-	23.8	-	-	-	-
28.0	-	-	-	-	-	-	-	-	25.1	-	-	-	-
29.0	-	-	-	-	-	-	-	-	25.6	-	-	-	-
30.0	-	-	-	-	-	-	-	-	253	-	-	-	-

Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. µS/cm = microSiemens per centimetre. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. Stations BL0-01, BL0-01-B, BL0-05, BL0-09, BL0-06, BL0-20, BL0-21 are BIC monitoring stations for which top and bottom measures were taken at the time of sample collection.

Table B.31: *In Situ* Water Quality Profile Data Collected at Mary Lake (North Basin [BL0-01]; and South Basin [BL0]) Water Quality Monitoring Stations, Mary River Project Core Receiving Environmental Monitroing Program (CREMP), Fall 2025

Depth (m)	Temperature (°C)		Dissolved Oxygen (mg/L)		Dissolved Oxygen (% Saturation)		pH (pH units)			Turbidity (NTU)	
	BL0-01-A	BL0-09	BL0-01-A	BL0-09	BL0-01-A	BL0-09	BL0-01-A	BL0-04	BL0-09	BL0-01-A	BL0-09
	23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25	-	23-Aug-25	23-Aug-25	23-Aug-25
0.0	-	-	-	-	-	-	-	-	-	-	-
1.0	7.00	7.60	11.6	11.6	97.0	97.7	8.11	-	7.89	1.55	3.51
2.0	6.70	7.50	11.8	11.6	97.7	97.6	8.11	-	7.74	1.39	3.55
3.0	6.60	7.50	11.9	11.6	98.2	97.5	8.10	-	7.71	1.41	3.49
4.0	6.60	7.50	11.9	11.6	98.5	97.5	8.10	-	7.68	1.29	3.58
5.0	6.50	7.50	12.0	11.6	98.3	97.4	8.09	-	7.67	1.30	3.54
6.0	6.50	-	11.9	-	98.1	-	8.10	-	-	1.28	-
7.0	6.40	7.50	11.9	11.6	98.1	97.3	8.10	-	7.65	1.36	3.68
8.0	6.40	7.50	11.9	11.6	98.0	97.2	8.10	-	7.64	1.30	3.52
9.0	6.30	7.40	11.9	11.6	97.7	97.2	8.09	-	7.64	1.32	3.65
10.0	6.30	7.20	11.9	11.4	97.7	95.7	8.08	-	7.63	1.36	3.96
11.0	6.30	7.10	11.9	11.4	97.6	95.4	8.08	-	7.58	1.36	4.04
12.0	6.20	7.10	11.9	11.4	97.5	95.2	8.09	-	7.56	1.40	4.05
13.0	6.20	6.80	11.9	11.3	97.5	93.7	8.09	-	7.54	1.32	4.27
14.0	6.20	6.70	11.9	11.2	97.4	92.8	8.10	-	7.49	1.37	4.43
15.0	-	6.60	-	11.2	-	92.4	-	-	7.45	-	4.74
16.0	-	6.60	-	11.2	-	92.1	-	-	7.43	-	4.68
17.0	-	6.50	-	11.2	-	92.0	-	-	7.41	-	4.90
18.0	-	6.50	-	11.2	-	91.6	-	-	7.39	-	5.36
19.0	-	6.50	-	11.1	-	91.3	-	-	7.38	-	5.15
20.0	-	6.50	-	11.1	-	91.2	-	-	7.37	-	4.83
21.0	-	6.40	-	11.1	-	91.0	-	-	7.36	-	5.15
22.0	-	6.40	-	11.1	-	90.7	-	-	7.36	-	5.19
23.0	-	6.40	-	11.1	-	90.5	-	-	7.36	-	5.22
24.0	-	6.40	-	11.0	-	90.3	-	-	7.35	-	5.60
25.0	-	6.40	-	11.0	-	90.2	-	-	7.35	-	5.34
26.0	-	6.40	-	11.0	-	90.0	-	-	7.35	-	5.53
27.0	-	6.40	-	11.0	-	89.9	-	-	7.35	-	5.41
28.0	-	-	-	-	-	-	-	-	-	-	-
29.0	-	-	-	-	-	-	-	-	-	-	-
30.0	-	-	-	-	-	-	-	-	-	-	-

 Indicates a dissolved oxygen concentration below the CCME (2026) WQG for the protection of early life stages of cold water biota (i.e., 9.5 mg/L) or pH values outside the CCME (2026) WQG range (6.5 to 9).

Notes: m = metres. °C = degrees Celsius. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units.- = no data collected. The total depth of the water column at each sampling station was not recorded but deepest measurements are within 1 m of lake bottom. No specific conductance data were recorded in fall 2025.

Table B.32: Water Chemistry Baseline Normal Ranges Calculated for Mary Lake (Stations BL0-01, BL0-03. BL0-04, BL0-05, BL0-05-A, and BL0-06), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Conventional	Conductivity (lab)	µS/cm	9	-	-	17	-	134	10	-	190
	Specific Conductivity	µS/cm	4	-	-	14	-	146	8	-	-
	pH (lab)	pH	9	-	-	18	-	8.26	11	-	8.26
	pH (field) ^a	pH	0	-	-	0	-	-	0	-	-
	Temperature, Field ^a	pH	4	-	-	14	7.18	11.0	8	-	-
	Hardness (as CaCO ₃) -Total	mg/L	9	-	-	17	-	68.7	10	-	95.7
	Total Suspended Solids (TSS)	mg/L	9	-	LRL	15	-	11.0	8	-	LRL
	Total Dissolved Solids (TDS)	mg/L	9	-	-	17	-	87.0	10	-	124
	Dissolved Oxygen ^b	mg/L	4	-	-	12	7.26	-	8	-	-
	Dissolved Oxygen ^b	%	0	-	-	0	-	-	0	-	-
	Turbidity (lab)	NTU	9	-	-	19	-	8.40	11	-	3.20
	Turbidity (field)	NTU	0	-	-	0	-	-	0	-	-
	Alkalinity (as CaCO ₃) ^a	mg/L	9	-	-	17	26.0	67.0	10	33.5	90.0
Nutrients and Organics	Total Ammonia	mg/L	9	-	-	17	-	0.280	10	-	0.210
	Nitrate	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Nitrite	mg/L	9	-	LRL	17	-	0.100	10	-	0.00900
	Total Kjeldahl Nitrogen (TKN)	mg/L	9	-	-	15	-	0.360	8	-	-
	Dissolved Organic Carbon	mg/L	9	-	-	15	-	1.80	8	-	-
	Total Organic Carbon	mg/L	9	-	-	14	-	2.50	5	-	-
	Total Phosphorus	mg/L	9	-	-	17	-	0.0200	10	-	0.0200
	Phenols	mg/L	0	-	-	0	-	-	0	-	-
Anions	Bromide (Br)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Chloride (Cl)	mg/L	9	-	-	17	-	4.50	10	-	6.00
	Sulphate (SO ₄)	mg/L	9	-	-	17	-	3.50	10	-	5.00
Total Metals	Aluminum (Al)	mg/L	9	-	-	17	-	0.168	10	-	0.127
	Antimony (Sb)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Arsenic (As)	mg/L	9	-	LRL	17	-	LRL	10	-	0.000295
	Barium (Ba)	mg/L	9	-	-	17	-	0.00671	10	-	0.00856
	Beryllium (Be)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Bismuth (Bi)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Boron (B)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Cadmium (Cd)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Calcium (Ca)	mg/L	9	-	-	17	-	14.5	10	-	19.7
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	9	-	-	17	-	LRL	10	-	0.000280
	Cobalt (Co)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Copper (Cu)	mg/L	9	-	-	16	-	0.00122	9	-	-
	Iron (Fe)	mg/L	9	-	-	17	-	0.215	10	-	0.140
	Lead (Pb)	mg/L	9	-	-	15	-	0.000130	8	-	-
	Lithium (Li)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Magnesium (Mg)	mg/L	9	-	-	17	-	7.90	10	-	11.3
	Manganese (Mn)	mg/L	9	-	-	16	-	0.0100	9	-	-
	Mercury (Hg)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Molybdenum (Mo)	mg/L	9	-	-	15	-	0.000160	8	-	-
	Nickel (Ni)	mg/L	9	-	-	15	-	0.000595	8	-	-
	Potassium (K)	mg/L	9	-	-	17	-	0.731	10	-	0.780
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Silicon (Si)	mg/L	9	-	-	15	-	0.809	8	-	-
	Silver (Ag)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Sodium (Na)	mg/L	9	-	-	17	-	1.14	10	-	2.95
	Strontium (Sr)	mg/L	9	-	-	17	-	0.00910	10	-	0.0126
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	9	-	-	17	-	0.000575	10	-	LRL
	Titanium (Ti)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	9	-	-	15	-	0.00113	8	-	-
	Vanadium (V)	mg/L	9	-	LRL	17	-	LRL	10	-	0.00275
	Zinc (Zn)	mg/L	9	-	LRL	15	-	0.00210	8	-	LRL
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.32: Water Chemistry Baseline Normal Ranges Calculated for Mary Lake (Stations BL0-01, BL0-03. BL0-04, BL0-05, BL0-05-A, and BL0-06), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2005 to 2013

Parameters		Units	Winter			Summer			Fall		
			n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile	n	5 th Percentile	95 th Percentile
Dissolved Metals	Aluminum (Al)	mg/L	9	-	-	17	-	0.0412	10	-	0.0234
	Antimony (Sb)	mg/L	9	-	LRL	15	-	0.000255	8	-	LRL
	Arsenic (As)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Barium (Ba)	mg/L	9	-	-	17	-	0.00650	10	-	0.00849
	Beryllium (Be)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Bismuth (Bi)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Boron (B)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Cadmium (Cd)	mg/L	9	-	-	17	-	LRL	10	-	LRL
	Calcium (Ca)	mg/L	9	-	-	17	-	14.4	10	-	19.8
	Cesium (Cs)	mg/L	0	-	-	0	-	-	0	-	-
	Chromium (Cr)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Cobalt (Co)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Copper (Cu)	mg/L	9	-	-	17	-	0.00122	10	-	0.00337
	Iron (Fe)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Lead (Pb)	mg/L	9	-	-	15	-	0.000210	8	-	-
	Lithium (Li)	mg/L	9	-	-	15	-	LRL	8	-	LRL
	Magnesium (Mg)	mg/L	9	-	-	17	-	8.36	10	-	11.4
	Manganese (Mn)	mg/L	9	-	-	15	-	0.00238	8	-	-
	Mercury (Hg)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Molybdenum (Mo)	mg/L	9	-	-	15	-	0.000171	8	-	-
	Nickel (Ni)	mg/L	9	-	-	15	-	0.000715	8	-	LRL
	Potassium (K)	mg/L	9	-	-	17	-	0.716	10	-	0.780
	Rubidium (Rb)	mg/L	0	-	-	0	-	-	0	-	-
	Selenium (Se)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Silicon (Si)	mg/L	9	-	-	15	-	0.770	8	-	-
	Silver (Ag)	mg/L	9	-	LRL	17	-	LRL	10	-	LRL
	Sodium (Na)	mg/L	9	-	-	17	-	1.15	10	-	2.15
	Strontium (Sr)	mg/L	9	-	-	17	-	0.00912	10	-	0.0112
	Sulphur (S)	mg/L	0	-	-	0	-	-	0	-	-
	Tellurium (Te)	mg/L	0	-	-	0	-	-	0	-	-
	Thallium (Tl)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Thorium (Th)	mg/L	0	-	-	0	-	-	0	-	-
	Tin (Sn)	mg/L	9	-	-	17	-	0.000910	10	-	LRL
	Titanium (Ti)	mg/L	9	-	LRL	15	-	LRL	8	-	LRL
	Tungsten (W)	mg/L	0	-	-	0	-	-	0	-	-
	Uranium (U)	mg/L	9	-	-	15	-	0.00110	8	-	-
	Vanadium (V)	mg/L	9	-	LRL	17	-	LRL	10	-	0.00550
	Zinc (Zn)	mg/L	9	-	-	15	-	0.00350	8	-	-
	Zirconium (Zr)	mg/L	0	-	-	0	-	-	0	-	-

Notes: n = number of samples. µS/cm = microSiemens per centimetre. - = insufficient data (< 10 data points) to calculate a baseline normal range. CaCO₃ = calcium carbonate. mg/L = milligrams per litre. % = percent. NTU = Nephelometric Turbidity Units. LRL = the percentage (%) of data below the laboratory reporting limit (LRL) was above 70% and thus no baseline normal range was calculated.

^a Concentrations were required to be between the 5th and 95th percentiles to be within the baseline normal range.

^b Concentrations were required to be above the 5th percentile to be within the baseline normal range.

Table B.33: Water Chemistry at Mary Lake North Basin (BL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event					
						BL0-01-A	BL0-01-A	BL0-01	BL0-01	BL0-01-B	BL0-01-B
						bottom	surface	bottom	surface	bottom	surface
						14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25
Conventionals	Conductivity (lab)	µS/cm	-	-	-	208	210	209	213	213	212
	Specific Conductance (field)	µS/cm	-	-	-	244	209	206	211	217	209
	pH (lab)	pH	-	-	-	7.05	7.52	7.65	7.57	7.66	7.62
	pH (field)	pH	6.5 - 9.0	-	-	7.07	7.70	7.62	7.72	7.42	7.69
	Temperature, Field	mg/L	-	-	-	1.56	0.389	0.667	0.667	0.278	0.333
	Hardness (as CaCO ₃) -Total	mg/L	-	-	-	110	111	111	112	112	111
	Total Suspended Solids (TSS)	mg/L	-	-	-	1.80	<1	1.20	1.00	1.50	1.60
	Total Dissolved Solids (TDS)	mg/L	-	-	-	101	103	98.0	106	110	101
	Dissolved Oxygen	mg/L	-	-	-	0.810	13.6	13.9	14.1	13.1	14.2
	Dissolved Oxygen	%	-	-	-	5.80	94.3	97.1	98.3	90.3	98.4
	Turbidity (lab)	NTU	-	-	-	2.88	1.82	1.12	1.13	1.42	1.72
	Turbidity (field)	NTU	-	-	-	1.32	-0.280	-0.140	-0.230	3.54	0
	Alkalinity (as CaCO ₃)	mg/L	-	-	-	100	100	100	102	102	101
Nutrients and Organics	Total Ammonia ^e	mg/L	1.92 - 6.02	-	-	0.0572	<0.005	0.00980	<0.005	<0.005	0.00820
	Nitrate ^e	mg/L	3.00	-	-	0.144	0.0500	0.0430	0.0440	0.0440	0.0400
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	-	0.236	0.151	0.154	0.166	0.148	0.142
	Dissolved Organic Carbon	mg/L	-	-	-	3.14	3.16	3.31	3.49	2.89	3.71
	Total Organic Carbon	mg/L	-	-	-	3.06	3.01	3.12	3.07	2.90	3.00
	Total Phosphorus	mg/L	-	-	-	0.00970	0.00330	<0.002	0.00310	0.00750	0.00260
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	-	-	4.55	4.78	4.65	4.77	4.73	4.62
	Sulphate (SO ₄) ^e	mg/L	218 - 309	-	-	1.93	2.78	2.77	2.84	2.80	2.77
Total Metals	Aluminum (Al) ^e	mg/L	0.130	-	-	0.00770	0.0147	0.0138	0.0154	0.0139	0.0144
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	0.000210	<0.0001	0.000100	0.000120	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	-	-	0.00869	0.00958	0.00929	0.00955	0.00943	0.00937
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000848 - 0.000173	-	-	<0.000005	<0.000005	<0.000005	<0.000005	0.00000600	<0.000005
	Calcium (Ca)	mg/L	-	-	-	21.6	21.4	21.4	21.8	21.8	21.4
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field),

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^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.33: Water Chemistry at Mary Lake North Basin (BL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event					
						BL0-01-A	BL0-01-A	BL0-01	BL0-01	BL0-01-B	BL0-01-B
						bottom	surface	bottom	surface	bottom	surface
						14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25
Total Metals	Cobalt (Co) ^e	mg/L	0.000778 - 0.00107	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00259	-	-	0.000940	0.00139	0.00151	0.00154	0.00139	0.00136
	Iron (Fe) ^e	mg/L	0.300	-	-	0.333	0.0310	0.0330	0.0320	0.0430	0.0340
	Lead (Pb)	mg/L	0.00100 - 0.00365	-	-	0.00101	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	0.00120	0.00100	0.00120	0.00130	0.00140	0.00130
	Magnesium (Mg)	mg/L	-	-	-	13.5	14.0	14.0	14.1	14.1	13.9
	Manganese (Mn)	mg/L	0.812 - 1.10	-	-	0.0662	0.00550	0.00408	0.00368	0.00569	0.00318
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	-	-	0.000350	0.000413	0.000403	0.000405	0.000390	0.000392
	Nickel (Ni) ^e	mg/L	0.0250 - 0.104	-	-	0.00102	0.000760	0.000730	0.000720	0.000750	0.000750
	Potassium (K)	mg/L	-	-	-	1.22	1.27	1.27	1.30	1.29	1.29
	Rubidium (Rb)	mg/L	-	-	-	0.00215	0.00207	0.00203	0.00203	0.00198	0.00193
	Selenium (Se)	mg/L	0.001	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	-	2.07	1.36	1.35	1.39	1.41	1.40
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	-	3.51	3.74	3.69	3.76	3.74	3.66
	Strontium (Sr)	mg/L	-	-	-	0.0150	0.0150	0.0149	0.0152	0.0150	0.0149
	Sulphur (S)	mg/L	-	-	-	0.560	0.910	0.970	0.900	0.880	0.900
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	0.000490	0.000430	<0.0006	0.000410	0.000380
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00162	0.00237	0.00234	0.00238	0.00232	0.00228
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Metals	Aluminum (Al)	mg/L	-	-	-	0.00110	0.0132	0.00410	0.00530	0.00650	0.00560
	Antimony (Sb)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	0.000170	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	-	-	0.00885	0.0107	0.0100	0.0103	0.0109	0.0102
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.000121 - 0.000229	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005

 Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

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Table B.33: Water Chemistry at Mary Lake North Basin (BL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event					
						BL0-01-A	BL0-01-A	BL0-01	BL0-01	BL0-01-B	BL0-01-B
						bottom	surface	bottom	surface	bottom	surface
						14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25	14-Apr-25
Dissolved Metals	Calcium (Ca)	mg/L	-	-	-	19.9	21.6	21.0	20.6	23.0	19.5
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000533	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.00111 - 0.00406	-	-	0.000700	0.00125	0.00112	0.00126	0.00126	0.00136
	Iron (Fe)	mg/L	-	-	-	0.0920	0.0150	0.0140	0.0160	0.0210	0.0160
	Lead (Pb) ^e	mg/L	0.00556 - 0.00809	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	0.00120	<0.001
	Magnesium (Mg)	mg/L	-	-	-	11.3	12.4	12.0	12.3	13.1	12.0
	Manganese (Mn) ^e	mg/L	0.320 - 0.560	-	-	0.00106	0.00169	0.000870	0.00100	0.00292	0.00129
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	-	-	0.000317	0.000420	0.000391	0.000435	0.000420	0.000398
	Nickel (Ni)	mg/L	0.00120 - 0.00250	-	-	0.000740	0.000720	0.000640	0.000740	0.000730	0.000820
	Potassium (K)	mg/L	-	-	-	1.08	1.20	1.15	1.21	1.29	1.17
	Rubidium (Rb)	mg/L	-	-	-	0.00205	0.00194	0.00180	0.00183	0.00204	0.00181
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	-	1.96	1.37	1.34	1.37	1.50	1.40
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	-	3.02	3.32	3.14	3.33	3.48	3.22
	Strontium (Sr) ^e	mg/L	2.50	-	-	0.0142	0.0159	0.0149	0.0154	0.0157	0.0155
	Sulphur (S)	mg/L	-	-	-	0.580	0.900	0.940	0.940	1.06	0.950
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.00155	0.00233	0.00230	0.00237	0.00251	0.00227
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	<0.001	<0.001	<0.001	<0.001	0.00100	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

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Table B.33: Water Chemistry at Mary Lake North Basin (BL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						BL0-01-A	BL0-01	BL0-01-B			BL0-01-A	BL0-01-A	BL0-01	BL0-01-B
						surface	surface	surface			bottom	surface	surface	surface
						27-Jul-25	27-Jul-25	27-Jul-25			23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	134	79.7	121	124	1.00	190	83.5	-	174	174	178
	Specific Conductance (field)	µS/cm	-	146	-	119	121	121	-	-	163	157	-	-
	pH (lab)	pH	-	-	-	8.01	8.03	8.02	-	-	-	8.00	8.04	8.03
	pH (field)	pH	6.5 - 9.0	-	-	8.09	8.14	8.08	-	-	8.10	8.11	-	-
	Temperature, Field	mg/L	-	7.18 - 11.0	4.30 - 12.5	<u>12.7</u>	<u>12.7</u>	<u>11.9</u>	-	5.75 - 7.85	6.20	7.00	-	-
	Hardness (as CaCO ₃) -Total	mg/L	-	68.7	37.7	61.6	63.0	0.145	95.7	38.6	-	76.6	78.6	80.2
	Total Suspended Solids (TSS)	mg/L	-	11.0	-	<1	<1	<1	-	-	-	<1	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	87.0	58.0	74.0	74.0	77.0	124	59.0	-	81.0	59.0	62.0
	Dissolved Oxygen	mg/L	> 9.5	7.26	10.8	10.6	10.5	10.7	-	11.3	11.9	11.6	-	-
	Dissolved Oxygen	%	-	-	96.9	100	98.7	98.9	-	89.6	97.4	97.0	-	-
	Turbidity (lab)	NTU	-	-	-	2.42	2.21	2.16	-	-	-	1.65	1.79	1.65
	Turbidity (field)	NTU	-	-	353	2.64	2.52	2.49	-	3.79	1.37	1.55	-	-
	Alkalinity (as CaCO ₃)	mg/L	-	26.0 - 67.0	30.0 - 47.9	60.1	61.0	<u><2</u>	33.5 - 90.0	29.5 - 49.4	-	76.1	75.5	76.2
Nutrients and Organics	Total Ammonia ^e	mg/L	0.197 - 0.855	0.280	-	<0.005	<0.005	<0.005	0.210	0.0550	-	0.00670	<0.005	<0.005
	Nitrate ^e	mg/L	3.00	-	-	<0.02	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02
	Nitrite ^e	mg/L	0.0600	0.100	-	<0.01	<0.01	<0.01	0.00900	-	-	<u><0.01</u>	<u><0.01</u>	<u><0.01</u>
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.360	0.235	0.173	0.152	0.0530	-	0.210	-	0.162	0.105	0.162
	Dissolved Organic Carbon	mg/L	-	1.80	3.65	<u>2.83</u>	<u>2.51</u>	0.930	-	3.82	-	1.78	1.96	1.76
	Total Organic Carbon	mg/L	-	2.50	4.81	<u>3.17</u>	<u>2.63</u>	0.790	-	3.86	-	2.40	2.23	2.23
	Total Phosphorus	mg/L	-	0.0200	0.00700	0.00470	0.00340	0.00900	0.0200	0.0235	-	<0.002	0.00220	<0.002
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	-	-	-	<0.1	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	4.50	1.42	1.63	1.66	<0.5	6.00	1.38	-	3.17	3.14	3.22
	Sulphate (SO ₄) ^e	mg/L	128 - 218	3.50	4.48	0.990	0.970	<0.3	5.00	4.37	-	1.45	1.44	1.44
Total Metals	Aluminum (Al) ^e	mg/L	0.130	0.168	0.00850	0.0758	0.0456	<0.003	0.127	0.0128	-	0.0449	0.0463	0.0339
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00671	0.00692	0.00666	<u>0.00674</u>	<0.0001	0.00856	0.00670	-	0.00793	0.00785	0.00824
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	-	-	-	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	-	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	-	-	-	<0.01	<0.01	<0.01
	Cadmium (Cd) ^e	mg/L	0.0000400 - 0.0000999	-	-	<0.000005	<0.000005	<0.000005	-	-	-	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	14.5	7.42	12.3	12.6	<0.05	19.7	7.49	-	15.0	16.0	15.8
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	0.00500	-	-	<0.0005	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

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						surface	surface	surface			bottom	surface	surface	surface
						27-Jul-25	27-Jul-25	27-Jul-25			23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25
Total Metals	Cobalt (Co) ^e	mg/L	0.000778 - 0.000810	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200	0.00122	0.000990	0.00118	0.00116	<0.0005	-	0.000905	-	0.000940	0.000960	0.000980
	Iron (Fe) ^e	mg/L	0.300	0.215	-	0.0660	0.0490	<0.01	0.140	0.0190	-	0.0460	0.0470	0.0400
	Lead (Pb)	mg/L	0.00100	0.000130	-	0.0000690	<0.00005	<0.00005	-	-	-	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	7.90	4.67	7.50	7.66	<0.005	11.3	4.82	-	9.50	9.38	9.90
	Manganese (Mn)	mg/L	0.768 - 0.857	0.0100	0.000990	0.00287	0.00265	<0.0001	-	0.000980	-	0.00383	0.00389	0.00366
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	-	-	-	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000160	0.000164	<u>0.000226</u>	<u>0.000222</u>	<0.00005	-	0.000164	-	0.000288	0.000265	0.000272
	Nickel (Ni) ^e	mg/L	0.0250	0.000595	-	<u>0.000850</u>	<u>0.000690</u>	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.731	0.960	<u>0.887</u>	<u>0.894</u>	<0.05	0.780	0.945	-	<u>0.928</u>	<u>0.921</u>	<u>0.942</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00174	0.00160	<0.0002	-	-	-	0.00145	0.00153	0.00150
	Selenium (Se)	mg/L	0.00200	-	-	<0.00005	<0.00005	<0.00005	-	-	-	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.809	0.520	<u>0.830</u>	0.780	<0.1	-	0.500	-	0.850	0.850	0.830
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.14	1.00	<u>1.50</u>	<u>1.56</u>	<0.05	2.95	0.968	-	2.21	2.20	2.27
	Strontium (Sr)	mg/L	-	0.00910	0.00875	0.00857	0.00871	<0.0002	0.0126	0.00861	-	0.0121	0.0119	0.0117
	Sulphur (S)	mg/L	-	-	-	0.550	<0.5	<0.5	-	-	-	0.600	0.540	0.590
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.000575	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.00240	0.00177	<0.0003	-	-	-	0.00140	0.00142	0.00117
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000959	0.00101	<0.00001	-	-	-	0.00194	0.00197	0.00199
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<u><0.003</u>	<u><0.003</u>	<u><0.003</u>	-	-	-	<0.003	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	0.000240	<0.0002	<0.0002	-	-	-	0.000230	0.000220	<0.0002
Total Metals	Aluminum (Al)	mg/L	-	0.0412	0.00430	0.0140	0.0103	<0.001	0.0234	0.0122	-	0.00900	0.0127	0.00620
	Antimony (Sb)	mg/L	-	0.000255	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00650	0.00683	0.00635	0.00626	<0.0001	0.00849	0.00674	-	0.00844	0.00827	0.00844
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	-	-	-	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	-	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	-	-	-	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.0000176 - 0.000140	-	-	<0.000005	<0.000005	<0.000005	-	-	-	<0.000005	<0.000005	<0.000005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field),

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.33: Water Chemistry at Mary Lake North Basin (BL0-01) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						BL0-01-A	BL0-01	BL0-01-B			BL0-01-A	BL0-01-A	BL0-01	BL0-01-B
						surface	surface	surface			bottom	surface	surface	surface
						27-Jul-25	27-Jul-25	27-Jul-25			23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25
Dissolved Metals	Calcium (Ca)	mg/L	-	14.4	7.34	11.3	11.4	<0.05	19.8	7.40	-	16.6	16.6	16.5
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000405	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Copper (Cu) ^e	mg/L	0.000584 - 0.00427	0.00122	0.000950	0.000940	0.00106	<0.0002	0.00337	0.000890	-	0.000780	0.000780	0.000770
	Iron (Fe)	mg/L	-	-	-	0.0150	0.0120	<0.01	-	-	-	0.0120	0.0140	0.0110
	Lead (Pb) ^e	mg/L	0.00207 - 0.00646	0.000210	-	<0.00005	<0.00005	<0.00005	-	-	-	<0.00005	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	8.36	4.60	6.93	7.01	<0.005	11.4	4.88	-	10.5	10.5	10.5
	Manganese (Mn) ^e	mg/L	0.160 - 0.270	0.00238	0.000345	0.00153	0.00145	<0.0001	-	0.000594	-	0.00245	0.00246	0.00244
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	-	-	-	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000171	0.000157	<u>0.000234</u>	<u>0.000239</u>	<0.00005	-	0.000166	-	0.000256	0.000256	0.000251
	Nickel (Ni)	mg/L	0.000700 - 0.00180	0.000715	-	<0.0005	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.716	0.945	<u>0.877</u>	<u>0.872</u>	<0.05	0.780	0.950	-	<u>0.918</u>	<u>0.927</u>	<u>0.926</u>
	Rubidium (Rb)	mg/L	-	-	-	0.00154	0.00151	<0.0002	-	0.000970	-	0.00143	0.00139	0.00142
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	-	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.770	0.510	0.714	0.686	<0.05	-	0.506	-	0.787	0.820	0.806
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.15	0.980	<u>1.49</u>	<u>1.53</u>	<0.05	2.15	1.01	-	<u>2.30</u>	<u>2.29</u>	<u>2.30</u>
	Strontium (Sr) ^e	mg/L	2.50	0.00912	0.00858	0.00882	0.00888	<0.0002	0.0112	0.00860	-	<u>0.0119</u>	<u>0.0119</u>	<u>0.0118</u>
	Sulphur (S)	mg/L	-	-	-	<0.5	<0.5	<0.5	-	1.65	-	<0.5	0.560	0.540
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	-	-	-	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.000910	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.000350	<0.0003	<0.0003	-	-	-	<0.0003	0.000340	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	-	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000962	0.00100	<0.00001	-	-	-	0.00175	0.00170	0.00177
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	-	<0.0005	<0.0005	<0.0005
	Zinc (Zn) ^e	mg/L	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	-	-	-	<0.0003	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.34: Water Chemistry at Mary Lake South Basin (BL0) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event													
						BL0-05-A		BL0-05		BL0-05-B		BL0-03		BL0-04		BL0-09		BL0-06	
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	surface	bottom
						17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25
Conventionals	Conductivity (lab)	µS/cm	-	-	-	104	110	108	109	113	113	101	109	99.8	113	102	108	110	109
	Specific Conductance (field)	µS/cm	-	-	-	105	110	103	108	121	114	99.6	111	99.7	114	102	110	112	113
	pH (lab)	pH	-	-	-	7.35	7.31	7.40	7.40	7.44	7.43	7.32	7.40	7.39	7.44	7.16	7.56	7.34	7.31
	pH (field)	pH	6.5 - 9.0	-	-	7.57	7.80	7.48	7.89	7.42	7.71	7.61	7.75	7.56	7.68	7.03	7.62	7.73	7.39
	Temperature, Field	mg/L	-	-	-	0.889	0	1.22	0	0.722	0	1.11	0	1.28	-0.0556	1.89	0.111	0.944	0.778
	Hardness (as CaCO ₃) -Total	mg/L	-	-	-	50.5	52.9	52.2	52.9	54.4	54.4	48.9	52.5	47.7	53.9	49.1	52.5	54.4	52.5
	Total Suspended Solids (TSS)	mg/L	-	-	-	1.30	1.40	1.10	1.50	1.30	1.30	1.40	<1	1.20	1.00	1.60	1.20	<1	<1
	Total Dissolved Solids (TDS)	mg/L	-	-	-	65.0	65.0	62.0	65.0	65.0	69.0	55.0	63.0	60.0	70.0	64.0	64.0	66.0	67.0
	Dissolved Oxygen	mg/L	-	-	-	12.9	14.6	12.0	14.2	14.3	14.5	12.9	14.4	12.4	14.9	9.81	14.4	13.6	13.6
	Dissolved Oxygen	%	-	-	-	90.5	99.5	84.7	97.1	100	99.5	90.8	98.9	87.9	102	70.7	98.8	95.3	95.3
	Turbidity (lab)	NTU	-	-	-	0.760	0.790	0.670	0.650	<0.1	0.790	0.660	0.590	0.700	0.630	0.790	0.700	0.700	0.740
	Turbidity (field)	NTU	-	-	-	0.910	0.210	0.510	28.7	0.190	0.160	0.230	0.110	0.440	7.73	0.420	0.190	0.0400	0.310
	Alkalinity (as CaCO ₃)	mg/L	-	-	-	48.2	49.8	50.2	51.2	52.8	53.3	47.5	52.3	46.6	52.2	47.2	50.8	51.5	51.0
Nutrients and Organics	Total Ammonia	mg/L	1.92 - 6.02	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0120	<0.005	<0.005
	Nitrate ^e	mg/L	3.00	-	-	0.0570	0.0530	0.0530	0.0520	0.0700	0.0510	0.0450	0.0460	0.0750	0.0520	0.0960	0.0630	0.0560	0.0580
	Nitrite ^e	mg/L	0.0600	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	-	-	0.136	0.112	0.126	0.0800	0.0900	0.0950	0.136	0.137	0.133	0.177	0.0720	0.106	0.0920	0.110
	Dissolved Organic Carbon	mg/L	-	-	-	2.72	2.48	2.51	2.85	2.51	2.61	2.89	2.55	2.40	2.71	2.59	2.46	2.76	3.07
	Total Organic Carbon	mg/L	-	-	-	2.43	2.53	2.21	2.33	2.53	2.36	2.20	2.58	2.33	2.45	2.22	2.11	2.45	2.54
	Total Phosphorus	mg/L	-	-	-	<0.002	0.00260	<0.002	0.00250	<0.002	0.00300	<0.002	0.00240	<0.002	0.00330	<0.002	<0.002	0.00240	<0.002
	Phenols	mg/L	0.00400	-	-	<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
Anions	Bromide (Br)	mg/L	-	-	-	<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
	Chloride (Cl) ^e	mg/L	120	-	-	2.04	2.15	2.11	2.15	2.26	2.24	1.98	2.17	1.96	2.21	2.16	2.19	2.28	2.13
	Sulphate (SO ₄)	mg/L	218 - 309	-	-	1.96	2.06	2.03	2.05	2.13	2.15	1.70	1.85	1.88	2.05	1.89	2.05	2.11	2.07
Total Metals	Aluminum (Al) ^e	mg/L	0.130	-	-	0.0235	0.0200	0.0216	0.0199	0.0232	0.0198	0.0209	0.0220	0.0216	0.0201	0.0292	0.0303	0.0201	0.0250
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	-	-	0.00575	0.00584	0.00577	0.00592	0.00593	0.00624	0.00545	0.00582	0.00551	0.00600	0.00572	0.00595	0.00628	0.00590
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	.0000848 - 0.00017	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	-	-	10.3	10.7	10.6	10.7	11.0	11.1	9.91	10.7	9.70	10.9	9.94	10.6	11.0	10.6
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

^d Reference area normal ranges for most parameters were calculated as the 95th percentile of reference concentrations for each area and season; the 5th percentile was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for for pH (field), alkalinity, and temperature (field).

^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.34: Water Chemistry at Mary Lake South Basin (BL0) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Winter Sampling Event													
						BL0-05-A		BL0-05		BL0-05-B		BL0-03		BL0-04		BL0-09		BL0-06	
						bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	bottom	surface	surface	bottom
						17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25
Dissolved Metals	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.000121 - 0.000228	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	-	-	9.58	10.3	9.95	10.4	10.1	10.3	9.06	10.2	9.49	10.4	9.49	9.62	10.4	10.2
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000533	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00111 - 0.00406	-	-	0.000720	0.000720	0.000680	0.000720	0.000810	0.000750	0.000720	0.000730	0.000760	0.000780	0.000650	0.000690	0.000770	0.000720
	Iron (Fe)	mg/L	-	-	-	<0.01	<0.01	0.0100	<0.01	0.0100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Lead (Pb)	mg/L	0.00556 - 0.00809	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Lithium (Li)	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
	Magnesium (Mg)	mg/L	-	-	-	6.04	6.41	6.19	6.34	6.44	6.56	5.93	6.43	6.02	6.52	5.89	6.22	6.70	6.27
	Manganese (Mn)	mg/L	0.320 - 0.560	-	-	0.000180	0.000190	0.000220	0.000160	0.000370	0.000210	0.000130	0.000200	0.000180	0.000130	0.000200	0.000100	0.000170	0.000180
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	-	-	0.000204	0.000224	0.000216	0.000225	0.000224	0.000229	0.000179	0.000200	0.000196	0.000229	0.000193	0.000218	0.000230	0.000228
	Nickel (Ni)	mg/L	0.00120 - 0.00250	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Potassium (K)	mg/L	-	-	-	0.716	0.764	0.737	0.736	0.769	0.773	0.679	0.747	0.690	0.788	0.668	0.732	0.766	0.747
	Rubidium (Rb)	mg/L	-	-	-	0.00113	0.00119	0.00112	0.00114	0.00117	0.00125	0.00110	0.00120	0.00110	0.00120	0.00115	0.00117	0.00114	0.00123
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	-	-	0.644	0.674	0.668	0.664	0.686	0.679	0.664	0.690	0.650	0.695	0.865	0.654	0.688	0.680
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	-	-	1.51	1.65	1.58	1.60	1.64	1.64	1.50	1.63	1.49	1.62	1.54	1.58	1.66	1.64
	Strontium (Sr) ^e	mg/L	2.50	-	-	0.00833	0.00900	0.00895	0.00889	0.00932	0.00925	0.00770	0.00874	0.00830	0.00902	0.00840	0.00868	0.00862	0.00866
	Sulphur (S)	mg/L	-	-	-	0.620	0.680	0.620	0.660	0.680	0.650	0.550	0.580	0.600	0.660	0.560	0.640	0.730	0.630
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	<0.0003	<0.0003	0.000320	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000984	0.00102	0.000990	0.000993	0.00102	0.00104	0.000873	0.000996	0.000904	0.00103	0.000829	0.000990	0.00102	0.000944
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Zinc (Zn)	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
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

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BOLD

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underline

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Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

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Table B.34: Water Chemistry at Mary Lake South Basin (BL0) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						BL0-05	BL0-09	BL0-06			BL0-05	BL0-09		BL0-06
						surface	surface	surface			surface	bottom	surface	surface
						26-Jul-25	26-Jul-25	26-Jul-25			23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25
Conventionals	Conductivity (lab)	µS/cm	-	134	79.7	92.3	75.6	73.3	190	83.5	89.3	-	87.7	86.4
	Specific Conductance (field)	µS/cm	-	146	-	92.3	74.2	-	-	-	-	81.4	79.1	-
	pH (lab)	pH	-	-	-	7.89	7.78	7.78	-	-	7.70	-	7.56	7.70
	pH (field)	pH	6.5 - 9.0	-	-	7.87	7.95	-	-	-	-	7.35	7.89	-
	Temperature, Field	mg/L	-	7.18 - 11.0	4.30 - 12.5	11.1	12.2	-	-	5.75 - 7.85	-	6.40	7.60	-
	Hardness (as CaCO ₃) -Total	mg/L	-	68.7	37.7	43.9	37.0	35.4	95.7	38.6	38.9	-	38.5	37.7
	Total Suspended Solids (TSS)	mg/L	-	11.0	-	1.90	<1	2.00	-	-	<1	-	1.10	1.20
	Total Dissolved Solids (TDS)	mg/L	-	87.0	58.0	65.0	65.0	51.0	124	59.0	45.0	-	41.0	46.0
	Dissolved Oxygen	mg/L	-	7.26	10.8	10.9	11.2	-	-	11.3	-	11.0	11.6	-
	Dissolved Oxygen	%	-	-	96.9	99.0	104	-	-	89.6	-	89.9	97.7	-
	Turbidity (lab)	NTU	-	-	-	8.10	6.28	6.62	-	-	3.95	-	4.17	4.21
	Turbidity (field)	NTU	-	-	353	8.38	6.36	-	-	3.79	-	5.41	3.51	-
	Alkalinity (as CaCO ₃)	mg/L	-	26.0 - 67.0	30.0 - 47.9	41.4	36.6	34.1	33.5 - 90.0	29.5 - 49.4	36.9	-	36.8	35.9
Nutrients and Organics	Total Ammonia	mg/L	1.92 - 6.02	0.280	-	0.00550	<0.005	<0.005	0.210	0.0550	<0.005	-	0.00720	0.0478
	Nitrate ^e	mg/L	3.00	-	-	0.109	0.0330	0.0240	-	-	0.0400	-	0.0400	0.0400
	Nitrite ^e	mg/L	0.0600	0.100	-	<0.01	<0.01	<0.01	0.00900	-	<0.01	-	<0.01	<0.01
	Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.360	0.235	0.132	0.0950	0.128	-	0.210	0.0800	-	0.0770	0.127
	Dissolved Organic Carbon	mg/L	-	1.80	3.65	2.61	3.31	2.59	-	3.82	1.72	-	1.89	1.76
	Total Organic Carbon	mg/L	-	2.50	4.81	2.54	2.40	2.41	-	3.86	1.95	-	2.37	1.80
	Total Phosphorus	mg/L	-	0.0200	0.00700	0.00570	0.00690	0.00980	0.0200	0.0235	0.00330	-	0.00390	0.00390
	Phenols	mg/L	0.00400	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	<0.001	<0.001
Anions	Bromide (Br)	mg/L	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	-	<0.1	<0.1
	Chloride (Cl) ^e	mg/L	120	4.50	1.42	1.19	1.11	1.07	6.00	1.38	1.40	-	1.35	1.57
	Sulphate (SO ₄)	mg/L	218 - 309	3.50	4.48	2.82	1.30	1.14	5.00	4.37	1.65	-	1.55	1.72
Total Metals	Aluminum (Al) ^e	mg/L	0.130	0.168	0.00850	0.216	0.161	0.137	0.127	0.0128	0.106	-	0.106	0.108
	Antimony (Sb)	mg/L	0.0740	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Arsenic (As) ^e	mg/L	0.00500	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Barium (Ba)	mg/L	1.00	0.00671	0.00692	0.00670	0.00533	0.00517	0.00856	0.00670	0.00550	-	0.00538	0.00524
	Beryllium (Be)	mg/L	0.000130	-	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Boron (B)	mg/L	1.50	-	-	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	<0.01
	Cadmium (Cd)	mg/L	.0000848 - 0.00017	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	14.5	7.42	8.73	7.28	7.04	19.7	7.49	7.83	-	7.65	7.53
	Cesium (Cs)	mg/L	-	-	-	0.0000300	0.0000230	0.0000210	-	-	0.0000140	-	0.0000150	0.0000140

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						surface	surface	surface			surface	bottom	surface	surface
						26-Jul-25	26-Jul-25	26-Jul-25			23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25
Total Metals	Chromium (Cr)	mg/L	0.00500	-	-	0.000530	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000778 - 0.00107	-	-	0.000100	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00200 - 0.00259	0.00122	0.000990	0.00109	0.000950	0.00110	-	0.000905	0.000880	-	0.000790	0.000800
	Iron (Fe)	mg/L	0.300	0.215	-	0.178	0.149	0.139	0.140	0.0190	0.0940	-	0.0920	0.0960
	Lead (Pb)	mg/L	0.00100 - 0.00365	0.000130	-	<u>0.000195</u>	<u>0.000157</u>	<u>0.000151</u>	-	-	0.0000960	-	0.0000960	0.0000910
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	7.90	4.67	5.37	4.56	4.32	11.3	4.82	4.70	-	4.70	4.60
	Manganese (Mn)	mg/L	0.812 - 1.10	0.0100	0.000990	0.00389	0.00325	0.00310	-	0.000980	0.00196	-	0.00188	0.00173
	Mercury (Hg)	mg/L	0.0000260	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	7.60	0.000160	0.000164	<u>0.000252</u>	0.000152	0.000151	-	0.000164	0.000199	-	0.000192	0.000184
	Nickel (Ni)	mg/L	0.0250 - 0.104	0.000595	-	<u>0.000920</u>	<u>0.000720</u>	<u>0.000890</u>	-	-	0.000520	-	0.000520	0.000520
	Potassium (K)	mg/L	-	0.731	0.960	<u>0.864</u>	0.668	0.630	0.780	0.945	0.656	-	0.654	0.643
	Rubidium (Rb)	mg/L	-	-	-	0.00180	0.00145	0.00136	-	-	0.00125	-	0.00131	0.00128
	Selenium (Se)	mg/L	0.001	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.809	0.520	<u>1.09</u>	<u>0.940</u>	<u>0.850</u>	-	0.500	0.770	-	0.760	0.740
	Silver (Ag) ^e	mg/L	0.000100	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.14	1.00	<u>1.25</u>	1.01	0.959	2.95	0.968	1.17	-	1.13	1.08
	Strontium (Sr)	mg/L	-	0.00910	0.00875	0.00841	0.00633	0.00615	0.0126	0.00861	0.00694	-	0.00686	0.00678
	Sulphur (S)	mg/L	-	-	-	1.02	0.550	<0.5	-	-	0.600	-	0.580	0.530
	Thallium (Tl) ^e	mg/L	0.000800	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	0.000180	0.000160	0.000130	-	-	<0.0001	-	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.000575	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.00923	0.00730	0.00669	-	-	0.00441	-	0.00429	0.00460
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000791	0.000550	0.000516	-	-	0.000721	-	0.000720	0.000678
	Vanadium (V) ^e	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	<u><0.003</u>	<u><0.003</u>	<u><0.003</u>	-	-	<0.003	-	<0.003	<0.003
	Zirconium (Zr)	mg/L	-	-	-	0.000420	0.000350	0.000300	-	-	0.000220	-	0.000230	0.000220
Dissolved Metals	Aluminum (Al)	mg/L	-	0.0412	0.00430	0.0381	0.0276	0.0310	0.0234	0.0122	<u>0.0252</u>	-	<u>0.0339</u>	<u>0.0305</u>
	Antimony (Sb)	mg/L	-	0.000255	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Arsenic (As)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Barium (Ba)	mg/L	-	0.00650	0.00683	0.00642	0.00469	0.00465	0.00849	0.00674	0.00504	-	0.00512	0.00505
	Beryllium (Be)	mg/L	-	-	-	<0.00002	<0.00002	<0.00002	-	-	<0.00002	-	<0.00002	<0.00002
	Bismuth (Bi)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

underline

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

Notes: AEMP = Aquatic Effects Monitoring Program. µS/cm = microSiemens per centimetre. - = no WQG/benchmark/normal range. mg/L = milligrams per litre. < = less than. > = greater than. % = percent. NTU = Nephelometric Turbidity Units. CaCO₃ = calcium carbonate. CCME = Canadian Council of Ministers of the Environment.

^a WQG for the protection of freshwater aquatic life; see Table 2.3 for details on WQG used in the assessment.

^b Benchmarks are from Revision 2 of the Mary River Project AEMP (Baffinland 2024); the CCME (2026) WQG for total selenium and uranium were adopted as AEMP benchmarks after the Revision 2 AEMP was approved. See Table 2.3 for details on the benchmarks used in the assessment.

^c For most parameters, baseline normal ranges for each area and season were calculated as the 95th percentiles of pre-operation concentrations. The 5th percentile (lower limit of the baseline normal range) was used for dissolved oxygen (field), and the 5th and 95th percentiles were used to define the normal ranges for pH (field), alkalinity, and temperature (field).

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^e Data for parameters with site-specific AEMP benchmarks were screened against benchmarks only (i.e., were not also screened against generic WQG derived for other jurisdictions in Canada).

Table B.34: Water Chemistry at Mary Lake South Basin (BL0) Monitoring Stations, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), 2025

Parameters		Units	Water Quality Guideline (WQG) ^a or AEMP Benchmark ^b	Baseline Normal Range ^c	Reference Normal Range ^d	Summer Sampling Event			Baseline Normal Range ^c	Reference Normal Range ^d	Fall Sampling Event			
						BL0-05	BL0-09	BL0-06			BL0-05	BL0-09		BL0-06
						surface	surface	surface			surface	bottom	surface	surface
						26-Jul-25	26-Jul-25	26-Jul-25			23-Aug-25	23-Aug-25	23-Aug-25	23-Aug-25
Dissolved Metals	Boron (B)	mg/L	-	-	-	<0.01	<0.01	<0.01	-	-	<0.01	-	<0.01	<0.01
	Cadmium (Cd)	mg/L	0.000121 - 0.000228	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005
	Calcium (Ca)	mg/L	-	14.4	7.34	8.97	7.32	7.00	19.8	7.40	8.17	-	8.06	7.86
	Cesium (Cs)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Chromium (Cr)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Cobalt (Co)	mg/L	0.000389 - 0.000533	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Copper (Cu)	mg/L	0.00111 - 0.00406	0.00122	0.000950	0.000830	0.000820	0.000950	0.00337	0.000890	0.000550	-	0.000650	0.000590
	Iron (Fe)	mg/L	-	-	-	0.0240	0.0190	0.0220	-	-	0.0150	-	0.0180	0.0170
	Lead (Pb)	mg/L	0.00556 - 0.00809	0.000210	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Lithium (Li)	mg/L	-	-	-	<0.001	<0.001	<0.001	-	-	<0.001	-	<0.001	<0.001
	Magnesium (Mg)	mg/L	-	8.36	4.60	5.29	4.37	4.32	11.4	4.88	5.14	-	5.09	5.10
	Manganese (Mn)	mg/L	0.320 - 0.560	0.00238	0.000345	0.00124	0.000740	0.000720	-	0.000594	0.000270	-	0.000290	0.000280
	Mercury (Hg)	mg/L	-	-	-	<0.000005	<0.000005	<0.000005	-	-	<0.000005	-	<0.000005	<0.000005
	Molybdenum (Mo)	mg/L	-	0.000171	0.000157	<u>0.000302</u>	<u>0.000182</u>	<u>0.000173</u>	-	0.000166	0.000177	-	0.000181	0.000171
	Nickel (Ni)	mg/L	0.00120 - 0.00250	0.000715	-	0.000560	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Potassium (K)	mg/L	-	0.716	0.945	<u>0.834</u>	0.629	0.615	0.780	0.950	0.621	-	0.620	0.617
	Rubidium (Rb)	mg/L	-	-	-	0.00136	0.00106	0.00103	-	0.000970	0.00108	-	0.00102	0.00107
	Selenium (Se)	mg/L	-	-	-	<0.00005	<0.00005	<0.00005	-	-	<0.00005	-	<0.00005	<0.00005
	Silicon (Si)	mg/L	-	0.770	0.510	0.768	0.653	0.655	-	0.506	0.611	-	0.634	0.624
	Silver (Ag)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Sodium (Na)	mg/L	-	1.15	0.980	<u>1.25</u>	0.986	0.953	2.15	1.01	1.16	-	1.15	1.14
	Strontium (Sr) ^e	mg/L	2.50	0.00912	0.00858	0.00844	0.00640	0.00607	0.0112	0.00860	0.00632	-	0.00632	0.00609
	Sulphur (S)	mg/L	-	-	-	1.19	0.520	0.510	-	1.65	<0.5	-	0.550	<0.5
	Tellurium (Te)	mg/L	-	-	-	<0.0002	<0.0002	<0.0002	-	-	<0.0002	-	<0.0002	<0.0002
	Thallium (Tl)	mg/L	-	-	-	<0.00001	<0.00001	<0.00001	-	-	<0.00001	-	<0.00001	<0.00001
	Thorium (Th)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Tin (Sn)	mg/L	-	0.000910	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Titanium (Ti)	mg/L	-	-	-	0.00100	0.000830	0.000960	-	-	0.000580	-	0.000730	0.000720
	Tungsten (W)	mg/L	-	-	-	<0.0001	<0.0001	<0.0001	-	-	<0.0001	-	<0.0001	<0.0001
	Uranium (U)	mg/L	-	-	-	0.000779	0.000516	0.000500	-	-	0.000620	-	0.000609	0.000586
	Vanadium (V)	mg/L	-	-	-	<0.0005	<0.0005	<0.0005	-	-	<0.0005	-	<0.0005	<0.0005
	Zinc (Zn)	mg/L	-	-	-	0.00100	0.00100	<0.001	-	-	<0.001	-	<0.001	<0.001
	Zirconium (Zr)	mg/L	-	-	-	<0.0003	<0.0003	<0.0003	-	-	<0.0003	-	<0.0003	<0.0003

Indicates a parameter concentration above an applicable WQG or AEMP benchmark.

BOLD

Indicates a parameter concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

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APPENDIX C
SEDIMENT QUALITY

FIGURES

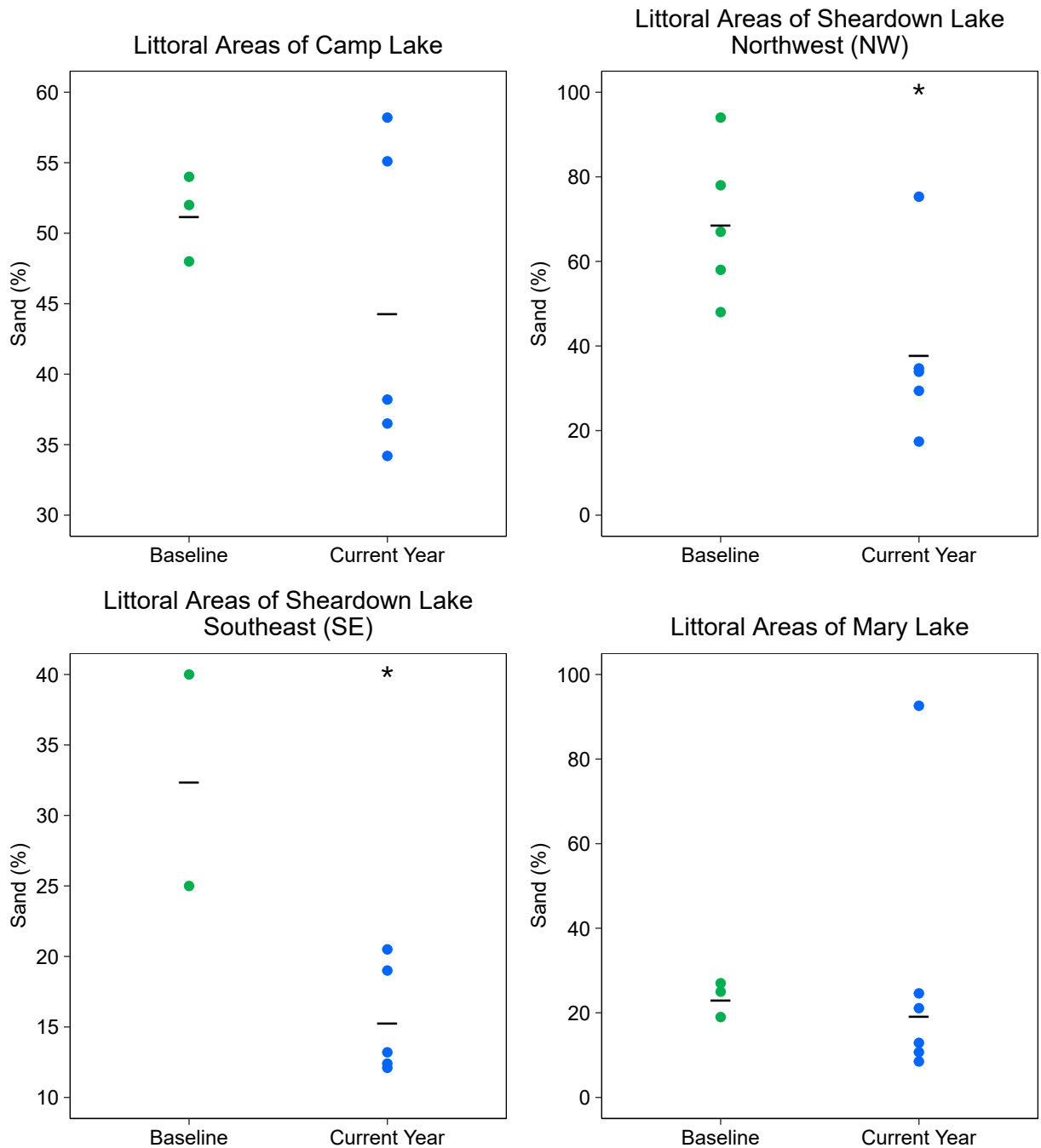


Figure C.1: Sediment Particle Sizes and Total Organic Carbon (TOC) Content Comparisons for the Current Year (2025) and Baseline Period, Littoral Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An "*" indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period. The yellow dashed line indicates the Lower Sediment Quality Guideline for Total Organic Carbon. The Upper sediment quality guideline (10%) is not displayed as it is beyond the range of the plot.

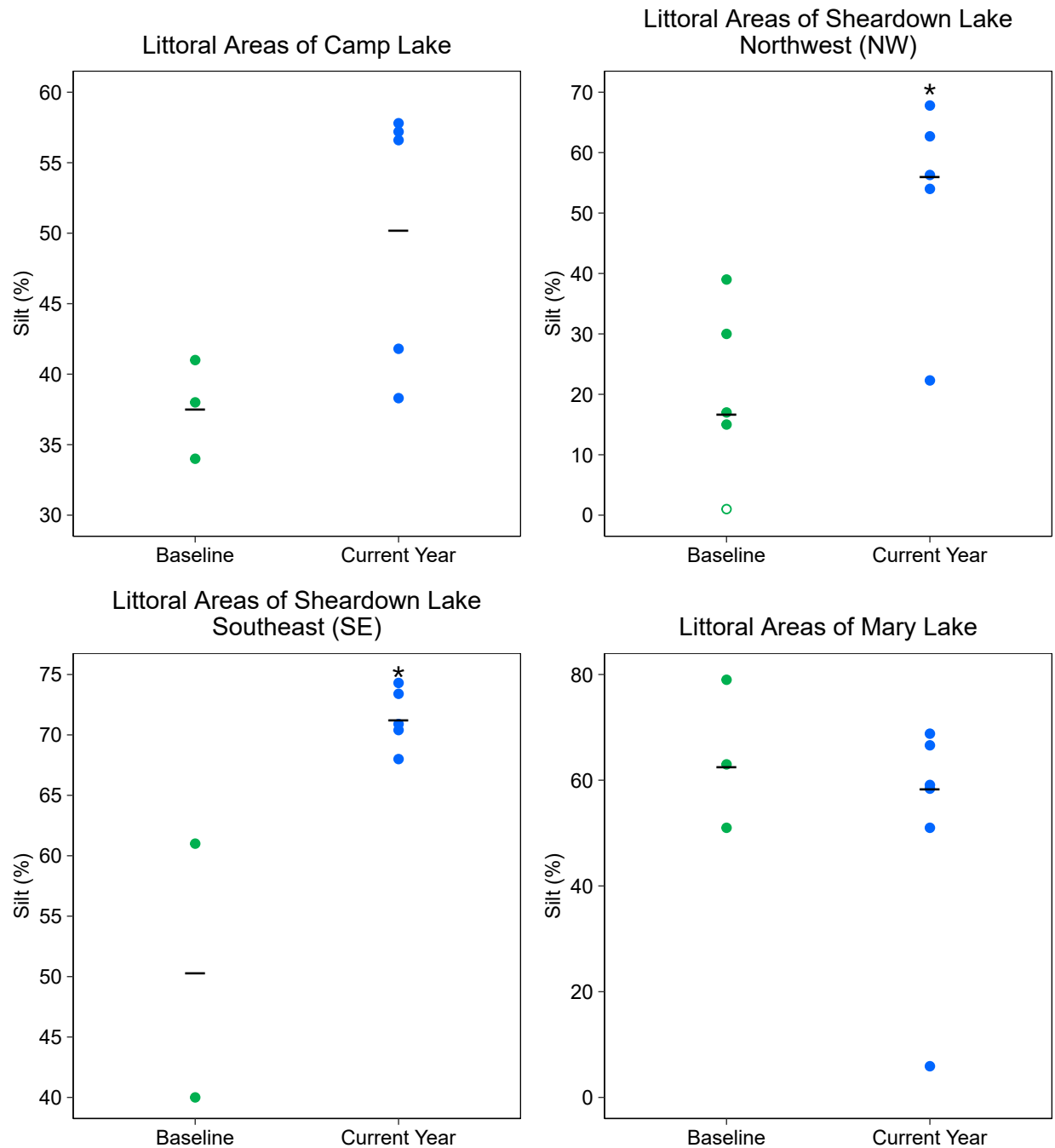


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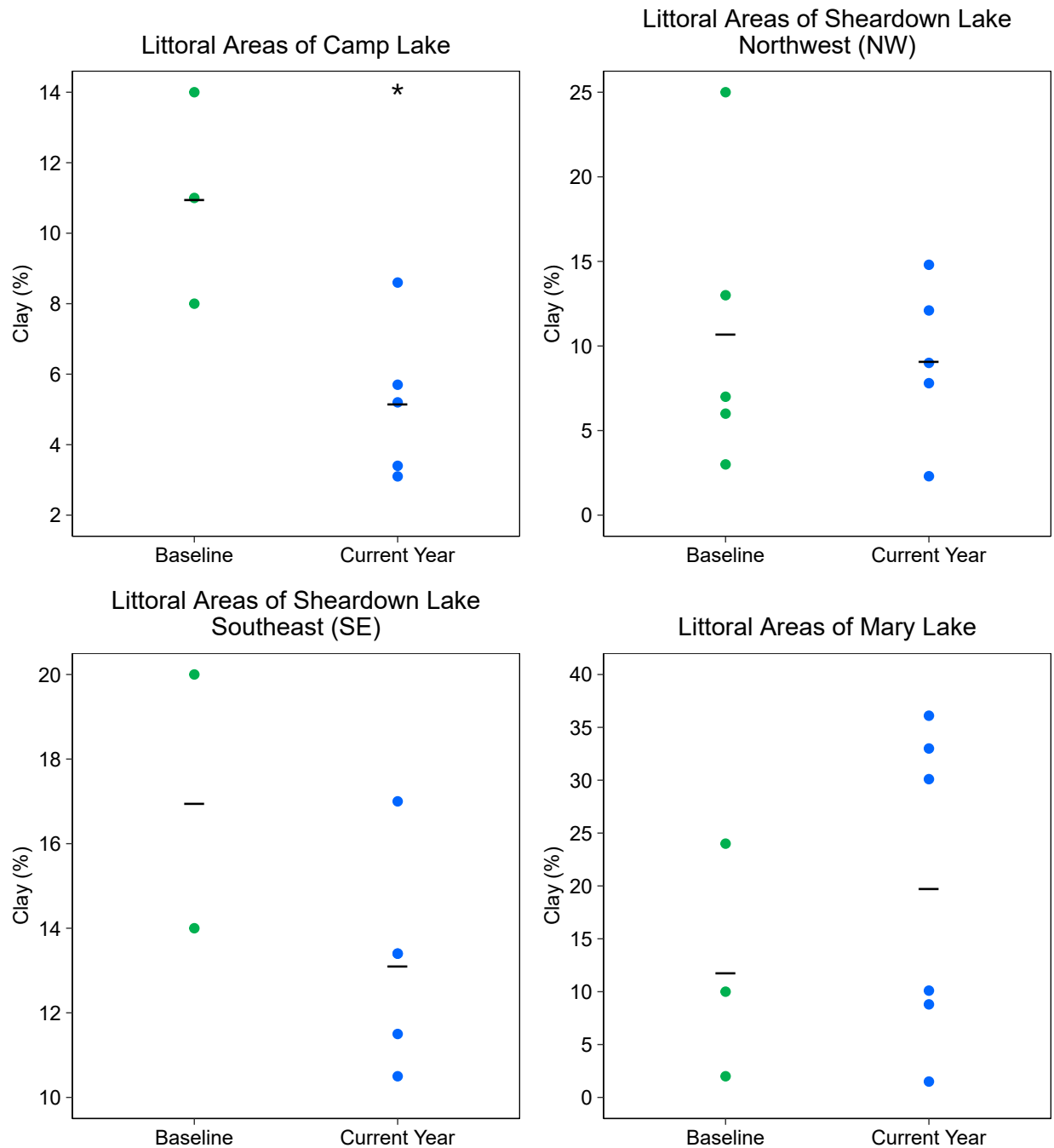


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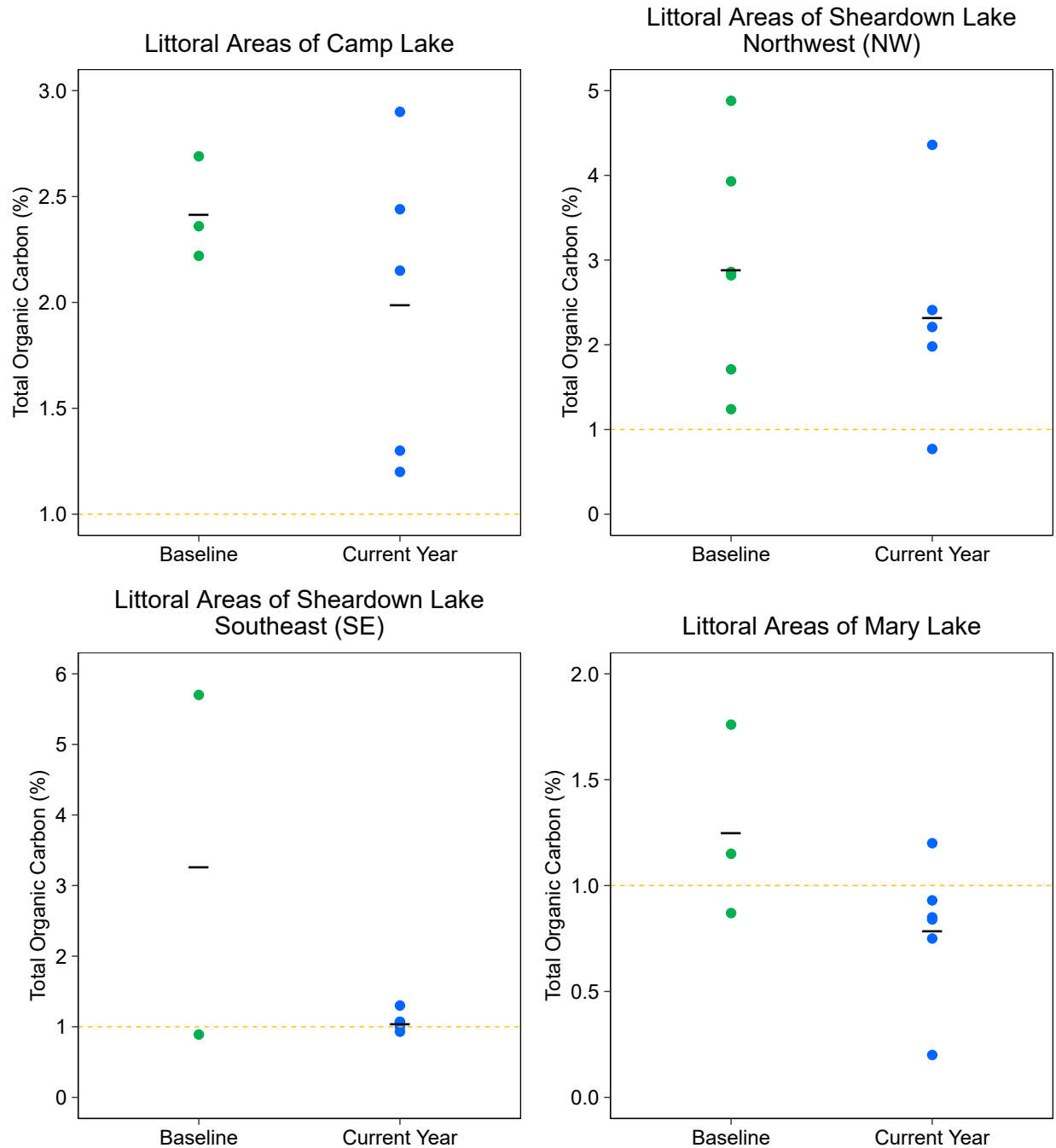


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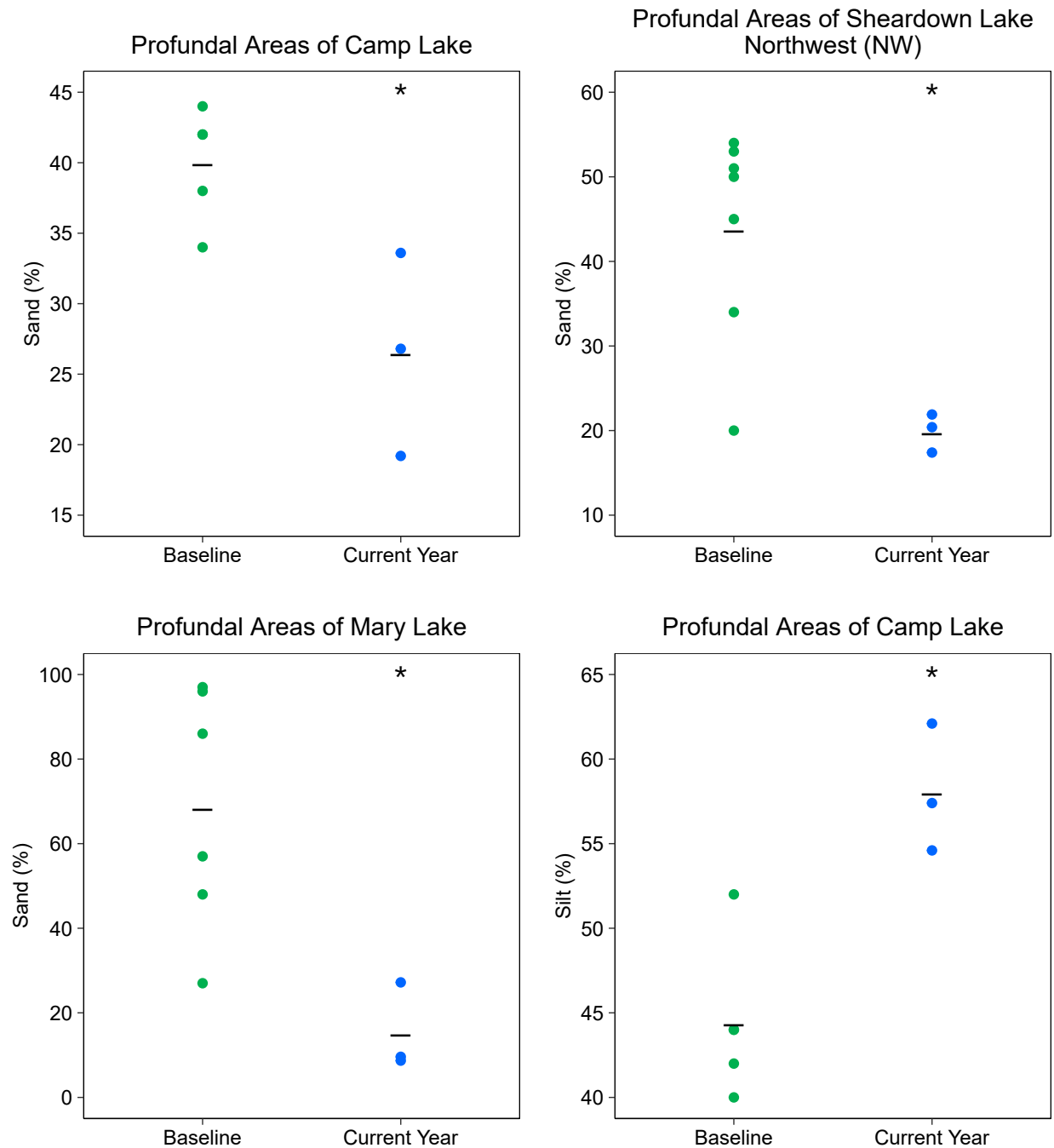


Figure C.2: Sediment Particle Sizes and Total Organic Carbon (TOC) Content Comparisons for the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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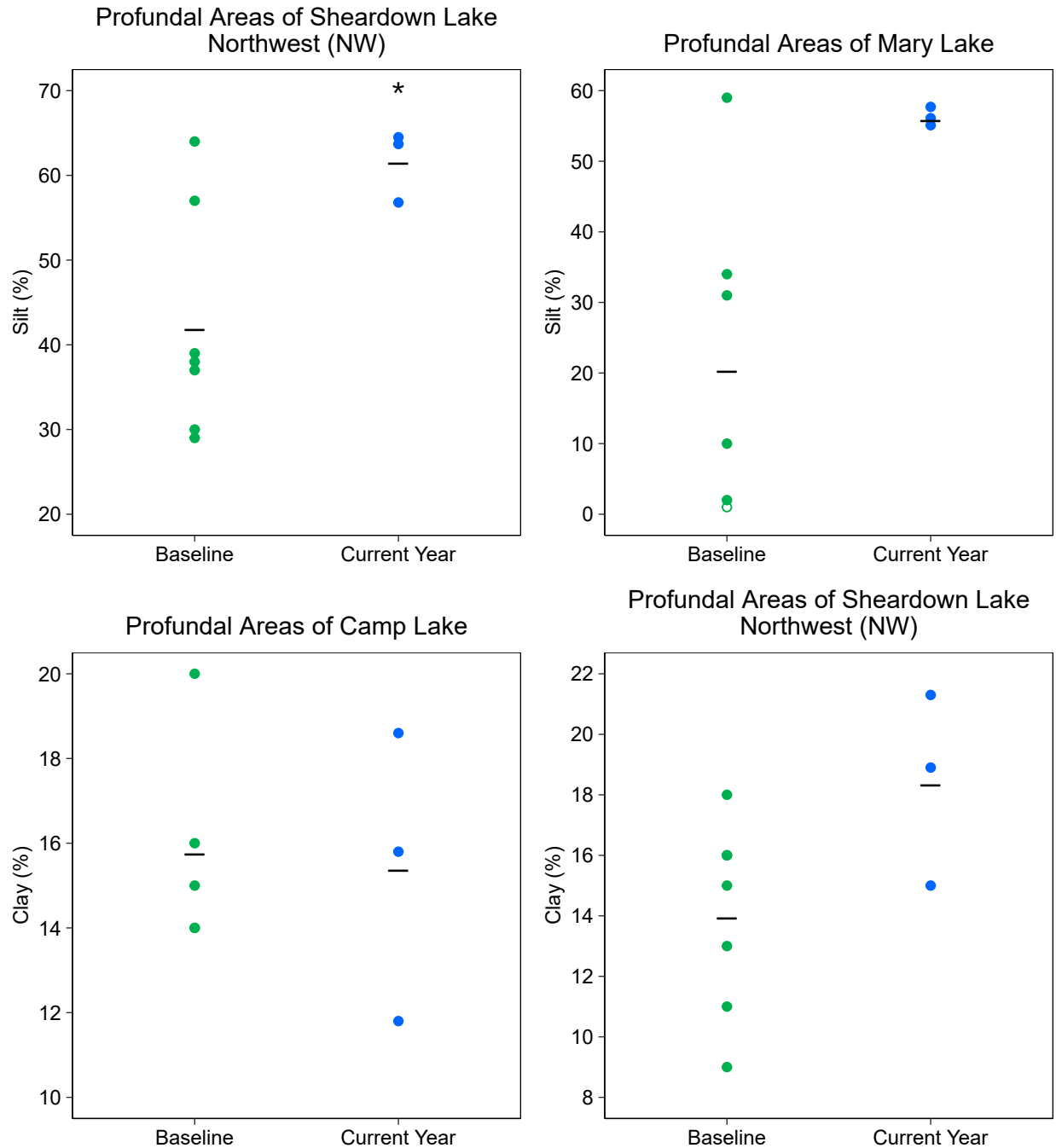


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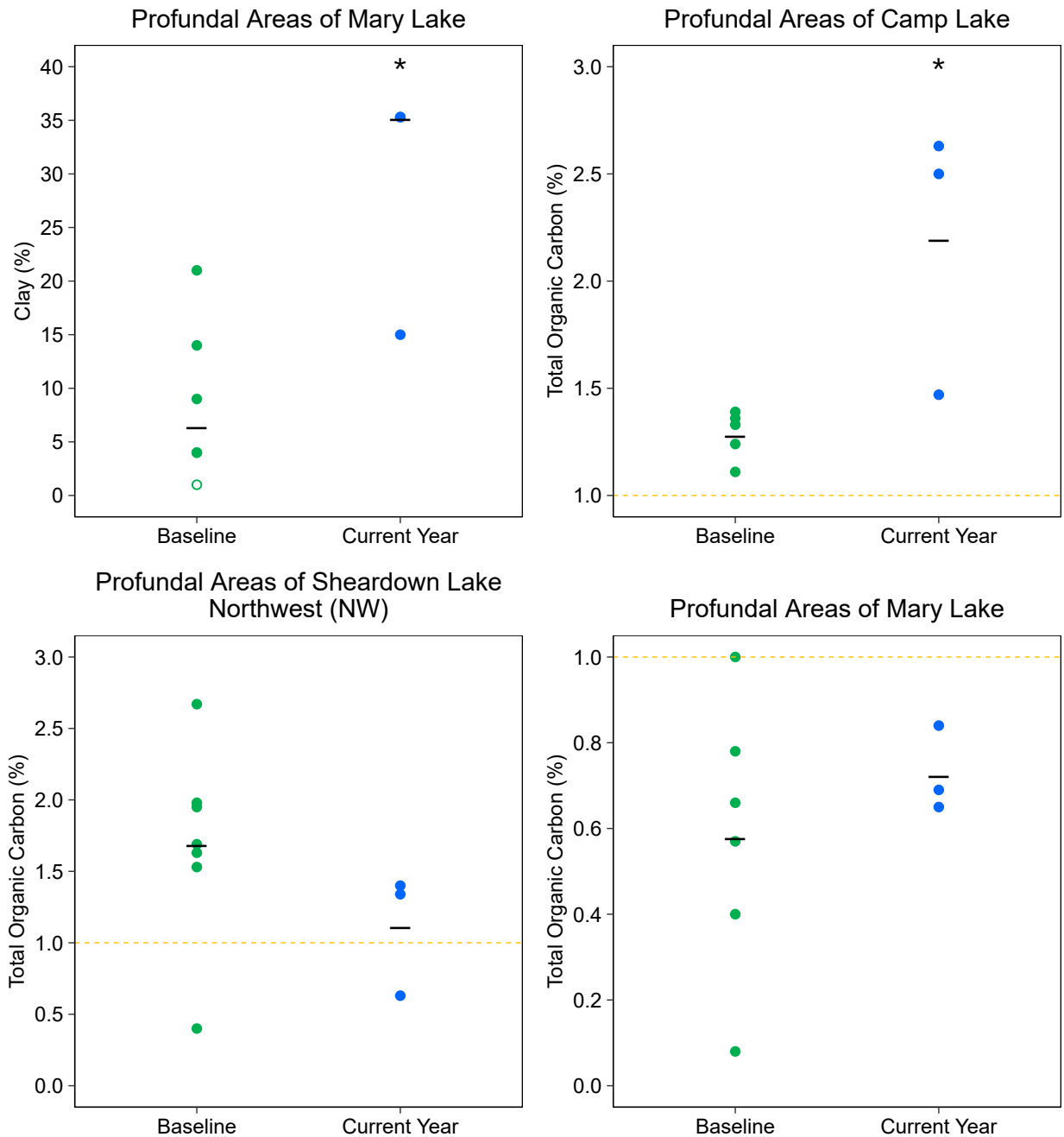


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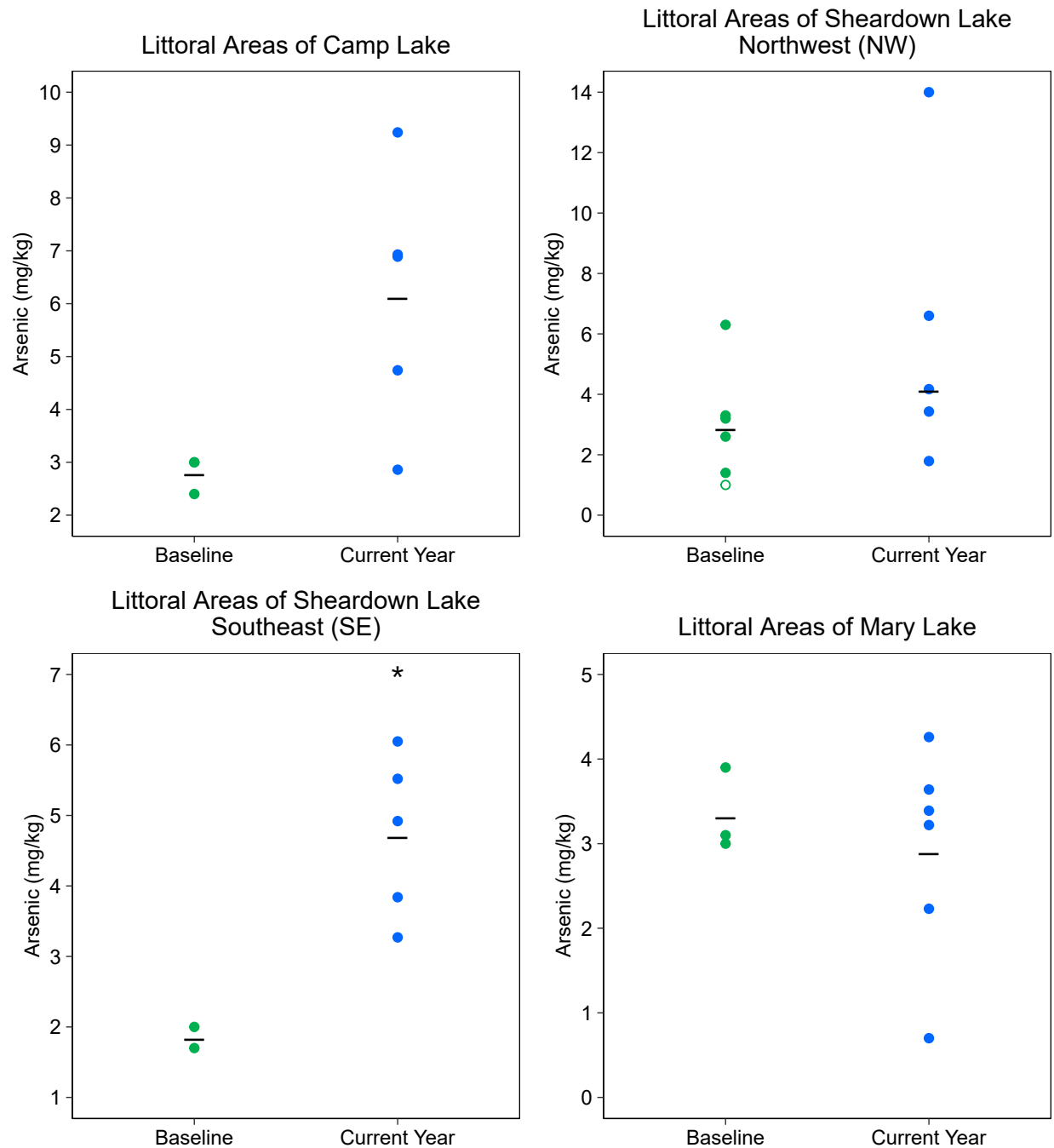


Figure C.3: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Littoral Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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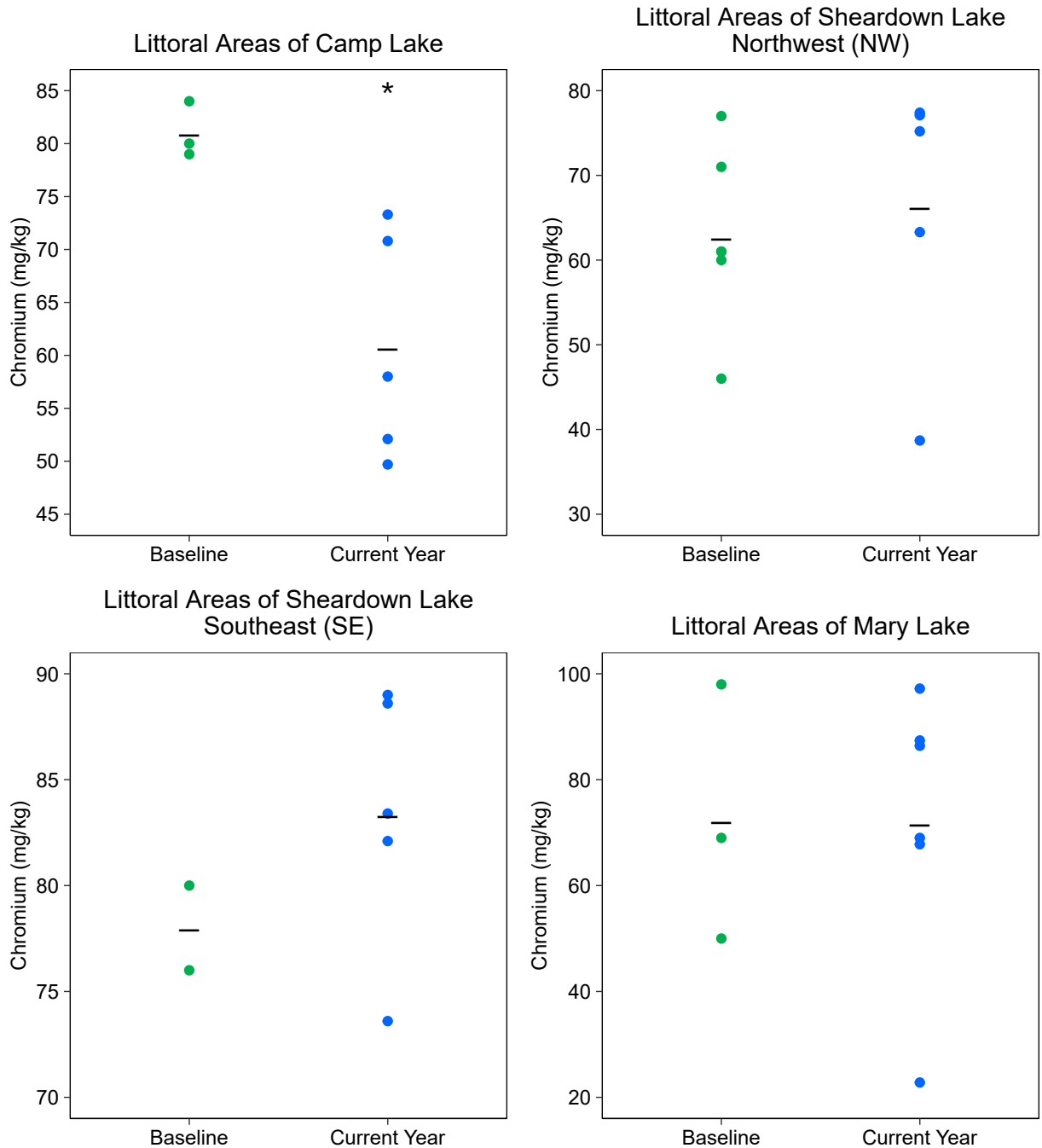


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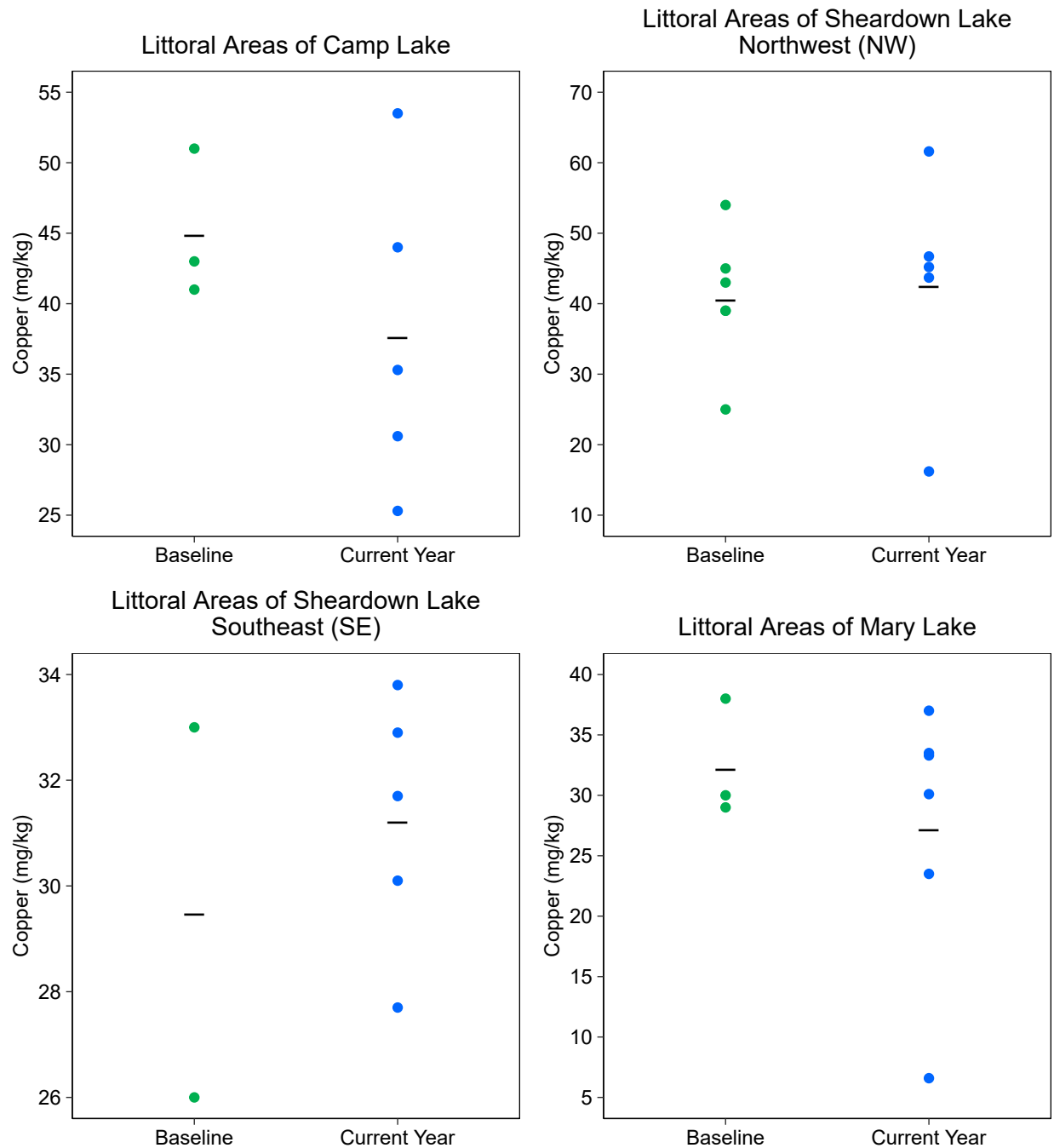


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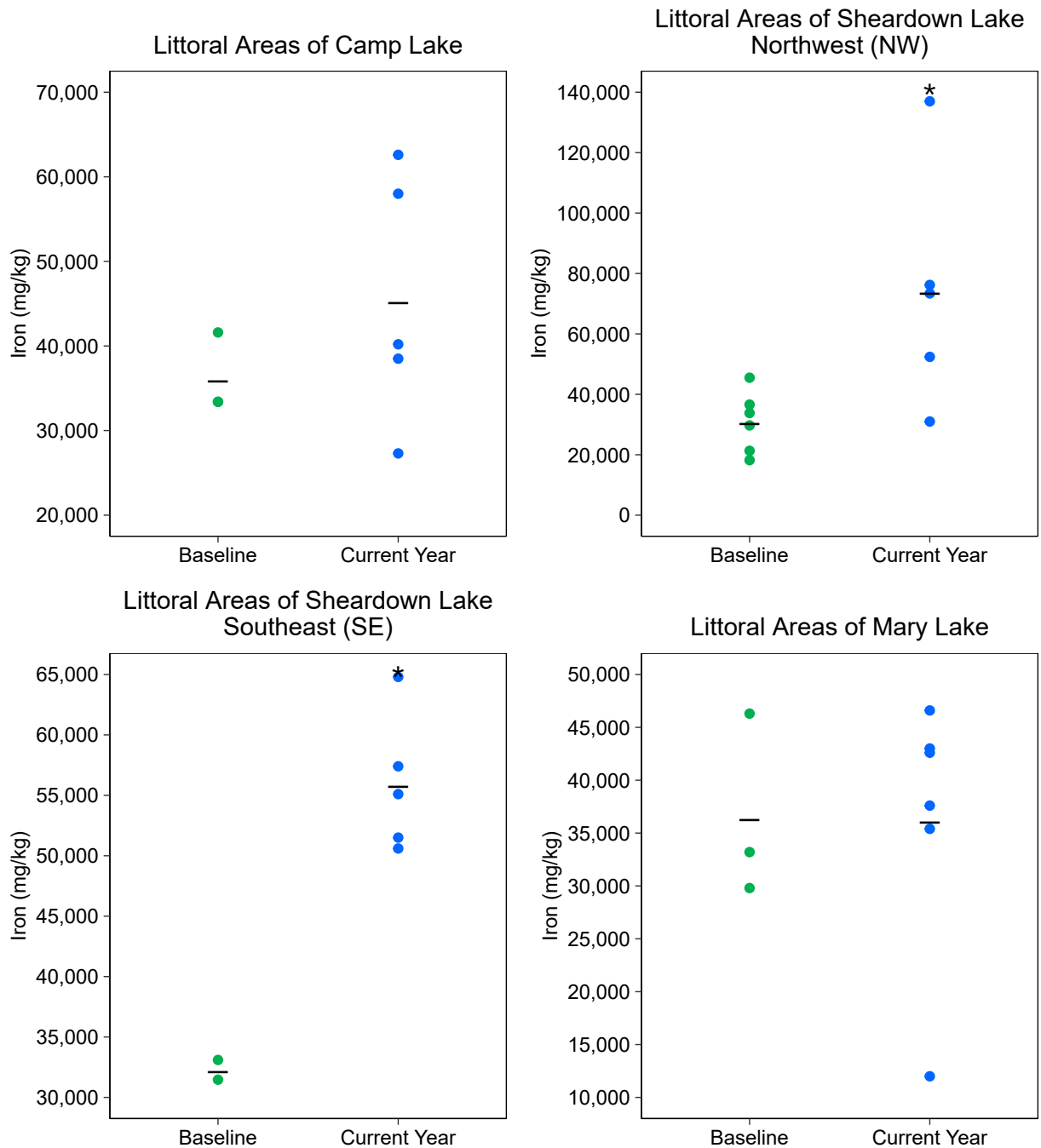


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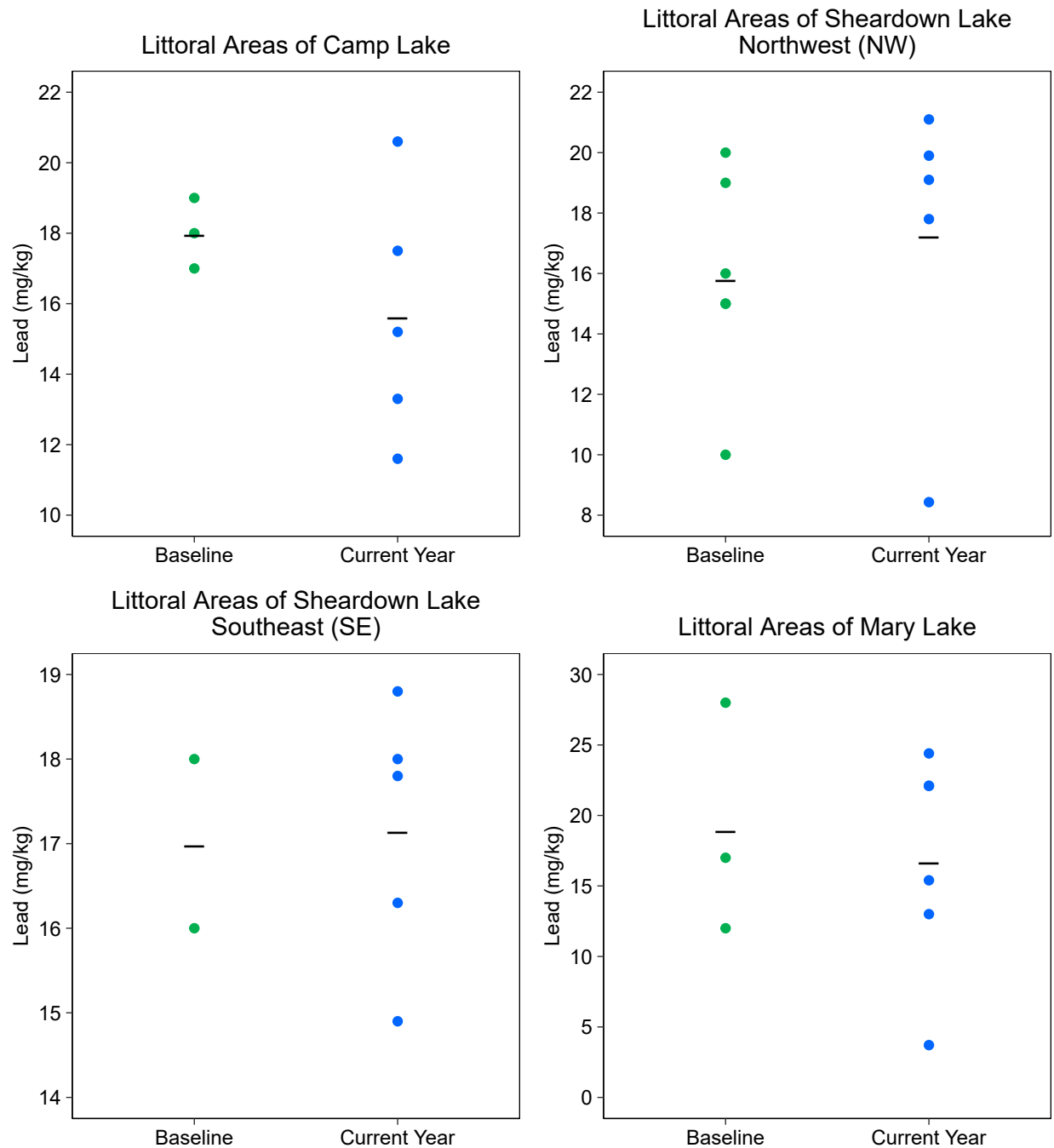


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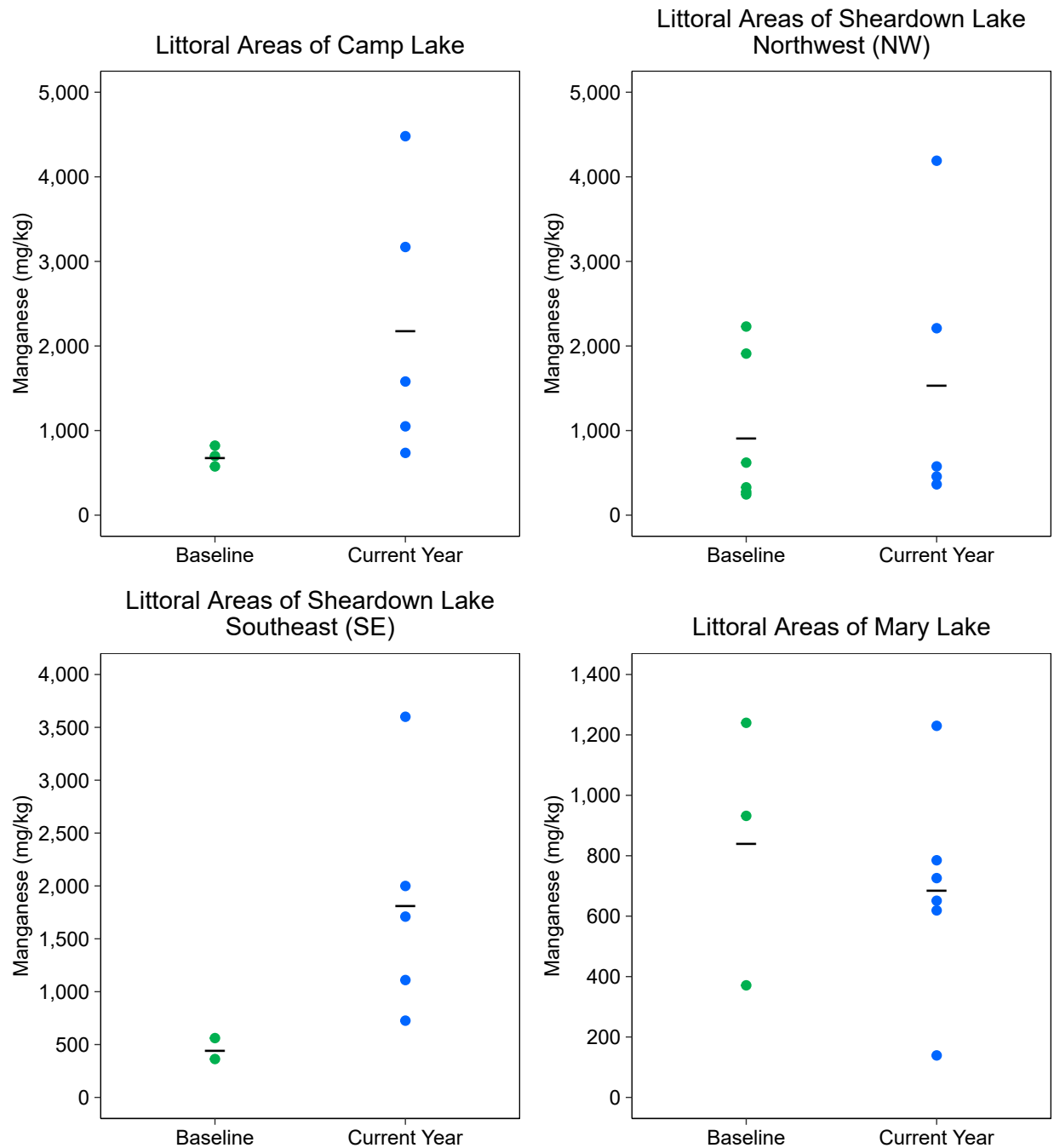


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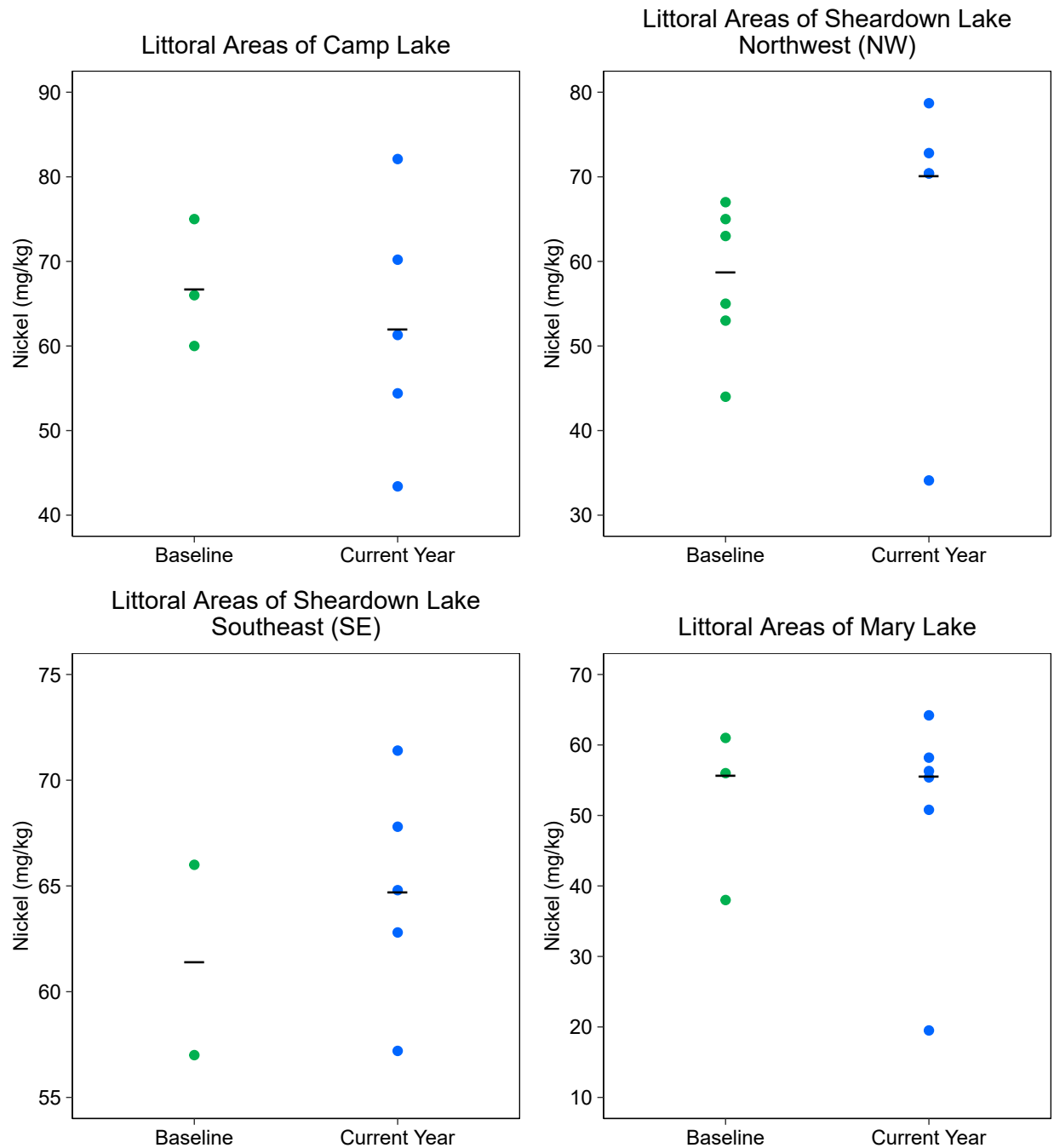


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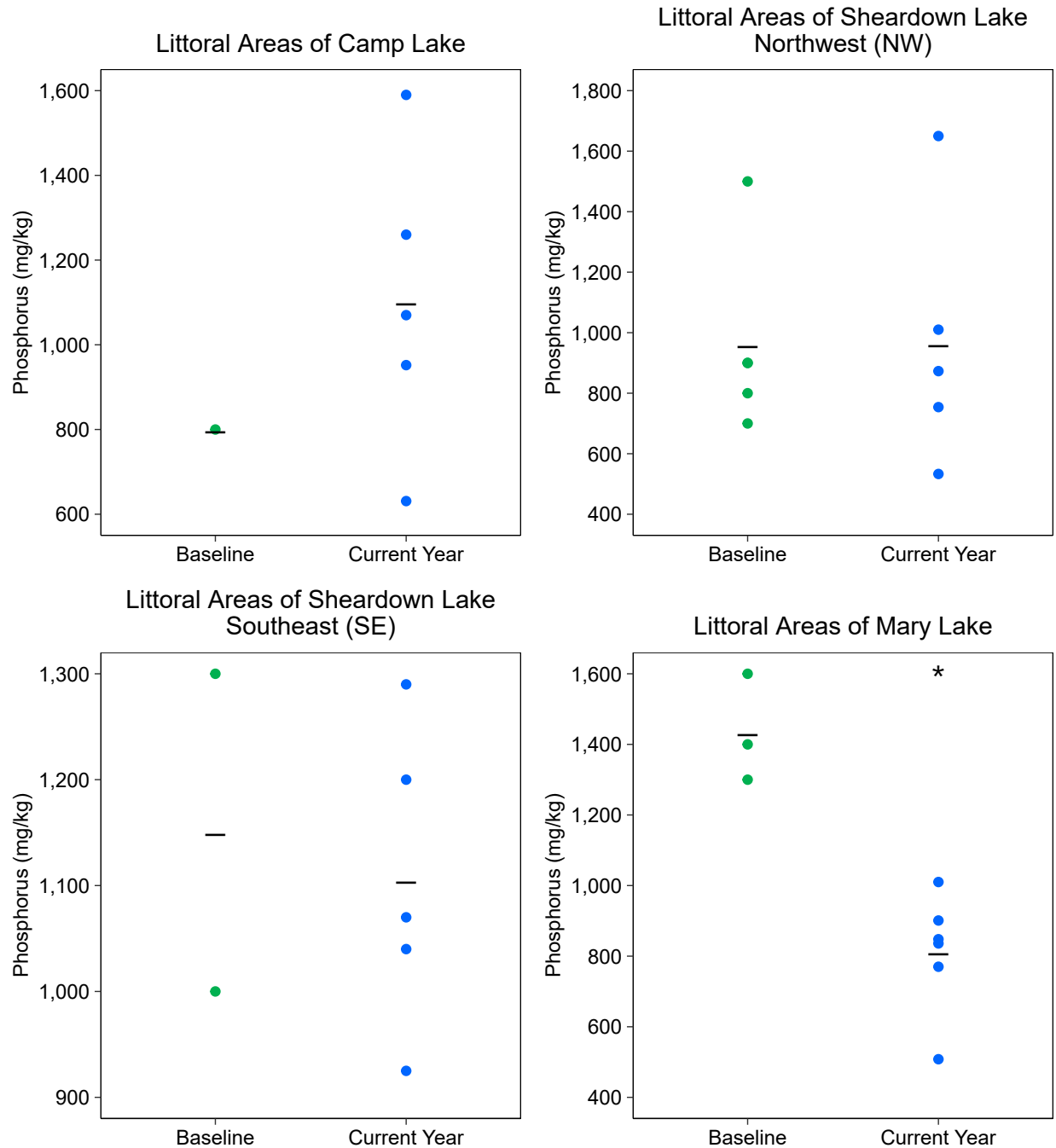


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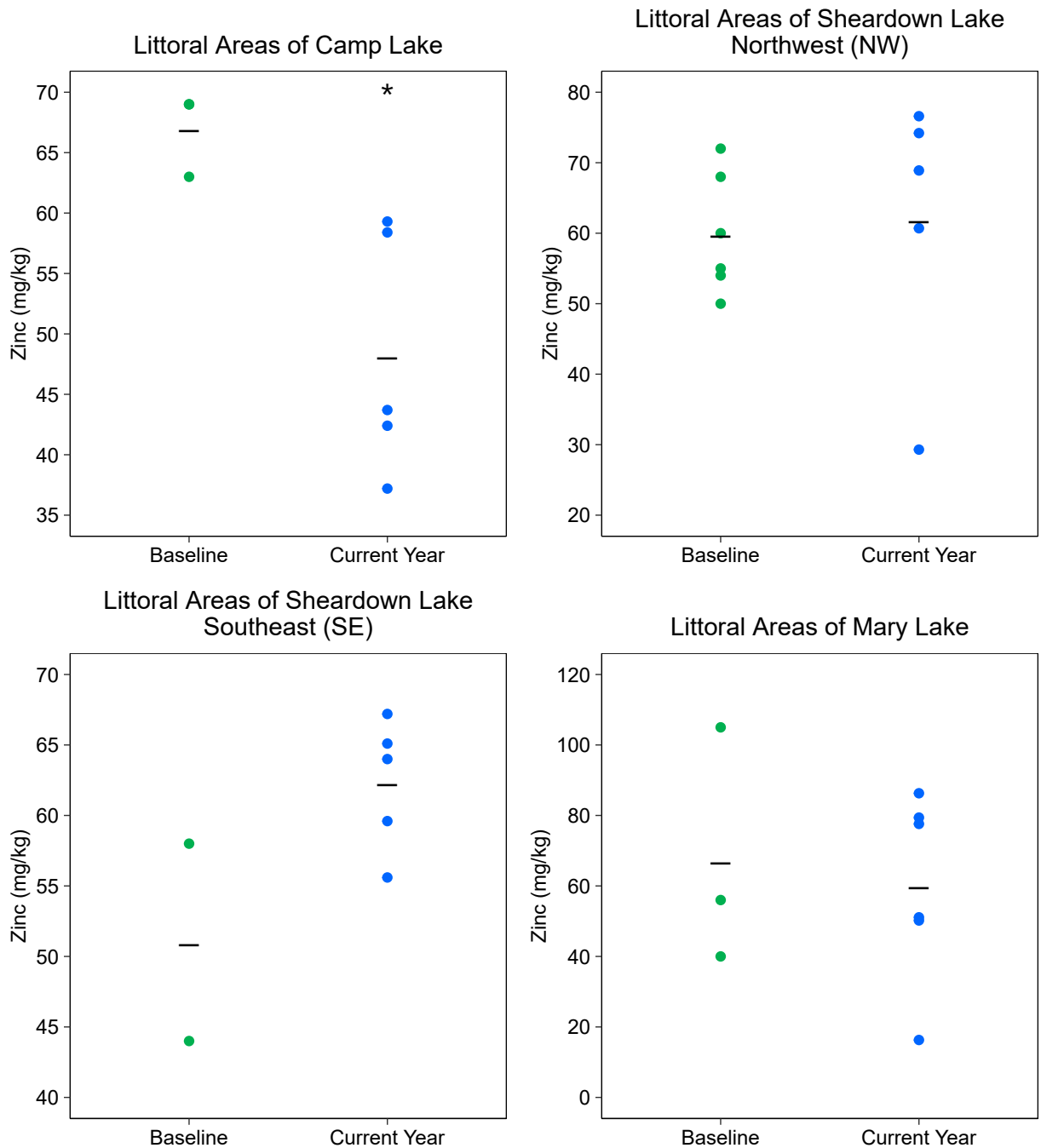


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Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ^{***} indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

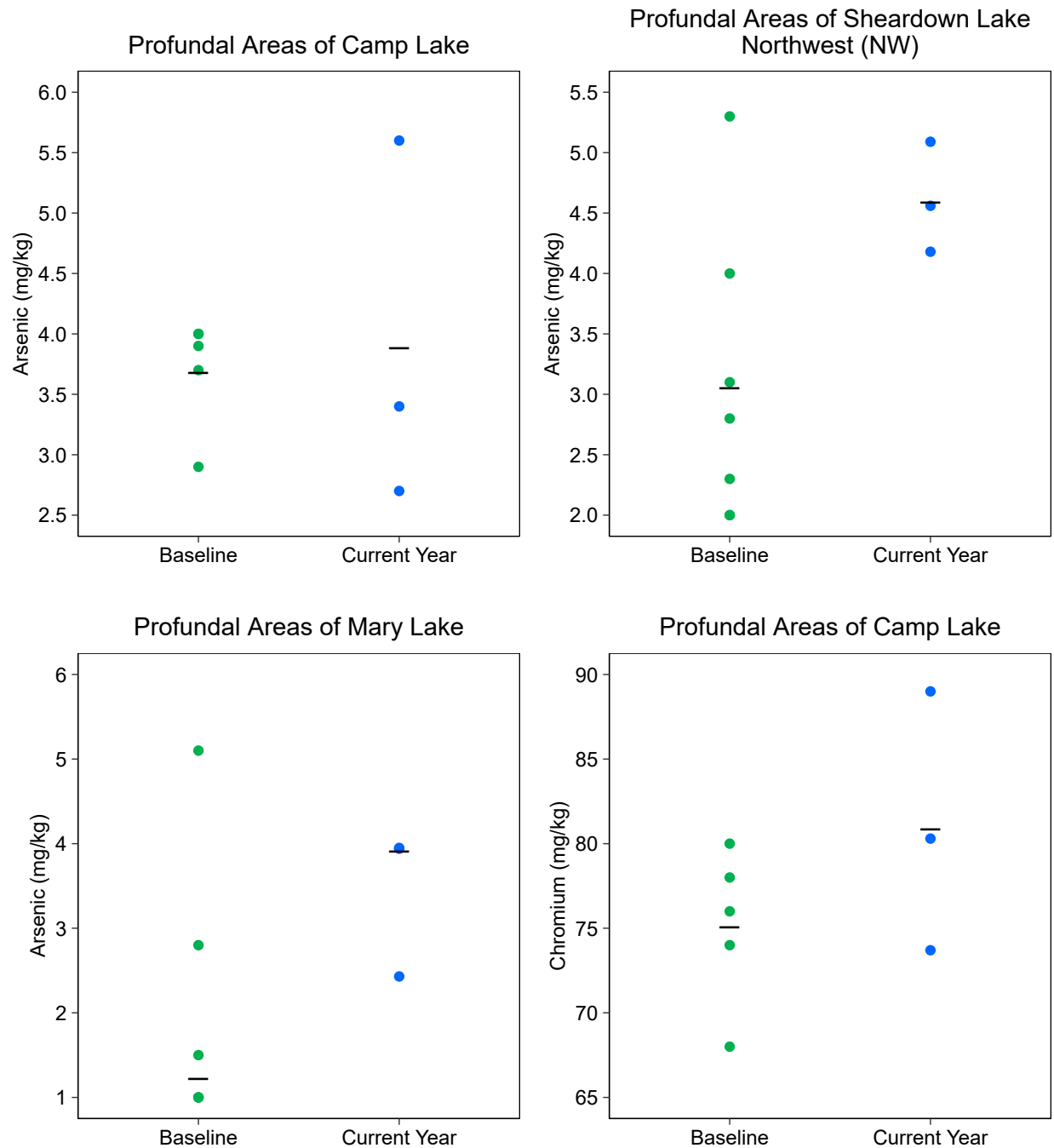


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ^{***} indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

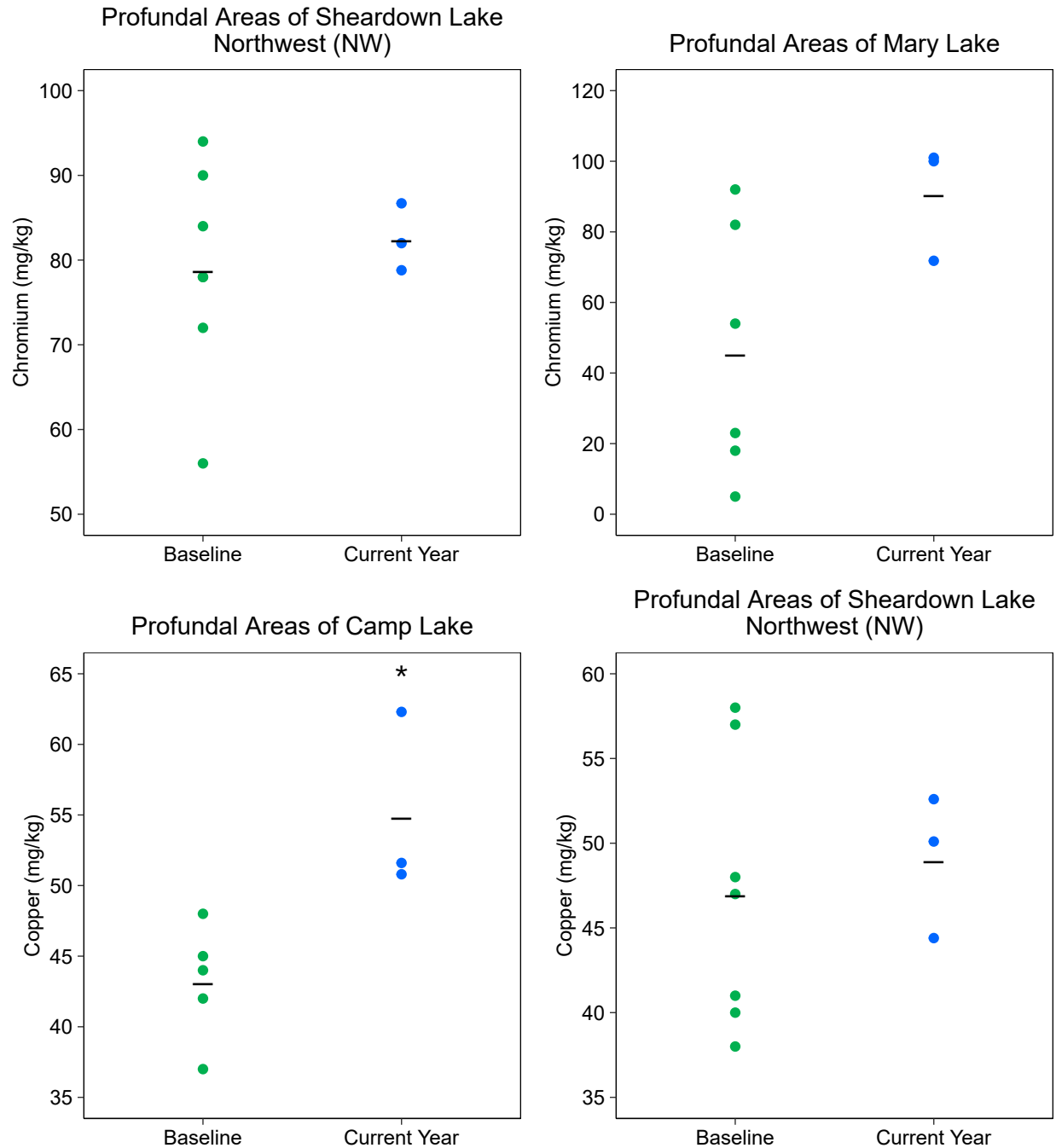


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An '*' indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

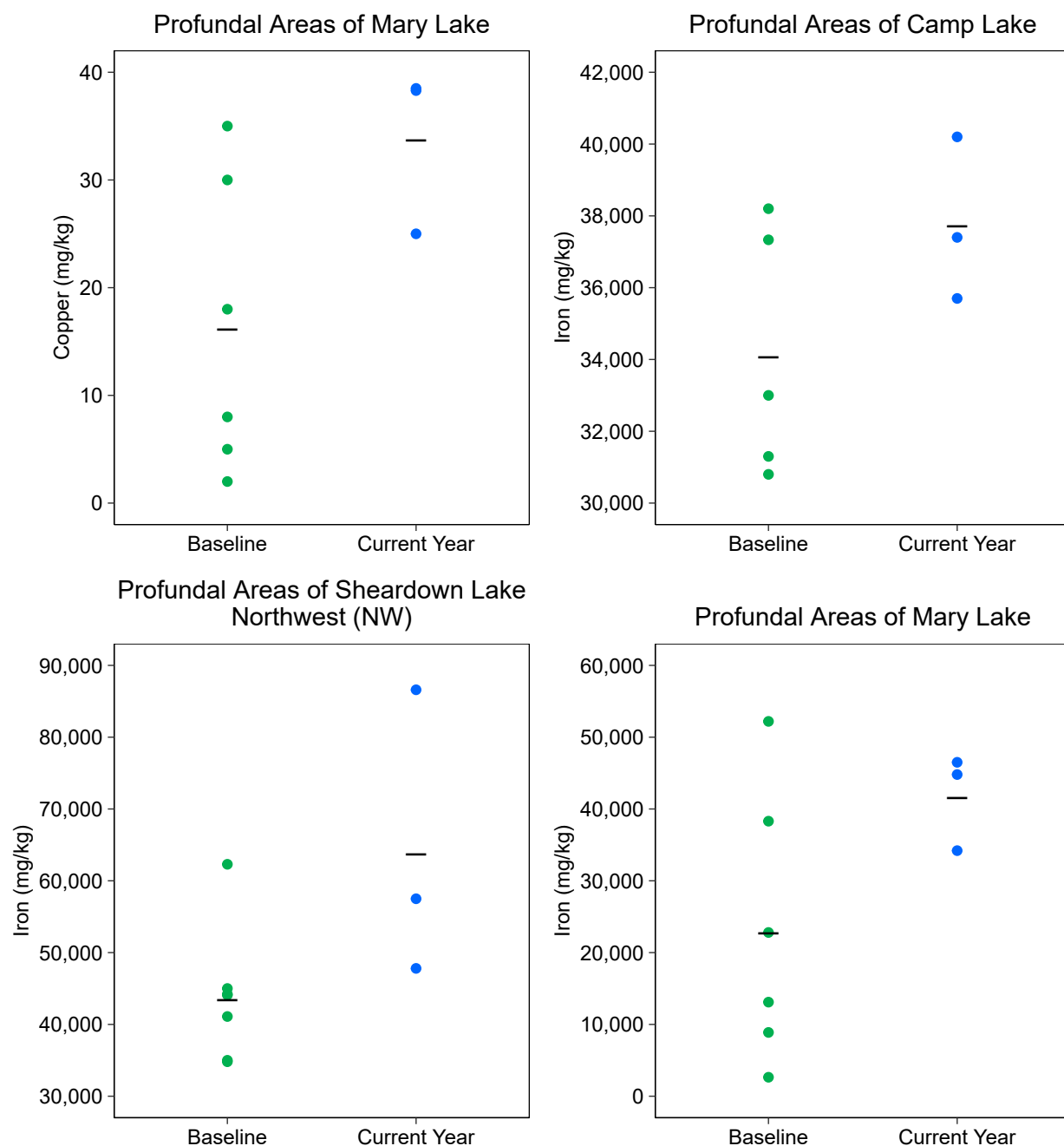


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ^{***} indicates the current year is significantly different (alpha < 0.05) from the baseline period.

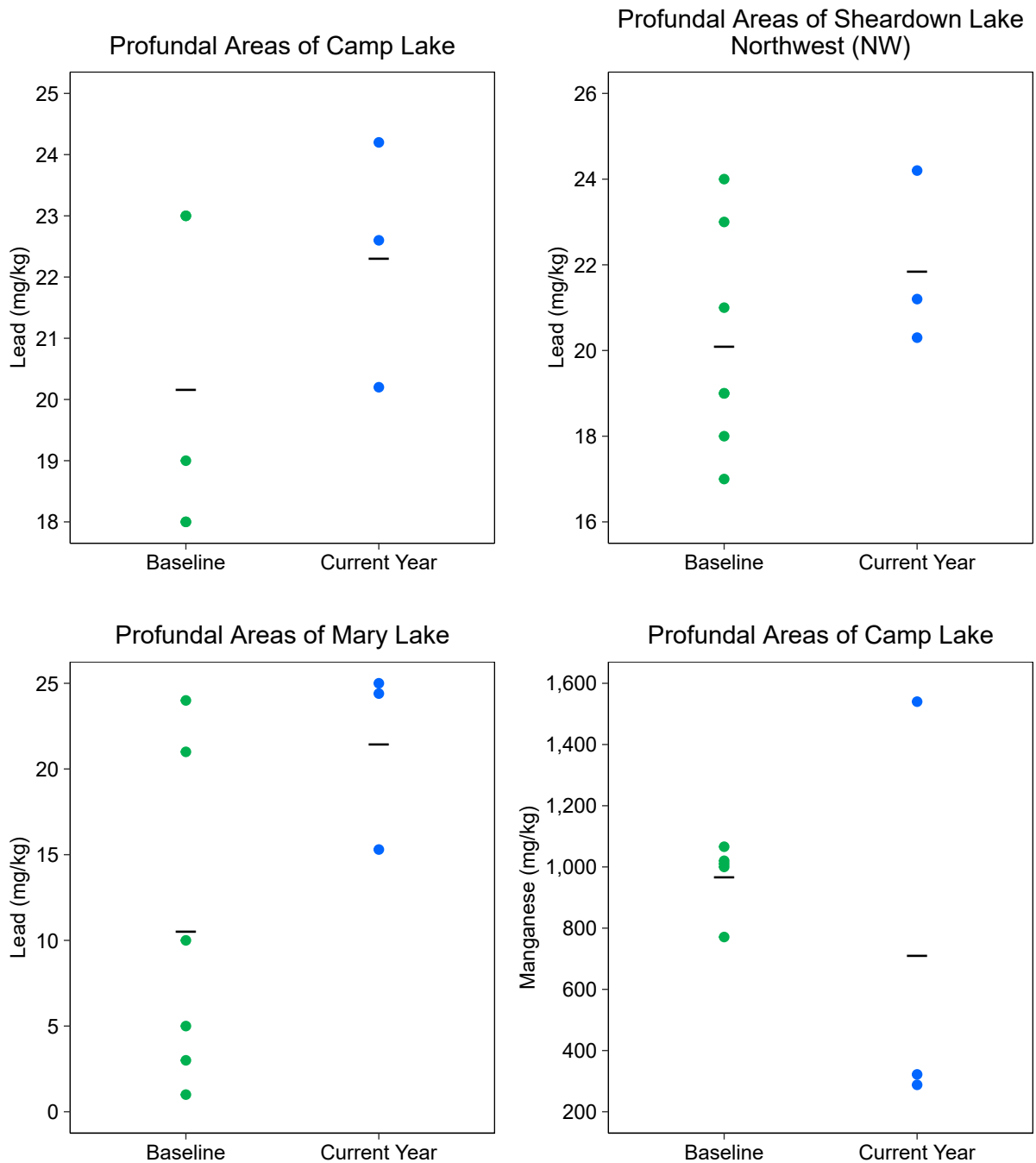


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ** indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

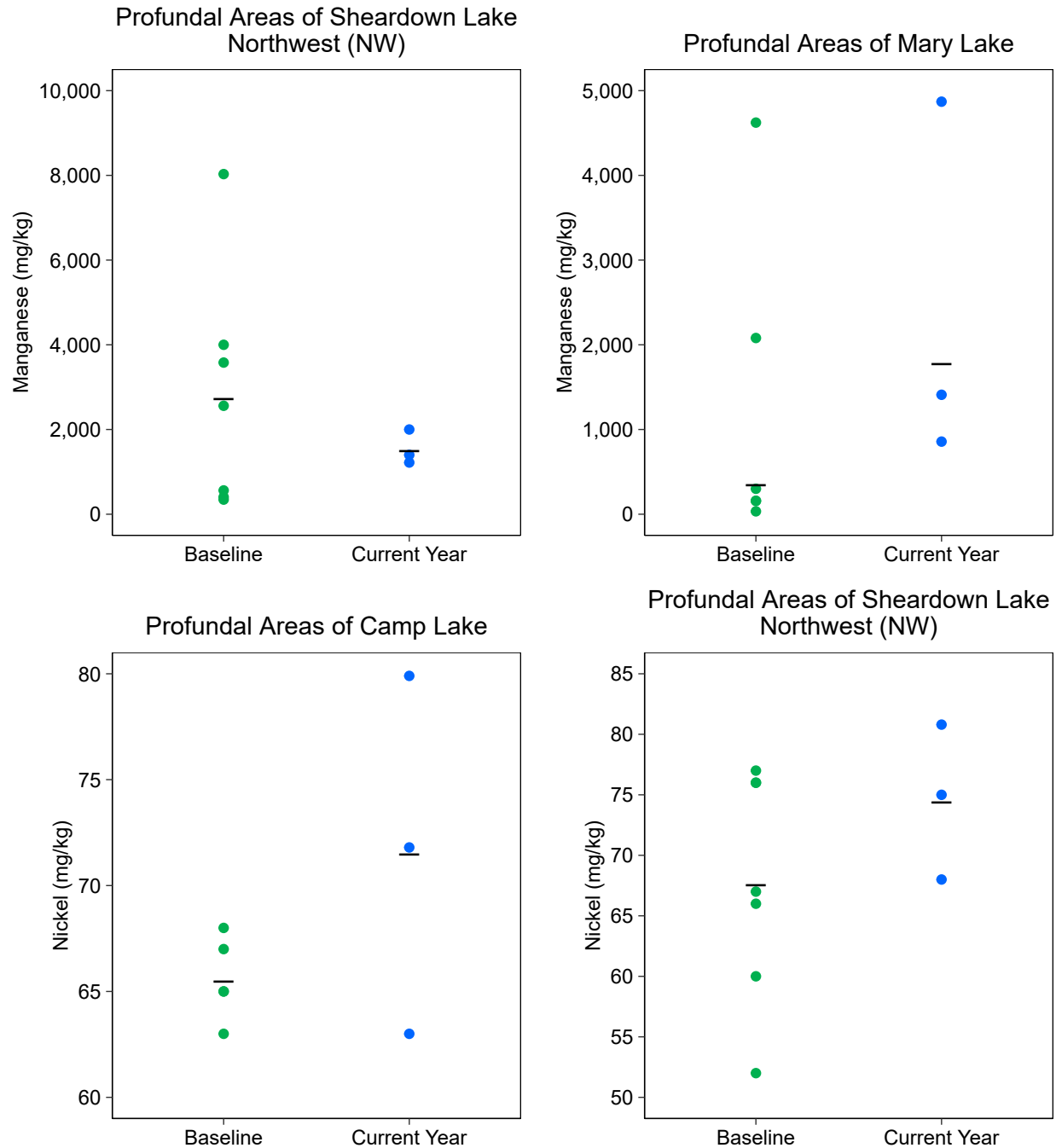


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ** indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

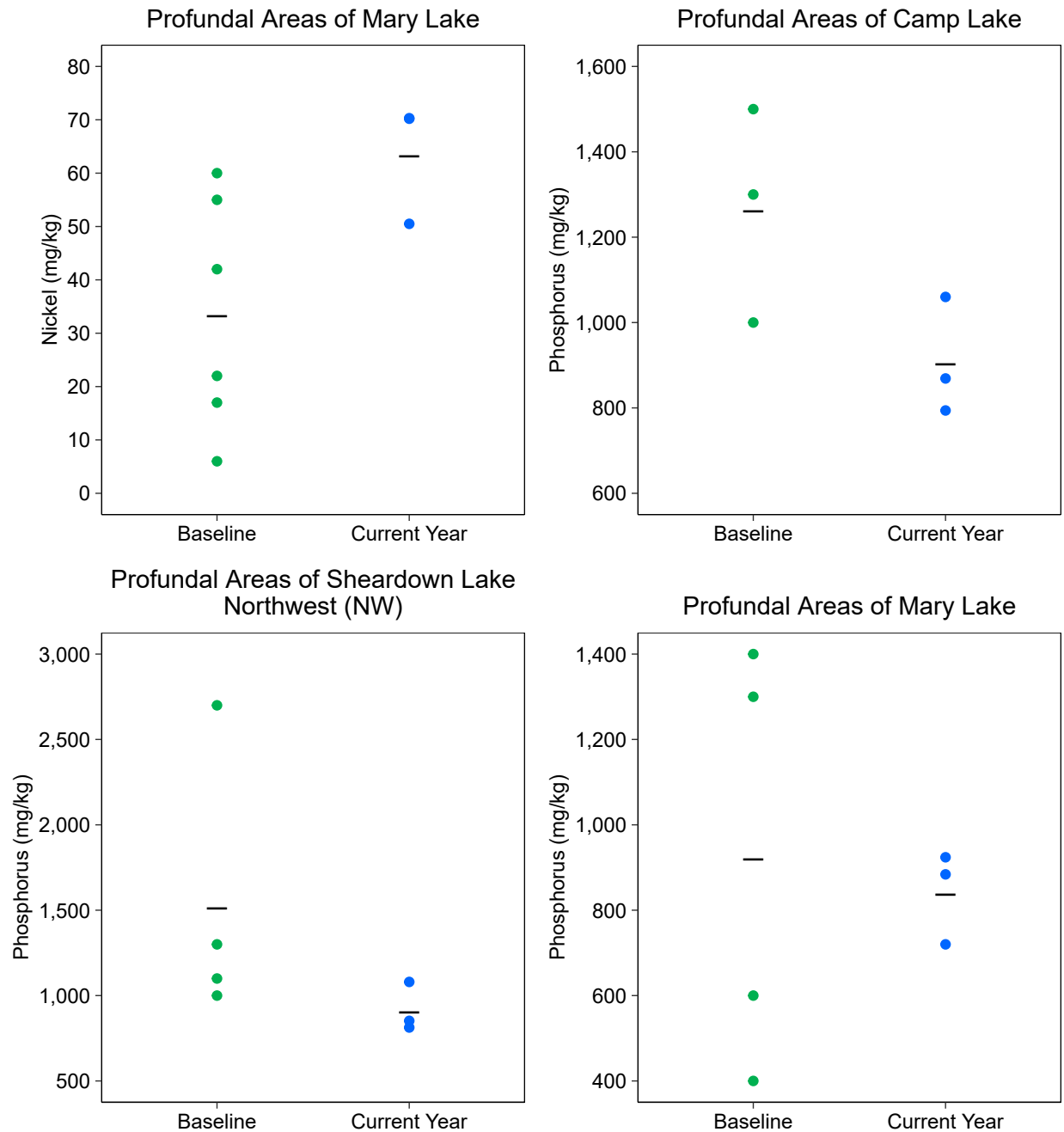


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ^{***} indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

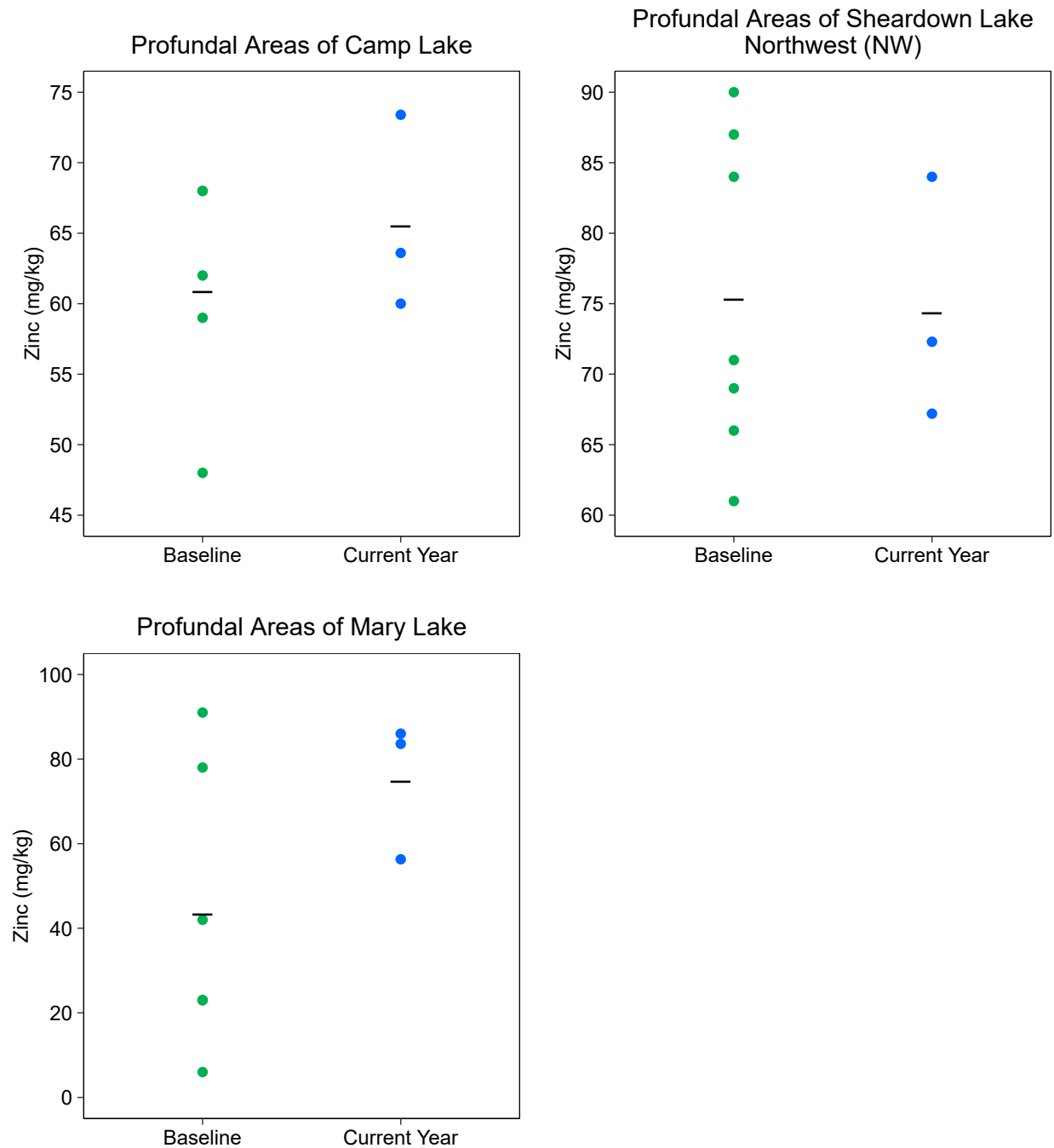


Figure C.4: Comparisons of Sediment Metal Concentrations Between the Current Year (2025) and Baseline Period, Profundal Habitats, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Baseline data are shown in green and mine-exposed areas are shown in blue. Baseline results included all data available in 2013 or earlier. Black horizontal bars indicate the measure of central tendency. An ** indicates the current year is significantly different ($\alpha < 0.05$) from the baseline period.

TABLES

Table C.1: Statistical Comparisons of Sediment Characteristics in Littoral Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters	Transformation	Overall P-value	Lake	MCT ^a	Exposed Lake versus Reference Lake		Summary Statistics					
					P-value	MOD ^b	n	Mean	SD	SE	Min	Max
Sand (%)	rank	0.003	Reference Lake 3	53.1	nc	nc	5	49.3	6.12	34.9	34.9	64.8
			Camp Lake	38.2	0.975	ns	5	44.4	5.05	34.2	34.2	58.2
			Sheardown Lake Northwest (NW)	33.9	0.384	ns	5	38.1	9.79	17.4	17.4	75.3
			Sheardown Lake Southeast (SE)	13.2	0.004	-75.1	5	15.4	1.78	12.1	12.1	20.5
			Mary Lake	17.0	0.020	-68.0	6	28.4	13.1	8.50	8.50	92.6
Silt (%)	rank	<0.001	Reference Lake 3	38.1	nc	nc	5	40.0	5.37	24.6	24.6	54.5
			Camp Lake	56.6	0.456	ns	5	50.3	4.24	38.3	38.3	57.8
			Sheardown Lake Northwest (NW)	56.3	0.254	ns	5	52.6	7.96	22.3	22.3	67.8
			Sheardown Lake Southeast (SE)	70.9	<0.001	86.1	5	71.4	1.12	68.0	68.0	74.3
			Mary Lake	58.8	0.092	ns	6	51.6	9.51	5.90	5.90	68.8
Clay (%)	none	0.056	Reference Lake 3	10.6	nc	nc	5	10.6	1.42	7.60	7.60	15.9
			Camp Lake	5.20	ns	ns	5	5.20	0.986	3.10	3.10	8.60
			Sheardown Lake Northwest (NW)	9.20	ns	ns	5	9.20	2.11	2.30	2.30	14.8
			Sheardown Lake Southeast (SE)	13.2	ns	ns	5	13.2	1.11	10.5	10.5	17.0
			Mary Lake	19.9	ns	ns	6	19.9	6.04	1.50	1.50	36.1
Total Organic Carbon (%)	none	<0.001	Reference Lake 3	4.83	nc	nc	5	4.83	0.952	2.27	2.27	7.28
			Camp Lake	2.00	0.003	-58.7	5	2.00	0.328	1.20	1.20	2.90
			Sheardown Lake Northwest (NW)	2.35	0.009	-51.5	5	2.35	0.579	0.770	0.770	4.36
			Sheardown Lake Southeast (SE)	1.07	<0.001	-77.8	5	1.07	0.0622	0.930	0.930	1.30
			Mary Lake	0.795	<0.001	-83.5	6	0.795	0.135	0.200	0.200	1.20

- P-value <0.05.
- MOD >0, indicating result for mine-exposed lake is significantly higher relative to Reference Lake 3.
- MOD <0, indicating result for mine-exposed lake is significantly lower relative to Reference Lake 3.

Notes: n = number of samples. SD = standard deviation. SE = standard error. Min = minimum. Max = maximum. % = percent. nc = no contrast. ns = not significant. < = less than. > = greater than.

^a MCT = Measure of Central Tendency, which is defined as the estimated marginal mean, back-transformed estimated marginal mean, or the median when data are untransformed, log₁₀-transformed, or rank-transformed, respectively.

^b MOD = Magnitude of Difference = (MCT_{exp} - MCT_{Ref})/MCT_{Ref}*100, where MCT_{exp} is the MCT for the exposed lake and MCT_{Ref} is the MCT for Reference Lake 3.

Table C.2: Statistical Comparisons of Sediment Characteristics in Profundal Areas of Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Parameters	Transformation	Overall P-value	Lake	MCT ^a	Exposed Lake versus Reference Lake		Summary Statistics					
					P-value	MOD ^b	n	Mean	SD	SE	Min	Max
Sand (%)	none	0.002	Reference Lake 3	47.1	nc	nc	3	47.1	1.67	44.0	44.0	49.7
			Camp Lake	26.5	0.013	-43.7	3	26.5	4.16	19.2	19.2	33.6
			Sheardown Lake Northwest (NW)	19.9	0.003	-57.8	3	19.9	1.32	17.4	17.4	21.9
			Mary Lake	15.2	<0.001	-67.8	3	15.2	6.02	8.70	8.70	27.2
Silt (%)	none	<0.001	Reference Lake 3	37.0	nc	nc	3	37.0	2.46	32.7	32.7	41.2
			Camp Lake	58.0	<0.001	56.7	3	58.0	2.19	54.6	54.6	62.1
			Sheardown Lake Northwest (NW)	61.7	<0.001	66.5	3	61.7	2.44	56.8	56.8	64.5
			Mary Lake	56.3	<0.001	52.0	3	56.3	0.757	55.1	55.1	57.7
Clay (%)	none	0.108	Reference Lake 3	15.8	nc	nc	3	15.8	0.854	14.8	14.8	17.5
			Camp Lake	15.4	ns	ns	3	15.4	1.97	11.8	11.8	18.6
			Sheardown Lake Northwest (NW)	18.4	ns	ns	3	18.4	1.84	15.0	15.0	21.3
			Mary Lake	28.5	ns	ns	3	28.5	6.77	15.0	15.0	35.3
Total Organic Carbon (%)	none	<0.001	Reference Lake 3	4.45	nc	nc	3	4.45	0.0657	4.36	4.36	4.58
			Camp Lake	2.20	<0.001	-50.6	3	2.20	0.367	1.47	1.47	2.63
			Sheardown Lake Northwest (NW)	1.12	<0.001	-74.8	3	1.12	0.247	0.630	0.630	1.40
			Mary Lake	0.727	<0.001	-83.7	3	0.727	0.0578	0.650	0.650	0.840

- P-value <0.05.
- MOD >0, indicating result for mine-exposed lake is significantly higher relative to Reference Lake 3.
- MOD <0, indicating result for mine-exposed lake is significantly lower relative to Reference Lake 3.

Notes: n = number of samples. SD = standard deviation. SE = standard error. Min = minimum. Max = maximum. % = percent. nc = no contrast. ns = not significant. < = less than. > = greater than.

^a MCT = Measure of Central Tendency, which is defined as the estimated marginal mean, back-transformed estimated marginal mean, or the median when data are untransformed, log₁₀-transformed, or rank-transformed, respectively.

^b MOD = Magnitude of Difference = (MCT_{exp} - MCT_{Ref})/MCT_{Ref}*100, where MCT_{exp} is the MCT for the exposed lake and MCT_{Ref} is the MCT for Reference Lake 3.

Table C.3: Field Observations for Sediment Cores Collected at Littoral and Profundal Stations in Camp Lake (JL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Sampling Habitat	Station ID	Station Depth (m)	Core Number ^a	Core Length (cm)	Surficial Substrate Colour/Texture Description
Littoral	JL0-02	11.4	1	26.0	Reddish/brown silt with algae
			2	22.5	
			3	21.0	
	JL0-21	8.6	1	11.0	Reddish/brown silt with algae
			2	7.5	
			3	10.0	
			4	8.0	
	JL0-30	11.5	1	11.0	Reddish/brown silt with spherical algae
			2	9.0	
			3	10.8	
	JL0-31	11.7	1	28.0	Reddish/brown silt with spherical algae
			2	29.8	
			3	20.7	
	JL0-32	11.0	1	24.5	Reddish/brown silt
			2	28.5	
			3	26.5	
Profundal	JL0-07	35.9	1	36.0	Dark brown/gray silt
			2	27.5	
			3	25.5	
	JL0-11	29.6	1	27.5	Reddish/brown silt and organics
			2	36.5	
			3	29.5	
	JL0-14	26.3	1	8.0	Reddish/brown silt
			2	24.5	
			3	16.5	

Notes: ID = identifier. m = metres. cm = centimetres.

^a Each of the samples taken from the three to four cores collected per station were combined to create a single composite sample per station for a total of n = 5 littoral sediment samples and n = 3 profundal samples.

Table C.4: Physical Characteristics, Total Organic Carbon Content, and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Camp Lake (JL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	Sediment Quality Guideline (SQG) ^a		AEMP Benchmark ^b	Camp Lake Habitat Type and Station							
						Littoral					Profundal		
			Lower	Upper		JL0-02	JL0-21	JL0-30	JL0-31	JL0-32	JL0-07	JL0-11	JL0-14
Physical Characteristics	Sand	%	-	-	-	36.5	55.1	58.2	38.2	34.2	19.2	33.6	26.8
	Silt	%	-	-	-	57.8	41.8	38.3	56.6	57.2	62.1	54.6	57.4
	Clay	%	-	-	-	5.70	3.10	3.40	5.20	8.60	18.6	11.8	15.8
	Moisture	%	-	-	-	74.7	56.5	53.8	70.7	81.8	73.1	73.1	67.8
Nutrients/ Organics	TOC	%	1	10	-	2.44	1.20	1.30	2.15	2.90	2.63	2.50	1.47
	Phosphorus (P)	mg/kg	-	-	1,962	1,260	631	952	1,590	1,070	869	794	1,060
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	19,100	12,600	13,000	14,200	18,400	22,100	18,900	21,200
	Antimony (Sb)	mg/kg	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Arsenic (As)	mg/kg	-	-	11.5	6.89	2.86	4.74	9.24	6.93	3.40	2.70	5.60
	Barium (Ba)	mg/kg	-	-	-	108	42.1	85.0	127	128	79.3	65.5	87.0
	Beryllium (Be)	mg/kg	-	-	-	0.830	0.570	0.610	0.710	0.920	1.12	0.940	1.03
	Bismuth (Bi)	mg/kg	-	-	-	0.280	<0.2	0.220	0.210	0.270	0.370	0.320	0.320
	Boron (B)	mg/kg	-	-	-	24.0	17.2	19.5	20.6	25.7	35.3	29.3	33.2
	Cadmium (Cd)	mg/kg	-	-	2.1	0.195	0.101	0.119	0.142	0.318	0.275	0.219	0.215
	Calcium (Ca)	mg/kg	-	-	-	4,310	3,030	3,230	3,620	4,880	5,070	4,900	4,360
	Chromium (Cr)	mg/kg	-	-	89	70.8	49.7	52.1	58.0	73.3	89.0	73.7	80.3
	Cobalt (Co)	mg/kg	-	-	-	19.2	11.6	13.6	18.4	19.6	18.5	13.8	19.5
	Copper (Cu)	mg/kg	-	-	84	44.0	25.3	30.6	35.3	53.5	62.3	51.6	50.8
	Iron (Fe)	mg/kg	-	-	67,866	58,000	27,300	38,500	62,600	40,200	37,400	35,700	40,200
	Lead (Pb)	mg/kg	-	-	63	17.5	11.6	13.3	15.2	20.6	24.2	20.2	22.6
	Lithium (Li)	mg/kg	-	-	-	27.9	19.1	19.6	21.8	28.7	35.4	30.1	34.9
	Magnesium (Mg)	mg/kg	-	-	-	15,400	9,920	10,600	10,800	14,300	17,400	15,000	15,100
	Manganese (Mn)	mg/kg	-	-	3,441	1,580	736	3,170	4,480	1,050	322	288	1,540
	Mercury (Hg)	mg/kg	-	-	0.33	0.0374	0.0129	0.0281	0.0278	0.0442	0.0579	0.0683	0.0488
	Molybdenum (Mo)	mg/kg	25	23,000	-	2.06	0.950	1.91	5.14	1.84	1.38	1.00	1.07
	Nickel (Ni)	mg/kg	-	-	72	70.2	43.4	54.4	61.3	82.1	79.9	63.0	71.8
	Potassium (K)	mg/kg	-	-	-	4,680	3,010	3,400	3,540	4,540	6,240	5,000	5,710
	Selenium (Se)	mg/kg	-	-	-	0.420	0.230	0.250	0.330	0.420	0.480	0.500	0.420
	Silver (Ag)	mg/kg	0.5	-	-	0.100	<0.1	<0.1	<0.1	0.130	0.220	0.160	0.140
	Sodium (Na)	mg/kg	-	-	-	196	140	142	156	209	432	274	265
	Strontium (Sr)	mg/kg	-	-	-	8.42	6.60	7.43	8.77	10.1	20.5	10.8	14.1
	Sulphur (S)	mg/kg	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000	4,600	<1,000	<1,000
	Thallium (Tl)	mg/kg	-	-	-	0.456	0.268	0.337	0.415	0.660	0.530	0.413	0.550
	Tin (Sn)	mg/kg	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2
	Titanium (Ti)	mg/kg	-	-	-	1,140	804	733	710	922	1,150	1,010	1,110
	Uranium (U)	mg/kg	-	-	-	6.10	2.68	3.56	3.58	6.55	7.95	6.16	7.19
	Vanadium (V)	mg/kg	-	-	-	58.8	41.1	42.1	47.0	61.8	62.8	57.9	68.4
	Zinc (Zn)	mg/kg	-	-	219	59.3	37.2	42.4	43.7	58.4	73.4	60.0	63.6
	Zirconium (Zr)	mg/kg	-	-	-	6.40	2.60	2.20	2.90	6.60	11.2	10.1	4.70

Indicates a concentration above the lower SQG.

Indicates a concentration above the lower and upper SQG.

BOLD

Indicates a concentration above the AEMP Benchmark.

Notes: AEMP = Aquatic Effects Monitoring Plan. % = percent. - = no SQG or AEMP benchmark. TOC = total organic carbon. < = less than. mg/kg = milligrams per kilogram dry weight.

^a Comparisons to generic SQG derived for other jurisdictions were only applied to parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Camp Lake.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

Table C.5: Physical Characteristics, Total Organic Carbon Content, and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	Sediment Quality Guideline (SQG) ^a			Reference Lake 3 Habitat Type and Station							
						Littoral					Profundal		
			Lower	Upper	Type	REF-03-1	REF-03-2	REF-03-3	REF-03-4	REF-03-5	REF-03-7	REF-03-9	REF-03-10
Physical Characteristics	Sand	%	-	-	-	34.9	64.8	35.2	58.7	53.1	49.7	44.0	47.7
	Silt	%	-	-	-	49.2	24.6	54.5	33.6	38.1	32.7	41.2	37.2
	Clay	%	-	-	-	15.9	10.6	10.3	7.60	8.80	17.5	14.8	15.1
	Moisture	%	-	-	-	90.7	93.1	68.8	82.5	89.1	90.4	88.3	86.5
Nutrients/ Organics	TOC	%	1	10	ON PSQG	5.84	7.28	2.27	2.95	5.83	4.58	4.42	4.36
	Phosphorus (P)	mg/kg	600	2,000	ON PSQG	1,350	859	781	742	2,940	1,180	1,160	1,160
Metals ^b	Aluminum (Al)	mg/kg	-	-	-	23,400	19,500	16,700	14,700	12,800	27,000	26,300	25,900
	Antimony (Sb)	mg/kg	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Arsenic (As)	mg/kg	5.9	17.0	CCME	5.79	3.63	3.15	1.99	8.53	5.73	5.51	5.34
	Barium (Ba)	mg/kg	-	-	-	175	135	80.8	73.5	143	150	139	135
	Beryllium (Be)	mg/kg	-	-	-	0.900	0.770	0.650	0.550	0.490	0.920	0.930	0.940
	Bismuth (Bi)	mg/kg	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Boron (B)	mg/kg	-	-	-	19.6	18.7	14.4	12.3	11.9	20.5	19.8	20.2
	Cadmium (Cd)	mg/kg	0.6	3.50	CCME	0.235	0.280	0.116	0.0610	0.183	0.183	0.174	0.164
	Calcium (Ca)	mg/kg	-	-	-	5,470	5,840	3,980	3,440	4,760	5,600	5,620	5,570
	Chromium (Cr)	mg/kg	37.3	90.0	CCME	77.4	62.5	48.6	43.0	45.5	82.7	81.3	78.9
	Cobalt (Co)	mg/kg	-	-	-	17.5	10.1	11.2	7.49	15.3	18.6	17.8	17.4
	Copper (Cu)	mg/kg	35.7	197	CCME	94.7	102	49.2	49.8	54.3	107	100	98.7
	Iron (Fe)	mg/kg	20,000	40,000	ON PSQG	60,400	29,500	32,100	25,500	133,000	55,000	52,600	51,600
	Lead (Pb)	mg/kg	35	91.3	CCME	19.2	14.9	12.8	11.4	12.3	19.6	19.5	18.3
	Lithium (Li)	mg/kg	-	-	-	34.0	29.1	25.9	22.4	18.3	36.3	35.6	35.6
	Magnesium (Mg)	mg/kg	-	-	-	15,600	12,700	11,300	9,180	9,200	17,300	16,800	16,800
	Manganese (Mn)	mg/kg	460	1,100	ON PSQG	2,510	455	652	246	1,420	1,370	1,240	1,220
	Mercury (Hg)	mg/kg	0.170	0.486	CCME	0.0814	0.0474	0.0150	0.0174	0.0622	0.0839	0.0774	0.0642
	Molybdenum (Mo)	mg/kg	25	23,000	BC WSQG	8.99	2.68	2.87	1.35	13.7	2.94	2.62	2.60
	Nickel (Ni)	mg/kg	16	75	ON PSQG	55.8	49.7	36.7	28.1	35.0	57.2	54.7	53.8
	Potassium (K)	mg/kg	-	-	-	5,740	4,900	4,410	3,500	3,050	6,570	6,200	6,140
	Selenium (Se)	mg/kg	-	-	-	1.26	0.830	0.360	0.300	0.930	0.840	0.840	0.830
	Silver (Ag)	mg/kg	0.5	-	BC WSQG	0.260	0.180	<0.1	<0.1	0.120	0.270	0.260	0.230
	Sodium (Na)	mg/kg	-	-	-	439	403	310	240	254	495	493	480
	Strontium (Sr)	mg/kg	-	-	-	13.8	13.3	10.4	8.89	11.0	14.7	14.5	14.3
	Sulphur (S)	mg/kg	-	-	-	1,600	2,100	<1,000	<1,000	1,400	1,400	1,200	1,300
	Thallium (Tl)	mg/kg	-	-	-	0.687	0.435	0.336	0.257	0.318	0.740	0.723	0.700
	Tin (Sn)	mg/kg	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2
	Titanium (Ti)	mg/kg	-	-	-	1,220	1,170	1,380	1,030	837	1,390	1,490	1,440
	Uranium (U)	mg/kg	-	-	-	23.4	15.0	18.3	6.86	11.8	25.5	24.6	25.4
	Vanadium (V)	mg/kg	-	-	-	66.7	58.8	51.6	42.4	40.9	74.4	73.0	72.1
	Zinc (Zn)	mg/kg	123	315	CCME	91.3	84.9	60.7	61.3	58.4	99.0	97.4	95.4
	Zirconium (Zr)	mg/kg	-	-	-	3.30	5.70	5.00	3.00	2.50	3.70	3.90	3.70

Indicates a concentration above the lower SQG.

Indicates a concentration above the lower and upper SQG.

Notes: % = percent. - = no SQG/not applicable. TOC = total organic carbon. ON PSQG = Ontario Provincial Sediment Quality Guidelines. mg/kg = milligrams per kilogram dry weight. < = less than. CCME = Canadian Council of Ministers of the Environment. BC WSQG = British Columbia Working Sediment Quality Guidelines.

^a No AEMP benchmarks exist for Reference Lake 3. Therefore, raw data were screened to generic SQG from the CCME (2026), Ontario Ministry of Environment, Conservation, and Parks (MECP 2026), or British Columbia Ministry of Environment and Climate Change Strategy (BCMOC 2025b).

^b Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

Table C.6: Field Observations for Sediment Cores Collected at Littoral and Profundal Stations in Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Sampling Habitat	Station ID	Station Depth (m)	Core Number ^a	Core Length (cm)	Surficial Substrate Colour/Texture Description
Littoral	REF-03-1	15.5	1	35.5	Reddish/brown silt
			2	38.0	
			3	30.0	
	REF-03-2	9.0	1	40.0	Reddish/brown silt
			2	39.0	
			3	41.0	
	REF-03-3	9.5	1	16.0	Reddish/brown silt
			2	14.0	
			3	20.5	
	REF-03-4	8.6	1	25.0	Reddish/brown silt
			2	9.0	
			3	18.5	
	REF-03-5	7.7	1	42.0	Reddish/orange silt
			2	39.0	
			3	39.0	
Profundal	REF-03-7	23.7	1	17.0	Reddish/brown silt
			2	31.0	
			3	31.5	
			4	19.5	
	REF-03-9	20.9	1	19.5	Reddish/brown silt
			2	24.0	
			3	23.8	
	REF-03-10	19.1	1	32.0	Reddish/brown silt
			2	28.2	
			3	22.0	
			4	17.5	

Notes: ID = identifier. m = metres. cm = centimetres.

^a Each of the samples taken from the three to four cores collected per station were combined to create a single composite sample per station for a total of n = 5 littoral sediment samples and n = 3 profundal samples.

Table C.7: Field Observations for Sediment Cores Collected at Littoral and Profundal Stations in Sheardown Lake Northwest (NW; DL0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Sampling Habitat	Station ID	Station Depth (m)	Core Number ^a	Core Length (cm)	Surficial Substrate Colour/Texture Description
Littoral	DD-HAB 9-STN2	10.9	1	22.2	Reddish/brown silt with presence of algae
			2	28.0	
			3	23.2	
	DL0-01-08	11.1	1	17.5	Reddish/brown silt
			2	25.5	
			3	25.0	
	DL0-01-9	6.9	1	27.0	Reddish/brown silt with algae/organics
			2	30.0	
			3	33.0	
	DL0-01-3	6.4	1	45.5	Reddish/brown silt with algae/organics
			2	28.2	
			3	27.5	
	DL0-01-10	8.1	1	23.0	Reddish/brown silt
			2	19.5	
			3	18.0	
			4	16.0	
Profundal	DL0-01-05	23.7	1	23.0	Reddish/brown silt
			2	24.5	
			3	19.5	
	DL0-01	21.3	1	10.5	Reddish/brown silt
			2	12.0	
			3	9.5	
			4	11.0	
	DL0-01-2	15.7	1	14.0	Reddish/brown silt
			2	25.5	
			3	14.7	
			4	11.2	

Notes: ID = identifier. m = metres. cm = centimetres.

^a Each of the samples taken from the three to four cores collected per station were combined to create a single composite sample per station for a total of n = 5 littoral sediment samples and n = 3 profundal samples.

Table C.8: Physical Characteristics, Total Organic Carbon Content, and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Sheardown Lake Northwest (NW; DL0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	Sediment Quality Guideline (SQG) ^a		AEMP Benchmark ^b	Sheardown Lake NW Habitat Type and Station							
			Lower	Upper		Littoral					Profundal		
						DD-HAB-9-STN2	DL0-01-8	DL0-01-9	DL0-01-3	DL0-01-10	DL0-01-5	DL0-01	DL0-01-2
Physical Characteristics	Sand	%	-	-	-	29.4	17.4	33.9	34.7	75.3	20.4	21.9	17.4
	Silt	%	-	-	-	62.7	67.8	54.0	56.3	22.3	64.5	56.8	63.7
	Clay	%	-	-	-	7.80	14.8	12.1	9.00	2.30	15.0	21.3	18.9
	Moisture	%	-	-	-	71.7	71.5	80.3	65.1	42.4	65.3	63.9	63.6
Nutrients/ Organics	TOC	%	1	10	-	2.21	1.98	4.36	2.41	0.770	0.630	1.34	1.40
	Phosphorus (P)	mg/kg	-	-	2,302	1,650	1,010	754	873	533	1,080	813	852
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	23,200	22,700	22,700	18,300	8,590	25,600	23,900	23,300
	Antimony (Sb)	mg/kg	-	-	-	0.130	<0.1	<0.1	<0.1	<0.1	0.130	<0.1	<0.1
	Arsenic (As)	mg/kg	-	-	11.5	14.0	6.60	4.17	3.43	1.79	5.09	4.56	4.18
	Barium (Ba)	mg/kg	-	-	-	248	104	101	88.0	36.3	124	92.8	89.9
	Beryllium (Be)	mg/kg	-	-	-	0.930	1.03	1.05	0.840	0.430	1.17	1.08	1.06
	Bismuth (Bi)	mg/kg	-	-	-	0.430	0.280	0.310	0.280	<0.2	0.420	0.300	0.240
	Boron (B)	mg/kg	-	-	-	24.2	35.1	35.4	29.6	13.9	33.3	37.1	36.1
	Cadmium (Cd)	mg/kg	-	-	2.1	0.326	0.228	0.393	0.245	0.0780	0.304	0.245	0.321
	Calcium (Ca)	mg/kg	-	-	-	4,860	4,430	5,220	5,220	2,430	4,810	4,050	4,220
	Chromium (Cr)	mg/kg	-	-	94	63.3	77.1	77.4	75.2	38.7	86.7	82.0	78.8
	Cobalt (Co)	mg/kg	-	-	-	19.3	18.0	15.5	13.5	7.13	20.0	17.5	17.1
	Copper (Cu)	mg/kg	-	-	89	46.7	45.2	61.6	43.7	16.2	52.6	50.1	44.4
	Iron (Fe)	mg/kg	-	-	71,736	137,000	73,400	76,200	52,400	31,000	86,600	57,500	47,800
	Lead (Pb)	mg/kg	-	-	63	19.1	21.1	19.9	17.8	8.43	24.2	21.2	20.3
	Lithium (Li)	mg/kg	-	-	-	27.5	33.1	32.7	27.8	13.0	36.4	35.0	34.4
	Magnesium (Mg)	mg/kg	-	-	-	16,400	14,500	15,500	13,600	7,250	17,800	15,300	14,200
	Manganese (Mn)	mg/kg	-	-	4,754	4,190	2,210	576	457	364	2,000	1,220	1,400
	Mercury (Hg)	mg/kg	-	-	0.33	0.0394	0.0324	0.0521	0.0326	0.0113	0.0543	0.0344	0.0266
	Molybdenum (Mo)	mg/kg	25	23,000	-	15.2	8.56	4.66	3.48	1.68	4.67	2.30	3.28
	Nickel (Ni)	mg/kg	-	-	82	70.4	72.8	78.7	70.4	34.1	75.0	68.0	80.8
	Potassium (K)	mg/kg	-	-	-	5,640	5,670	5,930	4,480	2,180	6,450	6,020	5,920
	Selenium (Se)	mg/kg	-	-	-	0.560	0.460	0.640	0.390	<0.2	0.600	0.330	0.300
	Silver (Ag)	mg/kg	0.5	-	-	0.150	0.140	0.180	0.120	<0.1	0.190	0.170	0.130
	Sodium (Na)	mg/kg	-	-	-	238	292	310	267	128	356	326	293
	Strontium (Sr)	mg/kg	-	-	-	11.5	12.0	12.5	12.4	6.90	13.1	12.7	12.7
	Sulphur (S)	mg/kg	-	-	-	<1,000	<1,000	1,600	1,400	<1,000	<1,000	<1,000	<1,000
	Thallium (Tl)	mg/kg	-	-	-	0.459	0.517	0.503	0.414	0.176	0.541	0.515	0.505
	Tin (Sn)	mg/kg	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2
	Titanium (Ti)	mg/kg	-	-	-	1,150	1,310	1,330	1,290	671	1,470	1,370	1,390
	Uranium (U)	mg/kg	-	-	-	9.83	6.26	11.2	9.37	3.04	9.30	8.50	6.88
	Vanadium (V)	mg/kg	-	-	-	47.6	58.9	58.0	51.5	25.0	64.2	61.4	60.4
	Zinc (Zn)	mg/kg	-	-	219	76.6	68.9	74.2	60.7	29.3	84.0	72.3	67.2
	Zirconium (Zr)	mg/kg	-	-	-	7.80	5.50	16.7	16.5	5.70	10.3	7.30	7.50

- Indicates a concentration above the lower SQG.
- Indicates a concentration above the lower and upper SQG.
- BOLD**

Indicates a concentration above the AEMP Benchmark.

Notes: AEMP = Aquatic Effects Monitoring Plan. % = percent. - = no SQG or AEMP benchmark. TOC = total organic carbon. < = less than. mg/kg = milligrams per kilogram dry weight.

^a Comparisons to generic SQG derived for other jurisdictions were only applied to parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Sheardown Lake NW.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

Table C.9: Field Observations for Sediment Cores Collected at Littoral and Profundal Stations in Sheardown Lake Southeast (SE; DL0-02), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Sampling Habitat	Station ID	Station Depth (m)	Core Number ^a	Core Length (cm)	Surficial Substrate Colour/Texture Description
Littoral	DL0-02-1	10.8	1	9.0	Reddish/brown silt
			2	9.5	
			3	3.5	
	DL0-02-3 ^b	12.9	1	7.3	Reddish/brown silt
			2	10.5	
			3	11.5	
	DL0-02-9	8.6	1	15.5	Reddish/brown silt
			2	17.0	
			3	19.0	
	DL0-02-11	7.5	1	24.0	Reddish/brown silt
			2	17.5	
			3	28.0	
	DL0-02-13 ^b	8.3	1	24.5	Reddish/brown silt
			2	19.5	
			3	19.5	

Notes: ID = identifier. m = metres. cm = centimetres. AEMP = Aquatic Effects Monitoring Plan. < = less than. m = metres.

^a Each of the samples taken from the three cores collected per station were combined to create a single composite sample per station for a total of n = 5 littoral sediment samples and n = 3 profundal samples.

^b These stations were previously classified as profundal stations under the Revision 1 AEMP study design (Baffinland 2015). Under the Revision 2 AEMP design, these stations were reclassified as littoral, based on water depths <12 m (Baffinland 2024).

Table C.10: Physical Characteristics, Total Organic Carbon Content, and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Sheardown Lake Southeast (SE; DL0-02), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	Sediment Quality Guideline (SQG) ^a		AEMP Benchmark ^b	Sheardown Lake SE Habitat Type and Station				
						Littoral				
			Lower	Upper		DL0-02-1	DL0-02-11	DL0-02-9	DL0-02-13 ^c	DL0-02-3 ^c
Physical Characteristics	Sand	%	-	-	-	19.0	12.1	13.2	12.4	20.5
	Silt	%	-	-	-	70.4	70.9	73.4	74.3	68.0
	Clay	%	-	-	-	10.5	17.0	13.4	13.4	11.5
	Moisture	%	-	-	-	50.4	57.6	57.2	61.3	51.1
Nutrients/ Organics	TOC	%	1	10	-	1.07	1.30	1.00	1.07	0.930
	Phosphorus (P)	mg/kg	-	-	1,861	925	1,070	1,290	1,200	1,040
Metals ^d	Aluminum (Al)	mg/kg	-	-	-	18,500	21,900	21,900	23,000	20,800
	Antimony (Sb)	mg/kg	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
	Arsenic (As)	mg/kg	-	-	11.5	3.27	4.92	6.05	5.52	3.84
	Barium (Ba)	mg/kg	-	-	-	79.8	93.8	105	137	96.7
	Beryllium (Be)	mg/kg	-	-	-	0.730	0.910	0.930	0.980	0.810
	Bismuth (Bi)	mg/kg	-	-	-	0.220	0.240	0.230	0.270	0.230
	Boron (B)	mg/kg	-	-	-	20.8	25.8	30.2	33.0	23.6
	Cadmium (Cd)	mg/kg	-	-	2.1	0.126	0.124	0.121	0.137	0.123
	Calcium (Ca)	mg/kg	-	-	-	6,650	4,860	5,210	6,440	9,280
	Chromium (Cr)	mg/kg	-	-	86	73.6	82.1	89.0	88.6	83.4
	Cobalt (Co)	mg/kg	-	-	-	14.3	15.3	16.3	18.7	15.9
	Copper (Cu)	mg/kg	-	-	87	27.7	32.9	31.7	33.8	30.1
	Iron (Fe)	mg/kg	-	-	61,247	51,500	55,100	57,400	64,800	50,600
	Lead (Pb)	mg/kg	-	-	63	14.9	17.8	18.0	18.8	16.3
	Lithium (Li)	mg/kg	-	-	-	26.3	31.7	32.2	34.2	29.6
	Magnesium (Mg)	mg/kg	-	-	-	15,700	15,400	16,300	17,300	18,400
	Manganese (Mn)	mg/kg	-	-	2,089	726	1,110	1,710	3,600	2,000
	Mercury (Hg)	mg/kg	-	-	0.33	0.0197	0.0278	0.0229	0.0244	0.0186
	Molybdenum (Mo)	mg/kg	25	23,000	-	1.66	2.41	2.54	3.60	2.23
	Nickel (Ni)	mg/kg	-	-	66	57.2	62.8	67.8	71.4	64.8
	Potassium (K)	mg/kg	-	-	-	4,190	5,420	5,300	5,740	4,650
	Selenium (Se)	mg/kg	-	-	-	<0.2	0.280	0.260	0.320	0.210
	Silver (Ag)	mg/kg	0.5	-	-	<0.1	0.110	0.110	0.120	0.100
	Sodium (Na)	mg/kg	-	-	-	248	325	329	341	284
	Strontium (Sr)	mg/kg	-	-	-	10.4	11.8	13.7	14.6	12.9
	Sulphur (S)	mg/kg	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
	Thallium (Tl)	mg/kg	-	-	-	0.343	0.408	0.401	0.464	0.376
	Tin (Sn)	mg/kg	-	-	-	<2	<2	<2	<2	<2
	Titanium (Ti)	mg/kg	-	-	-	1,300	1,460	1,570	1,620	1,470
	Uranium (U)	mg/kg	-	-	-	5.10	6.56	5.59	6.48	5.16
	Vanadium (V)	mg/kg	-	-	-	48.4	57.0	58.7	59.2	53.0
	Zinc (Zn)	mg/kg	-	-	219	55.6	65.1	64.0	67.2	59.6
	Zirconium (Zr)	mg/kg	-	-	-	16.6	18.6	17.3	16.6	16.1

- Indicates a concentration above the lower SQG.
- Indicates a concentration above the lower and upper SQG.
- BOLD**

Indicates a concentration above the AEMP Benchmark.

Notes: AEMP = Aquatic Effects Monitoring Plan. % = percent. - = no SQG or AEMP benchmark. TOC = total organic carbon. < = less than. mg/kg = milligrams per kilogram dry weight.

^a Comparisons to generic SQG derived for other jurisdictions were only applied to parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Sheardown Lake SE.

^c These stations were previously classified as profundal stations under the Revision 1 AEMP study design (Baffinland 2015). Under the Revision 2 AEMP design, these stations were reclassified as littoral, based on water depths <12 m (Baffinland 2024).

^d Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

Table C.11: Field Observations for Sediment Cores Collected at Littoral and Profundal Stations in Mary Lake (BL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Sampling Habitat	Station ID	Station Depth (m)	Core Number ^a	Core Length (cm)	Surficial Substrate Colour/Texture Description
Littoral	BL0-01	9	1	20.2	Gray clay
			2	16.5	
			3	20.0	
	BL0-06	5.9	1	9.5	Brown sediment
			2	23.0	
			3	15.5	
	BL0-20	11.4	1	12.0	Brown silt
			2	18.5	
			3	9.2	
	BL0-21	11.6	1	18.0	Dark brown sediment
			2	33.0	
			3	29.0	
	BL0-22	11.9	1	17.0	Light brown sediment
			2	14.2	
			3	13.5	
	BL0-11	6.3	1	12.9	Brown silt and sand
			2	12.5	
			3	12.7	
Profundal	BL0-12	20.9	1	17.5	Reddish/brown silt
			2	27.2	
			3	20.0	
	BL0-10	24.7	1	20.0	Dark brown sediment
			2	21.0	
			3	25.0	
	BL0-08	29.0	1	33.0	Gray clay
			2	33.5	
			3	36.0	

Notes: ID = identifier. m = metres. cm = centimetres.

^a Each of the samples taken from the three cores collected per station were combined to create a single composite sample per station for a total of n = 5 littoral sediment samples and n = 3 profundal samples.

Table C.12: Physical Characteristics, Total Organic Carbon Content, and Nutrient and Metal Concentrations in Sediment Samples from Monitoring Stations in Mary Lake (BL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Parameters		Units	Sediment Quality Guideline (SQG) ^a		AEMP Benchmark ^b	Mary Lake Habitat Type and Station								
						Littoral						Profundal		
			Lower	Upper		BL0-01	BL0-06	BL0-20	BL0-21	BL0-22	BL0-11	BL0-12	BL0-10	BL0-08
Physical Characteristics	Sand	%	-	-	-	21.1	12.9	24.6	10.7	8.50	92.6	27.2	9.60	8.70
	Silt	%	-	-	-	68.8	51.0	66.6	59.1	58.4	5.90	57.7	55.1	56.1
	Clay	%	-	-	-	10.1	36.1	8.80	30.1	33.0	1.50	15.0	35.3	35.3
	Moisture	%	-	-	-	49.4	56.6	40.4	53.2	63.6	22.9	43.6	54.5	60.0
Nutrients/ Organics	TOC	%	1	10	-	1.20	0.850	0.840	0.750	0.930	0.200	0.690	0.840	0.650
	Phosphorus (P)	mg/kg	-	-	2,010	1,010	770	901	848	836	508	720	884	924
Metals ^c	Aluminum (Al)	mg/kg	-	-	-	16,700	27,300	17,100	27,300	30,800	4,560	19,400	29,800	29,600
	Antimony (Sb)	mg/kg	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Arsenic (As)	mg/kg	-	-	11.5	4.26	3.39	2.23	3.22	3.64	0.700	2.43	3.95	3.94
	Barium (Ba)	mg/kg	-	-	-	81.4	95.9	70.7	92.3	104	19.0	71.6	102	107
	Beryllium (Be)	mg/kg	-	-	-	0.780	1.22	0.670	1.17	1.29	0.190	0.800	1.23	1.19
	Bismuth (Bi)	mg/kg	-	-	-	<0.2	0.210	0.210	0.220	0.240	2.66	<0.2	0.270	0.260
	Boron (B)	mg/kg	-	-	-	26.2	37.6	19.4	36.8	44.3	7.10	27.5	39.5	37.3
	Cadmium (Cd)	mg/kg	-	-	2.1	0.103	0.0960	0.0930	0.130	0.156	0.0210	0.114	0.171	0.160
	Calcium (Ca)	mg/kg	-	-	-	12,500	4,380	8,220	5,080	4,900	4,670	4,040	4,810	4,790
	Chromium (Cr)	mg/kg	-	-	99	69.0	87.4	67.8	86.4	97.2	22.8	71.8	100	101
	Cobalt (Co)	mg/kg	-	-	-	14.5	17.0	12.6	16.9	18.7	4.24	13.4	19.0	20.1
	Copper (Cu)	mg/kg	-	-	79	30.1	33.3	23.5	33.5	37.0	6.59	25.0	38.3	38.5
	Iron (Fe)	mg/kg	-	-	68,967	35,400	43,000	37,600	42,600	46,600	12,000	34,200	46,500	44,800
	Lead (Pb)	mg/kg	-	-	63	15.4	22.1	13.0	22.1	24.4	3.71	15.3	24.4	25.0
	Lithium (Li)	mg/kg	-	-	-	28.4	43.9	23.3	43.1	50.0	7.60	28.8	43.5	44.9
	Magnesium (Mg)	mg/kg	-	-	-	18,600	16,900	16,100	17,300	18,800	6,180	13,500	19,400	19,100
	Manganese (Mn)	mg/kg	-	-	4,486	1,230	726	619	651	785	139	1,410	857	4,870
	Mercury (Hg)	mg/kg	-	-	0.33	0.0220	0.0225	0.0160	0.0413	0.0451	<0.005	0.0283	0.0609	0.0521
	Molybdenum (Mo)	mg/kg	25	23,000	-	0.600	0.680	1.11	0.710	0.860	0.170	1.02	0.890	1.73
	Nickel (Ni)	mg/kg	-	-	69	56.3	58.2	50.8	55.4	64.2	19.5	50.5	70.2	70.3
	Potassium (K)	mg/kg	-	-	-	4,030	6,770	3,820	6,760	8,010	1,040	4,640	7,280	7,450
	Selenium (Se)	mg/kg	-	-	-	<0.2	<0.2	<0.2	0.240	0.290	<0.2	<0.2	0.280	0.240
	Silver (Ag)	mg/kg	0.5	-	-	<0.1	<0.1	0.110	0.120	0.130	<0.1	<0.1	0.140	0.140
	Sodium (Na)	mg/kg	-	-	-	273	397	221	435	479	66.0	286	440	471
	Strontium (Sr)	mg/kg	-	-	-	13.8	14.6	9.94	15.2	16.2	5.30	10.7	15.5	15.4
	Sulphur (S)	mg/kg	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
	Thallium (Tl)	mg/kg	-	-	-	0.330	0.551	0.304	0.538	0.594	0.0870	0.360	0.572	0.588
	Tin (Sn)	mg/kg	-	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Titanium (Ti)	mg/kg	-	-	-	1,150	1,730	1,270	1,890	2,030	567	1,400	1,860	1,930
	Uranium (U)	mg/kg	-	-	-	3.80	6.12	4.33	8.51	9.58	1.04	6.06	9.92	8.97
	Vanadium (V)	mg/kg	-	-	-	52.0	71.4	44.0	70.1	77.3	17.5	50.4	74.4	76.7
	Zinc (Zn)	mg/kg	-	-	219	50.2	77.6	51.1	79.4	86.3	16.3	56.3	83.6	86.0
	Zirconium (Zr)	mg/kg	-	-	-	12.7	20.6	15.0	28.2	28.6	4.30	16.3	26.2	27.2

- Indicates a concentration above the lower SQG.
- Indicates a concentration above the lower and upper SQG.
- BOLD**

Indicates a concentration above the AEMP Benchmark.

Notes: AEMP = Aquatic Effects Monitoring Plan. % = percent. - = no SQG or AEMP benchmark. TOC = total organic carbon. < = less than. mg/kg = milligrams per kilogram dry weight.

^a Comparisons to generic SQG derived for other jurisdictions were only applied to parameters without site-specific AEMP benchmarks (i.e., TOC, molybdenum, and silver; see Table 2.6 and Baffinland 2024).

^b AEMP benchmarks for sediment were obtained from Table 3.3 of the Revision 2 AEMP study design (Baffinland 2024). The indicated values are specific to Mary Lake.

^c Parameters included in the multi-element scan are collectively referred to as "metals" in the table.

APPENDIX D
PHYTOPLANKTON

FIGURES

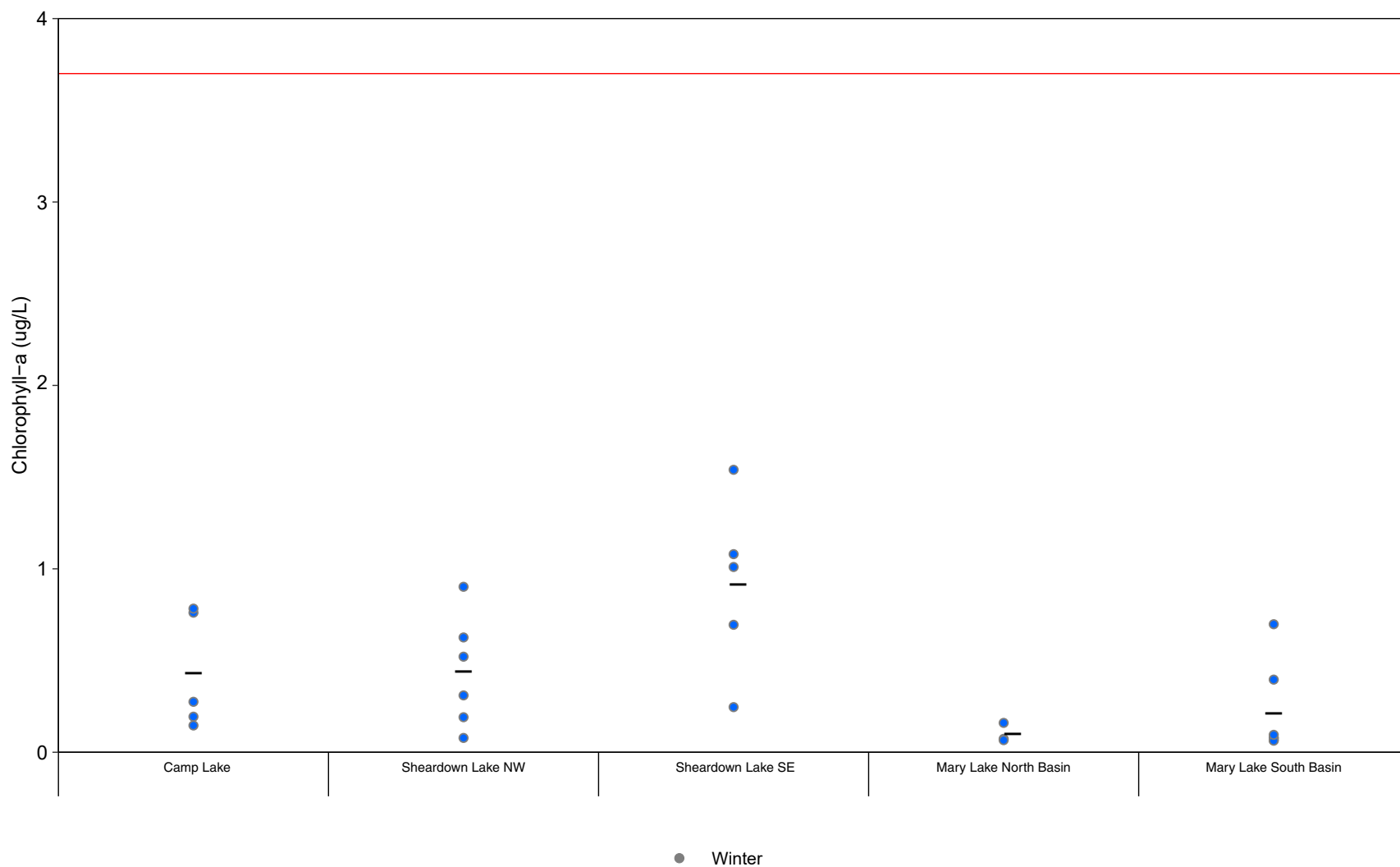


Figure D.1: Chlorophyll-a Concentrations at Phytoplankton Monitoring Stations (bottom) in Camp Lake (JL0), Sheardown Lake NW (DL0-1), Sheardown Lake SE (DL0-2), and Mary Lake (BL0), Mary River Mine Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Concentrations reported below the laboratory reporting limit (LRL) are plotted as open symbols at the LRL. Black horizontal bars represent the measure of central tendency. Red line indicates AEMP Benchmark. Reference areas are shown in green and mine-exposed areas are shown in blue.

TABLES

Table D.1: Phytoplankton Data (chlorophyll-a concentrations) Collected at Lotic (stream) Stations on Camp Lake Tributaries, Camp Lake Outlet, Sheardown Lake Tributaries, and Reference Creeks, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Summary Statistics		Upper Limit of Baseline Normal Range for CLT1 ^a	Upper Limit of Reference Normal Range ^b	Reference Creek Stations				Camp Lake Tributary 1 (CLT1)						Camp Lake Tributary 2	Camp Lake Outlet	Sheardown Lake Tributary 1 (SDLT1)		Sheardown Tributary 12 (SDLT12)	Sheardown Tributary 9 (SDLT9)
								North Branch		Main Stem									
				CLT-REF4	CLT-REF3	MRY-REF3	MRY-REF2	L1-08	L1-02	L2-03	L1-09	L1-05	L0-01			K0-01	J0-01		
Sample Collection Date	Spring	-	-	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	-	29-Jun-25	29-Jun-25	29-Jun-25	29-Jun-25	29-Jun-25	29-Jun-25	-	29-Jun-25	29-Jun-25	-	-
	Spring	-	-	-	-	-	-	1-Jul-25	8-Jul-25	-	8-Jul-25	-	-	-	1-Jul-25	8-Jul-25	-	-	1-Jul-25
	Summer	-	-	2-Aug-25	2-Aug-25	2-Aug-25	2-Aug-25	3-Aug-25	2-Aug-25	1-Aug-25	2-Aug-25	2-Aug-25	2-Aug-25	2-Aug-25	3-Aug-25	1-Aug-25	1-Aug-25	-	1-Aug-25
	Fall	-	-	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	28-Aug-25	28-Aug-25	28-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25	28-Aug-25	28-Aug-25	28-Aug-25	-	28-Aug-25
Chlorophyll-a (µg/L)	Spring	1.80	0.550	0.122	0.132	0.158	0.130	-	0.211	0.633	0.188	0.230	0.193	0.119	-	0.100	0.187	-	-
	Spring	1.80	0.550	-	-	-	-	0.0950	0.203	-	0.322	-	-	-	0.444	0.0820	-	-	0.119
	Summer	-	0.660	0.102	0.336	0.243	0.213	0.122	0.249	1.02	0.414	0.346	0.388	0.179	1.06	0.125	0.252	-	0.120
	Fall	-	1.40	0.122	0.150	0.273	0.266	0.0890	0.279	0.829	0.349	0.259	0.300	0.174	1.25	0.109	0.211	-	0.443
	n	-	-	3	3	3	3	3	4	3	4	3	3	3	3	4	3	-	3
	Mean	-	-	0.115	0.206	0.225	0.203	0.102	0.236	0.827	0.318	0.278	0.294	0.157	0.918	0.104	0.217	-	0.227
	SD	-	-	0.0115	0.113	0.0597	0.0685	0.0176	0.0353	0.194	0.0950	0.0604	0.0977	0.0333	0.421	0.0179	0.0329	-	0.187
	SE	-	-	0.00667	0.0652	0.0344	0.0396	0.0101	0.0176	0.112	0.0475	0.0349	0.0564	0.0192	0.243	0.00897	0.0190	-	0.108

Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

BOLD

Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: - = no sample collected or value not applicable. µg/L = micrograms per litre. n = number of samples. SD = standard deviation. SE = standard error. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a The upper limit of the baseline normal range was calculated as the 95th percentile of concentrations reported for a given area during the baseline period; calculations were only completed for areas with ≥10 baseline period samples.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations.

^c Water levels at D12-1 on SDLT-12 were too low during each of the spring, summer, and fall sampling events to support collection of water samples for analysis of chlorophyll-a concentrations.

Table D.2: Phytoplankton Data (chlorophyll-a concentrations) Collected at Camp Lake (JL0) and Reference Lake (REF-03) Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Depth		Upper Limit of Reference Normal Range a,b	Chlorophyll-a (µg/L) Concentrations at Reference Lake 3 (REF-03)							Chlorophyll-a (µg/L) Concentrations at Camp Lake (JL0)								
			REF-03-01	REF-03-02	REF-03-03	n	Mean	Standard Deviation	Standard Error	JL0-02	JL0-10	JL0-01	JL0-07	JL0-09	n	Mean	Standard Deviation	Standard Error
Sample Collection Date	Winter	-	-	-	-	-	-	-	-	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	12-Apr-25	-	-	-	-
	Summer	-	29-Jul-25	29-Jul-25	29-Jul-25	-	-	-	-	26-Jul-25	-	-	25-Jul-25	25-Jul-25	-	-	-	-
	Fall	-	22-Aug-25	22-Aug-25	22-Aug-25	-	-	-	-	21-Aug-25	-	-	21-Aug-25	21-Aug-25	-	-	-	-
Winter	Surface	-	-	-	-	-	-	-	-	2.75	3.24	3.46	1.63	1.07	5	2.43	1.04	0.464
	Bottom	-	-	-	-	-	-	-	-	0.761	0.783	0.275	0.194	0.146	5	0.432	0.314	0.140
	Mean	-	-	-	-	-	-	-	-	1.76	2.01	1.87	0.912	0.608	5	1.43	0.628	0.281
Summer	Surface	1.36	0.580	0.545	0.540	3	0.555	0.0218	0.0126	0.392	-	-	0.554	0.630	3	0.525	0.122	0.0702
Fall	Surface	0.979	0.690	0.767	0.683	3	0.713	0.0466	0.0269	1.00	-	-	1.17	1.24	3	1.14	0.123	0.0713

BOLD Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: - = no sample collected or value not applicable. µg/L = micrograms per litre. n = number of samples. - = no sample collected or value not applicable. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a Insufficient baseline data were available for Camp Lake to support calculation of a baseline normal range. Therefore, only reference area normal range data are shown in the table.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations. Only data collected from near the lake surface were included in the calculations.

Table D.3: Phytoplankton Data (chlorophyll-a concentrations) Collected at Sheardown Lake Northwest (NW; DL0) and Reference Lake 3 (REF-03) Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Depth		Upper Limit of Reference Normal Range a,b	Chlorophyll-a (µg/L) Concentrations at Reference Lake 3 (REF-03)							Chlorophyll-a (µg/L) Concentrations at Sheardown Lake NW (DL0)									
			REF-03-01	REF-03-02	REF-03-03	n	Mean	Standard Deviation	Standard Error	DD-HAB 9-STN1	DL0-01-5	DL0-01-1	DL0-01-4	DL0-01-2	DL0-01-7	n	Mean	Standard Deviation	Standard Error
Sample Collection Date	Winter	-	-	-	-	-	-	-	-	15-Apr-25	15-Apr-25	16-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	-	-	-	-
	Summer	-	29-Jul-25	29-Jul-25	29-Jul-25	-	-	-	-	24-Jul-25	-	-	-	24-Jul-25	24-Jul-25	-	-	-	-
	Fall	-	22-Aug-25	22-Aug-25	22-Aug-25	-	-	-	-	21-Aug-25	-	-	-	21-Aug-25	21-Aug-25	-	-	-	-
Winter	Surface	-	-	-	-	-	-	-	-	0.749	0.509	0.732	0.919	0.717	0.874	6	0.735	0.161	0.0656
	Bottom	-	-	-	-	-	-	-	-	0.521	0.0780	0.191	0.902	0.310	0.626	6	0.304	0.338	0.138
	Mean	-	-	-	-	-	-	-	-	0.635	0.294	0.462	0.910	0.514	0.750	6	0.544	0.244	0.100
Summer	Surface	1.36	0.580	0.545	0.540	3	0.555	0.0218	0.0126	0.650	-	-	-	0.685	0.845	3	0.761	0.113	0.0653
Fall	Surface	0.979	0.690	0.767	0.683	3	0.713	0.0466	0.0269	0.746	-	-	-	0.706	0.842	3	0.771	0.0962	0.0555

BOLD Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: - = no sample collected or value not applicable. µg/L = micrograms per litre. n = number of samples. - = no sample collected or value not applicable. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a Insufficient baseline data were available for Sheardown Lake NW to support calculation of a baseline normal range. Therefore, only reference area normal range data are shown in the table.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations. Only data collected from near the lake surface were included in the calculations.

Table D.4: Phytoplankton Data (chlorophyll-a concentrations) Collected at Sheardown Lake Southeast (SE; DL0-02) and Reference Lake 3 (REF-03) Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Depth		Upper Limit of Reference Normal Range a,b	Chlorophyll-a (µg/L) Concentrations at Reference Lake 3 (REF-03)							Chlorophyll-a (µg/L) Concentrations at Sheardown Lake SE (DL0-02)								
			REF-03-01	REF-03-02	REF-03-03	n	Mean	Standard Deviation	Standard Error	DL0-02-06	DL0-02-07	DL0-02-4	DL0-02-8	DL0-02-03	n	Mean	Standard Deviation	Standard Error
Sample Collection Date	Winter	-	-	-	-	-	-	-	-	19-Apr-25	19-Apr-25	19-Apr-25	19-Apr-25	16-Apr-25	-	-	-	-
	Summer	-	29-Jul-25	29-Jul-25	29-Jul-25	-	-	-	-	28-Jul-25	-	28-Jul-25	-	28-Jul-25	-	-	-	-
	Fall	-	22-Aug-25	22-Aug-25	22-Aug-25	-	-	-	-	21-Aug-25	-	21-Aug-25	-	21-Aug-25	-	-	-	-
Winter	Surface	-	-	-	-	-	-	-	-	0.946	1.33	1.88	0.852	1.50	5	1.30	0.419	0.188
	Bottom	-	-	-	-	-	-	-	-	0.246	1.08	1.54	1.01	0.695	5	0.914	0.480	0.215
	Mean	-	-	-	-	-	-	-	-	0.596	1.20	1.71	0.931	1.10	5	1.11	0.408	0.182
Summer	Surface	1.36	0.580	0.545	0.540	3	0.555	0.0218	0.0126	1.55	-	2.10	-	1.90	3	1.85	0.278	0.161
Fall	Surface	0.979	0.690	0.767	0.683	3	0.713	0.0466	0.0269	1.31	-	1.23	-	1.36	3	1.30	0.0656	0.0379

BOLD

Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: - = no sample collected or value not applicable. µg/L = micrograms per litre. n = number of samples. - = no sample collected or value not applicable. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a Insufficient baseline data were available for Sheardown Lake sEto support calculation of a baseline normal range. Therefore, only reference area normal range data are shown in the table.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations. Only data collected from near the lake surface were included in the calculations.

Table D.5: Phytoplankton Data (chlorophyll-a concentrations) Collected at Lotic (stream/river) Stations on Tom River and Reference Creeks, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Summary Statistics		Upper Limit of Baseline Normal Range ^a	Upper Limit of Reference Normal Range ^b	Reference Creek Stations				Tom River	
				CLT-REF4	CLT-REF3	MRY-REF3	MRY-REF2	I0-01	I0-02
Sample Collection Date	Spring	-	-	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	1-Jul-25	1-Jul-25
	summer	-	-	2-Aug-25	2-Aug-25	2-Aug-25	2-Aug-25	3-Aug-25	4-Aug-25
	Fall	-	-	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	28-Aug-25	28-Aug-25
Chlorophyll-a (µg/L)	Spring	1.70	0.900	0.122	0.132	0.158	0.130	0.136	0.507
	Summer	1.40	2.00	0.102	0.336	0.243	0.213	0.134	0.176
	Fall	2.40	0.850	0.122	0.150	0.273	0.266	0.164	0.153
	n	-	-	3	3	3	3	3	3
	Mean	-	-	0.115	0.206	0.225	0.203	0.145	0.279
	SD	-	-	0.0115	0.113	0.0597	0.0685	0.0168	0.198
	SE	-	-	0.00667	0.0652	0.0344	0.0396	0.00968	0.114

Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

BOLD

Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: - = no sample collected or value not applicable. µg/L = micrograms per litre. n = number of samples. SD = standard deviation. SE = standard error. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a The upper limit of the baseline normal range was calculated as the 95th percentile of concentrations reported for a given area during the baseline period; calculations were only completed for areas with ≥10 baseline period samples.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations.

Table D.6: Phytoplankton Data (chlorophyll-a concentrations) Collected at Lotic (stream/river) Stations on Mary River Tributary-F and Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Summary Statistics		Upper Limit of Baseline Normal Range ^a	Upper Limit of Reference Normal Range ^b	Mary River Main Stem Reference Stations			Mary River Tributary-F	Mary River Main Stem								
								Upstream Mine-exposed		Mine-exposed				Downstream Mine-exposed		
				G0-09-A	G0-09	G0-09-B	F0-01	G0-03	G0-01	E0-10	E0-03	E0-21	E0-20	C0-10	C0-05	C0-01
Sample Collection Date	Spring	-	-	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	30-Jun-25	1-Jul-25	1-Jul-25	1-Jul-25
	Summer	-	-	-	-	-	-	-	-	-	2-Aug-25	2-Aug-25	2-Aug-25	-	-	-
		-	-	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25	3-Aug-25
	Fall	-	-	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	26-Aug-25	27-Aug-25	27-Aug-25	27-Aug-25
Chlorophyll-a (µg/L)	Spring	1.70	0.900	0.146	0.171	0.156	0.173	0.140	0.160	0.128	0.128	0.145	0.147	0.141	0.276	0.204
	Summer	1.40	2.00	-	-	-	-	-	-	-	0.270	0.350	0.507	-	-	-
		1.40	2.00	0.345	0.252	0.234	0.188	0.138	0.136	0.164	0.165	0.246	0.388	0.277	0.302	0.214
	Fall	2.40	0.850	0.302	0.234	0.169	0.212	0.154	0.236	0.153	0.168	0.267	0.172	0.213	0.267	0.261
	n	-	-	3	3	3	3	3	3	3	4	4	4	3	3	3
	Mean	-	-	0.264	0.219	0.186	0.191	0.144	0.177	0.148	0.183	0.252	0.304	0.210	0.282	0.226
	SD	-	-	0.105	0.0425	0.0418	0.0197	0.00872	0.0522	0.0184	0.0609	0.0843	0.174	0.0680	0.0182	0.0304
	SE	-	-	0.0605	0.0246	0.0241	0.0114	0.00503	0.0301	0.0107	0.0305	0.0421	0.0868	0.0393	0.0105	0.0176

Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of baseline values.

BOLDIndicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: - = no sample collected or value not applicable. µg/L = micrograms per litre. n = number of samples. SD = standard deviation. SE = standard error. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a The upper limit of the baseline normal range was calculated as the 95th percentile of concentrations reported for a given area during the baseline period; calculations were only completed for areas with ≥10 baseline period samples.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations.

Table D.7: Phytoplankton Data (chlorophyll-a concentrations) Collected at Mary Lake North Basin (BL0-01), Mary Lake South Basin (BL0), and Reference Lake 3 (REF-03) Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Depth		Upper Limit of Reference Normal Range ^{a,b}	Chlorophyll-a (µg/L) Concentrations at Reference Lake 3 (REF-03)							Chlorophyll-a (µg/L) Concentrations at Mary Lake North Basin (BL0-01)						
			REF-03-01	REF-03-02	REF-03-03	n	Mean	Standard Deviation	Standard Error	BL0-01-A	BL0-01	BL0-01-B	n	Mean	Standard Deviation	Standard Error
Sample Collection Date	Winter	-	-	-	-	-	-	-	-	14-Apr-25	14-Apr-25	14-Apr-25	-	-	-	-
	Summer	-	29-Jul-25	29-Jul-25	29-Jul-25	-	-	-	-	27-Jul-25	27-Jul-25	27-Jul-25	-	-	-	-
	Fall	-	22-Aug-25	22-Aug-25	22-Aug-25	-	-	-	-	23-Aug-25	23-Aug-25	23-Aug-25	-	-	-	-
Winter	Surface	-	-	-	-	-	-	-	-	0.303	0.493	0.395	3	0.397	0.0950	0.0549
	Bottom	-	-	-	-	-	-	-	-	0.0730	0.0660	0.160	3	0.0997	0.0524	0.0302
	Mean	-	-	-	-	-	-	-	-	0.188	0.280	0.278	3	0.248	0.0523	0.0302
Summer	Surface	1.36	0.580	0.545	0.540	3	0.555	0.0218	0.0126	0.758	0.703	0.766	3	0.742	0.0343	0.0198
Fall	Surface	0.979	0.690	0.767	0.683	3	0.713	0.0466	0.0269	0.558	0.690	0.536	3	0.595	0.0833	0.0481

BOLD

 Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: µg/L = micrograms per litre. n = number of samples. - = no sample collected or value not applicable. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a Insufficient baseline data were available for Mary Lake to support calculation of a baseline normal range. Therefore, only reference area normal range data are shown in the table.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations. Only data collected from near the lake surface were included in the calculations.

Table D.7: Phytoplankton Data (chlorophyll-a concentrations) Collected at Mary Lake North Basin (BL0-01), Mary Lake South Basin (BL0), and Reference Lake 3 (REF-03) Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Sampling Season/Depth		Upper Limit of Reference Normal Range ^{a,b}	Chlorophyll-a (µg/L) Concentrations at Mary Lake South Basin (BL0)										
			BL0-05-A	BL0-05	BL0-05-B	BL0-03	BL0-04	BL0-09	BL0-06	n	Mean	Standard Deviation	Standard Error
Sample Collection Date	Winter	-	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	17-Apr-25	-	-	-	-
	Summer	-	-	26-Jul-25	-	-	-	26-Jul-25	26-Jul-25	-	-	-	-
	Fall	-	-	23-Aug-25	-	-	-	23-Aug-25	23-Aug-25	-	-	-	-
Winter	Surface	-	0.798	1.35	1.87	0.910	0.429	0.577	1.27	7	1.03	0.500	0.189
	Bottom	-	0.0780	0.698	0.396	0.0780	0.0660	0.0630	0.0950	7	0.211	0.246	0.0930
	Mean	-	0.438	1.02	1.13	0.494	0.248	0.320	0.682	7	0.620	0.344	0.130
Summer	Surface	1.36	-	0.701	-	-	-	1.07	1.03	3	0.934	0.202	0.117
Fall	Surface	0.979	-	0.687	-	-	-	0.672	0.737	3	0.699	0.0340	0.0196

BOLD

 Indicates a concentration above the upper limit of the normal range (95th percentile concentration) of background (i.e., reference) values.

Notes: µg/L = micrograms per litre. n = number of samples. - = no sample collected or value not applicable. None of the chlorophyll-a concentrations in the table are above the 3.7 µg/L Aquatic Effects Monitoring Plan (AEMP) benchmark (Baffinland 2024).

^a Insufficient baseline data were available for Mary Lake to support calculation of a baseline normal range. Therefore, only reference area normal range data are shown in the table.

^b The upper limit of the reference normal range was calculated as the 95th percentile of reference area concentrations. Only data collected from near the lake surface were included in the calculations.

APPENDIX E
BENTHIC INVERTEBRATE COMMUNITY

FIGURES

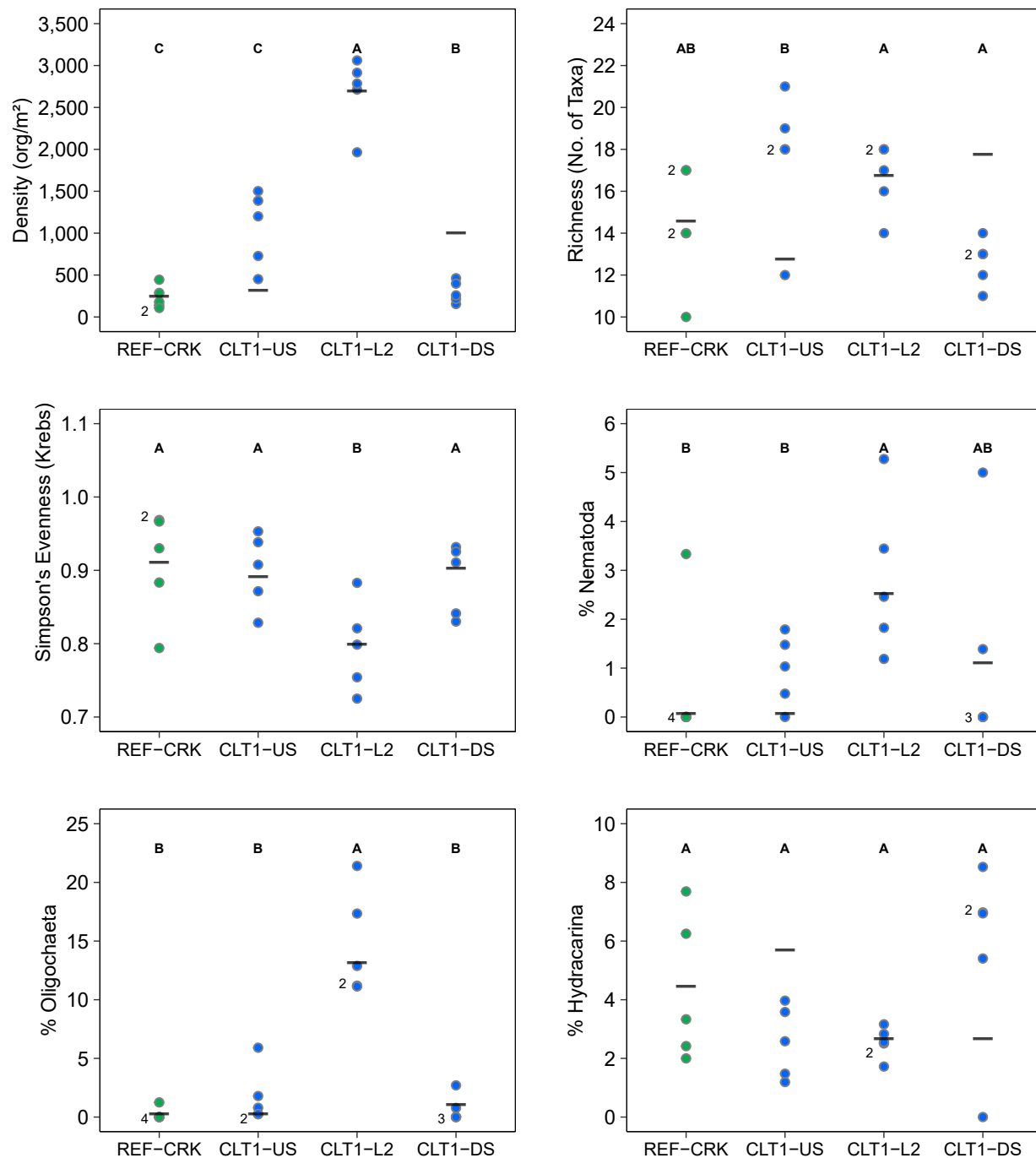


Figure E1: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK) Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. CLT1-US = CLT1 North Branch, CLT1-L2 = CLT1 Upper Main Stem, CLT1-DS = CLT1 Lower Main Stem.

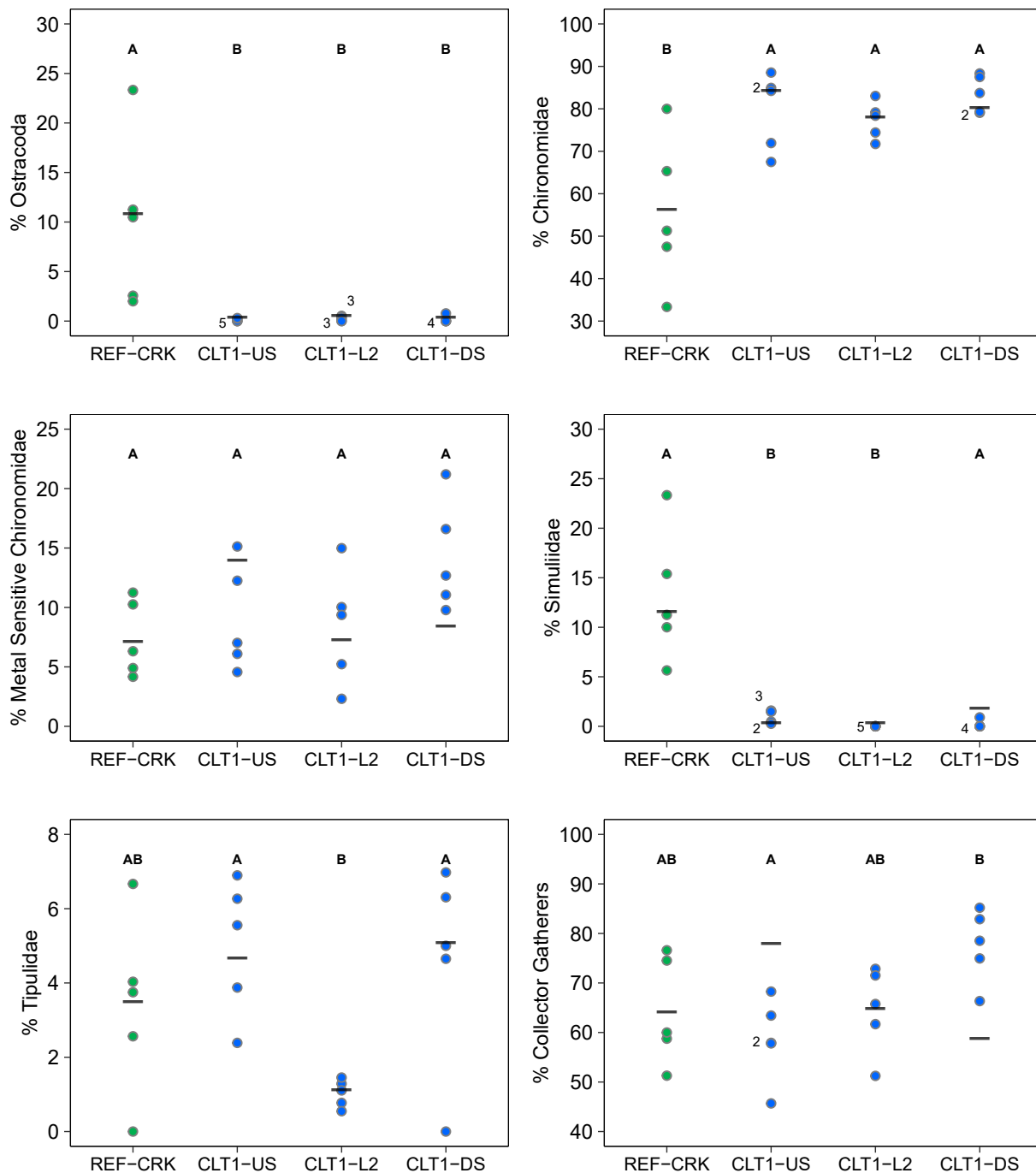


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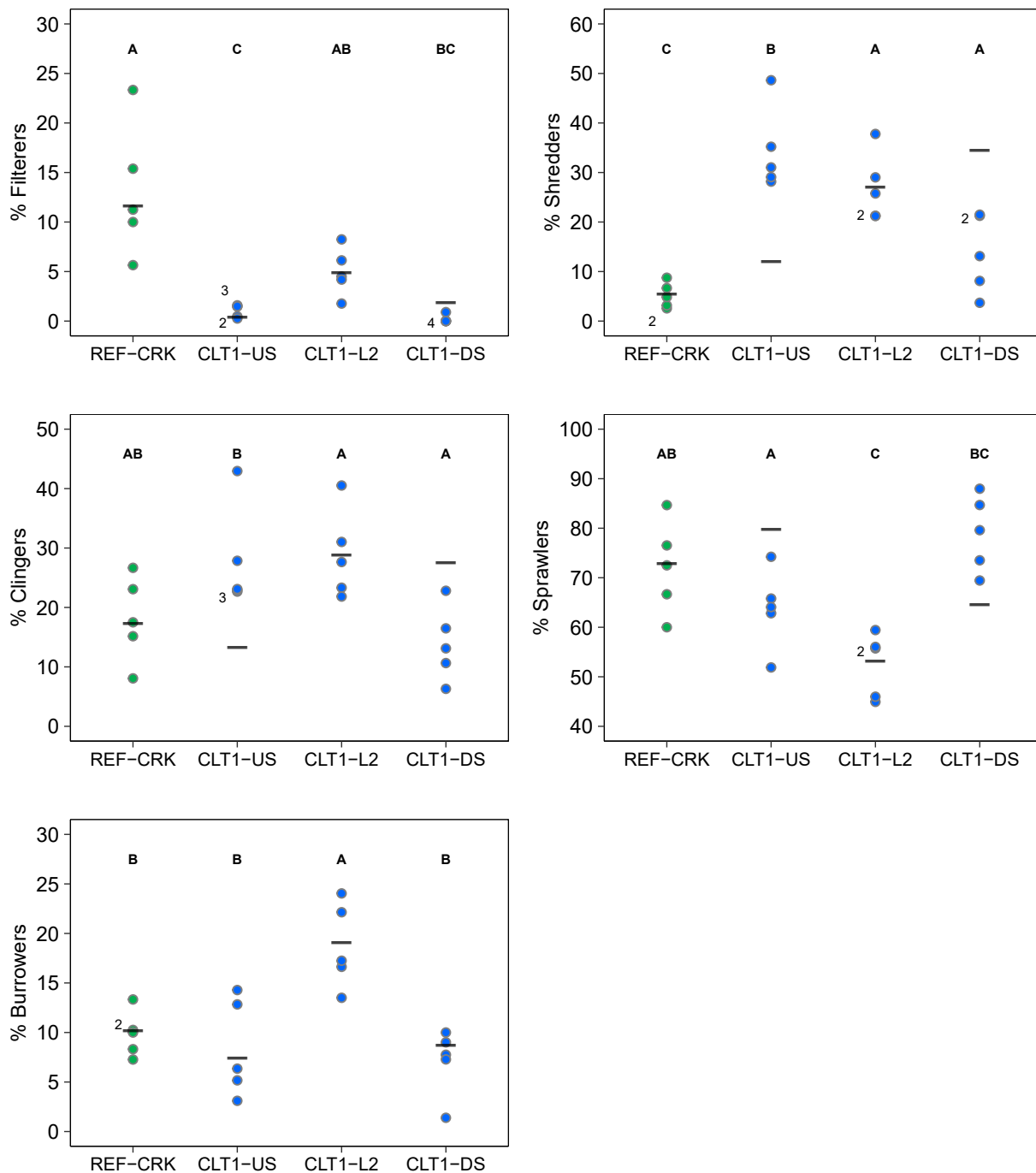


Figure E1: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK) Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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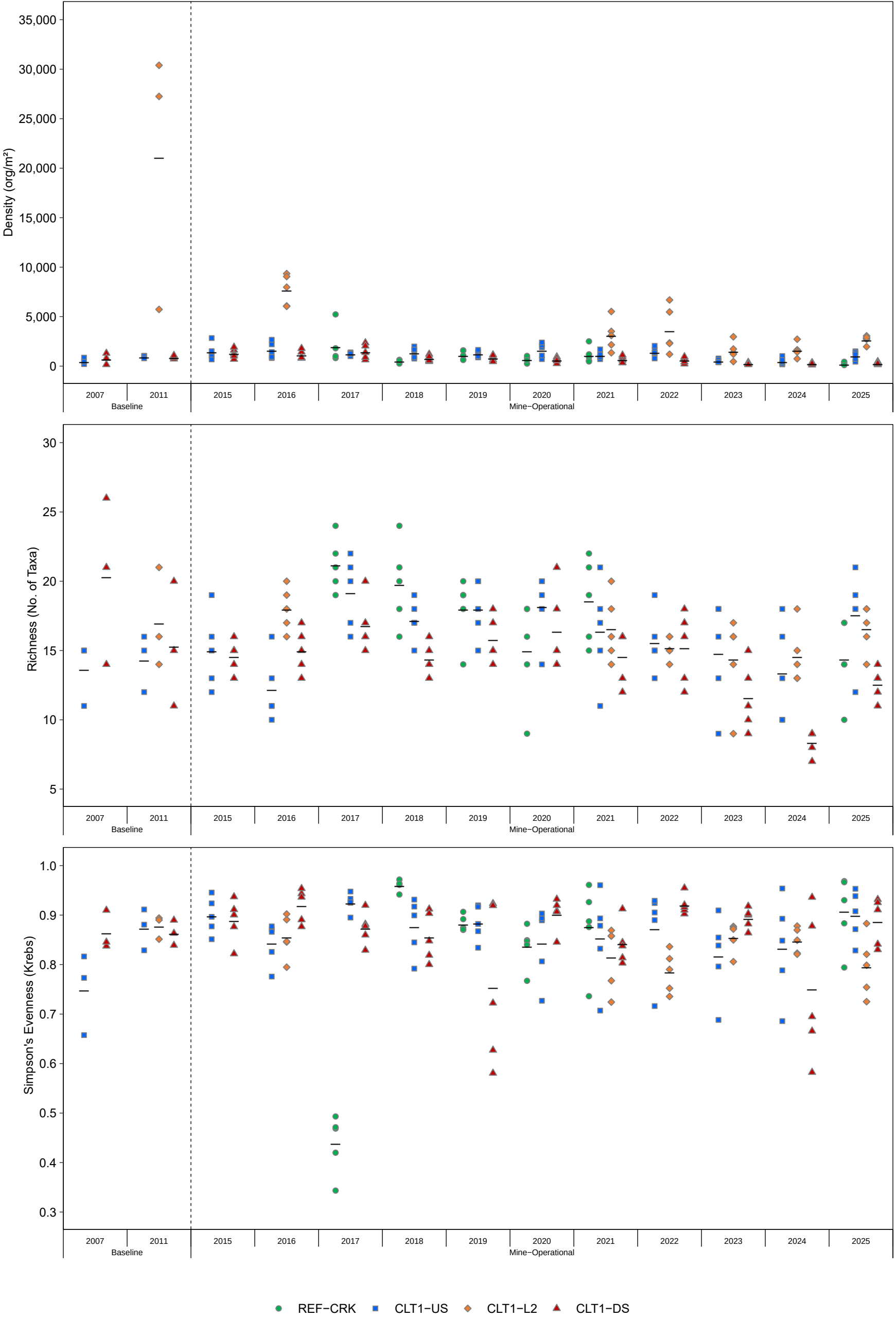


Figure E.2: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2011) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

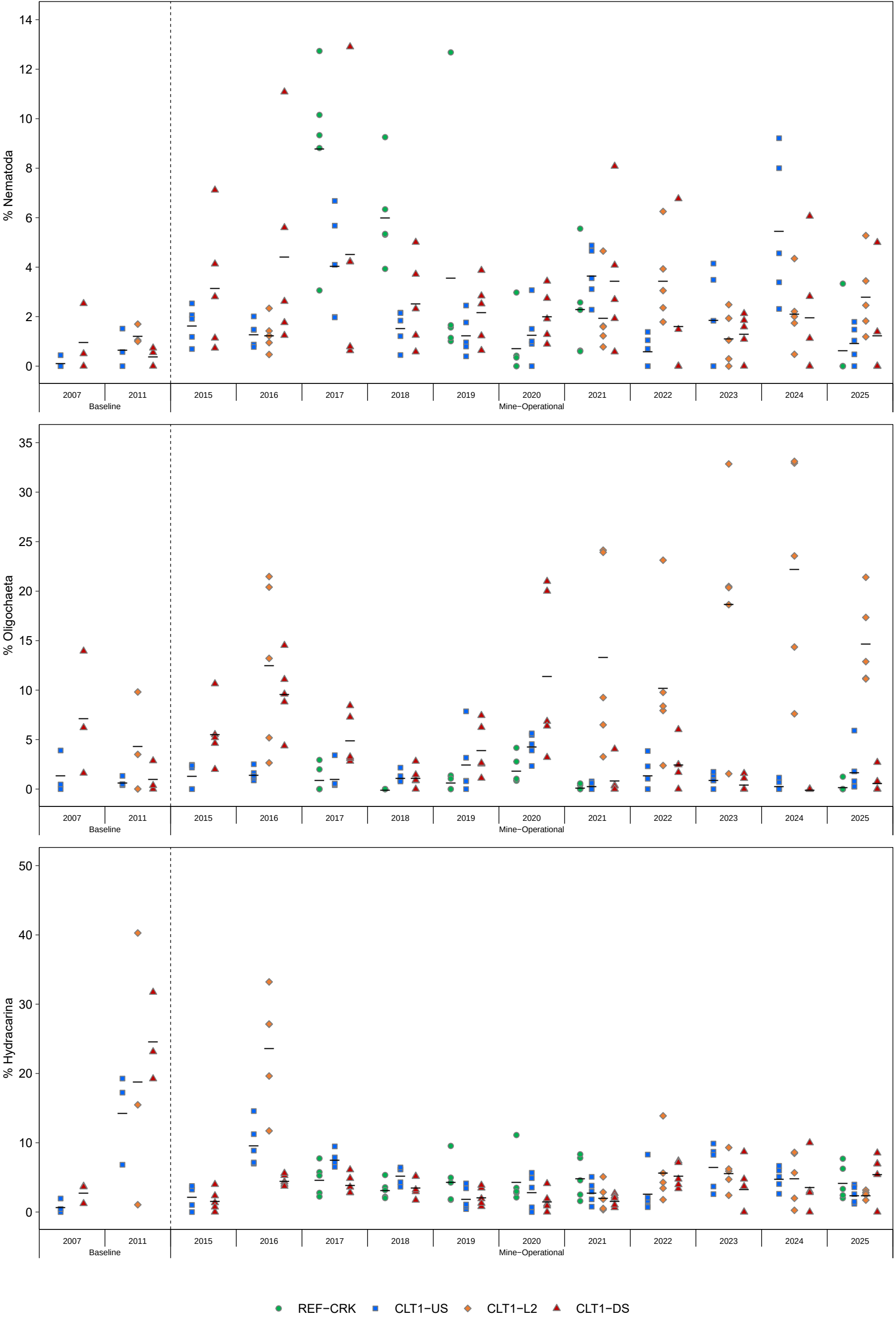


Figure E.2: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2011) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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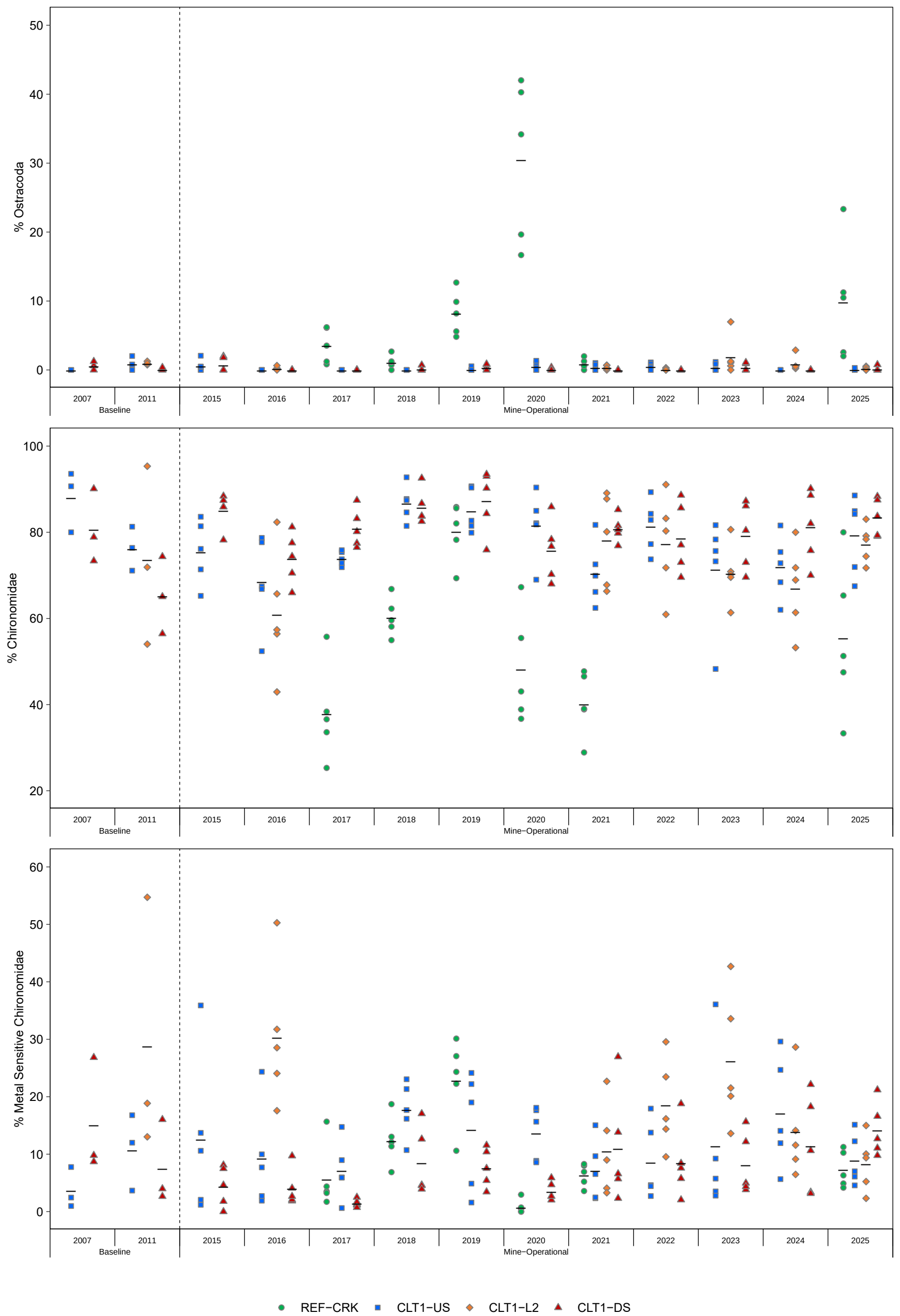


Figure E.2: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2011) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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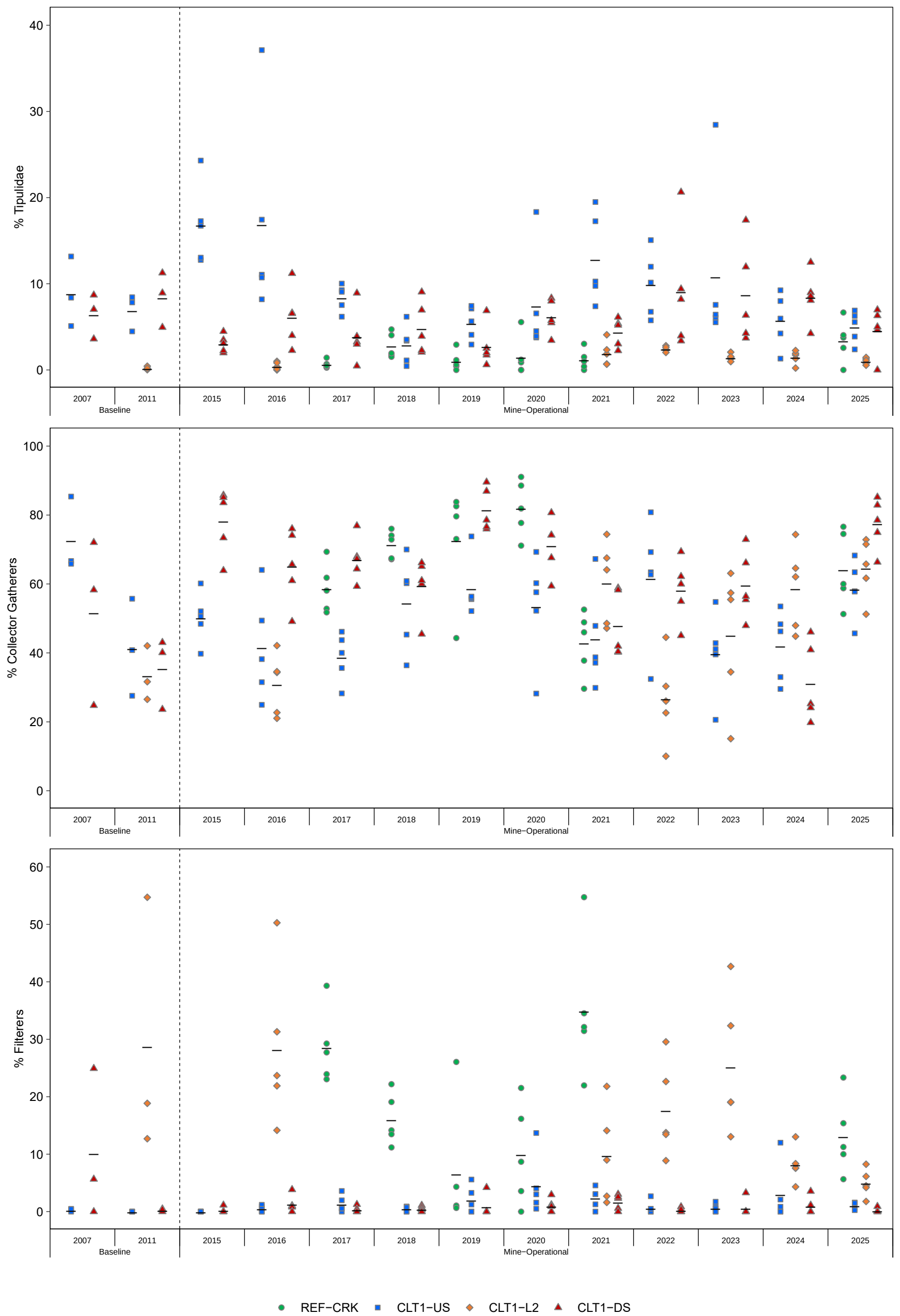


Figure E.2: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2011) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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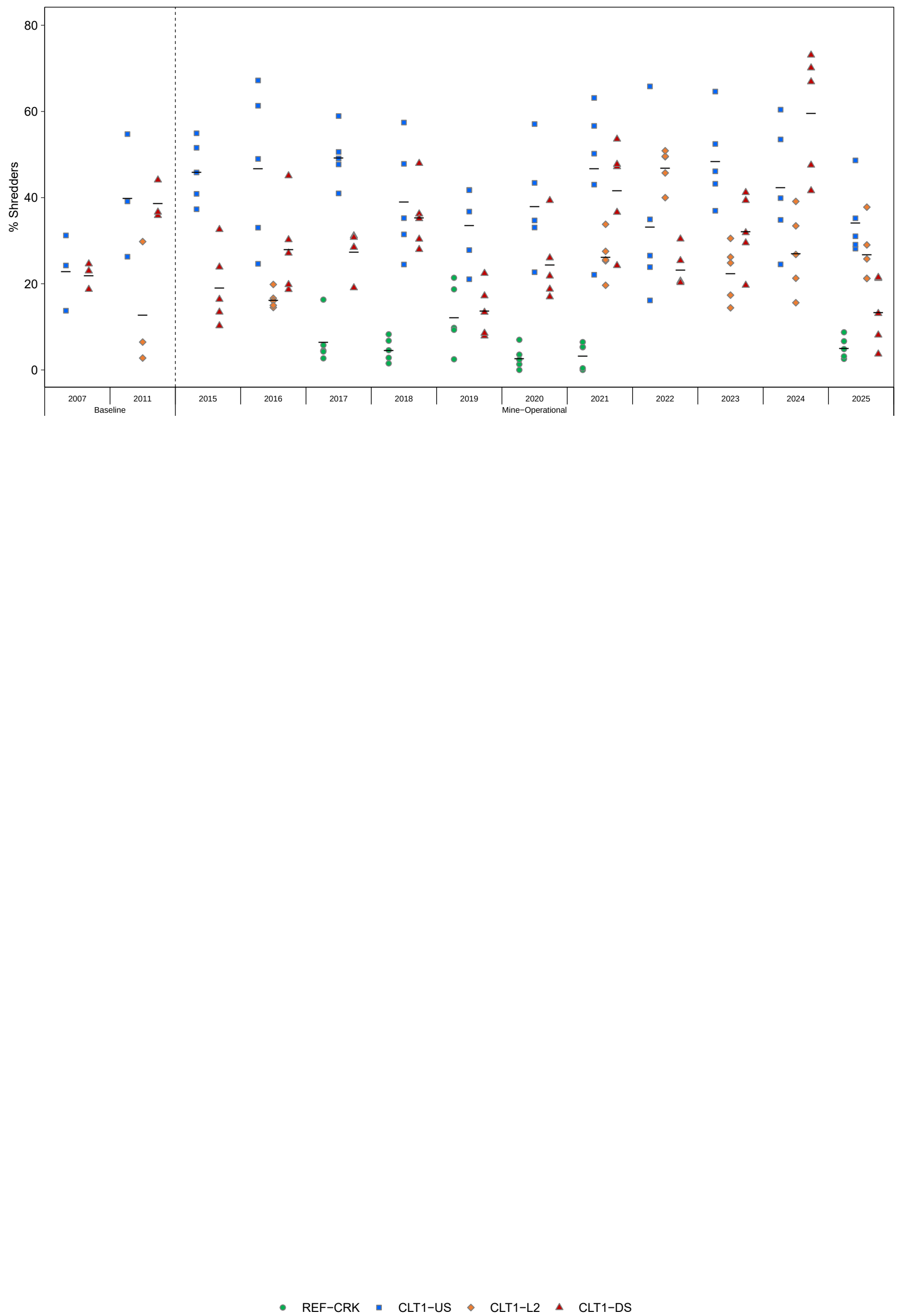


Figure E.2: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2011) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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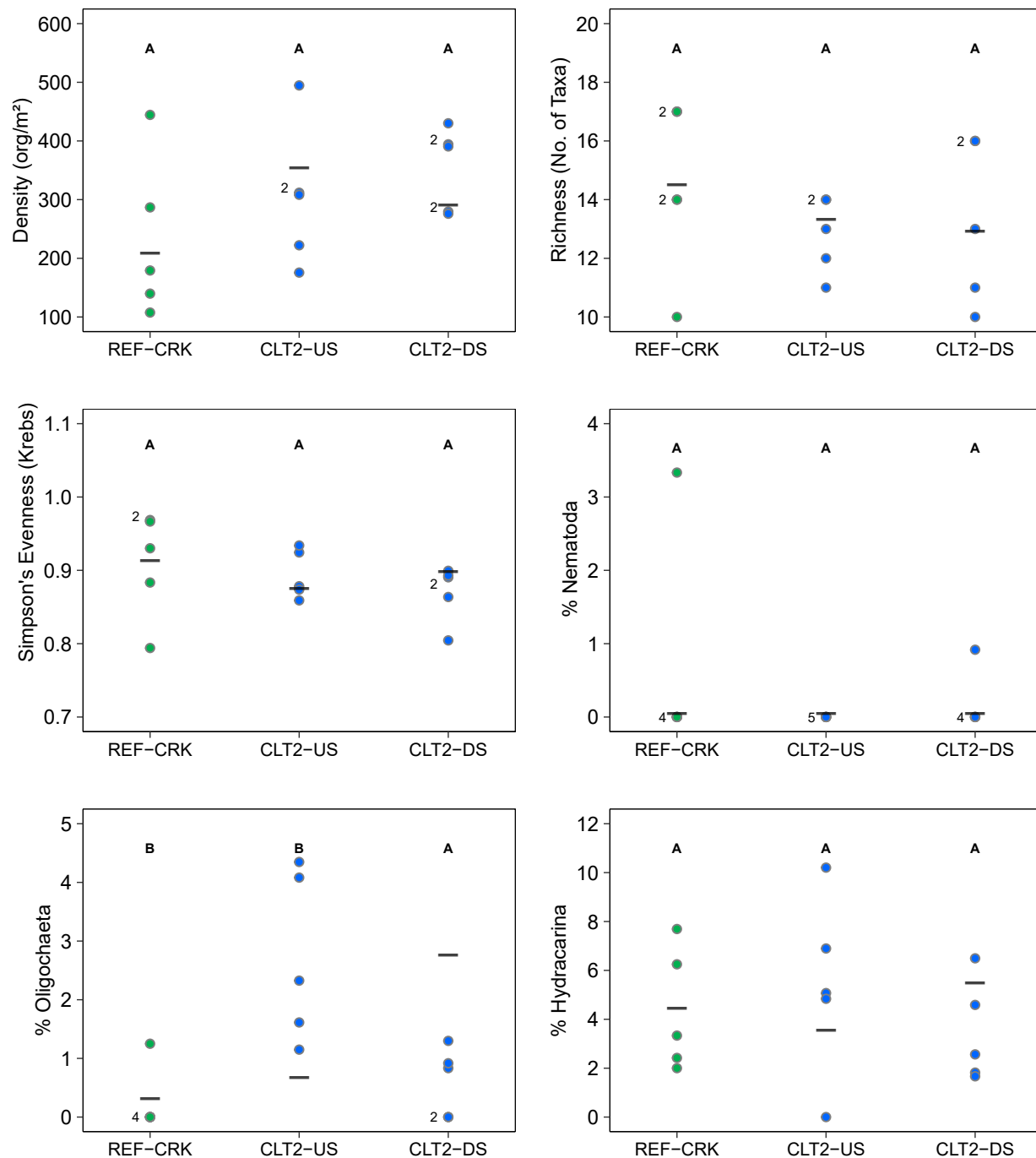


Figure E3: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK) Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. CLT2 - US = CLT2 Upstream, CLT2-DS = CLT2 Downstream.

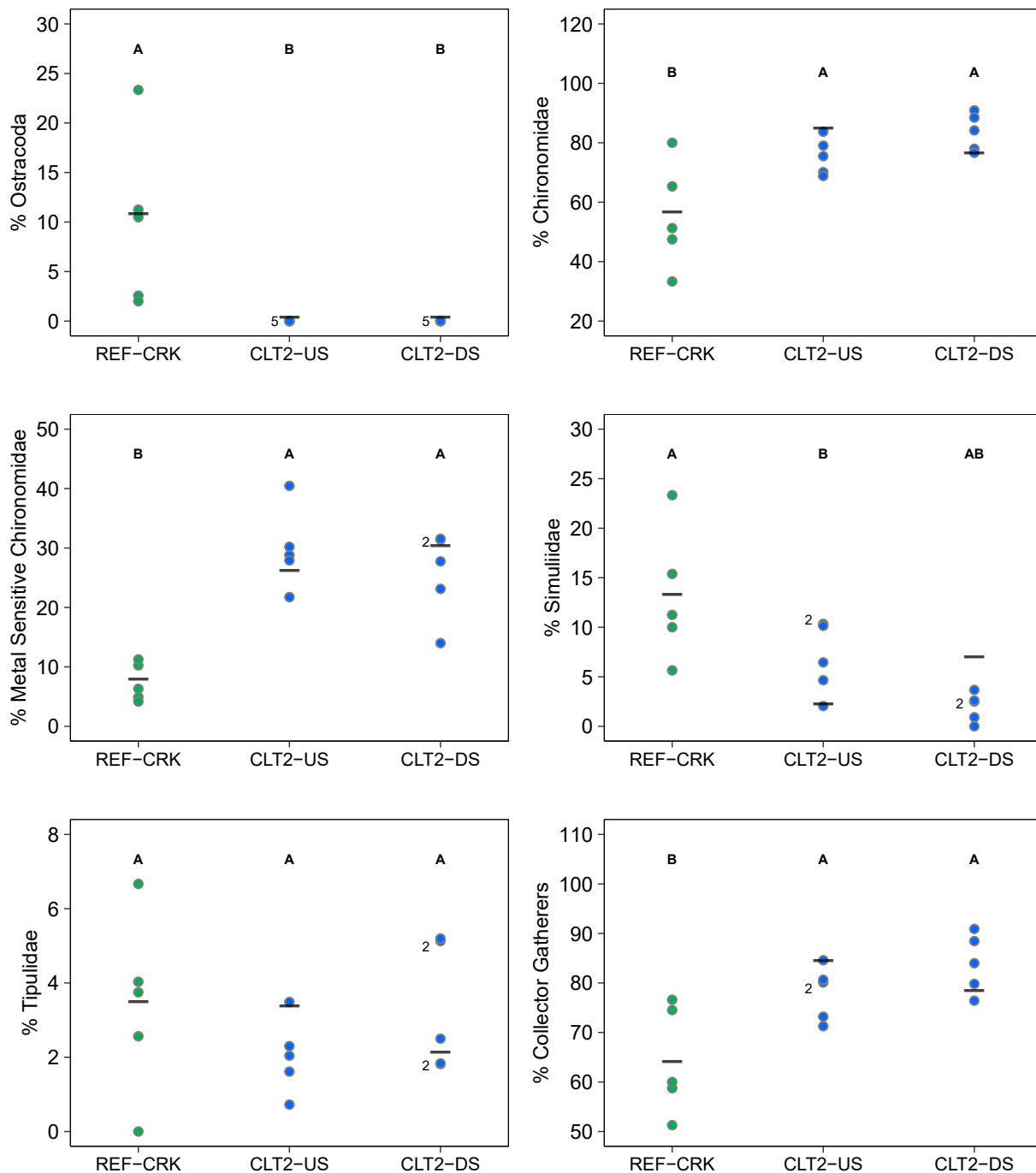


Figure E3: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK) Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. CLT2 - US = CLT2 Upstream, CLT2-DS = CLT2 Downstream.

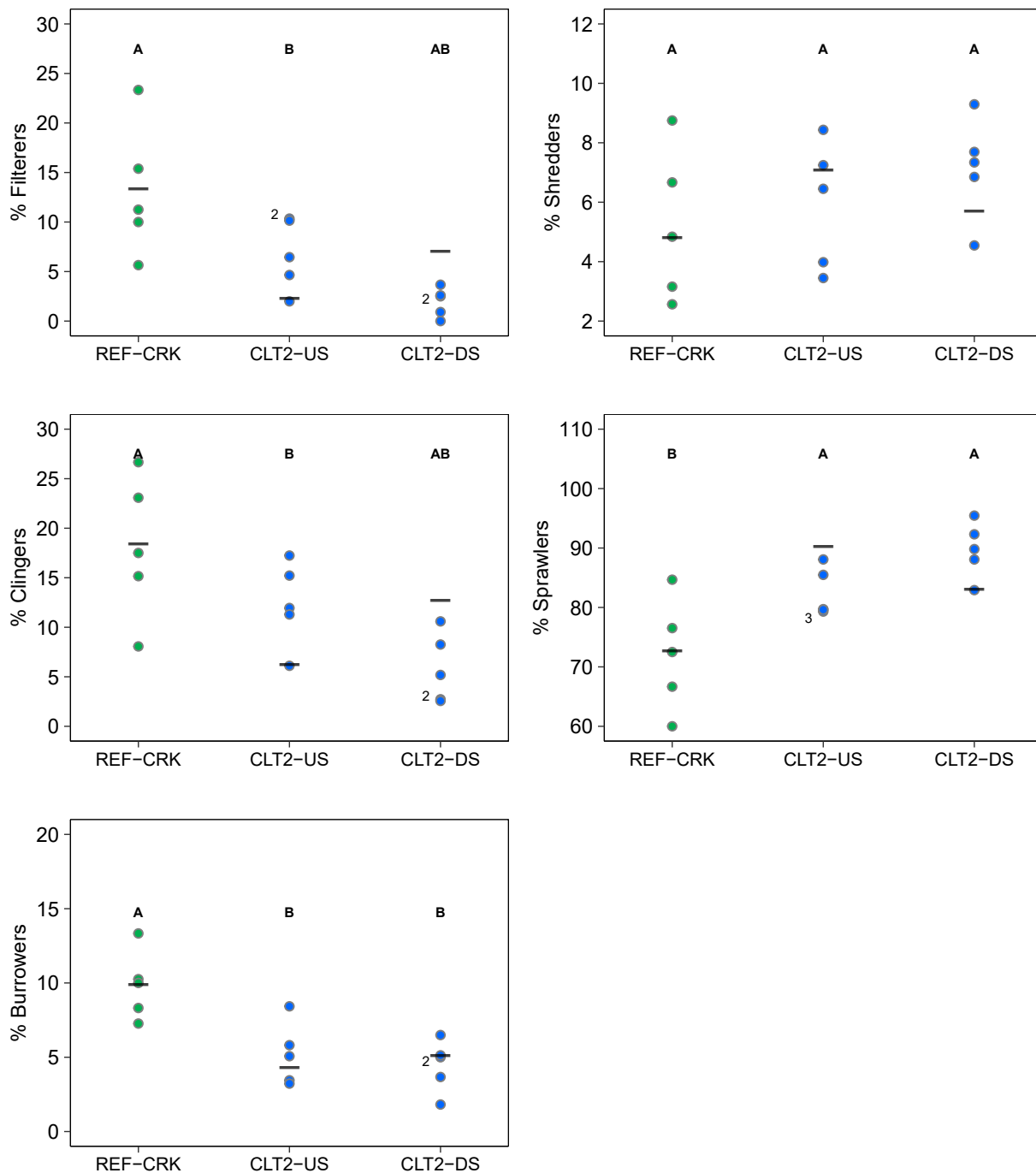


Figure E.3: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK) Areas, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. CLT2 - US = CLT2 Upstream, CLT2-DS = CLT2 Downstream.

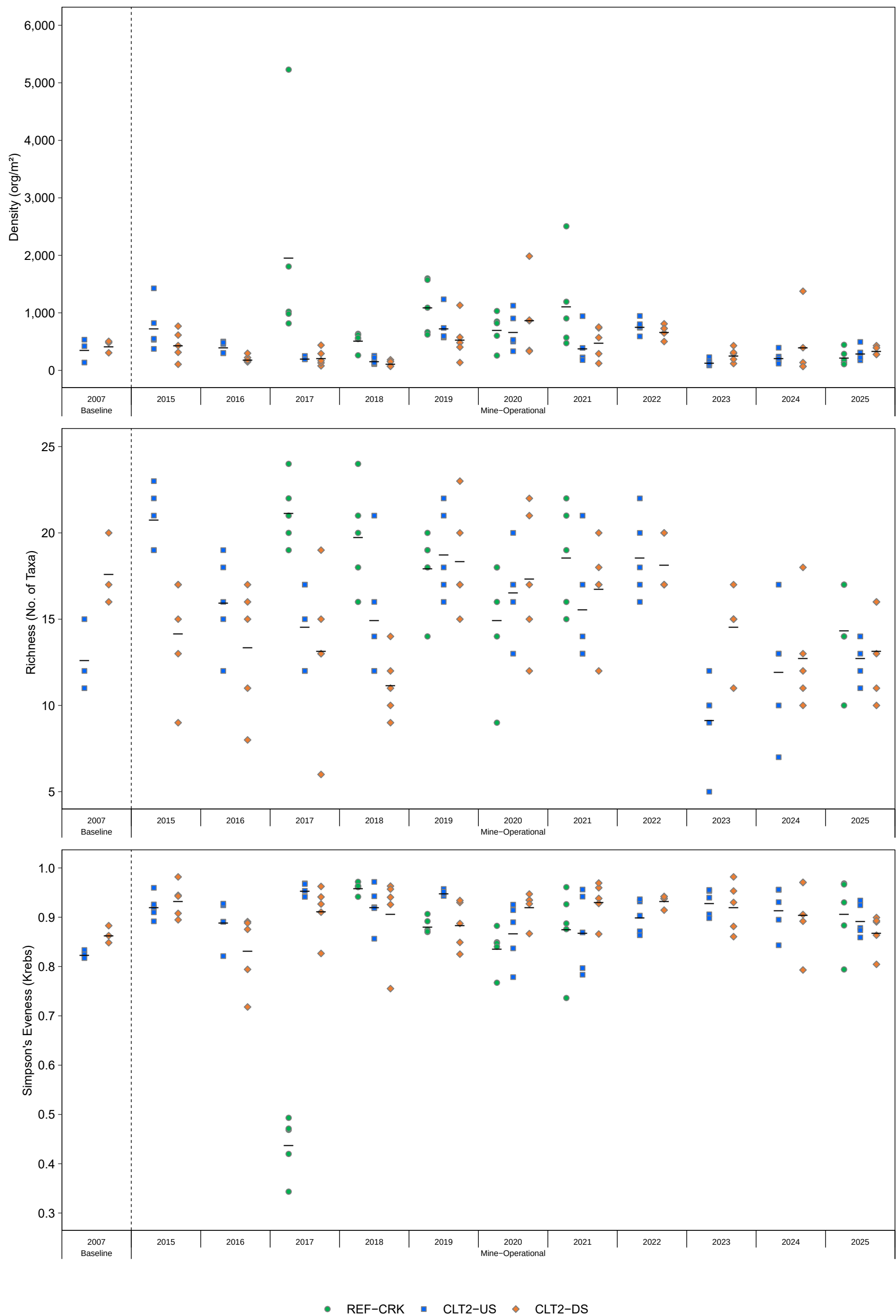


Figure E.4: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

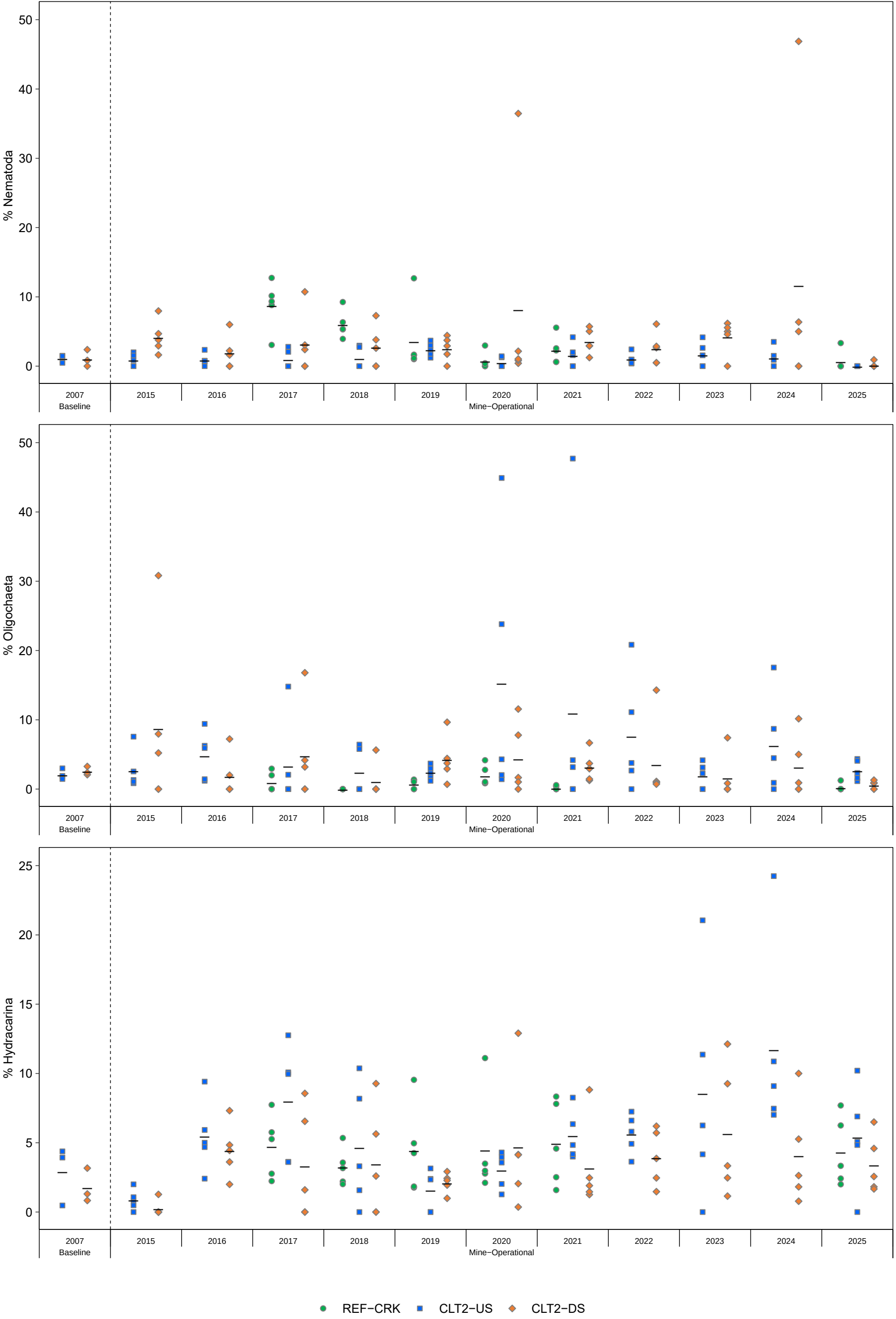


Figure E.4: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

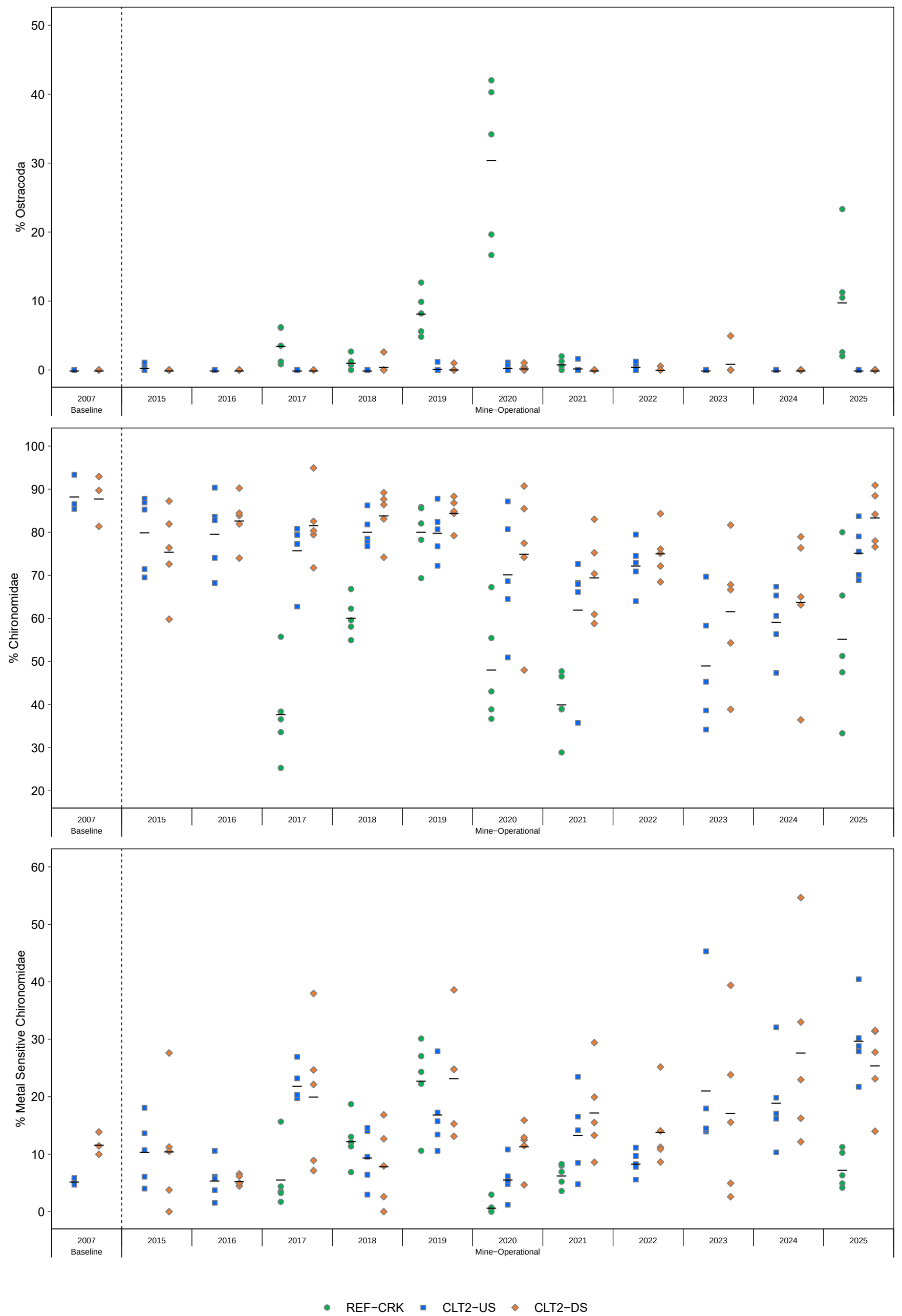


Figure E.4: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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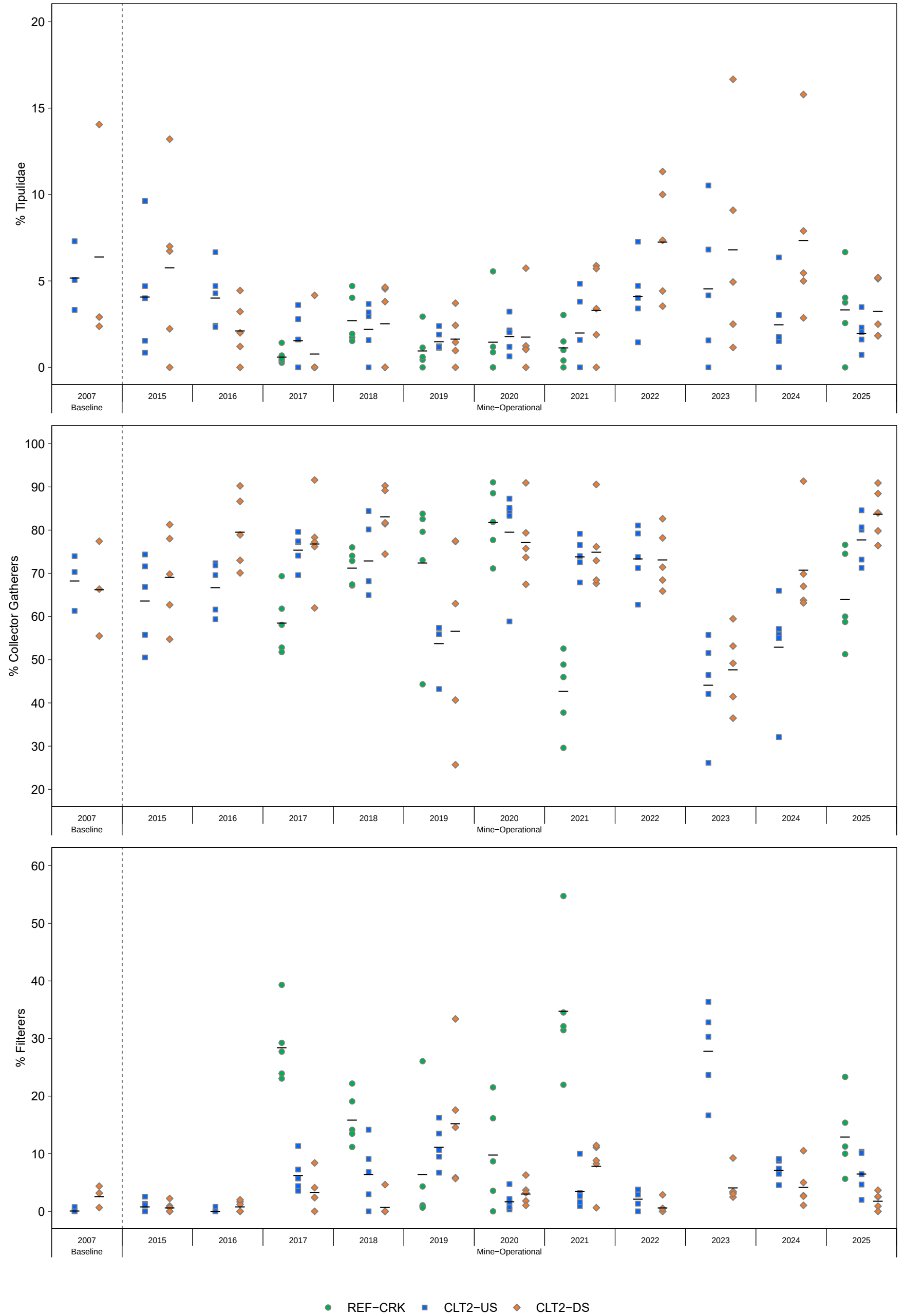


Figure E.4: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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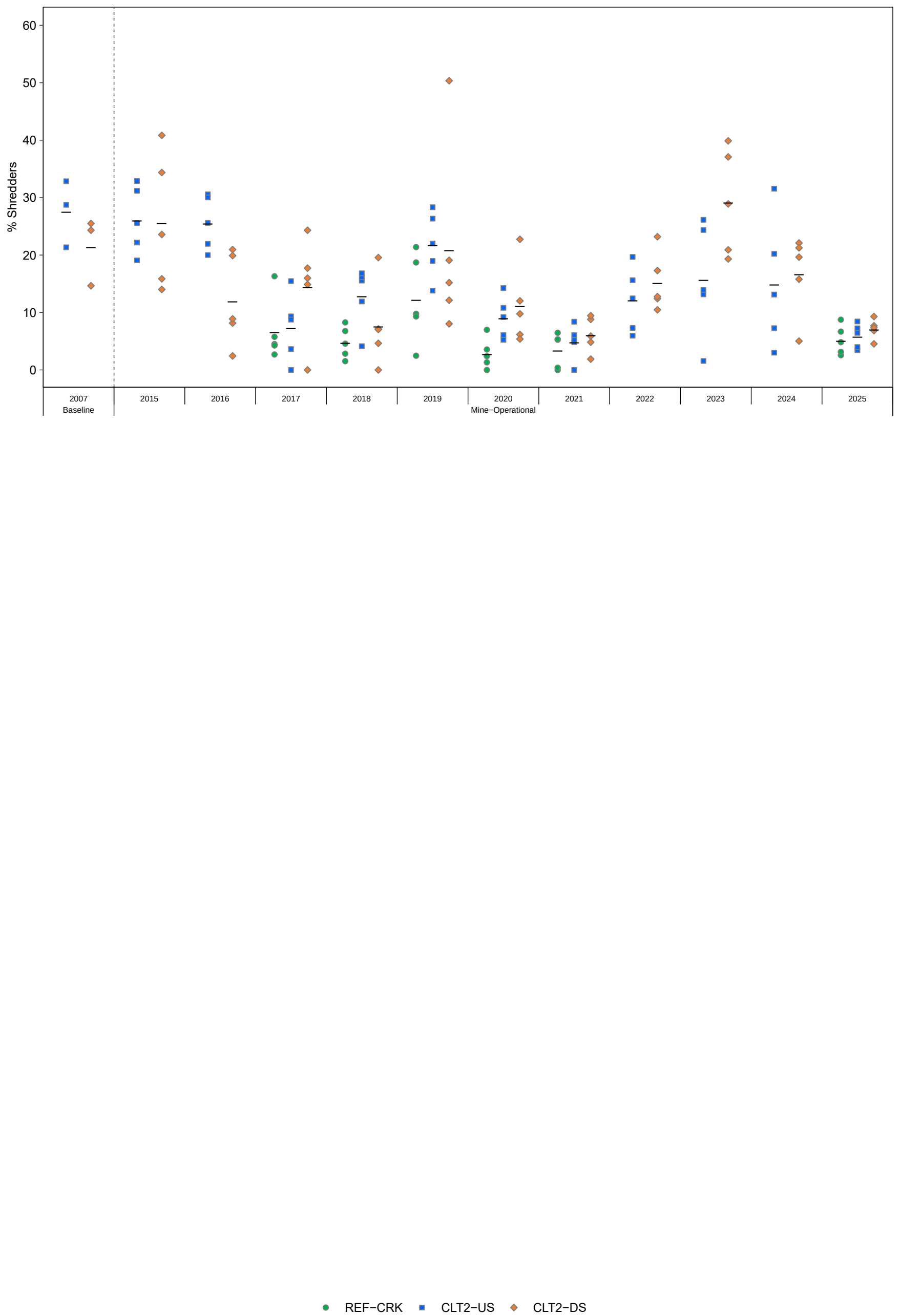


Figure E.4: Benthic Invertebrate Community Endpoints at Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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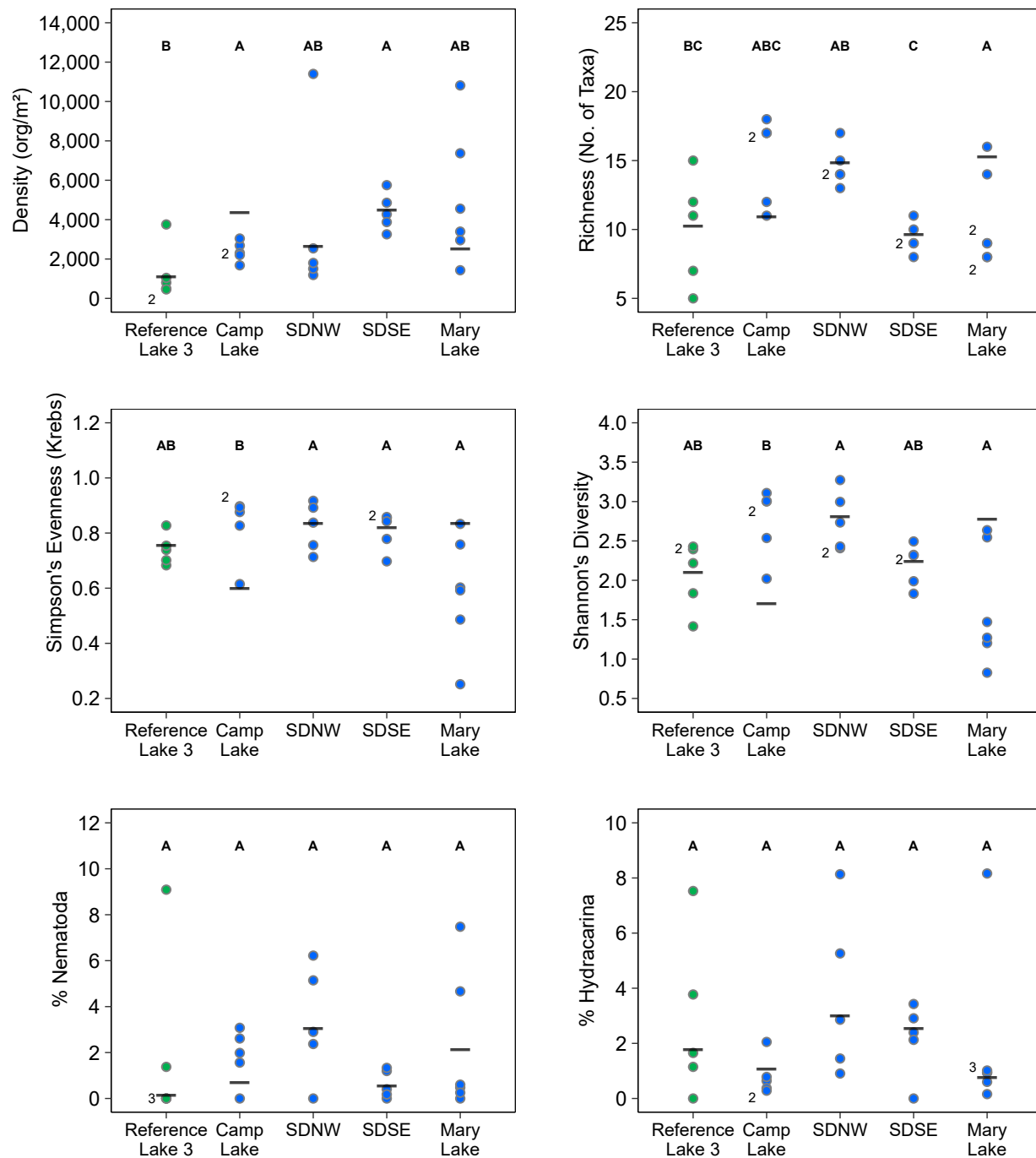


Figure E5: Benthic Invertebrate Community Endpoints for Littoral Stations at Mine-Exposed Lakes and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. SDSE = Sheardown Lake Southeast (SE); SDNW = Sheardown Lake Northwest (NW).

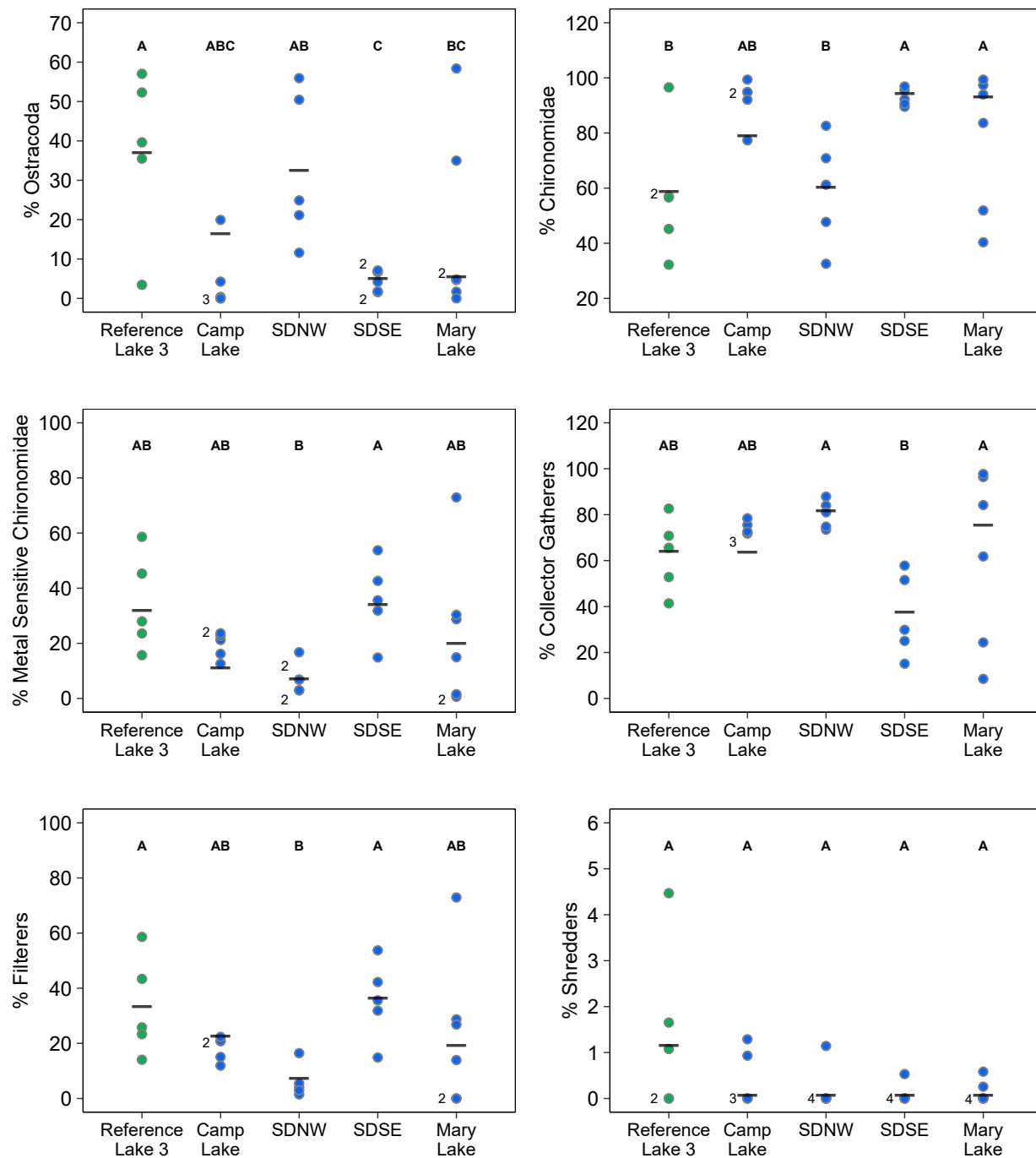


Figure E5: Benthic Invertebrate Community Endpoints for Littoral Stations at Mine-Exposed Lakes and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. SDSE = Sheardown Lake Southeast (SE); SDNW = Sheardown Lake Northwest (NW).

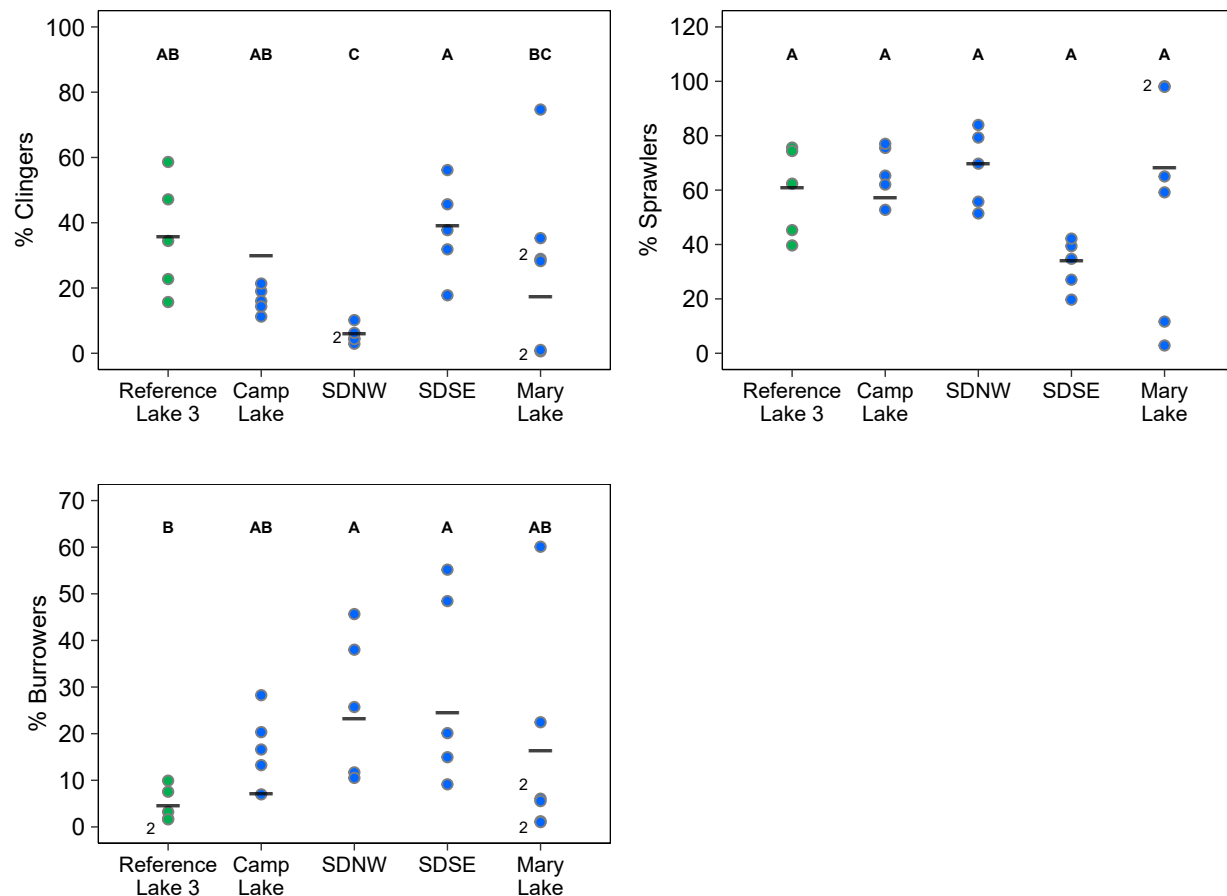


Figure E5: Benthic Invertebrate Community Endpoints for Littoral Stations at Mine-Exposed Lakes and Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p-value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points. SDSE = Sheardown Lake Southeast (SE); SDNW = Sheardown Lake Northwest (NW).

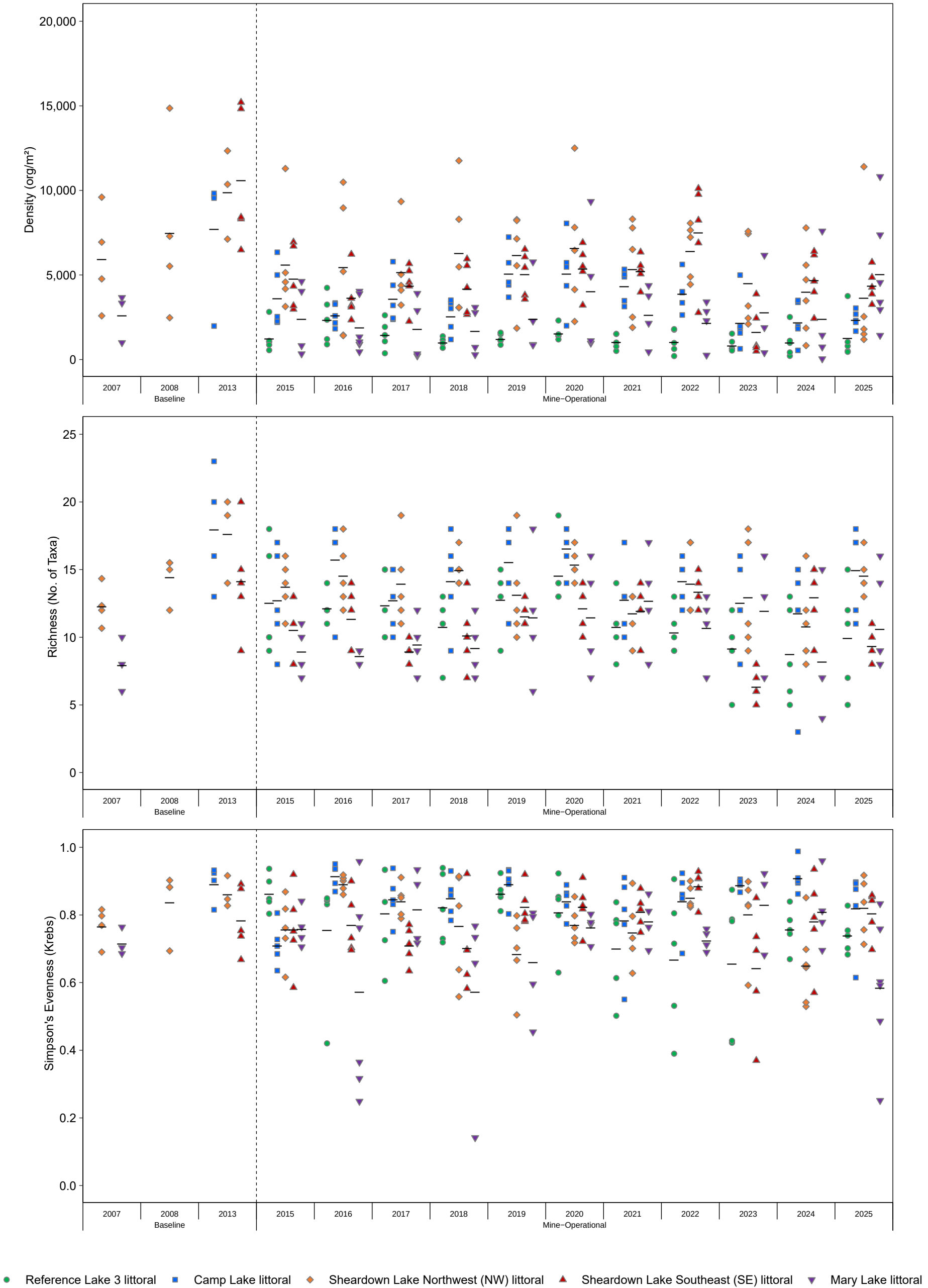


Figure E.6: Benthic Invertebrate Community Endpoints at Littoral Habitat Stations in Mine-Exposed Lakes and Reference Lake 3, Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

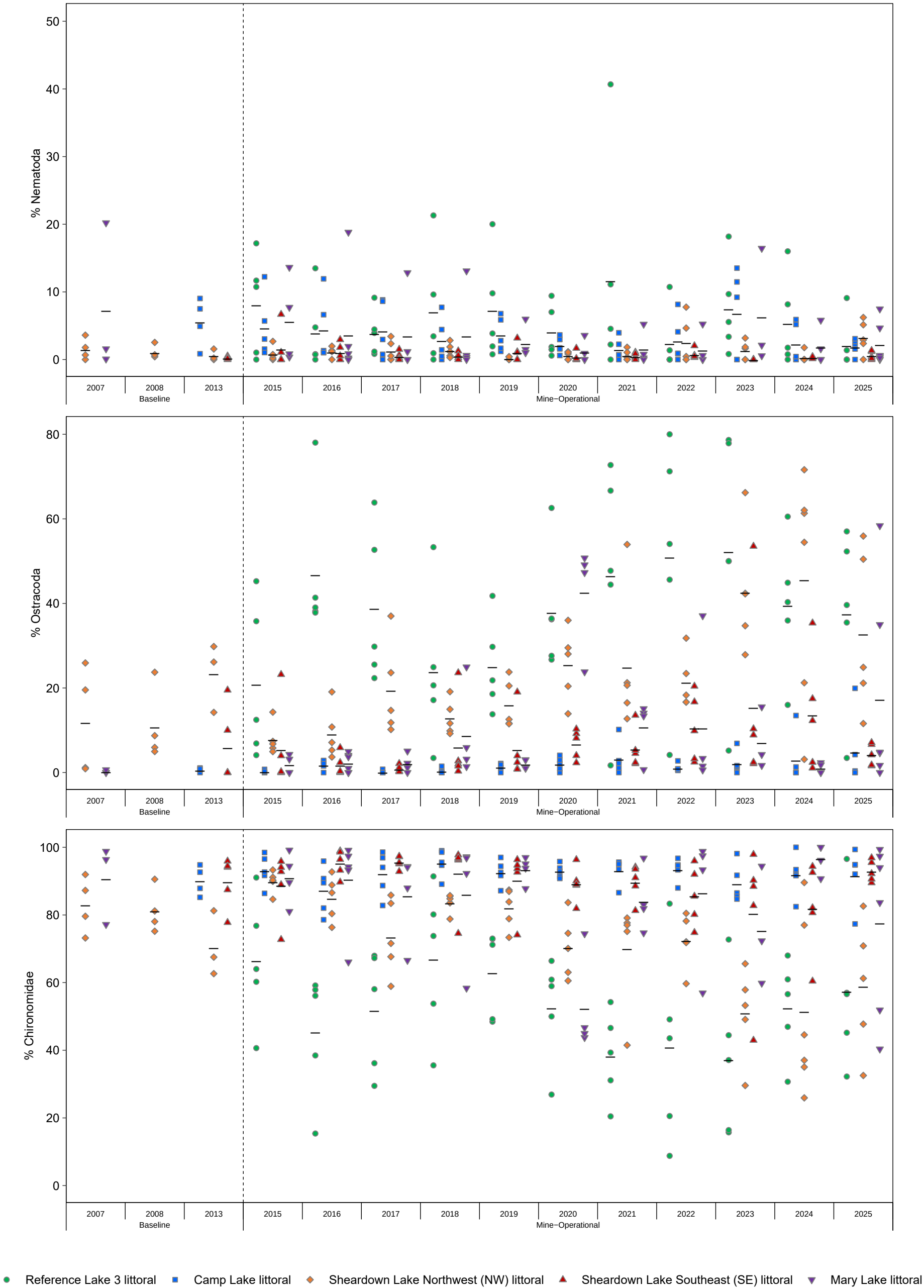


Figure E.6: Benthic Invertebrate Community Endpoints at Littoral Habitat Stations in Mine-Exposed Lakes and Reference Lake 3, Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

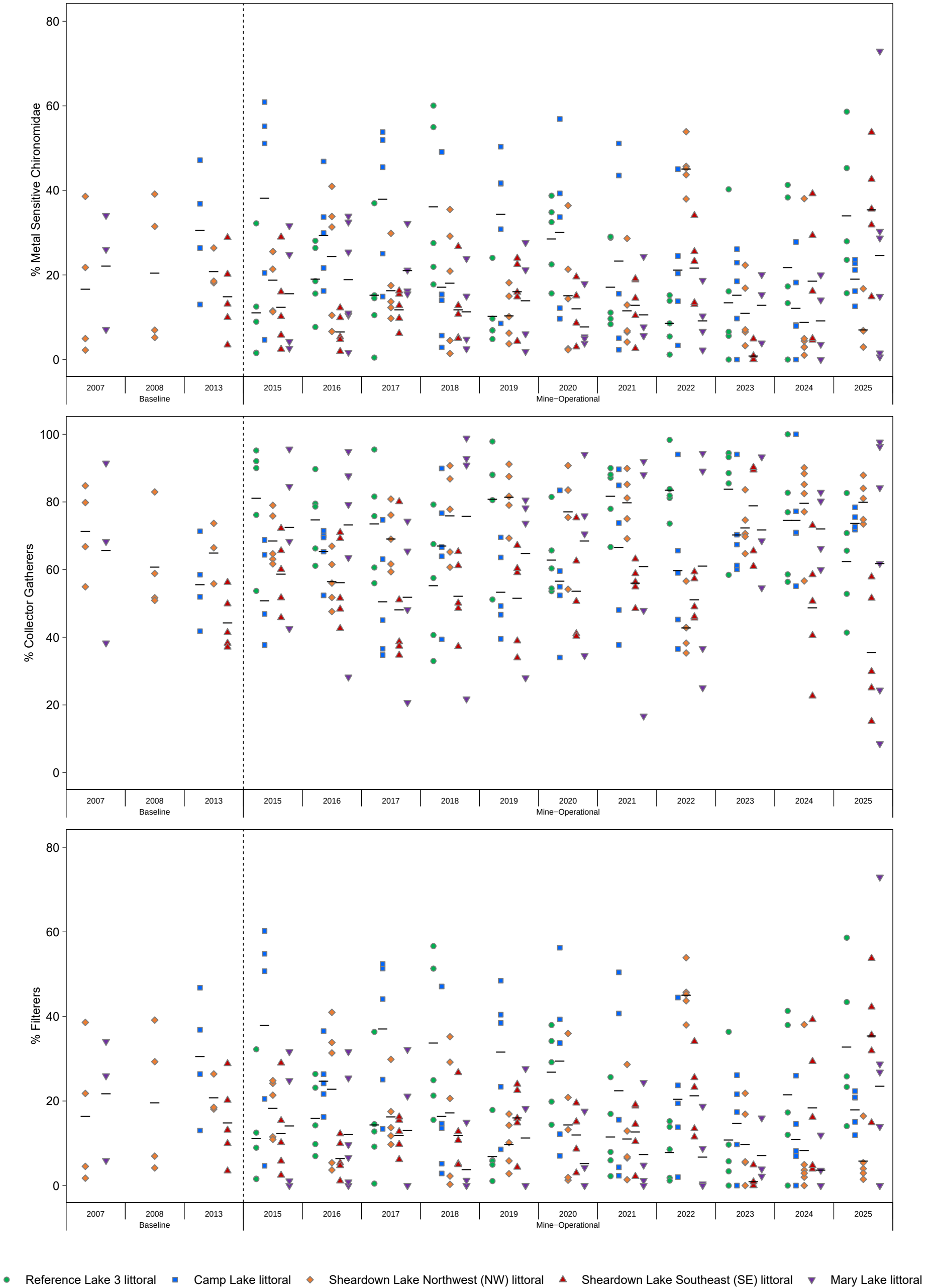


Figure E.6: Benthic Invertebrate Community Endpoints at Littoral Habitat Stations in Mine-Exposed Lakes and Reference Lake 3, Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

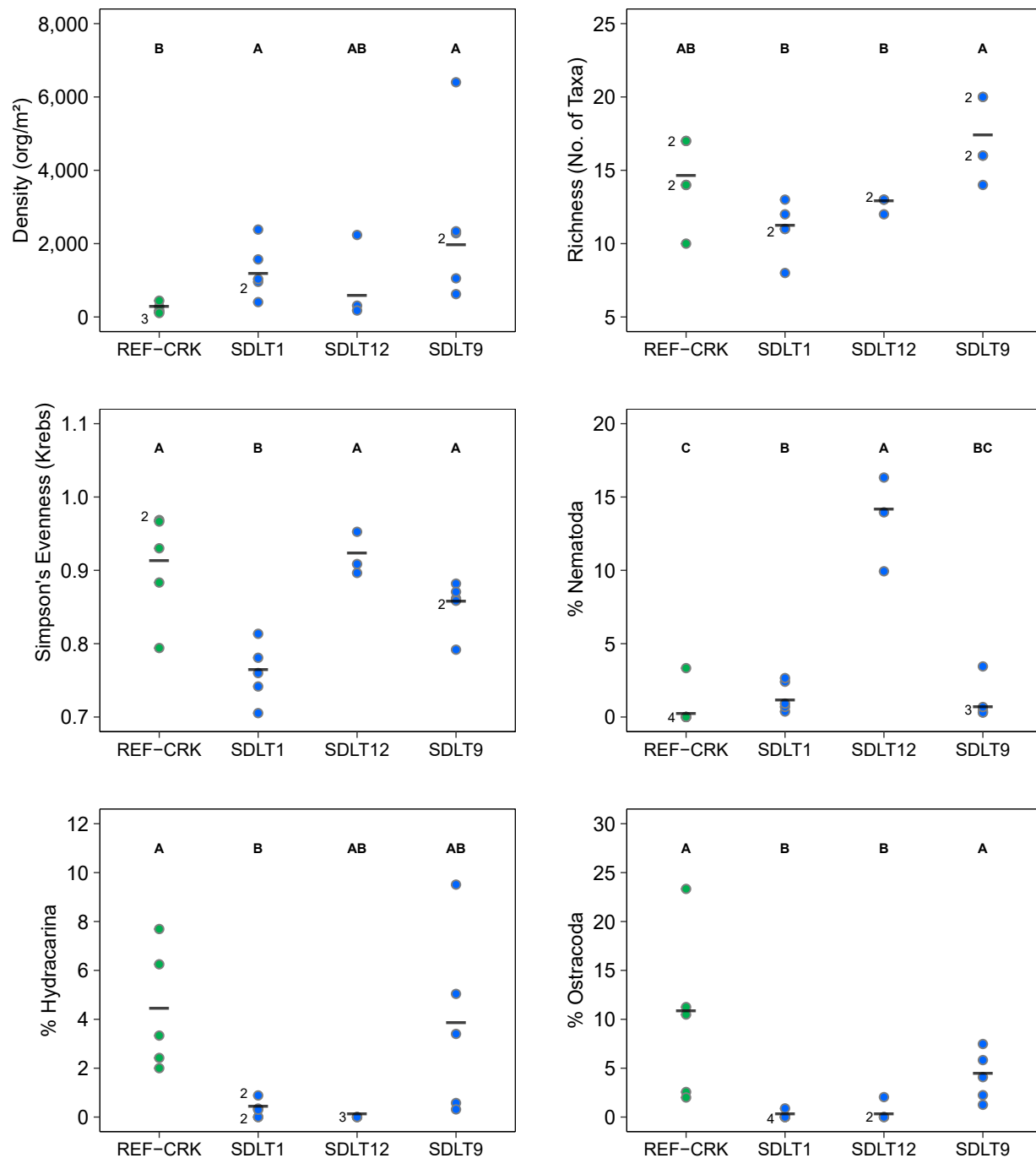


Figure E7: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) and Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p -value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points.

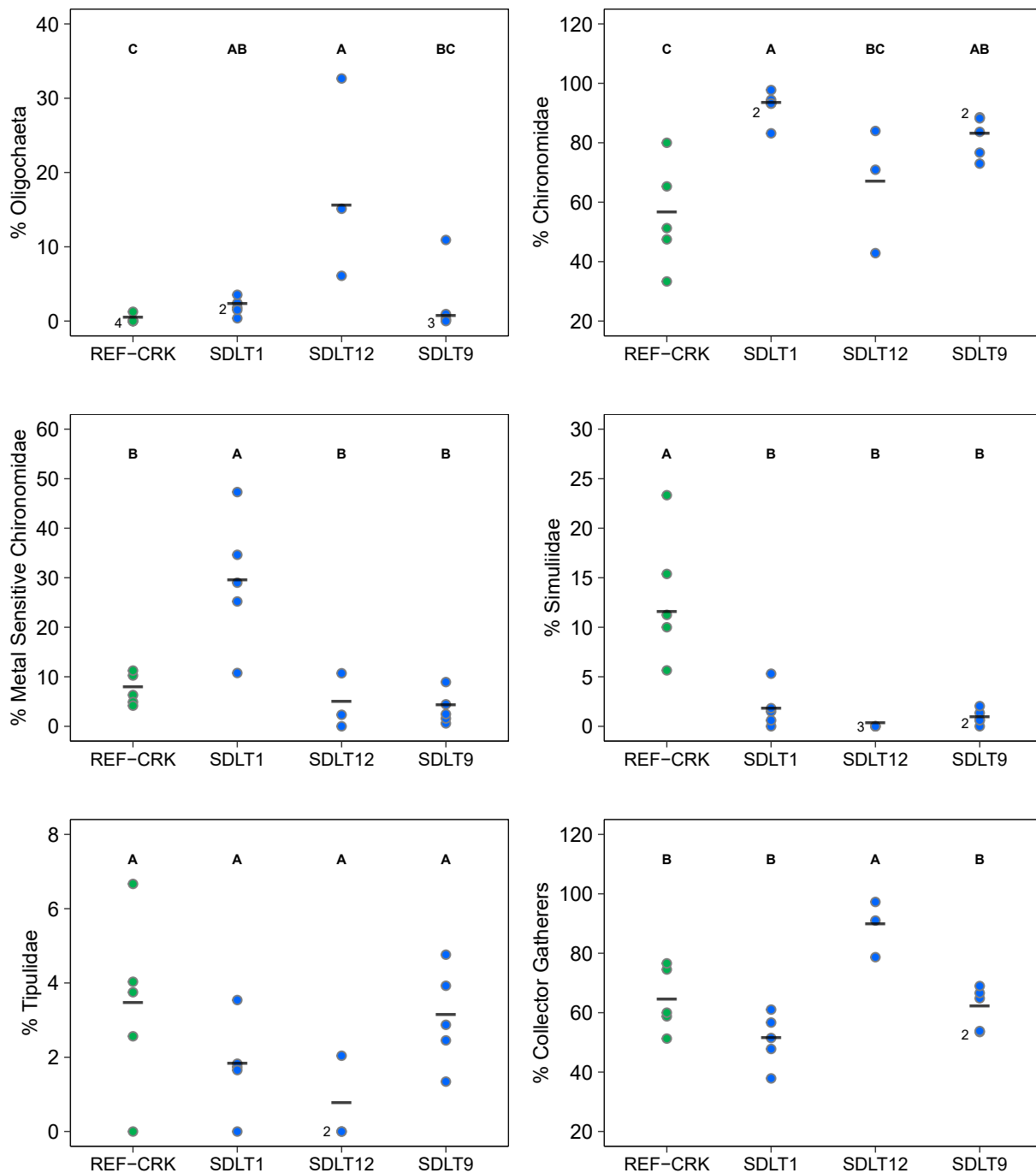


Figure E7: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) and Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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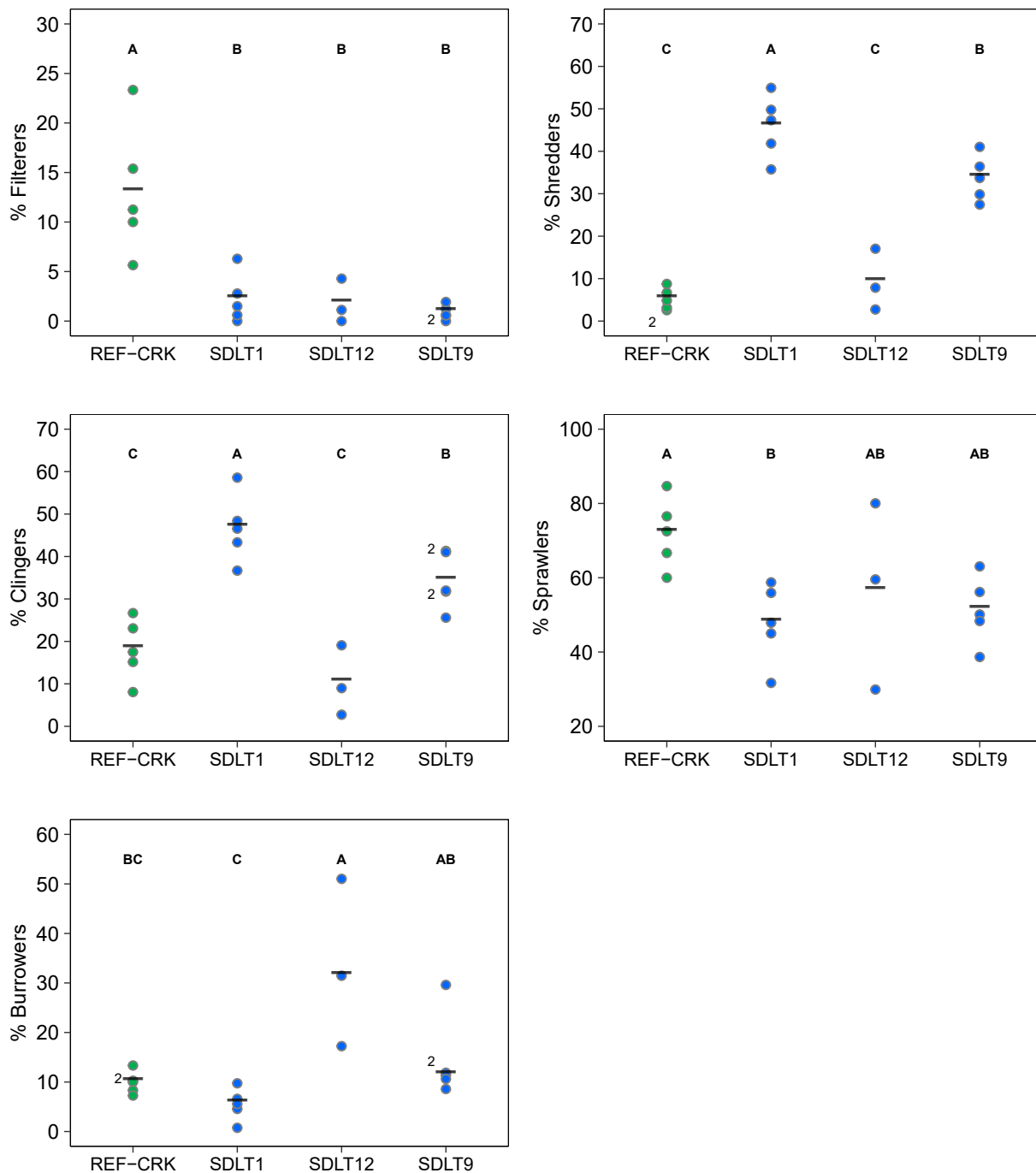


Figure E7: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT12, and SDLT9) and Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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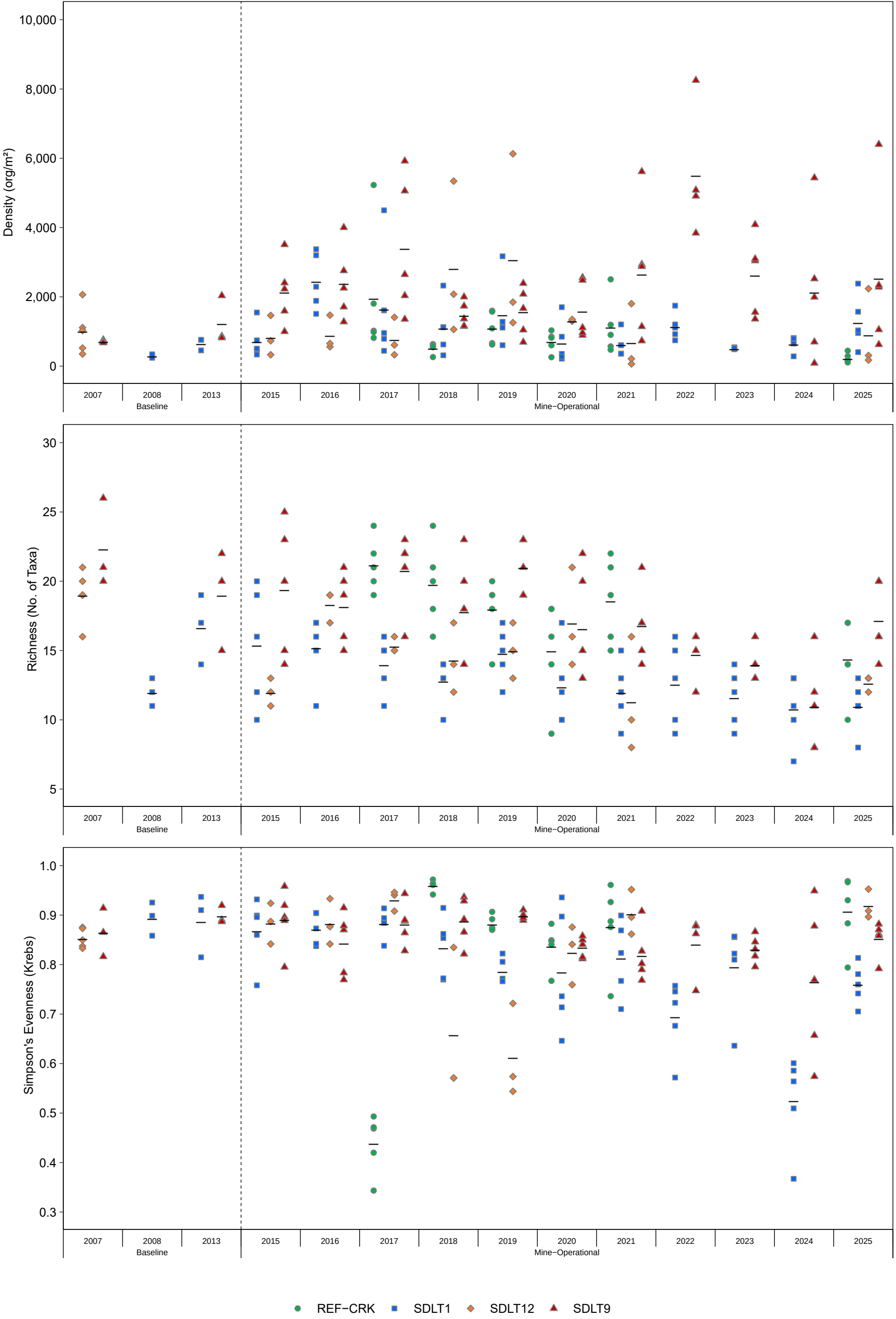


Figure E.8: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT9, and SDLT12) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

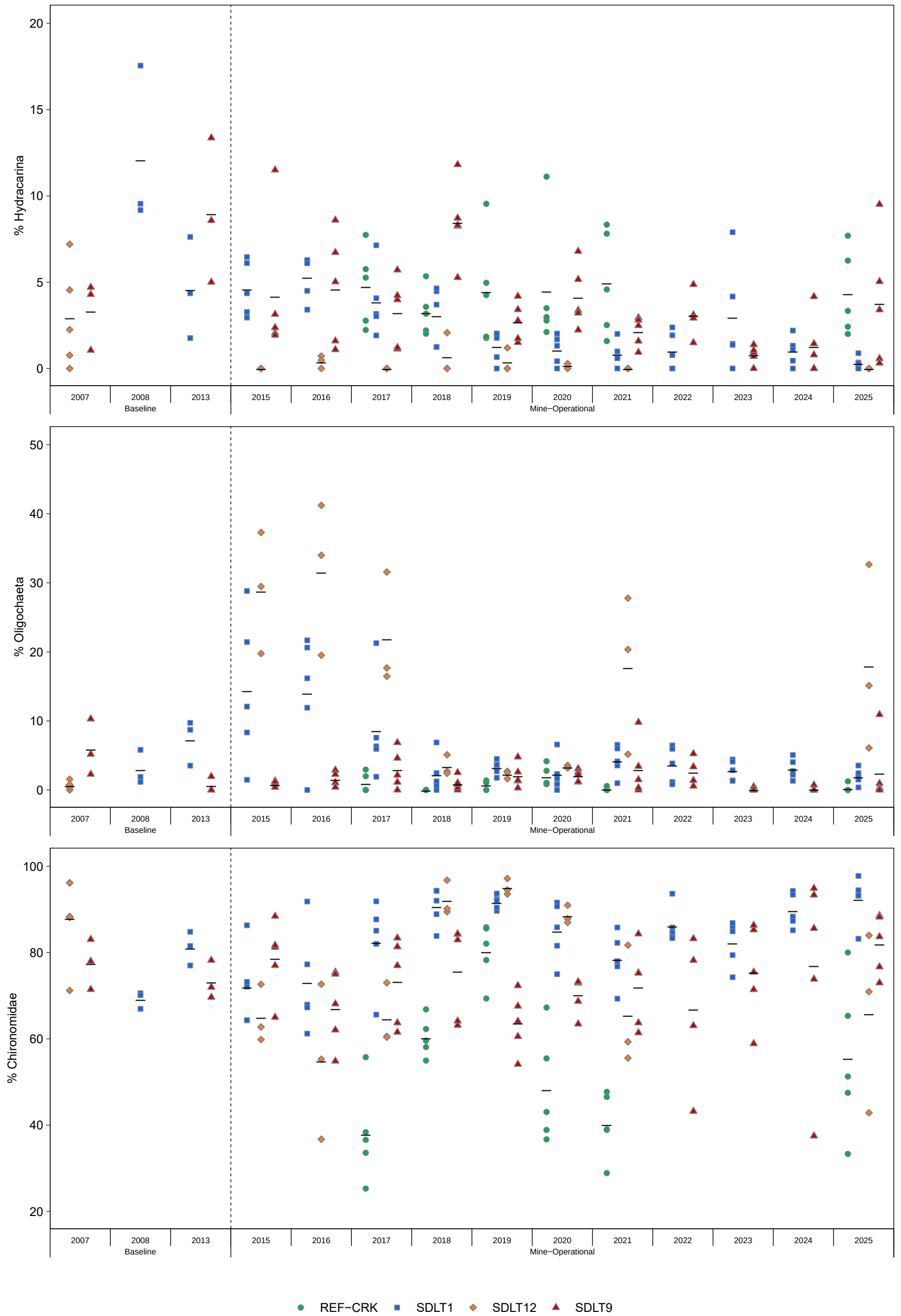


Figure E.8: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT9, and SDLT12) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

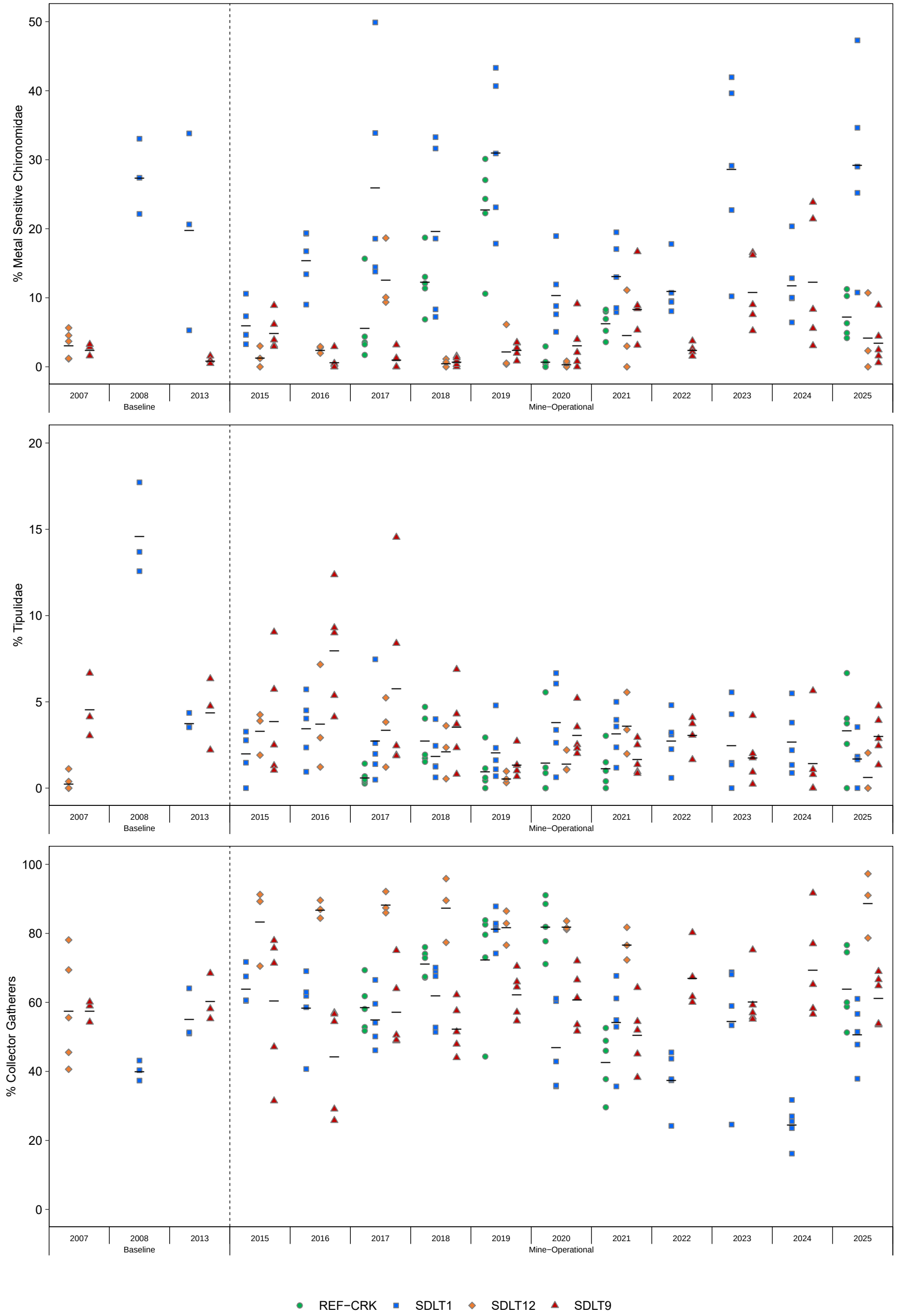


Figure E.8: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT9, and SDLT12) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

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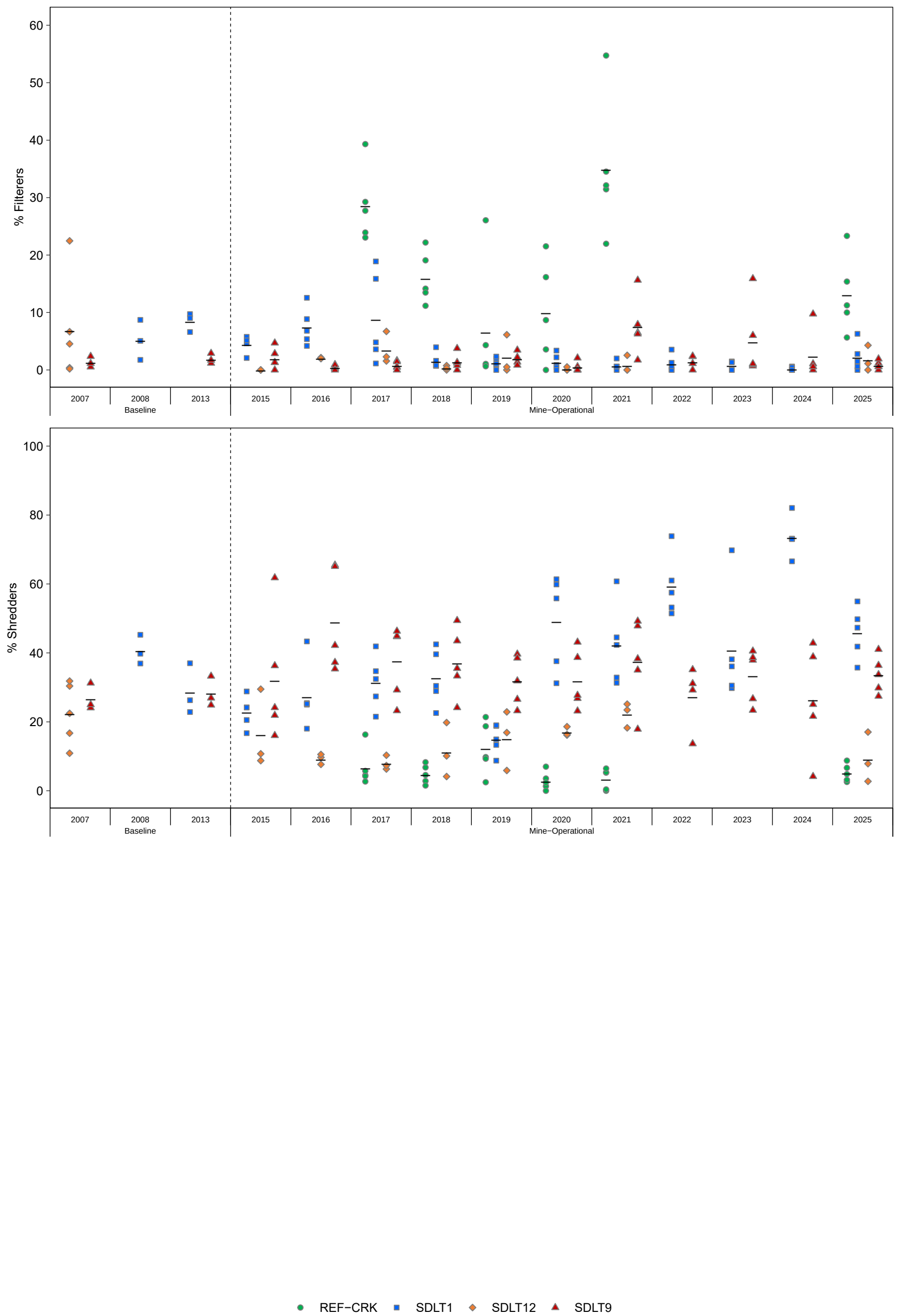


Figure E.8: Benthic Invertebrate Community Endpoints at Sheardown Lake Tributaries (SDLT1, SDLT9, and SDLT12) and Unnamed Reference Creek (REF-CRK), Mine Baseline (2007, 2008, 2013) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

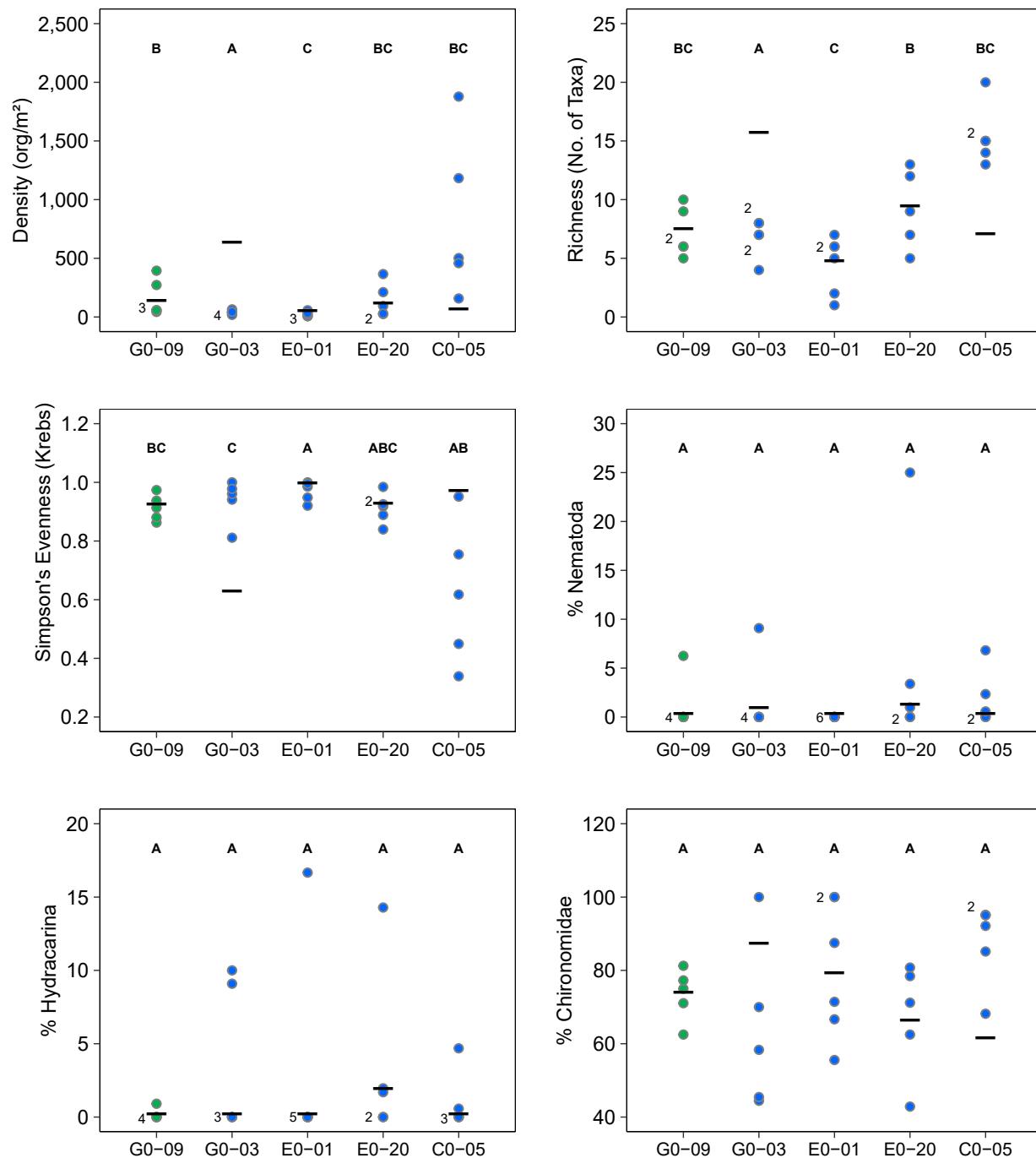


Figure E.9: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p -value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points.

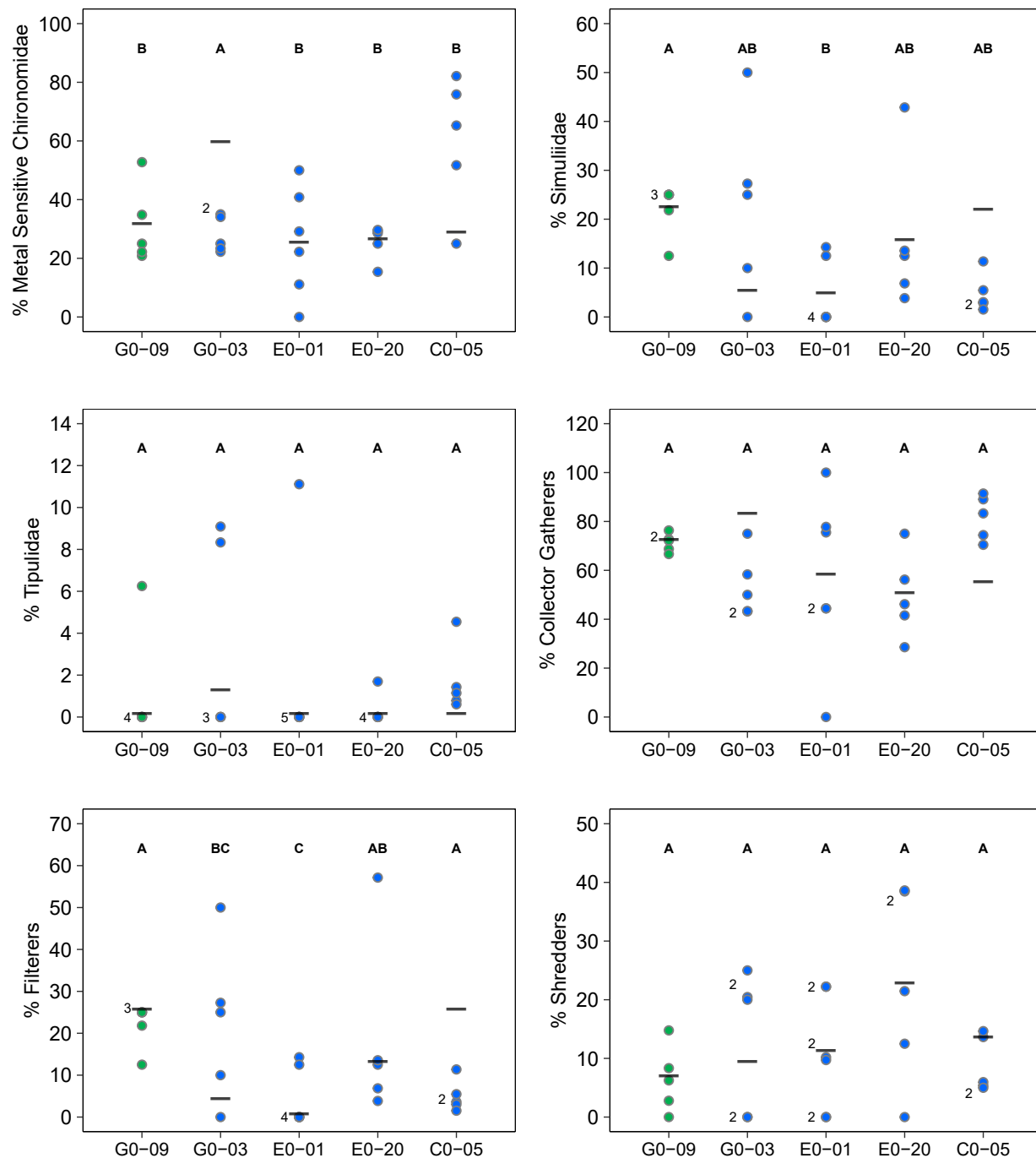


Figure E.9: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p -value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points.

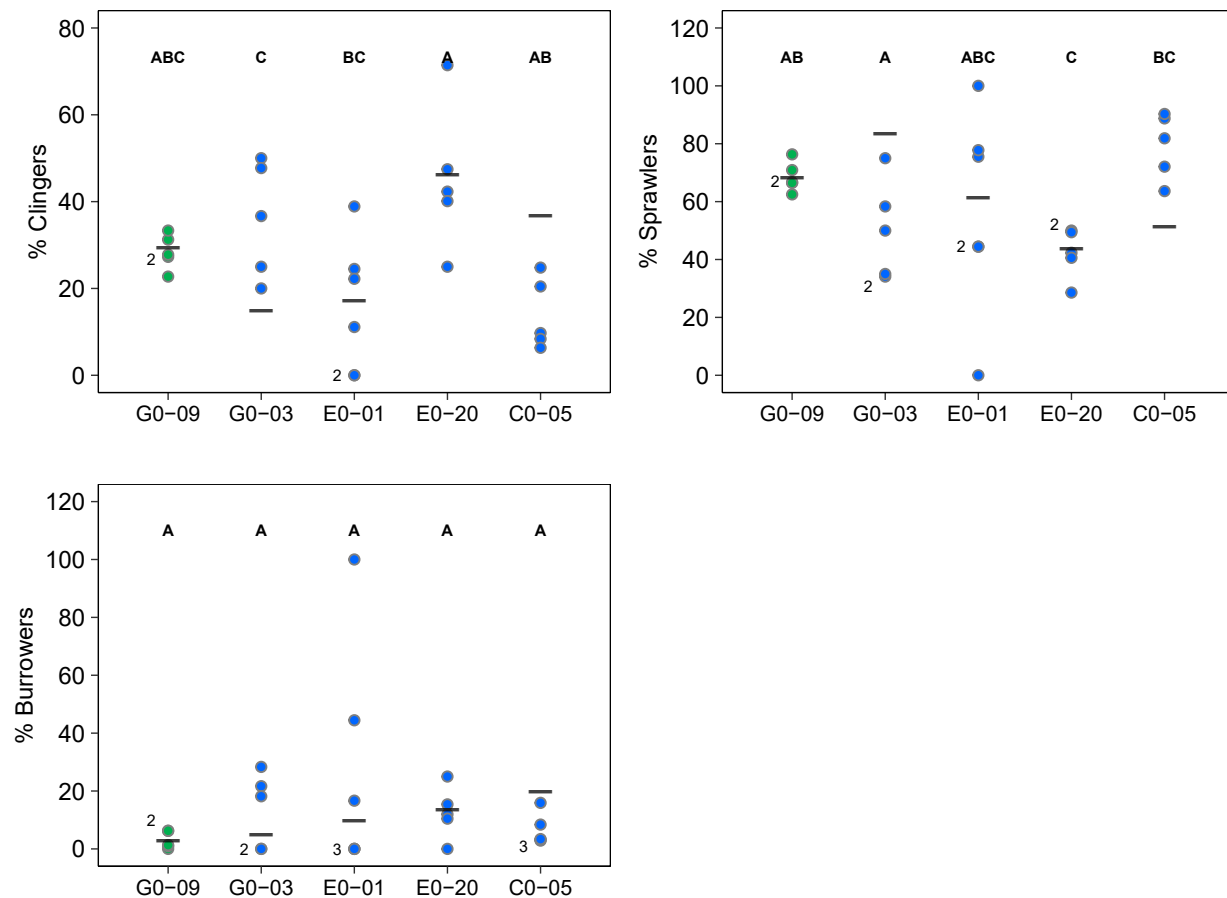


Figure E.9: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Green represents reference areas and blue represents mine-exposed areas. Areas that share a letter do not significantly differ (p -value = 0.1). Bars indicate measures of central tendency. Numbers indicate the number of overlapping points.

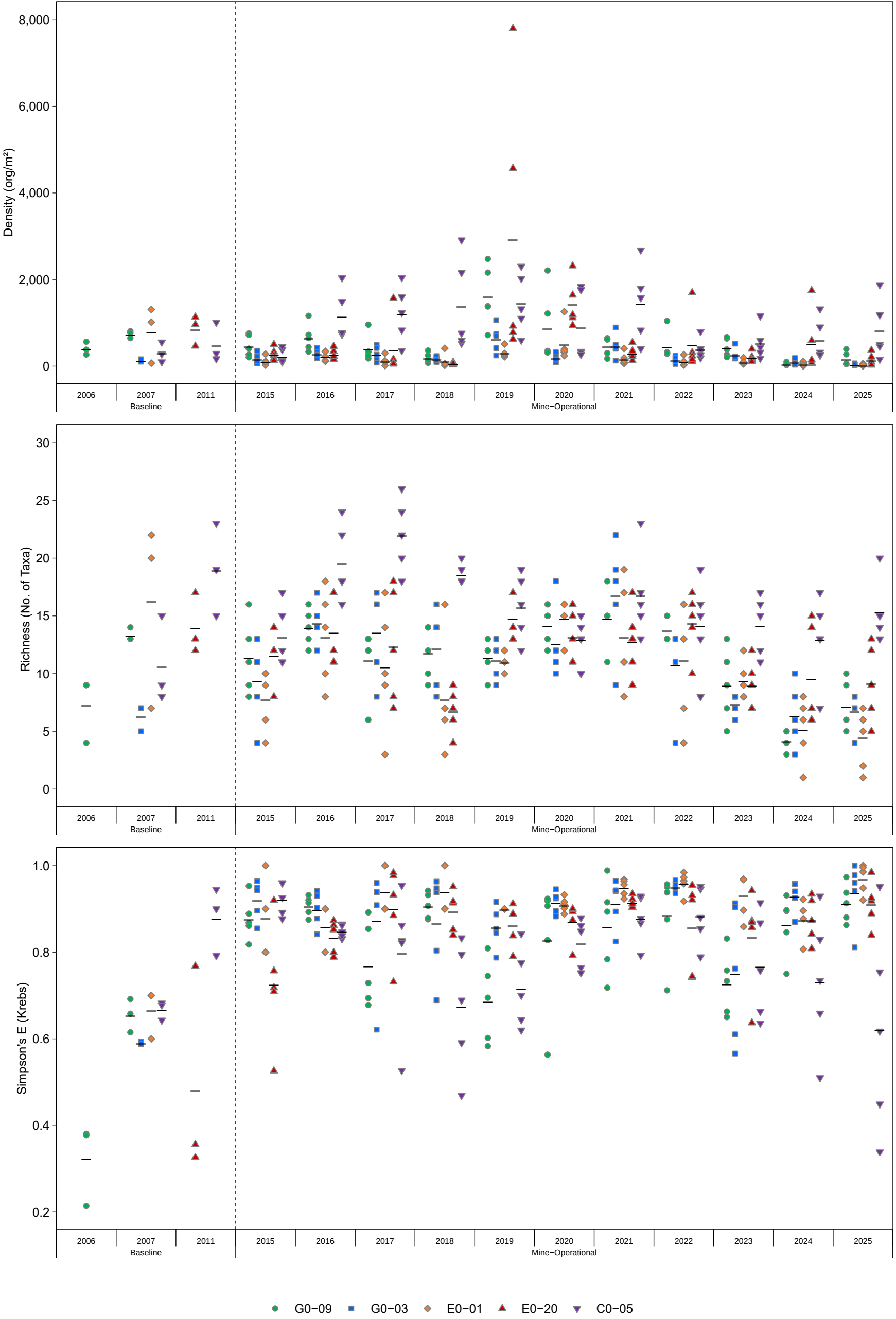


Figure E.10: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

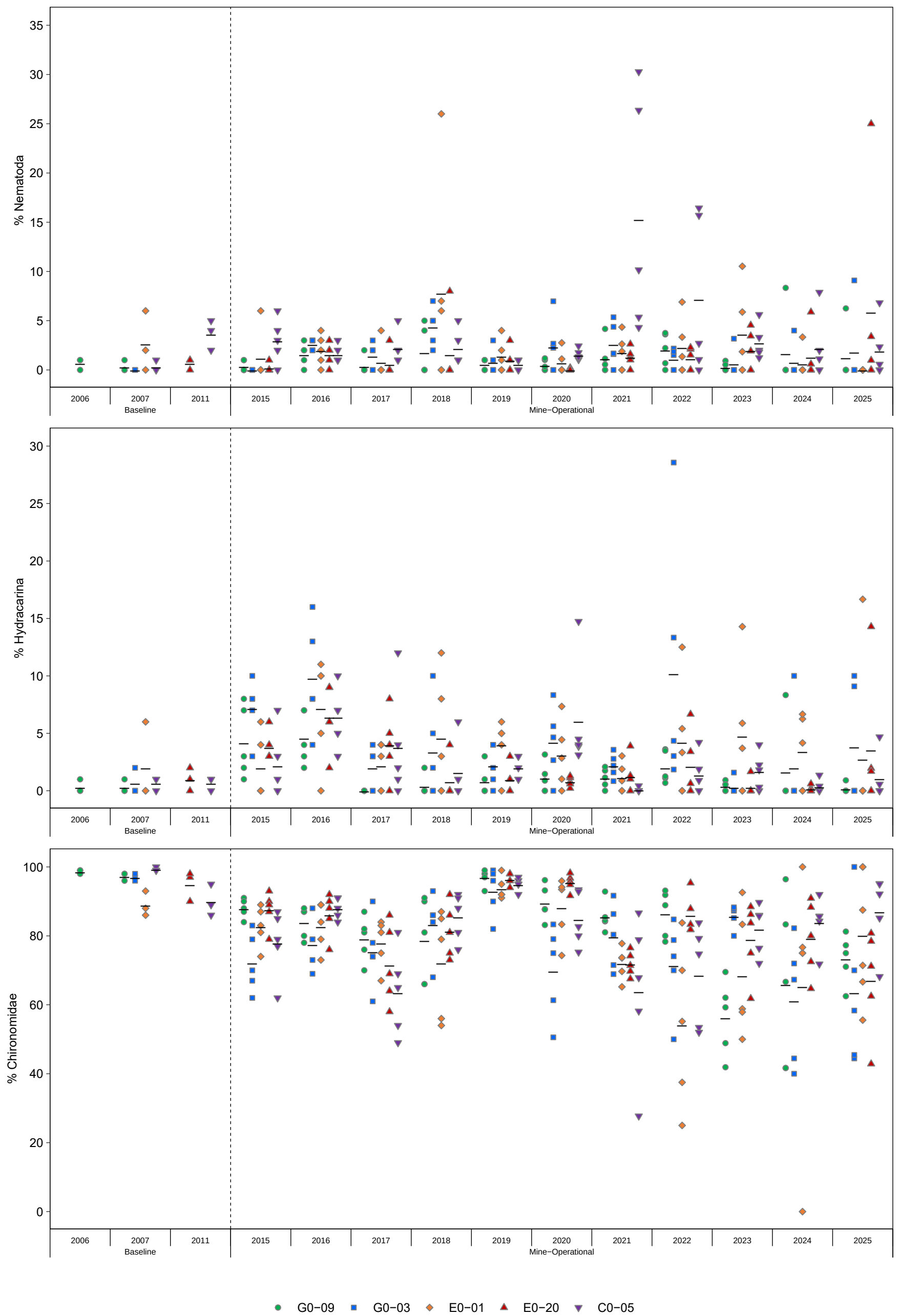


Figure E.10: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

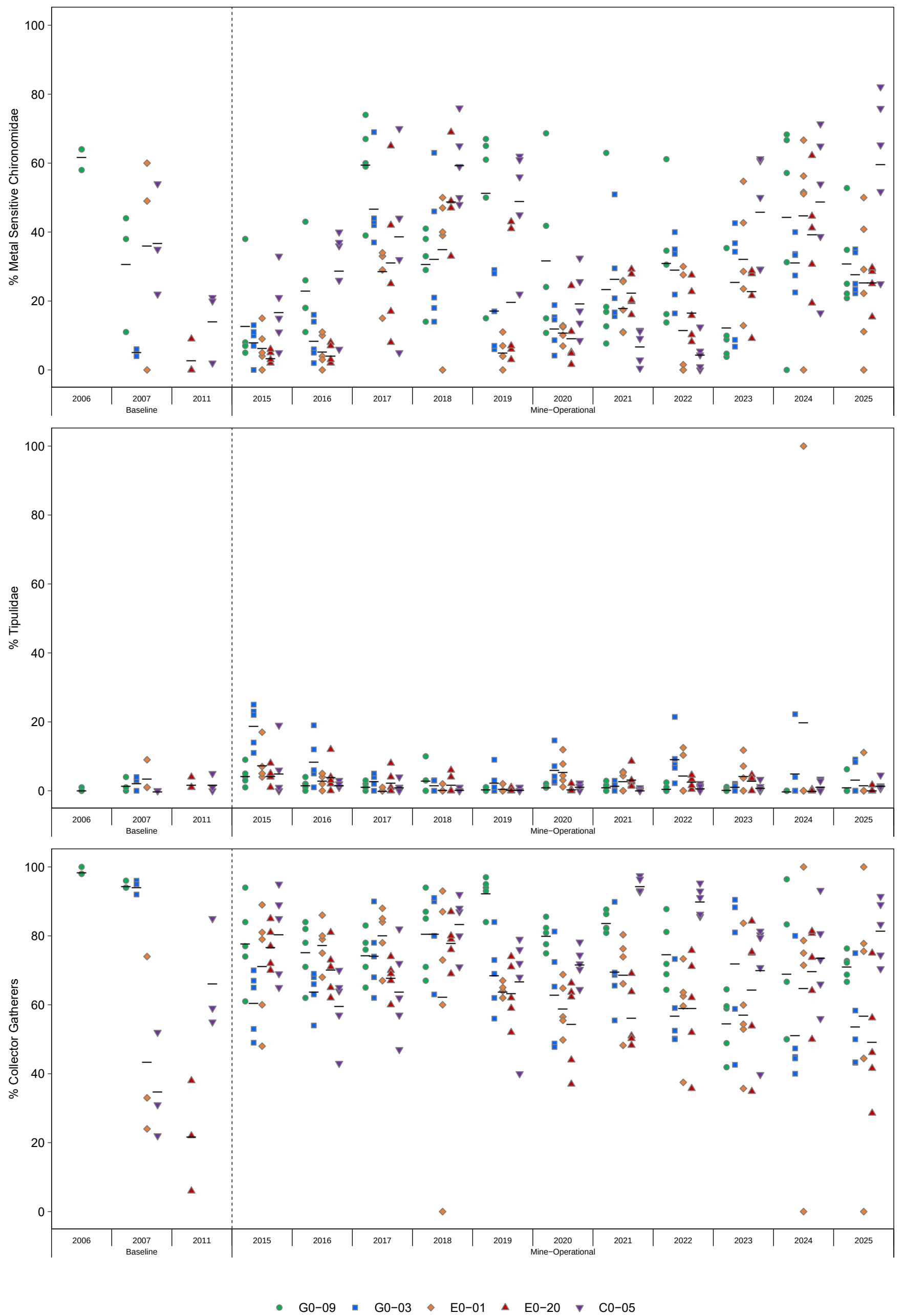


Figure E.10: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

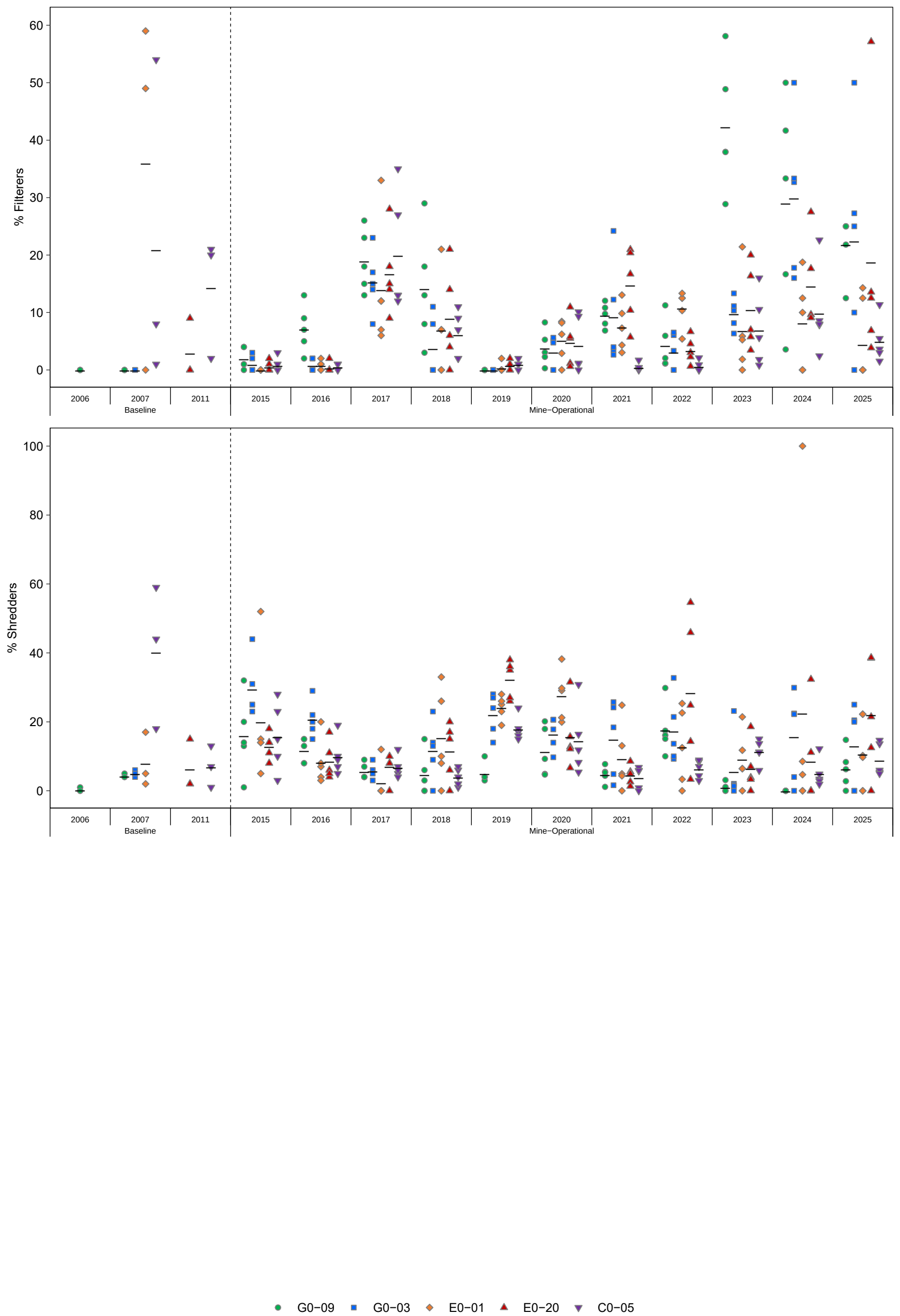


Figure E.10: Benthic Invertebrate Community Endpoints at Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mine Baseline (2007) and Operational (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Reference areas are shown in green and mine-exposed areas are shown in all other colours. Horizontal black bars indicate means.

TABLES

Table E.1: Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 (CLT1) and Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), August 2025

Endpoints	Area	n	Mean	Standard Deviation	Standard Error	Minimum	Median	Maximum
Density (org/m²)	REF-CRK	5	232	137	61.2	108	179	444
	CLT1-US	5	1,054	448	200	452	1,201	1,502
	CLT1-L2	5	2,687	425	190	1,964	2,785	3,061
	CLT1-DS	5	297	129	57.5	154	258	462
Richness (No. of Taxa)	REF-CRK	5	14.4	2.88	1.29	10.0	14.0	17.0
	CLT1-US	5	17.6	3.36	1.50	12.0	18.0	21.0
	CLT1-L2	5	16.6	1.67	0.748	14.0	17.0	18.0
	CLT1-DS	5	12.6	1.14	0.510	11.0	13.0	14.0
Simpson's Evenness (Krebs)	REF-CRK	5	0.909	0.0727	0.0325	0.794	0.930	0.969
	CLT1-US	5	0.900	0.0507	0.0227	0.829	0.908	0.953
	CLT1-L2	5	0.796	0.0612	0.0274	0.725	0.799	0.883
	CLT1-DS	5	0.888	0.0484	0.0216	0.830	0.911	0.932
% Nemata	REF-CRK	5	0.667	1.49	0.667	0	0	3.33
	CLT1-US	5	0.956	0.728	0.325	0	1.03	1.79
	CLT1-L2	5	2.84	1.60	0.714	1.19	2.46	5.28
	CLT1-DS	5	1.28	2.17	0.969	0	0	5.00
% Hydracarina	REF-CRK	5	4.34	2.50	1.12	2.00	3.33	7.69
	CLT1-US	5	2.56	1.23	0.551	1.19	2.58	3.97
	CLT1-L2	5	2.56	0.534	0.239	1.72	2.55	3.16
	CLT1-DS	5	5.57	3.30	1.48	0	6.94	8.53
% Ostracoda	REF-CRK	5	9.93	8.64	3.87	2.00	10.5	23.3
	CLT1-US	5	0.111	0.153	0.0685	0	0	0.299
	CLT1-L2	5	0.226	0.231	0.103	0	0.234	0.528
	CLT1-DS	5	0.155	0.347	0.155	0	0	0.775
% Chironomidae	REF-CRK	5	55.5	17.8	7.97	33.3	51.3	80.0
	CLT1-US	5	79.4	9.15	4.09	67.5	84.2	88.5
	CLT1-L2	5	77.3	4.38	1.96	71.7	78.4	83.0
	CLT1-DS	5	83.6	4.38	1.96	79.1	83.7	88.3
% Metal Sensitive Chironomidae	REF-CRK	5	7.38	3.20	1.43	4.17	6.32	11.2
	CLT1-US	5	9.01	4.48	2.00	4.57	7.02	15.1
	CLT1-L2	5	8.39	4.85	2.17	2.31	9.37	15.0
	CLT1-DS	5	14.3	4.65	2.08	9.78	12.7	21.2
% Collector Gatherers	REF-CRK	5	64.2	10.9	4.87	51.3	60.0	76.6
	CLT1-US	5	58.6	8.43	3.77	45.7	57.9	68.3
	CLT1-L2	5	64.6	8.72	3.90	51.2	65.8	72.8
	CLT1-DS	5	77.6	7.42	3.32	66.3	78.5	85.2
% Filterers	REF-CRK	5	13.1	6.68	2.99	5.65	11.2	23.3
	CLT1-US	5	1.06	0.637	0.285	0.258	1.48	1.59
	CLT1-L2	5	4.97	2.41	1.08	1.77	4.50	8.25
	CLT1-DS	5	0.180	0.403	0.180	0	0	0.901
% Shredders	REF-CRK	5	5.20	2.55	1.14	2.56	4.84	8.75
	CLT1-US	5	34.4	8.40	3.76	28.2	31.0	48.6
	CLT1-L2	5	27.0	6.86	3.07	21.2	25.8	37.8
	CLT1-DS	5	13.5	7.89	3.53	3.69	13.1	21.5
% Clingers	REF-CRK	5	18.1	7.21	3.22	8.06	17.5	26.7
	CLT1-US	5	27.9	8.69	3.89	22.7	23.1	43.0
	CLT1-L2	5	28.9	7.45	3.33	21.8	27.6	40.5
	CLT1-DS	5	13.9	6.22	2.78	6.31	13.1	22.8
% Sprawlers	REF-CRK	5	72.1	9.40	4.20	60.0	72.5	84.7
	CLT1-US	5	63.8	8.00	3.58	51.9	64.1	74.2
	CLT1-L2	5	52.4	6.53	2.92	44.9	55.7	59.4
	CLT1-DS	5	79.0	7.66	3.43	69.4	79.6	88.0
% Burrowers	REF-CRK	5	9.83	2.31	1.03	7.27	10.0	13.3
	CLT1-US	5	8.35	4.92	2.20	3.10	6.35	14.3
	CLT1-L2	5	18.7	4.29	1.92	13.5	17.2	24.0
	CLT1-DS	5	7.09	3.36	1.50	1.39	7.75	10.0
% Oligochaeta	REF-CRK	5	0.250	0.559	0.250	0	0	1.25
	CLT1-US	5	1.80	2.38	1.07	0.239	0.794	5.91
	CLT1-L2	5	14.8	4.48	2.00	11.1	12.9	21.4
	CLT1-DS	5	0.696	1.17	0.524	0	0	2.70
% Simuliidae	REF-CRK	5	13.1	6.68	2.99	5.65	11.2	23.3
	CLT1-US	5	1.06	0.637	0.285	0.258	1.48	1.59
	CLT1-L2	5	0	0	0	0	0	0
	CLT1-DS	5	0.180	0.403	0.180	0	0	0.901
% Tipulidae	REF-CRK	5	3.40	2.42	1.08	0	3.75	6.67
	CLT1-US	5	5.00	1.84	0.825	2.39	5.56	6.90
	CLT1-L2	5	1.03	0.371	0.166	0.547	1.11	1.45
	CLT1-DS	5	4.59	2.73	1.22	0	5.00	6.98

Notes: n/No. = number. org/m² = organisms per square metre. % = percent.

Table E.2: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, Camp Lake Tributary 1 (CLT1), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody	North Branch Upstream (CLT1-US)					Upper Main Stem (CLT1-L2)					Lower Main Stem (CLT1-DS)				
Station	B1	B2	B3	B4	B5	B1	B2	B3	B4	B5	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P. Nemata	-	7.2	10.7	14.3	21.5	75.2	32	146.9	100.3	35.8	-	-	10.75	-	3.58
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANNELIDS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P. Annelida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WORMS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Enchytraeidae	3.6	3.6	43.0	3.6	17.9	383.4	573	308.2	483.7	211.4	3.58	-	-	10.75	-
F. Lumbriculidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lumbriculus	-	-	-	-	3.6	10.7	7	3.6	21.5	7.2	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ARTHROPODS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P. Arthropoda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MITES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O. Acarina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
immature	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-	-	-	-	-	3.58	3.6	-	-	-
F. Lebertiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lebertia	-	-	-	-	-	17.9	21	17.9	14.3	14.3	-	-	-	-	-
F. Hygrobatidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hygrobates	-	-	-	-	-	-	-	-	-	-	-	7.2	-	-	-
F. Pionidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sperchon	17.9	17.9	10.7	35.8	43.0	78.8	47	60.9	35.8	35.8	35.83	-	-	21.50	17.92
SEED SHRIMPS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cl. Ostracoda	-	-	-	3.6	3.6	7.2	14	-	10.7	-	3.58	-	-	-	-
SPRINGTAILS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O. Collembola	-	-	10.7	-	-	-	14	-	-	14.3	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
INSECTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cl. Insecta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAYFLIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Baetidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acentrella feropagus	-	-	-	-	-	-	-	7.17	7.17	-	-	-	3.58	3.58	-
STONEFLIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O. Plecoptera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Capniidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
immature	14.3	71.7	71.7	64.5	57.3	-	-	-	-	-	-	3.58	-	7.17	-
TRUE FLIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O. Diptera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-	-	-	3.58	-	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Culicoides	-	-	-	-	35.8	-	-	-	3.58	-	-	-	-	-	-
MIDGES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Chironomidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
chironomid pupae	10.7	50.2	14.3	50.2	17.9	89.6	100	118	68.1	43.0	17.9	10.7	10.7	7.17	17.9
S.F. Chironominae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paratanytarsus	-	-	-	-	-	133	147	46.6	118	158	-	-	-	-	-
Rheotanytarsus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tanytarsus	-	-	-	-	-	-	10.7	-	-	-	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diamesa	17.9	21.5	3.58	-	14.3	-	-	-	-	-	28.7	14.3	14.3	39.4	32.2
Pseudokiefferiella	35.8	197	28.7	93.2	57.3	21.5	100	14.3	305	21.5	14.3	3.58	28.7	3.58	7.17
S.F. Orthoclaadiinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cardiocladius	-	-	-	-	-	-	-	-	-	-	-	3.58	-	-	-
Chaetocladius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corynoneura	-	7.17	-	-	7.17	-	-	-	-	-	-	-	-	-	-
Cricotopus	96.7	233	100	430	143	688	573	480	563	606	46.6	7.17	17.9	-	7.17
Cricotopus/Orthocladius	-	168	53.7	100	100	7.17	82.4	46.6	-	14.3	32.2	7.17	28.7	3.58	10.7
Diplocladius	-	-	-	-	-	-	-	7.17	-	-	-	-	-	-	-
Eukiefferiella	32.2	147	35.8	118	100	-	-	-	-	-	-	-	-	-	-
Hydrobaenus	-	57.3	21.5	14.3	14.3	-	-	-	-	-	3.58	-	-	17.9	3.58
Hydrosmittia	3.58	7.17	3.58	64.5	57.3	78.8	118	46.6	14.3	179	10.7	3.58	21.5	14.3	14.3
Krenosmittia	-	21.5	17.9	7.17	-	-	-	-	-	-	14.3	25.1	7.17	-	3.58
Limnophyes	-	7.17	43.0	7.17	7.17	-	-	7.17	-	-	-	3.58	-	-	3.58
Orthocladius (Euorthocladius)	129	340	86.0	197	129	7.17	-	-	57.3	-	60.9	35.8	32.2	158	82.4
Parakiefferiella	-	-	-	-	-	43.0	28.7	46.6	283	64.5	3.58	-	3.58	-	-
Parametrioctenemus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paraphaenocladius	-	-	-	-	-	-	10.7	-	-	-	-	-	-	-	-
Psectrocladius	-	-	-	-	-	21.5	-	21.5	-	-	-	-	-	-	-
Synorthocladius	-	-	-	-	-	-	10.7	-	-	-	-	-	-	-	-
Thienemanniella	-	-	-	7.17	7.17	-	-	-	-	-	-	-	-	-	-
Tokunagaia	17.9	50.2	71.7	71.7	165	-	-	-	-	-	96.7	3.58	10.7	43.0	25.1
Tvetenia	3.58	21.5	10.7	7.17	35.8	1,311	745	1,308	752	523	35.8	7.17	14.3	28.7	17.9
indeterminate	35.8	-	-	-	7.17	-	-	-	-	-	-	3.58	-	-	-
S.F. Tanypodinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Procladius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thienemannimyia complex	-	-	-	-	-	21.5	17.9	39.4	7.17	21.5	-	-	-	-	-
F. Dolichopodidae	-	-	-	-	-	-	-	-	3.58	-	-	-	-	-	-
F. Empididae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clinocera	-	28.7	28.7	39.4	60.9	25.1	17.9	35.8	28.7	3.58	17.9	3.58	-	10.7	10.7
F. Muscidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Simuliidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gymnopais	7.17	3.58	3.58	3.58	17.9	-	-	-	-	-	-	-	-	3.58	-
Helodon irkutensis	-	-	3.58	-	-	-	-	-	-	-	-	-	-	-	-
Metacnephia	-	-	3.58	-	-	-	-	-	-	-	-	-	-	-	-
Prosimulium ursinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pupae	-	3.58	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Tipulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tipula	25.1	35.8	50.2	53.7	75.2	39.4	39.4	21.5	32.2	10.7	32.2	7.17	10.7	25.1	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CLAMS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cl. Bivalvia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F. Sphaeriidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pisidium (Cyclocalyx)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.3: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody	Unnamed Reference Creek (REF-CRK)				
Station	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	-	-	-	3.58
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	3.58	-	-	-
F. Lumbriculidae	-	-	-	-	-
<i>Lumbriculus</i>	-	-	-	-	-
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
immature	-	-	-	-	-
indeterminate	-	-	-	-	-
F. Lebertiidae	-	-	-	-	-
<i>Lebertia</i>	-	-	-	-	-
F. Pionidae	-	-	-	-	-
indeterminate	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-
<i>Sperchon</i>	10.7	17.9	3.58	10.7	3.58
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	3.58	32.2	3.58	46.6	25.1
SPRINGTAILS	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-
O. Collembola	-	-	-	-	-
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
<i>Acentrella feropagus</i>	-	3.58	3.58	7.17	-
STONEFLIES	-	-	-	-	-
O. Plecoptera	-	-	-	-	-
F. Capniidae	-	-	-	-	-
immature	-	14.3	-	3.58	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
indeterminate	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
<i>Culicoides</i>	7.17	7.17	3.58	10.7	3.58
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	-	-	7.17	3.58	7.17
S.F. Chironominae	-	-	-	-	-
<i>Paratanytarsus</i>	-	-	-	-	-
<i>Rheotanytarsus</i>	-	-	-	-	-
<i>Tanytarsus</i>	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-
<i>Diamesa</i>	7.17	32.2	7.17	17.9	-
<i>Pseudokiefferiella</i>	7.17	-	3.58	3.58	3.58
S.F. Orthocladiinae	-	-	-	-	-
<i>Cardiocladius</i>	3.58	7.17	10.7	3.58	-
<i>Chaetocladius</i>	-	-	3.58	-	-
<i>Cricotopus</i>	-	-	3.58	3.58	-
<i>Cricotopus/Orthocladius</i>	-	-	-	-	-
<i>Eukiefferiella</i>	-	-	-	-	-
<i>Hydrobaenus</i>	7.17	7.17	-	-	-
<i>Hydrosmittia</i>	-	-	-	-	-
<i>Krenosmittia</i>	-	-	-	-	-
<i>Limnophyes</i>	7.17	-	-	-	-
<i>Orthocladius (Euorthocladius)</i>	-	21.5	10.7	35.8	-
<i>Parakiefferiella</i>	-	-	-	-	-
<i>Parametriocnemus</i>	7.17	3.58	3.58	10.7	-
<i>Paraphaenocladius</i>	-	-	-	-	-
<i>Synorthocladius</i>	-	3.58	-	3.58	-
<i>Thienemanniella</i>	-	-	-	-	-
<i>Tokunagaia</i>	21.5	43.0	82.4	154	14.3
<i>Tvetenia</i>	10.7	17.9	10.7	50.2	10.7
S.F. Tanypodinae	-	-	-	-	-
<i>Procladius</i>	-	-	-	-	-
<i>Thienemannimyia</i> complex	-	-	-	3.58	-
F. Empididae	-	-	-	-	-
<i>Clinocera</i>	21.5	28.7	3.58	32.2	3.58
F. Muscidae	-	-	-	-	-
F. Simuliidae	-	-	-	-	-
<i>Gymnopaïs</i>	-	14.3	3.58	-	-
<i>Helodon irkutensis</i>	21.5	17.9	10.7	17.9	21.5
<i>Metacnephia</i>	-	-	3.58	7.17	3.58
<i>Prosimulium ursinum</i>	-	-	-	-	-
pupae	-	-	-	-	-
F. Tipulidae	-	-	-	-	-
<i>Tipula</i>	3.58	10.7	-	17.9	7.17
	-	-	-	-	-
CLAMS	-	-	-	-	-
Cl. Bivalvia	-	-	-	-	-
F. Sphaeriidae	-	-	-	-	-
<i>Pisidium (Cyclocalyx)</i>	-	-	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.4: Statistical Comparison of Bray-Curtis Indices for Mine-exposed Camp Lake Tributaries (CLT1 and CLT2) Relative to Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Comparisons		n		Betadisper P-Value	Mantel Test			dbRDA			
		Exposed	Reference		r	R ²	P-Value	F-value	R ²	R ² _{adj}	P-value
CLT1-US	REF-CRK	5	5	0.045	0.778	0.606	0.008	9.63	0.546	0.489	0.005
CLT1-L2	REF-CRK	5	5	0.011	0.924	0.853	0.008	22.9	0.741	0.708	0.007
CLT1-DS	REF-CRK	5	5	0.685	0.646	0.418	0.008	4.93	0.381	0.304	0.004
CLT2-US	REF-CRK	5	5	0.094	0.629	0.396	0.008	6.14	0.434	0.363	0.006
CLT2-DS	REF-CRK	5	5	0.028	0.608	0.370	0.008	5.76	0.418	0.346	0.008

 Highlighted values indicate a significant difference between study areas based on statistical test p-values <0.1.
Notes: n = number of samples. dbRDA = distance-based Redundancy Analysis. < = less than.

Table E.5: Replicate Grab Data for Benthic Invertebrate Community Samples Collected at Camp Lake Tributary 1 (CLT1) and the Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Water Depth (cm)			Water Velocity (m/s)			Embeddedness			In-stream Vegetation			Algae Presence		
		Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3
Unnamed Reference Creek	REF-CRK-B1	10	10	12	0.34	0.44	0.44	25%	25%	25%	None	None	None	None	None	None
	REF-CRK-B2	9	10	14	0.48	0.39	0.43	25%	50%	25%	None	None	None	None	None	None
	REF-CRK-B3	10	10	8	0.45	0.48	0.44	25%	50%	25%	None	None	None	None	None	None
	REF-CRK-B4	8	14	10	0.45	0.38	0.47	25%	25%	25%	None	None	None	None	None	None
	REF-CRK-B5	14	20	12	0.45	0.51	0.44	25%	25%	25%	None	None	None	None	None	None
Camp Lake Tributary 1 Upstream North Branch	CLT-1-US-B1	14	12	7	0.40	0.34	0.35	25%	25%	25%	None	Sparse bryophytes	Sparse bryophytes	Common	Sparse	Common
	CLT-1-US-B2	7	9	8	0.35	0.36	0.40	25%	25%	25%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	Common	Abundant	Abundant
	CLT-1-US-B3	8	12	14	0.52	0.40	0.46	0%	0%	25%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	Common	Common	Sparse
	CLT-1-US-B4	10	12	18	0.43	0.43	0.43	25%	25%	25%	Sparse bryophytes	None	Sparse bryophytes	Abundant	Common	Abundant
	CLT-1-US-B5	9	10	6	0.34	0.33	0.41	25%	25%	50%	Sparse bryophytes	Sparse bryophytes	None	Sparse	Common	Common
Camp Lake Tributary 1 Upper Main Stem	CLT-1-L2-B1	10	10	6	0.43	0.41	0.33	25%	25%	0%	Sparse bryophytes	None	Sparse bryophytes	Common	Sparse	Sparse
	CLT-1-L2-B2	10	8	6	0.31	0.31	0.46	25%	0%	25%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	Common	Common	Common
	CLT-1-L2-B3	10	8	8	0.56	0.36	0.54	0%	25%	25%	Sparse bryophytes	None	Sparse bryophytes	Sparse	Sparse	Sparse
	CLT-1-L2-B4	8	6	8	0.39	0.41	0.33	0%	25%	50%	Sparse bryophytes	None	Sparse bryophytes	Sparse	Sparse	Common
	CLT-1-L2-B5	16	13	16	0.38	0.32	0.38	0%	25%	0%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	Sparse	Common	Common
Camp Lake Tributary 1 Lower Main Stem	CLT-1-DS-B1	10	13	7	0.37	0.41	0.38	50%	25%	25%	None	None	Sparse bryophytes	Common	Common	Sparse
	CLT-1-DS-B2	9	8	14	0.38	0.37	0.55	25%	25%	25%	None	None	None	Common	Common	Abundant
	CLT-1-DS-B3	9	7	9	0.32	0.41	0.36	0%	25%	25%	None	None	Sparse bryophytes	Abundant	Abundant	Abundant
	CLT-1-DS-B4	16	8	10	0.43	0.49	0.36	50%	25%	25%	None	None	None	Common	Sparse	Sparse
	CLT-1-DS-B5	16	16	17	0.37	0.49	0.46	50%	25%	25%	None	None	None	Common	Common	Common

Notes: cm = centimetres. m/s = metres per second. % = percent.

Table E.6: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 North Branch (CLT1-US) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2007	3	430	505	330	nc	nc	CD
				2011	3	942	949	139	1.10	nc	ABCD
				2015	5	1,284	1,446	836	1.53	2.03	A
				2016	5	1,448	1,609	806	1.69	2.81	A
				2017	5	1,235	1,242	143	1.47	1.77	AB
				2018	5	1,292	1,379	524	1.53	2.06	A
				2019	5	1,227	1,260	313	1.46	1.73	AB
				2020	5	1,487	1,635	711	1.73	2.99	A
				2021	5	1,040	1,087	377	1.23	0.649	ABC
				2022	5	1,363	1,430	468	1.61	2.41	A
				2023	5	503	523	170	0.219	-4.11	BCD
				2024	5	420	503	334	-0.0316	-5.28	D
2025	5	962	1,054	448	1.12	0.133	ABCD				
Richness (No. of Taxa)	ANOVA	none	0.007	2007	3	13.7	13.7	2.31	nc	nc	ABC
				2011	3	14.3	14.3	2.08	0.289	nc	ABC
				2015	5	15.0	15.0	2.74	0.577	0.320	ABC
				2016	5	12.2	12.2	2.39	-0.635	-1.02	C
				2017	5	19.2	19.2	2.59	2.40	2.34	A
				2018	5	17.2	17.2	1.48	1.53	1.38	ABC
				2019	5	18.0	18.0	2.12	1.88	1.76	AB
				2020	5	18.2	18.2	2.49	1.96	1.86	AB
				2021	5	16.4	16.4	3.71	1.18	0.993	ABC
				2022	5	15.6	15.6	2.19	0.837	0.608	ABC
				2023	5	14.8	14.8	3.83	0.491	0.224	ABC
				2024	5	13.4	13.4	3.58	-0.115	-0.448	BC
2025	5	17.6	17.6	3.36	1.70	1.57	ABC				
Simpson's Evenness (Krebs)	K-W	rank	0.076	2007	3	0.773	0.749	0.0821	nc	nc	D
				2011	3	0.881	0.874	0.0417	1.68	nc	ABCD
				2015	5	0.897	0.899	0.0372	1.92	0.350	AB
				2016	5	0.866	0.843	0.0428	1.45	-0.319	CD
				2017	5	0.926	0.925	0.0192	2.38	0.998	A
				2018	5	0.899	0.877	0.0578	1.97	0.411	ABC
				2019	5	0.882	0.884	0.0358	1.70	0.0318	ABC
				2020	5	0.889	0.844	0.0760	1.81	0.193	BCD
				2021	5	0.879	0.854	0.0943	1.64	-0.0469	BC
				2022	5	0.905	0.873	0.0890	2.06	0.542	ABC
				2023	5	0.839	0.817	0.0829	1.02	-0.926	CD
				2024	5	0.848	0.834	0.103	1.17	-0.708	BCD
2025	5	0.908	0.900	0.0507	2.10	0.595	AB				
% Nematoda	ANOVA	log ₁₀ (x+1)	<0.001	2007	3	0.148	0.148	0.256	nc	nc	D
				2011	3	0.694	0.696	0.766	2.13	nc	CD
				2015	5	1.68	1.68	0.734	5.93	1.28	BCD
				2016	5	1.32	1.32	0.505	4.55	0.814	BCD
				2017	5	4.06	4.08	2.13	15.0	4.33	AB
				2018	5	1.56	1.56	0.732	5.48	1.13	BCD
				2019	5	1.27	1.27	0.825	4.37	0.751	CD
				2020	5	1.29	1.30	1.13	4.44	0.777	CD
				2021	5	3.69	3.70	1.08	13.6	3.86	ABC
				2022	5	0.624	0.626	0.620	1.86	-0.0915	D
				2023	5	1.88	1.89	1.92	6.71	1.54	BCD
				2024	5	5.46	5.49	2.98	20.2	6.08	A
2025	5	0.954	0.956	0.728	3.14	0.339	CD				
% Oligochaeta	K-W	rank	0.071	2007	3	0.466	1.46	2.13	nc	nc	BC
				2011	3	0.506	0.745	0.512	0.0571	nc	BC
				2015	5	2.18	1.40	1.28	2.48	10.4	BC
				2016	5	1.34	1.50	0.627	1.27	5.21	AC
				2017	5	0.543	1.08	1.31	0.112	0.235	BC
				2018	5	0.920	1.21	0.568	0.656	2.58	C
				2019	5	0.842	2.53	3.20	0.544	2.09	C
				2020	5	4.55	4.38	1.34	5.90	25.1	A
				2021	5	0.508	0.379	0.359	0.0599	0.0120	B
				2022	5	1.05	1.44	1.65	0.840	3.37	BC
				2023	5	0.870	0.972	0.658	0.584	2.26	BC
				2024	5	0	0.372	0.534	-0.674	-3.14	B
2025	5	0.794	1.80	2.38	0.474	1.79	BC				
% Hydracarina	ANOVA	log ₁₀ (x+1)	<0.001	2007	3	0.795	0.798	1.02	nc	nc	E
				2011	3	14.3	14.4	6.67	12.4	nc	A
				2015	5	2.31	2.32	1.70	1.47	-1.87	CE
				2016	5	9.73	9.77	3.19	8.39	-0.690	AB
				2017	5	7.64	7.65	1.13	6.49	-1.01	BD
				2018	5	5.33	5.34	1.27	4.35	-1.38	BCDE
				2019	5	1.96	1.97	1.69	1.14	-1.93	CE
				2020	5	2.93	2.96	2.52	2.07	-1.77	CDE
				2021	5	2.88	2.89	1.67	2.02	-1.78	CDE
				2022	5	2.68	2.72	3.17	1.83	-1.81	CDE
				2023	5	6.58	6.62	3.26	5.51	-1.18	BCD
				2024	5	4.88	4.89	1.60	3.92	-1.45	BCDE
2025	5	2.56	2.56	1.23	1.71	-1.83	CE				
% Ostracoda	K-W	rank	0.035	2007	3	0	0	0	nc	nc	C
				2011	3	0.794	0.939	1.02	nm	nc	AB
				2015	5	0.461	0.603	0.850	nm	-0.283	AB
				2016	5	0	0	0	nm	-0.674	C
				2017	5	0	0	0	nm	-0.674	C
				2018	5	0	0	0	nm	-0.674	C
				2019	5	0	0.107	0.240	nm	-0.674	BC
				2020	5	0.377	0.547	0.607	nm	-0.355	AB
				2021	5	0	0.355	0.495	nm	-0.674	ABC
				2022	5	0.524	0.568	0.431	nm	-0.230	A
				2023	5	0	0.405	0.565	nm	-0.674	ABC
				2024	5	0	0	0	nm	-0.674	C
2025	5	0	0.111	0.153	nm	-0.674	ABC				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.6: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 North Branch (CLT1-US) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
% Chironomidae	K-W	rank	0.004	2007	3	90.7	88.1	7.15	nc	nc	A
				2011	3	76.4	76.3	5.09	-3.33	nc	BCDE
				2015	5	76.1	75.6	7.47	-3.39	-0.0333	CDE
				2016	5	67.4	68.6	10.6	-5.42	-1.23	E
				2017	5	73.8	74.0	1.66	-3.95	-0.362	DE
				2018	5	87.4	86.8	4.18	-0.756	1.52	A
				2019	5	82.7	85.0	5.11	-1.86	0.868	AB
				2020	5	82.1	81.7	7.87	-2.00	0.787	ABC
				2021	5	69.9	70.6	7.32	-4.84	-0.888	E
				2022	5	82.9	81.5	6.11	-1.82	0.891	ABC
				2023	5	75.7	71.4	13.3	-3.50	-0.100	CDE
				2024	5	72.8	72.0	7.36	-4.16	-0.488	DE
% Metal Sensitive Chironomidae	ANOVA	log ₁₀	0.293	2007	3	2.65	3.73	3.57	nc	nc	A
				2011	3	9.04	10.8	6.64	1.18	nc	A
				2015	5	6.62	12.7	14.1	0.883	-0.389	A
				2016	5	6.27	9.33	9.05	0.830	-0.458	A
				2017	5	4.92	7.24	5.16	0.598	-0.760	A
				2018	5	17.2	17.8	4.82	1.80	0.805	A
				2019	5	9.53	14.4	10.4	1.23	0.0665	A
				2020	5	13.1	13.8	4.70	1.54	0.460	A
				2021	5	5.59	7.21	5.34	0.720	-0.600	A
				2022	5	6.72	8.69	6.74	0.897	-0.371	A
				2023	5	7.15	11.5	14.0	0.957	-0.293	A
				2024	5	14.7	17.2	9.76	1.65	0.611	A
% Tipulidae	ANOVA	log ₁₀	<0.001	2007	3	8.26	8.89	4.06	nc	nc	AB
				2011	3	6.67	6.92	2.14	-0.452	nc	ABC
				2015	5	16.4	16.8	4.66	1.44	2.59	A
				2016	5	14.4	16.9	11.8	1.18	2.23	AB
				2017	5	8.29	8.41	1.54	0.00780	0.629	AB
				2018	5	2.06	2.93	2.27	-2.93	-3.39	C
				2019	5	5.14	5.45	1.93	-0.999	-0.748	BC
				2020	5	6.04	7.42	6.20	-0.661	-0.286	ABC
				2021	5	12.0	12.8	5.23	0.787	1.70	AB
				2022	5	9.34	9.94	3.81	0.260	0.974	AB
				2023	5	8.58	10.8	9.89	0.0798	0.728	AB
				2024	5	4.77	5.75	3.13	-1.16	-0.967	BC
% Collector Gatherers	ANOVA	none	0.004	2007	3	72.6	72.6	11.0	nc	nc	A
				2011	3	41.4	41.4	14.1	-2.83	nc	AB
				2015	5	50.2	50.2	7.33	-2.03	0.628	AB
				2016	5	41.6	41.6	15.5	-2.81	0.0187	B
				2017	5	38.8	38.8	7.09	-3.07	-0.185	B
				2018	5	54.6	54.6	13.5	-1.64	0.937	AB
				2019	5	58.8	58.8	8.57	-1.26	1.23	AB
				2020	5	53.5	53.5	15.4	-1.73	0.863	AB
				2021	5	44.2	44.2	14.4	-2.58	0.199	AB
				2022	5	61.7	61.7	17.9	-0.987	1.45	AB
				2023	5	39.8	39.8	12.3	-2.98	-0.113	B
				2024	5	42.1	42.1	10.3	-2.76	0.0541	B
% Filterers	K-W	rank	0.035	2007	3	0.443	0.303	0.263	nc	nc	CD
				2011	3	0	0	0	-13.2	nc	D
				2015	5	0	0	0	-13.2	-	D
				2016	5	0.503	0.512	0.527	1.75	-	BCD
				2017	5	0.557	1.33	1.46	3.36	-	ABC
				2018	5	0.772	0.501	0.459	9.74	-	BCD
				2019	5	1.23	2.02	2.40	23.5	-	ABC
				2020	5	3.01	4.56	5.27	76.0	-	A
				2021	5	3.05	2.39	1.77	77.2	-	AB
				2022	5	0	0.636	1.16	-13.2	-	CD
				2023	5	0.581	0.645	0.721	4.09	-	BCD
				2024	5	0.847	2.99	5.11	12.0	-	ABC
% Shredders	ANOVA	none	0.169	2007	3	23.1	23.1	8.79	nc	nc	A
				2011	3	40.0	40.0	14.2	1.93	nc	A
				2015	5	46.1	46.1	7.29	2.62	0.425	A
				2016	5	47.0	47.0	18.1	2.72	0.490	A
				2017	5	49.5	49.5	6.44	3.00	0.660	A
				2018	5	39.3	39.3	13.2	1.84	-0.0536	A
				2019	5	33.8	33.8	9.13	1.22	-0.437	A
				2020	5	38.2	38.2	12.9	1.72	-0.131	A
				2021	5	47.0	47.0	15.8	2.72	0.489	A
				2022	5	33.5	33.5	19.3	1.18	-0.462	A
				2023	5	48.7	48.7	10.5	2.91	0.605	A
				2024	5	42.6	42.6	14.4	2.22	0.181	A
2025	5	34.4	34.4	8.40	1.29	-0.395	A				

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.7: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 Upper Main Stem (CLT1-L2) Among Years of Mine Operation (2015 to 2025) and Baseline (2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2011	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2011	3	16,806	21,125	13,424	nc	A
				2016	5	7,568	7,701	1,580	-0.855	AB
				2021	5	2,810	3,128	1,579	-1.92	BC
				2022	5	2,986	3,601	2,347	-1.85	BC
				2023	5	1,316	1,548	918	-2.73	C
				2024	5	1,508	1,634	708	-2.58	C
				2025	5	2,657	2,687	425	-1.98	C
Richness (No. of Taxa)	ANOVA	none	0.155	2011	3	17.0	17.0	3.61	nc	A
				2016	5	18.0	18.0	1.58	0.277	A
				2021	5	16.6	16.6	2.41	-0.111	A
				2022	5	15.2	15.2	0.837	-0.499	A
				2023	5	14.4	14.4	3.21	-0.721	A
				2024	5	14.6	14.6	2.07	-0.666	A
				2025	5	16.6	16.6	1.67	-0.111	A
Simpson's Evenness (Krebs)	ANOVA	none	0.042	2011	3	0.879	0.879	0.0236	nc	A
				2016	5	0.856	0.856	0.0427	-0.954	A
				2021	5	0.815	0.815	0.0654	-2.68	A
				2022	5	0.785	0.785	0.0415	-3.95	A
				2023	5	0.856	0.856	0.0299	-0.965	A
				2024	5	0.848	0.848	0.0261	-1.29	A
				2025	5	0.796	0.796	0.0612	-3.48	A
% Nematoda	K-W	rank	0.079	2011	3	1.05	1.25	0.389	nc	C
				2016	5	1.23	1.28	0.689	2.29	C
				2021	5	1.59	1.97	1.54	7.05	BC
				2022	5	3.05	3.48	1.75	26.2	A
				2023	5	1.05	1.15	1.06	-0.0307	C
				2024	5	2.01	2.16	1.40	12.5	ABC
				2025	5	2.46	2.84	1.60	18.4	AB
% Oligochaeta	ANOVA	none	0.160	2011	3	4.44	4.44	4.97	nc	A
				2016	5	12.6	12.6	8.57	1.64	A
				2021	5	13.4	13.4	9.92	1.81	A
				2022	5	10.3	10.3	7.69	1.18	A
				2023	5	18.8	18.8	11.2	2.89	A
				2024	5	22.3	22.3	11.3	3.60	A
				2025	5	14.8	14.8	4.48	2.08	A
% Hydracarina	ANOVA	log ₁₀	0.005	2011	3	8.69	18.9	19.8	nc	AB
				2016	5	22.4	23.8	8.28	0.501	A
				2021	5	1.36	2.13	1.95	-0.981	B
				2022	5	4.59	5.80	4.73	-0.337	AB
				2023	5	5.22	5.71	2.50	-0.269	AB
				2024	5	2.90	5.00	3.78	-0.580	B
				2025	5	2.51	2.56	0.534	-0.658	B
% Ostracoda	K-W	rank	0.028	2011	3	0.943	0.986	0.259	nc	A
				2016	5	0.236	0.257	0.232	-2.47	BC
				2021	5	0.265	0.377	0.296	-2.37	ABC
				2022	5	0	0.105	0.148	-3.30	C
				2023	5	1.05	1.97	2.84	0.372	A
				2024	5	0.501	0.912	1.10	-1.55	AB
				2025	5	0.234	0.226	0.231	-2.48	BC
% Chironomidae	ANOVA	log ₁₀	0.155	2011	3	71.8	73.8	20.7	nc	A
				2016	5	59.6	61.0	14.5	-0.657	A
				2021	5	77.6	78.2	10.8	0.273	A
				2022	5	76.7	77.5	11.5	0.234	A
				2023	5	70.3	70.5	6.84	-0.0769	A
				2024	5	66.4	67.1	10.2	-0.275	A
				2025	5	77.2	77.3	4.38	0.257	A
% Metal Sensitive Chironomidae	ANOVA	log ₁₀	0.005	2011	3	23.8	28.9	22.6	nc	ABC
				2016	5	28.6	30.4	12.3	0.250	A
				2021	5	8.26	10.6	8.01	-1.42	BC
				2022	5	17.3	18.6	7.90	-0.428	ABC
				2023	5	24.3	26.3	11.7	0.0286	AB
				2024	5	12.3	14.0	8.67	-0.888	ABC
				2025	5	7.02	8.39	4.85	-1.64	C
% Tipulidae	K-W	rank	0.003	2011	3	0.189	0.218	0.207	nc	C
				2016	5	0.359	0.462	0.438	0.709	C
				2021	5	1.86	1.93	1.41	6.93	AB
				2022	5	2.38	2.43	0.303	9.11	A
				2023	5	1.45	1.47	0.400	5.24	AB
				2024	5	1.74	1.49	0.786	6.44	AB
				2025	5	1.11	1.03	0.371	3.81	BC

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.7: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 Upper Main Stem (CLT1-L2) Among Years of Mine Operation (2015 to 2025) and Baseline (2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2011	
% Collector Gatherers	ANOVA	none	<0.001	2011	3	33.4	33.4	7.91	nc	BC
				2016	5	30.9	30.9	8.89	-0.311	C
				2021	5	60.4	60.4	12.0	3.41	A
				2022	5	26.7	26.7	12.5	-0.848	C
				2023	5	45.1	45.1	20.0	1.48	ABC
				2024	5	58.8	58.8	12.2	3.21	AB
				2025	5	64.6	64.6	8.72	3.94	A
% Filterers	ANOVA	log ₁₀	<0.001	2011	3	23.6	28.8	22.7	nc	ABC
				2016	5	25.9	28.3	13.7	0.123	A
				2021	5	6.54	9.84	8.38	-1.70	CD
				2022	5	16.1	17.6	8.32	-0.500	ABC
				2023	5	23.1	25.2	12.1	-0.0282	AB
				2024	5	7.69	8.17	3.13	-1.48	BCD
				2025	5	4.42	4.97	2.41	-2.21	D
% Shredders	ANOVA	none	<0.001	2011	3	13.0	13.0	14.6	nc	B
				2016	5	16.4	16.4	2.10	0.232	B
				2021	5	26.4	26.4	5.09	0.912	B
				2022	5	47.1	47.1	4.43	2.33	A
				2023	5	22.7	22.7	6.62	0.659	B
				2024	5	27.2	27.2	9.36	0.972	B
				2025	5	27.0	27.0	6.86	0.956	B

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.8: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 Lower Main Stem (CLT1-DS) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
Density (org/m²)	ANOVA	none	<0.001	2007	3	754	754	573	nc	nc	ABC
				2011	3	898	898	183	0.251	nc	ABC
				2015	5	1,301	1,301	479	0.956	2.20	AB
				2016	5	1,143	1,143	444	0.679	1.34	AB
				2017	5	1,465	1,465	735	1.24	3.09	A
				2018	5	771	771	309	0.0299	-0.692	ABC
				2019	5	843	843	293	0.157	-0.296	ABC
				2020	5	626	626	261	-0.223	-1.48	BC
				2021	5	675	675	344	-0.137	-1.21	BC
				2022	5	638	638	301	-0.202	-1.42	BC
				2023	5	255	255	99.4	-0.870	-3.51	C
				2024	5	268	268	88.0	-0.848	-3.44	C
2025	5	297	297	129	-0.797	-3.28	C				
Richness (No. of Taxa)	ANOVA	log ₁₀	<0.001	2007	3	19.7	20.3	6.03	nc	nc	A
				2011	3	14.9	15.3	4.51	-0.890	nc	ABC
				2015	5	14.6	14.6	1.14	-0.961	-0.0736	ABC
				2016	5	14.9	15.0	1.58	-0.881	0.0101	ABC
				2017	5	16.7	16.8	1.92	-0.522	0.388	AB
				2018	5	14.4	14.4	1.14	-1.00	-0.120	ABC
				2019	5	15.7	15.8	1.64	-0.715	0.185	AB
				2020	5	16.2	16.4	3.05	-0.624	0.280	AB
				2021	5	14.5	14.6	1.95	-0.976	-0.0904	ABC
				2022	5	15.0	15.2	2.59	-0.863	0.0289	ABC
				2023	5	11.4	11.6	2.41	-1.74	-0.891	CD
				2024	5	8.36	8.40	0.894	-2.73	-1.93	D
2025	5	12.6	12.6	1.14	-1.43	-0.569	BC				
Simpson's Evenness (Krebs)	K-W	rank	0.127	2007	3	0.845	0.864	0.0397	nc	nc	A
				2011	3	0.863	0.864	0.0254	1.50	nc	A
				2015	5	0.900	0.889	0.0436	4.61	1.03	A
				2016	5	0.936	0.920	0.0342	7.62	2.03	A
				2017	5	0.878	0.874	0.0331	2.70	0.398	A
				2018	5	0.848	0.857	0.0500	0.197	-0.431	A
				2019	5	0.722	0.755	0.161	-10.3	-3.91	A
				2020	5	0.908	0.903	0.0335	5.27	1.25	A
				2021	5	0.838	0.842	0.0428	-0.647	-0.710	A
				2022	5	0.916	0.921	0.0202	5.90	1.46	A
				2023	5	0.900	0.893	0.0208	4.59	1.02	A
				2024	5	0.695	0.751	0.149	-12.6	-4.68	A
2025	5	0.911	0.888	0.0484	5.48	1.32	A				
% Nematoda	K-W	rank	0.233	2007	3	0.503	1.01	1.34	nc	nc	A
				2011	3	0.549	0.427	0.381	0.0630	nc	A
				2015	5	2.80	3.18	2.58	3.09	8.31	A
				2016	5	2.62	4.46	4.07	2.84	7.63	A
				2017	5	4.21	4.55	4.99	4.98	13.5	A
				2018	5	2.32	2.57	1.81	2.43	6.50	A
				2019	5	2.52	2.22	1.29	2.70	7.25	A
				2020	5	1.91	2.05	1.04	1.89	5.01	A
				2021	5	2.69	3.47	2.87	2.94	7.89	A
				2022	5	0	1.65	2.93	-0.674	-2.02	A
				2023	5	1.59	1.33	0.837	1.46	3.82	A
				2024	5	1.12	2.00	2.55	0.834	2.11	A
2025	5	0	1.28	2.17	-0.674	-2.02	A				
% Oligochaeta	K-W	rank	<0.001	2007	3	6.21	7.26	6.23	nc	nc	ABC
				2011	3	0.366	1.08	1.56	-0.857	nc	BDEF
				2015	5	5.21	5.60	3.14	-0.147	8.91	AC
				2016	5	9.60	9.68	3.69	0.497	17.0	A
				2017	5	3.25	4.97	2.66	-0.433	5.32	AC
				2018	5	0.909	1.20	1.04	-0.777	0.999	DEF
				2019	5	2.63	3.99	2.70	-0.525	4.17	ABCD
				2020	5	6.85	11.5	8.35	0.0936	11.9	A
				2021	5	0.321	0.950	1.74	-0.864	-0.0843	EF
				2022	5	2.46	2.53	2.19	-0.550	3.85	BCDE
				2023	5	0	0.535	0.753	-0.911	-0.674	EF
				2024	5	0	0	0	-0.911	-0.674	F
2025	5	0	0.696	1.17	-0.911	-0.674	EF				
% Hydracarina	K-W	rank	0.007	2007	3	3.64	2.87	1.42	nc	nc	BCD
				2011	3	23.1	24.7	6.39	157	nc	A
				2015	5	1.35	1.68	1.55	-18.5	-3.76	CD
				2016	5	4.37	4.60	0.806	5.85	-3.24	AB
				2017	5	3.60	4.03	1.43	-0.310	-3.37	BD
				2018	5	3.22	3.64	1.50	-3.39	-3.44	BCD
				2019	5	1.93	2.27	1.35	-13.9	-3.66	CD
				2020	5	1.15	1.61	1.55	-20.2	-3.80	CD
				2021	5	2.02	1.74	0.872	-13.1	-3.65	C
				2022	5	4.76	5.32	1.84	9.04	-3.17	AB
				2023	5	3.70	3.43	3.64	0.489	-3.35	BCD
				2024	5	2.86	3.74	3.72	-6.35	-3.50	BCD
2025	5	6.94	5.57	3.30	26.7	-2.80	AB				

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

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Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.8: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 Lower Main Stem (CLT1-DS) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
% Ostracoda	K-W	rank	0.137	2007	3	0.613	0.619	0.621	nc	nc	A
				2011	3	0	0.122	0.211	-0.674	nc	A
				2015	5	0	0.758	1.04	-0.674	nm	A
				2016	5	0	0	0	-0.674	nm	A
				2017	5	0	0	0	-0.674	nm	A
				2018	5	0	0.143	0.319	-0.674	nm	A
				2019	5	0.350	0.402	0.417	-0.289	nm	A
				2020	5	0	0.0763	0.171	-0.674	nm	A
				2021	5	0	0	0	-0.674	nm	A
				2022	5	0	0	0	-0.674	nm	A
				2023	5	0	0.403	0.554	-0.674	nm	A
% Chironomidae	ANOVA	log ₁₀	0.001	2007	3	80.5	80.8	8.53	nc	nc	AB
				2011	3	64.9	65.3	8.95	-2.07	nc	C
				2015	5	85.1	85.2	4.02	0.532	1.97	AB
				2016	5	73.7	73.9	5.94	-0.840	0.929	BC
				2017	5	80.8	80.9	4.46	0.0424	1.60	AB
				2018	5	85.8	85.9	4.05	0.611	2.03	AB
				2019	5	87.1	87.4	7.37	0.760	2.14	A
				2020	5	75.6	75.8	7.09	-0.605	1.11	ABC
				2021	5	80.8	80.8	3.03	0.0334	1.59	AB
				2022	5	78.4	78.8	8.14	-0.248	1.38	ABC
				2023	5	79.0	79.3	7.82	-0.184	1.43	AB
% Metal Sensitive Chironomidae	K-W	rank	0.007	2007	3	9.80	15.1	10.2	nc	nc	A
				2011	3	3.98	7.56	7.37	-3.56	nc	ABCD
				2015	5	4.62	4.41	3.52	-3.16	0.325	BCDE
				2016	5	2.66	4.08	3.26	-4.37	-0.674	DE
				2017	5	1.35	1.49	0.665	-5.16	-1.34	E
				2018	5	4.63	8.56	5.95	-3.16	0.331	ABCD
				2019	5	7.53	7.67	3.37	-1.39	1.80	ABCD
				2020	5	2.68	3.59	1.63	-4.35	-0.663	CDE
				2021	5	6.59	11.1	9.82	-1.96	1.32	ABC
				2022	5	7.58	8.52	6.24	-1.36	1.83	ABCD
				2023	5	4.97	8.19	5.37	-2.95	0.501	ABCD
% Tipulidae	K-W	rank	0.039	2007	3	7.04	6.45	2.60	nc	nc	ABCD
				2011	3	8.93	8.38	3.20	0.772	nc	AB
				2015	5	3.09	3.06	1.00	-1.60	-1.69	E
				2016	5	6.55	6.13	3.38	-0.197	-0.691	ABCD
				2017	5	3.25	3.90	3.09	-1.54	-1.64	DE
				2018	5	3.91	4.85	3.06	-1.27	-1.45	ACDE
				2019	5	2.00	2.75	2.41	-2.05	-2.01	E
				2020	5	5.73	6.20	2.01	-0.529	-0.927	ABCD
				2021	5	5.20	4.40	1.67	-0.745	-1.08	CDE
				2022	5	8.20	9.11	6.95	0.472	-0.214	ABC
				2023	5	6.35	8.73	5.84	-0.279	-0.749	ABC
% Collector Gatherers	ANOVA	none	<0.001	2007	3	51.7	51.7	24.3	nc	nc	CDEF
				2011	3	35.6	35.6	10.5	-0.663	nc	EF
				2015	5	78.4	78.4	9.50	1.10	4.09	AB
				2016	5	65.2	65.2	10.9	0.554	2.83	ABCD
				2017	5	67.2	67.2	6.41	0.635	3.02	ABCD
				2018	5	59.5	59.5	8.30	0.322	2.29	BCD
				2019	5	81.5	81.5	6.28	1.23	4.39	A
				2020	5	71.2	71.2	8.07	0.802	3.41	ABC
				2021	5	47.9	47.9	9.72	-0.155	1.18	DEF
				2022	5	58.3	58.3	9.06	0.271	2.17	BCDE
				2023	5	59.8	59.8	9.79	0.331	2.31	BCD
2024	5	31.2	31.2	11.5	-0.842	-0.417	F				
2025	5	77.6	77.6	7.42	1.06	4.01	AB				

Table E.8: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 1 Lower Main Stem (CLT1-DS) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
% Filterers	K-W	rank	0.405	2007	3	5.65	10.2	13.1	nc	nc	A
				2011	3	0.366	0.275	0.242	-0.631	nc	A
				2015	5	0	0.227	0.508	-0.674	-2.69	A
				2016	5	0.934	1.32	1.46	-0.563	4.16	A
				2017	5	0	0.340	0.546	-0.674	-2.69	A
				2018	5	0.331	0.428	0.475	-0.635	-0.262	A
				2019	5	0	0.841	1.88	-0.674	-2.69	A
				2020	5	0.913	1.01	1.21	-0.566	4.02	A
				2021	5	2.31	1.70	1.33	-0.399	14.2	A
				2022	5	0	0.244	0.373	-0.674	-2.69	A
				2023	5	0	0.658	1.47	-0.674	-2.69	A
2024	5	0	0.933	1.54	-0.674	-2.69	A				
2025	5	0	0.180	0.403	-0.674	-2.69	A				
% Shredders	ANOVA	none	<0.001	2007	3	22.1	22.1	3.05	nc	nc	BCD
				2011	3	38.9	38.9	4.55	5.49	nc	BC
				2015	5	19.3	19.3	8.98	-0.914	-4.30	CD
				2016	5	28.2	28.2	10.6	1.99	-2.35	BCD
				2017	5	27.6	27.6	4.92	1.80	-2.48	BCD
				2018	5	35.5	35.5	7.73	4.40	-0.733	BC
				2019	5	13.9	13.9	6.10	-2.69	-5.49	D
				2020	5	24.6	24.6	8.93	0.809	-3.14	BCD
				2021	5	41.9	41.9	11.6	6.48	0.661	B
				2022	5	23.4	23.4	4.44	0.436	-3.39	CD
				2023	5	32.3	32.3	8.60	3.35	-1.44	BC
				2024	5	59.8	59.8	14.3	12.4	4.61	A
				2025	5	13.5	13.5	7.89	-2.81	-5.57	D

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.9: Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 (CLT2) and Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), August 2025

Endpoints	Area	n	Mean	Standard Deviation	Standard Error	Minimum	Median	Maximum
Density (org/m²)	REF-CRK	5	232	137	61.2	108	179	444
	CLT2-US	5	303	122	54.6	176	308	495
	CLT2-DS	5	354	71.4	31.9	276	391	430
Richness (No. of Taxa)	REF-CRK	5	14.4	2.88	1.29	10.0	14.0	17.0
	CLT2-US	5	12.8	1.30	0.583	11.0	13.0	14.0
	CLT2-DS	5	13.2	2.77	1.24	10.0	13.0	16.0
Simpson's Evenness (Krebs)	REF-CRK	5	0.909	0.0727	0.0325	0.794	0.930	0.969
	CLT2-US	5	0.894	0.0332	0.0148	0.859	0.878	0.934
	CLT2-DS	5	0.870	0.0392	0.0175	0.804	0.890	0.899
% Nematoda	REF-CRK	5	0.667	1.49	0.667	0	0	3.33
	CLT2-US	5	0	0	0	0	0	0
	CLT2-DS	5	0.183	0.410	0.183	0	0	0.917
% Hydracarina	REF-CRK	5	4.34	2.50	1.12	2.00	3.33	7.69
	CLT2-US	5	5.40	3.70	1.66	0	5.07	10.2
	CLT2-DS	5	3.43	2.07	0.927	1.67	2.56	6.49
% Ostracoda	REF-CRK	5	9.93	8.64	3.87	2.00	10.5	23.3
	CLT2-US	5	0	0	0	0	0	0
	CLT2-DS	5	0	0	0	0	0	0
% Chironomidae	REF-CRK	5	55.5	17.8	7.97	33.3	51.3	80.0
	CLT2-US	5	75.4	6.19	2.77	68.8	75.5	83.7
	CLT2-DS	5	83.6	6.28	2.81	76.6	84.2	90.9
% Metal Sensitive Chironomidae	REF-CRK	5	7.38	3.20	1.43	4.17	6.32	11.2
	CLT2-US	5	29.8	6.77	3.03	21.7	28.8	40.5
	CLT2-DS	5	25.6	7.32	3.27	14.0	27.8	31.6
% Collector Gatherers	REF-CRK	5	64.2	10.9	4.87	51.3	60.0	76.6
	CLT2-US	5	78.0	5.55	2.48	71.3	80.1	84.6
	CLT2-DS	5	83.9	5.97	2.67	76.4	84.0	90.9
% Filterers	REF-CRK	5	13.1	6.68	2.99	5.65	11.2	23.3
	CLT2-US	5	6.72	3.59	1.61	1.99	6.45	10.3
	CLT2-DS	5	1.94	1.46	0.654	0	2.50	3.67
% Shredders	REF-CRK	5	5.20	2.55	1.14	2.56	4.84	8.75
	CLT2-US	5	5.91	2.14	0.955	3.45	6.45	8.44
	CLT2-DS	5	7.14	1.72	0.768	4.55	7.34	9.29
% Clingers	REF-CRK	5	18.1	7.21	3.22	8.06	17.5	26.7
	CLT2-US	5	12.4	4.25	1.90	6.11	11.9	17.2
	CLT2-DS	5	5.86	3.51	1.57	2.56	5.18	10.6
% Sprawlers	REF-CRK	5	72.1	9.40	4.20	60.0	72.5	84.7
	CLT2-US	5	82.4	4.07	1.82	79.3	79.7	88.1
	CLT2-DS	5	89.7	4.71	2.11	82.9	89.8	95.5
% Burrowers	REF-CRK	5	9.83	2.31	1.03	7.27	10.0	13.3
	CLT2-US	5	5.20	2.11	0.943	3.23	5.07	8.43
	CLT2-DS	5	4.42	1.77	0.790	1.82	5.00	6.49
% Oligochaeta	REF-CRK	5	0.250	0.559	0.250	0	0	1.25
	CLT2-US	5	2.70	1.44	0.646	1.15	2.33	4.35
	CLT2-DS	5	0.610	0.584	0.261	0	0.833	1.30
% Simuliidae	REF-CRK	5	13.1	6.68	2.99	5.65	11.2	23.3
	CLT2-US	5	6.73	3.57	1.60	2.04	6.45	10.3
	CLT2-DS	5	1.94	1.46	0.654	0	2.50	3.67
% Tipulidae	REF-CRK	5	3.40	2.42	1.08	0	3.75	6.67
	CLT2-US	5	2.03	1.01	0.452	0.725	2.04	3.49
	CLT2-DS	5	3.30	1.73	0.772	1.82	2.50	5.19

Notes: n/No. = number. org/m² = organisms per square metre. % = percent.

Table E.10: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Camp Lake Tributary 2 (CLT2), Mary River Project Core Receiving Environment Monitoring Program, August 2025

Waterbody	Upstream (CLT2-US)					Downstream (CLT2-DS)				
Station	B1	B2	B3	B4	B5	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-	-	-	-	-	-
P. Nemata	-	-	-	-	-	-	-	-	3.58	-
	-	-	-	-	-	-	-	-	-	-
ANNELIDS	-	-	-	-	-	-	-	-	-	-
P. Annelida	-	-	-	-	-	-	-	-	-	-
WORMS	-	-	-	-	-	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-	-	-	-	-	-
F. Enchytraeidae	3.58	21.5	7.17	3.58	7.17	-	3.58	-	3.58	3.58
F. Lumbriculidae	-	-	-	-	-	-	-	-	-	-
Lumbriculus	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
ARTHROPODS	-	-	-	-	-	-	-	-	-	-
P. Arthropoda	-	-	-	-	-	-	-	-	-	-
MITES	-	-	-	-	-	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-	-	-	-	-	-
O. Acarina	-	-	-	-	-	-	-	-	-	-
immature	-	-	-	-	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-	-	-	-	-
F. Lebertiidae	-	-	-	-	-	-	-	-	-	-
Lebertia	-	-	-	-	-	-	-	-	-	-
F. Pionidae	-	-	-	-	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-	-	-	-	-	-
Sperchon	21.5	25.1	17.9	10.7	-	7.17	7.17	7.17	17.9	17.9
SEED SHRIMPS	-	-	-	-	-	-	-	-	-	-
Cl. Ostracoda	-	-	-	-	-	-	-	-	-	-
SPRINGTAILS	-	-	-	-	-	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-	-	-	-	-	-
O. Collembola	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
INSECTS	-	-	-	-	-	-	-	-	-	-
Cl. Insecta	-	-	-	-	-	-	-	-	-	-
MAYFLIES	-	-	-	-	-	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-	-	-	-	-	-
F. Baetidae	-	-	-	-	-	-	-	-	-	-
Acentrella feropagus	-	-	-	-	-	-	-	-	-	-
STONEFLIES	-	-	-	-	-	-	-	-	-	-
O. Plecoptera	-	-	-	-	-	-	-	-	-	-
F. Capniidae	-	-	-	-	-	-	-	-	-	-
immature	3.58	32.2	3.58	10.7	10.7	10.7	14.3	7.17	21.5	7.17
TRUE FLIES	-	-	-	-	-	-	-	-	-	-
O. Diptera	-	-	-	-	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-	-	-	-	-	-
Culicoides	-	-	-	-	-	-	7.17	-	-	-
MIDGES	-	-	-	-	-	-	-	-	-	-
F. Chironomidae	-	-	-	-	-	-	-	-	-	-
chironomid pupae	32.2	32.2	25.1	32.2	10.7	17.9	35.8	25.1	25.1	28.7
S.F. Chironominae	-	-	-	-	-	-	-	-	-	-
Paratanytarsus	-	-	-	-	-	-	-	-	-	-
Rheotanytarsus	-	-	-	-	-	-	-	-	-	-
Tanytarsus	-	-	-	-	-	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-	-	-	-	-	-
Diamesa	78.8	104	43.0	35.8	78.8	78.8	86.0	64.5	39.4	75.2
Pseudokiefferiella	28.7	25.1	-	3.58	3.58	25.1	3.58	14.3	10.7	-
S.F. Orthoclaadiinae	-	-	-	-	-	-	-	-	-	-
Cardiocladius	-	-	-	-	-	-	-	-	-	-
Chaetocladius	-	-	-	-	-	-	3.58	-	-	-
Cricotopus	-	-	-	-	3.58	-	3.58	-	-	3.58
Cricotopus/Orthocladius	-	-	7.17	3.58	10.7	10.7	3.58	-	-	-
Eukiefferiella	3.58	17.9	-	-	14.3	-	25.1	25.1	7.17	10.7
Hydrobaenus	-	-	-	-	-	-	-	-	-	3.58
Hydrosmittia	-	-	-	3.58	7.17	3.58	14.3	3.58	-	-
Krenosmittia	-	-	3.58	-	3.58	-	3.58	7.17	7.17	-
Limnophyes	-	-	-	-	-	-	-	-	14.3	-
Metriocnemus	-	-	3.58	-	-	-	-	-	-	-
Orthocladius (Euorthocladius)	28.7	100	32.2	60.9	68.1	150	107	75.2	96.7	53.7
Parakiefferiella	-	-	-	-	-	-	-	-	-	-
Parametriocnemus	-	-	-	-	-	-	-	-	-	-
Paraphaenocladius	7.17	10.7	-	-	-	-	-	-	-	-
Synorthocladius	-	-	-	-	-	-	-	-	-	-
Thienemanniella	-	-	-	-	-	-	-	-	-	-
Tokunagaia	14.3	35.8	14.3	32.2	50.2	68.1	71.7	25.1	86.0	21.5
Tvetenia	25.1	10.7	3.58	3.58	3.58	3.58	3.58	7.17	17.9	14.3
indeterminate	-	3.58	-	-	-	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-	-	-	-	-	-
Procladius	-	-	-	-	-	-	-	-	-	-
Thienemannimyia complex	-	-	-	-	-	-	-	-	-	-
F. Empididae	-	-	-	-	-	-	-	-	-	-
Clinocera	25.1	21.5	7.17	3.58	7.17	7.17	14.3	3.58	17.9	14.3
F. Muscidae	-	-	-	-	-	-	-	-	-	-
F. Simuliidae	-	-	-	-	-	-	-	-	-	-
Gymnopais	14.3	14.3	-	7.17	3.58	3.58	-	-	7.17	3.58
Helodon irkutensis	10.7	21.5	3.58	3.58	10.7	-	7.17	-	3.58	3.58
Metacnephia	7.17	3.58	-	3.58	-	-	-	-	-	-
Prosimulium ursinum	-	10.7	-	-	-	-	3.58	-	3.58	-
pupae	-	-	-	-	-	-	-	-	-	-
F. Tipulidae	-	-	-	-	-	-	-	-	-	-
Tipula	7.17	3.58	3.58	3.58	10.7	7.17	10.7	14.3	7.17	14.3
	-	-	-	-	-	-	-	-	-	-
CLAMS	-	-	-	-	-	-	-	-	-	-
Cl. Bivalvia	-	-	-	-	-	-	-	-	-	-
F. Sphaeriidae	-	-	-	-	-	-	-	-	-	-
Pisidium (Cyclocalyx)	-	-	-	-	-	-	-	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.11: Replicate Grab Data for Benthic Invertebrate Community Samples Collected at Camp Lake Tributary 2 (CLT2) and the Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Water Depth (cm)			Water Velocity (m/s)			Embeddedness			In-stream Vegetation			Algae Presence		
		Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3
Unnamed Reference Creek	REF-CRK-B1	10	10	12	0.34	0.44	0.44	25%	25%	25%	None	None	None	None	None	None
	REF-CRK-B2	9	10	14	0.48	0.39	0.43	25%	50%	25%	None	None	None	None	None	None
	REF-CRK-B3	10	10	8	0.45	0.48	0.44	25%	50%	25%	None	None	None	None	None	None
	REF-CRK-B4	8	14	10	0.45	0.38	0.47	25%	25%	25%	None	None	None	None	None	None
	REF-CRK-B5	14	20	12	0.45	0.51	0.44	25%	25%	25%	None	None	None	None	None	None
Camp Lake Tributary 2 Upstream	CLT-2-US-B1	5	12	13	0.40	0.44	0.35	25%	50%	50%	None	None	None	Sparse	Sparse	Sparse
	CLT-2-US-B2	16	14	6	0.33	0.43	0.58	50%	25%	25%	None	None	None	Sparse	Sparse	Sparse
	CLT-2-US-B3	17	12	8	0.38	0.48	0.53	25%	50%	25%	None	None	None	None	Sparse	Sparse
	CLT-2-US-B4	12	16	12	0.32	0.44	0.56	25%	25%	50%	None	None	None	None	Common	None
	CLT-2-US-B5	10	8	12	0.37	0.58	0.42	50%	25%	25%	None	None	None	None	Sparse	Sparse
Camp Lake Tributary 2 Downstream	CLT-2-DS-B1	13	20	14	0.37	0.46	0.54	25%	25%	50%	None	None	None	Common	Common	Common
	CLT-2-DS-B2	10	8	10	0.45	0.44	0.44	50%	75%	25%	None	None	Sparse bryophytes	Common	Sparse	Sparse
	CLT-2-DS-B3	18	8	8	0.36	0.52	0.48	25%	50%	75%	None	None	None	None	None	Sparse
	CLT-2-DS-B4	14	14	18	0.42	0.41	0.48	50%	25%	75%	None	Sparse bryophytes	None	Sparse	None	Sparse
	CLT-2-DS-B5	12	14	14	0.51	0.46	0.51	0%	25%	25%	None	None	None	None	None	None

Notes: cm = centimetres. m/s = metres per second. % = percent.

Table E.12: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 Upstream (CLT2-US) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2007	3	313	364	205	nc	ABCDE
				2015	5	663	741	416	1.03	AB
				2016	5	399	409	100	0.332	ABCD
				2017	5	215	216	30.2	-0.520	DE
				2018	5	158	168	65.0	-0.940	E
				2019	5	711	745	282	1.13	AB
				2020	5	618	679	325	0.934	ABC
				2021	5	319	392	318	0.0248	BCDE
				2022	5	760	768	127	1.22	A
				2023	5	138	146	53.7	-1.13	E
2024	5	207	224	105	-0.573	DE				
2025	5	284	303	122	-0.135	CDE				
Richness (No. of Taxa)	ANOVA	none	<0.001	2007	3	12.7	12.7	2.08	nc	BCD
				2015	5	20.8	20.8	1.79	3.91	A
				2016	5	16.0	16.0	2.74	1.60	ABC
				2017	5	14.6	14.6	2.51	0.929	BCD
				2018	5	15.0	15.0	3.74	1.12	BC
				2019	5	18.8	18.8	2.59	2.95	AB
				2020	5	16.6	16.6	2.51	1.89	ABC
				2021	5	15.6	15.6	3.44	1.41	ABC
				2022	5	18.6	18.6	2.41	2.85	AB
				2023	5	9.20	9.20	2.59	-1.67	D
2024	5	12.0	12.0	3.74	-0.320	CD				
2025	5	12.8	12.8	1.30	0.0641	CD				
Simpson's Evenness (Krebs)	ANOVA	none	0.002	2007	3	0.825	0.825	0.00817	nc	C
				2015	5	0.922	0.922	0.0250	11.8	AB
				2016	5	0.891	0.891	0.0428	8.05	ABC
				2017	5	0.955	0.955	0.0133	15.8	A
				2018	5	0.922	0.922	0.0425	11.8	AB
				2019	5	0.949	0.949	0.00536	15.2	AB
				2020	5	0.869	0.869	0.0611	5.37	BC
				2021	5	0.870	0.870	0.0797	5.43	BC
				2022	5	0.901	0.901	0.0335	9.32	ABC
				2023	5	0.930	0.930	0.0268	12.9	AB
2024	5	0.916	0.916	0.0477	11.1	ABC				
2025	5	0.894	0.894	0.0332	8.41	ABC				
% Nematoda	K-W	rank	0.226	2007	3	1.46	1.14	0.580	nc	A
				2015	5	0.851	0.878	0.900	-10.7	A
				2016	5	0.741	0.918	0.865	-12.7	A
				2017	5	0	0.970	1.35	-25.7	A
				2018	5	0	1.14	1.57	-25.7	A
				2019	5	2.39	2.41	0.971	16.4	A
				2020	5	0	0.540	0.742	-25.7	A
				2021	5	1.59	1.55	1.73	2.25	A
				2022	5	0.943	1.03	0.825	-9.10	A
				2023	5	1.56	1.67	1.79	1.81	A
2024	5	0.909	1.18	1.45	-9.71	A				
2025	5	0	0	0	-25.7	A				
% Oligochaeta	K-W	rank	0.734	2007	3	1.90	2.12	0.791	nc	A
				2015	5	1.32	2.67	2.82	-0.895	A
				2016	5	5.93	4.84	3.50	6.17	A
				2017	5	0	3.37	6.45	-2.91	A
				2018	5	0	2.44	3.35	-2.91	A
				2019	5	2.35	2.43	0.959	0.683	A
				2020	5	4.30	15.3	19.0	3.68	A
				2021	5	3.17	11.0	20.6	1.95	A
				2022	5	3.77	7.68	8.43	2.87	A
				2023	5	2.27	1.91	1.87	0.571	A
2024	5	4.48	6.33	7.15	3.95	A				
2025	5	2.33	2.70	1.44	0.651	A				
% Hydracarina	K-W	rank	0.004	2007	3	3.93	2.93	2.14	nc	BCDE
				2015	5	0.851	0.882	0.745	-4.65	E
				2016	5	5.00	5.49	2.55	1.61	ABC
				2017	5	9.96	8.01	4.16	9.10	AB
				2018	5	3.31	4.69	4.42	-0.946	BCD
				2019	5	2.35	1.58	1.47	-2.39	DE
				2020	5	3.57	3.03	1.31	-0.545	CDE
				2021	5	4.84	5.53	1.78	1.37	ABC
				2022	5	5.80	5.64	1.42	2.82	ABC
				2023	5	6.25	8.57	8.09	3.50	ABC
2024	5	9.09	11.7	7.15	7.78	A				
2025	5	5.07	5.40	3.70	1.72	ABC				

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.12: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 Upstream (CLT2-US) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Ostracoda	K-W	rank	0.105	2007	3	0	0	0	nc	A
				2015	5	0	0.359	0.507	nm	A
				2016	5	0	0	0	nm	A
				2017	5	0	0	0	nm	A
				2018	5	0	0	0	nm	A
				2019	5	0	0.235	0.525	nm	A
				2020	5	0	0.358	0.506	nm	A
				2021	5	0	0.323	0.721	nm	A
				2022	5	0.472	0.515	0.539	nm	A
				2023	5	0	0	0	nm	A
2024	5	0	0	0	nm	A				
2025	5	0	0	0	nm	A				
% Chironomidae	ANOVA	none	<0.001	2007	3	88.4	88.4	4.30	nc	A
				2015	5	80.2	80.2	8.93	-1.91	AB
				2016	5	79.8	79.8	8.68	-2.00	AB
				2017	5	75.9	75.9	7.48	-2.90	ABC
				2018	5	80.2	80.2	3.86	-1.91	AB
				2019	5	80.0	80.0	5.87	-1.96	AB
				2020	5	70.4	70.4	14.2	-4.19	ABC
				2021	5	62.2	62.2	14.9	-6.10	BCD
				2022	5	72.4	72.4	5.64	-3.73	ABC
				2023	5	49.2	49.2	14.6	-9.11	D
2024	5	59.4	59.4	7.97	-6.74	CD				
2025	5	75.4	75.4	6.19	-3.02	ABC				
% Metal Sensitive Chironomidae	ANOVA	log ₁₀	<0.001	2007	3	5.31	5.33	0.591	nc	CD
				2015	5	9.16	10.5	5.68	4.81	BCD
				2016	5	4.63	5.55	3.36	-1.19	D
				2017	5	21.9	22.0	3.09	12.5	AB
				2018	5	8.20	9.51	4.96	3.85	BCD
				2019	5	16.1	17.0	6.61	9.78	ABC
				2020	5	4.59	5.66	3.45	-1.27	D
				2021	5	11.7	13.5	7.25	7.00	ABCD
				2022	5	8.27	8.49	2.09	3.92	BCD
				2023	5	18.8	21.2	13.6	11.2	AB
2024	5	17.9	19.1	8.05	10.7	AB				
2025	5	29.2	29.8	6.77	15.1	A				
% Tipulidae	ANOVA	log ₁₀ (x+1)	0.135	2007	3	5.21	5.23	1.99	nc	A
				2015	5	4.10	4.14	3.46	-0.564	A
				2016	5	4.07	4.08	1.80	-0.578	A
				2017	5	1.59	1.60	1.63	-1.85	A
				2018	5	2.27	2.28	1.49	-1.50	A
				2019	5	1.56	1.56	0.559	-1.87	A
				2020	5	1.84	1.84	0.989	-1.72	A
				2021	5	2.03	2.05	2.21	-1.63	A
				2022	5	4.16	4.17	2.12	-0.535	A
				2023	5	4.55	4.61	4.20	-0.336	A
2024	5	2.51	2.53	2.40	-1.38	A				
2025	5	2.03	2.03	1.01	-1.63	A				
% Collector Gatherers	K-W	rank	<0.001	2007	3	70.3	68.5	6.51	nc	ABCD
				2015	5	66.8	63.8	10.3	-0.637	CD
				2016	5	69.6	67.0	6.03	-0.133	BCD
				2017	5	77.2	75.6	3.88	1.27	AB
				2018	5	68.2	73.2	8.55	-0.392	ABC
				2019	5	55.9	54.0	6.04	-2.65	DE
				2020	5	84.4	79.8	11.8	2.60	A
				2021	5	74.0	74.0	4.26	0.680	ABC
				2022	5	73.8	73.6	7.26	0.638	ABC
				2023	5	46.5	44.4	11.4	-4.39	E
2024	5	55.9	53.2	12.6	-2.66	DE				
2025	5	80.1	78.0	5.55	1.80	A				
% Filterers	ANOVA	log10(x+1)	<0.001	2007	3	0.249	0.250	0.432	nc	CD
				2015	5	0.983	0.987	1.06	1.69	CD
				2016	5	0.156	0.156	0.349	-0.216	D
				2017	5	6.42	6.45	3.07	13.8	BCD
				2018	5	6.50	6.61	5.49	14.0	BCD
				2019	5	11.3	11.3	3.68	24.2	B
				2020	5	1.89	1.90	1.74	3.76	CD
				2021	5	3.62	3.67	3.64	7.68	CD
				2022	5	2.35	2.36	1.65	4.81	CD
				2023	5	27.8	28.0	7.83	56.3	A
2024	5	7.26	7.27	1.84	15.7	BC				
2025	5	6.67	6.72	3.59	14.4	BCD				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.12: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 Upstream (CLT2-US) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Shredders	ANOVA	none	<0.001	2007	3	27.6	27.6	5.83	nc	A
				2015	5	26.2	26.2	5.85	-0.252	A
				2016	5	25.6	25.6	4.71	-0.346	A
				2017	5	7.44	7.44	5.91	-3.47	C
				2018	5	12.9	12.9	5.26	-2.53	BC
				2019	5	21.9	21.9	5.81	-0.988	AB
				2020	5	9.12	9.12	3.65	-3.18	C
				2021	5	4.90	4.90	3.07	-3.90	C
				2022	5	12.2	12.2	5.71	-2.65	BC
				2023	5	15.8	15.8	9.92	-2.03	ABC
				2024	5	15.0	15.0	11.3	-2.16	ABC
				2025	5	5.91	5.91	2.14	-3.73	C

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.13: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 Downstream (CLT2-DS) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
Density (org/m²)	ANOVA	log ₁₀	0.002	2007	3	420	431	109	nc	ABC
				2015	5	368	447	258	-0.480	ABC
				2016	5	195	201	60.7	-2.78	ABC
				2017	5	186	222	144	-2.95	BC
				2018	5	118	127	51.2	-4.61	C
				2019	5	445	546	366	0.203	AB
				2020	5	705	881	672	1.87	A
				2021	5	407	495	279	-0.115	ABC
				2022	5	675	684	117	1.71	AB
				2023	5	245	269	119	-1.95	ABC
				2024	5	205	409	557	-2.60	ABC
2025	5	348	354	71.4	-0.684	ABC				
Richness (No. of Taxa)	ANOVA	none	0.005	2007	3	17.7	17.7	2.08	nc	AB
				2015	5	14.2	14.2	3.35	-1.67	AB
				2016	5	13.4	13.4	3.78	-2.05	AB
				2017	5	13.2	13.2	4.71	-2.15	AB
				2018	5	11.2	11.2	1.92	-3.11	B
				2019	5	18.4	18.4	3.13	0.352	A
				2020	5	17.4	17.4	4.16	-0.128	AB
				2021	5	16.8	16.8	2.95	-0.416	AB
				2022	5	18.2	18.2	1.64	0.256	A
				2023	5	14.6	14.6	2.19	-1.47	AB
				2024	5	12.8	12.8	3.11	-2.34	AB
2025	5	13.2	13.2	2.77	-2.15	AB				
Simpson's Evenness (Krebs)	K-W	rank	0.055	2007	3	0.863	0.865	0.0174	nc	DE
				2015	5	0.943	0.934	0.0343	3.78	A
				2016	5	0.875	0.833	0.0758	0.605	E
				2017	5	0.927	0.913	0.0522	3.03	ABCD
				2018	5	0.941	0.908	0.0868	3.68	AB
				2019	5	0.887	0.885	0.0482	1.17	BCDE
				2020	5	0.935	0.922	0.0318	3.41	ABC
				2021	5	0.938	0.932	0.0406	3.57	A
				2022	5	0.938	0.935	0.0116	3.55	A
				2023	5	0.930	0.921	0.0501	3.19	ABC
				2024	5	0.906	0.906	0.0730	2.03	ABC
2025	5	0.890	0.870	0.0392	1.32	CDE				
% Nematoda	K-W	rank	0.250	2007	3	0.832	1.07	1.21	nc	A
				2015	5	3.77	4.19	2.39	2.39	A
				2016	5	1.61	1.97	2.46	0.634	A
				2017	5	2.40	3.24	4.41	1.27	A
				2018	5	2.60	2.74	3.03	1.43	A
				2019	5	2.92	2.56	1.75	1.69	A
				2020	5	1.03	8.18	15.8	0.162	A
				2021	5	2.94	3.57	1.80	1.71	A
				2022	5	2.65	2.51	2.29	1.48	A
				2023	5	5.00	4.27	2.46	3.38	A
				2024	5	5.00	11.6	19.9	3.38	A
2025	5	0	0.183	0.410	-0.674	A				
% Oligochaeta	K-W	rank	0.391	2007	3	2.38	2.57	0.619	nc	A
				2015	5	5.21	8.80	12.8	6.43	A
				2016	5	0	1.85	3.13	-5.39	A
				2017	5	3.20	4.83	6.94	1.86	A
				2018	5	0	1.13	2.52	-5.39	A
				2019	5	3.73	4.28	3.31	3.08	A
				2020	5	1.66	4.41	5.02	-1.63	A
				2021	5	2.94	3.21	2.19	1.28	A
				2022	5	0.980	3.59	5.98	-3.17	A
				2023	5	0	1.65	3.24	-5.39	A
				2024	5	0.909	3.21	4.40	-3.33	A
2025	5	0.833	0.610	0.584	-3.50	A				
% Hydracarina	K-W	rank	0.154	2007	3	1.31	1.77	1.23	nc	A
				2015	5	0	0.255	0.570	-1.85	A
				2016	5	4.44	4.44	1.94	4.45	A
				2017	5	1.60	3.34	3.97	0.413	A
				2018	5	2.60	3.50	3.97	1.83	A
				2019	5	2.28	2.11	0.719	1.38	A
				2020	5	4.12	4.72	4.84	3.99	A
				2021	5	1.90	3.18	3.19	0.847	A
				2022	5	3.87	3.94	2.03	3.63	A
				2023	5	3.33	5.67	4.76	2.87	A
				2024	5	2.63	4.10	3.69	1.88	A
2025	5	2.56	3.43	2.07	1.78	A				

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.13: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 Downstream (CLT2-DS) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Ostracoda	K-W	rank	0.523	2007	3	0	0	0	nc	A
				2015	5	0	0	0	nm	A
				2016	5	0	0	0	nm	A
				2017	5	0	0	0	nm	A
				2018	5	0	0.519	1.16	nm	A
				2019	5	0	0.198	0.443	nm	A
				2020	5	0	0.289	0.452	nm	A
				2021	5	0	0	0	nm	A
				2022	5	0	0.110	0.247	nm	A
				2023	5	0	0.988	2.21	nm	A
				2024	5	0	0	0	nm	A
				2025	5	0	0	0	nm	A
% Chironomidae	K-W	rank	0.007	2007	3	89.7	88.0	5.96	nc	A
				2015	5	76.4	75.6	10.4	-2.78	BCDEF
				2016	5	83.9	82.9	5.86	-1.22	ABC
				2017	5	80.4	81.8	8.39	-1.95	ABCD
				2018	5	86.4	84.1	5.99	-0.687	AB
				2019	5	84.8	84.7	3.46	-1.01	AB
				2020	5	77.5	75.2	16.5	-2.56	ABCDE
				2021	5	70.4	69.7	10.0	-4.04	DEF
				2022	5	75.1	75.2	5.88	-3.04	CDEF
				2023	5	66.7	61.9	16.1	-4.81	F
				2024	5	65.0	64.0	16.9	-5.16	EF
				2025	5	84.2	83.6	6.28	-1.16	AB
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	0.009	2007	3	11.8	11.8	1.96	nc	ABC
				2015	5	10.2	10.6	10.6	-0.778	ABC
				2016	5	5.40	5.41	0.915	-3.34	A
				2017	5	19.6	20.2	12.6	3.90	ABC
				2018	5	7.84	8.01	6.95	-2.04	AB
				2019	5	23.0	23.3	10.1	5.47	ABC
				2020	5	11.4	11.5	4.16	-0.166	ABC
				2021	5	17.1	17.3	7.89	2.69	ABC
				2022	5	13.8	14.0	6.54	1.06	ABC
				2023	5	16.5	17.3	15.0	2.38	ABC
				2024	5	26.9	27.8	16.9	7.28	C
				2025	5	25.4	25.6	7.32	6.58	BC
% Tipulidae	K-W	rank	0.028	2007	3	2.91	6.45	6.59	nc	ABC
				2015	5	6.73	5.83	5.09	4.82	ABC
				2016	5	2.00	2.18	1.73	-1.15	BCD
				2017	5	0	0.833	1.86	-3.67	D
				2018	5	3.80	2.60	2.39	1.13	BCD
				2019	5	1.45	1.71	1.42	-1.84	CD
				2020	5	1.08	1.82	2.24	-2.31	CD
				2021	5	3.40	3.38	2.52	0.615	ABC
				2022	5	7.35	7.33	3.39	5.61	A
				2023	5	4.94	6.87	6.25	2.56	AB
				2024	5	5.45	7.40	5.02	3.21	A
				2025	5	2.50	3.30	1.73	-0.518	ABC
% Collector Gatherers	ANOVA	none	<0.001	2007	3	66.4	66.4	11.0	nc	ABC
				2015	5	69.3	69.3	10.9	0.264	ABC
				2016	5	79.8	79.8	8.62	1.22	A
				2017	5	77.1	77.1	10.5	0.971	AB
				2018	5	83.4	83.4	6.47	1.55	A
				2019	5	56.8	56.8	23.0	-0.875	BC
				2020	5	77.4	77.4	8.70	1.01	AB
				2021	5	75.2	75.2	9.28	0.796	AB
				2022	5	73.3	73.3	6.95	0.629	AB
				2023	5	48.0	48.0	9.15	-1.69	C
				2024	5	71.0	71.0	11.7	0.419	AB
				2025	5	83.9	83.9	5.97	1.60	A

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.13: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Camp Lake Tributary 2 Downstream (CLT2-DS) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Filters	K-W	rank	<0.001	2007	3	3.17	2.73	1.89	nc	BCDE
				2015	5	0.651	0.762	0.916	-1.42	E
				2016	5	1.20	0.970	0.929	-1.11	DE
				2017	5	2.40	3.46	3.12	-0.434	BCDE
				2018	5	0	0.927	2.07	-1.78	E
				2019	5	14.6	15.4	11.3	6.43	A
				2020	5	3.23	3.21	2.03	0.0324	BCD
				2021	5	8.82	8.05	4.37	3.19	AB
				2022	5	0.490	0.769	1.20	-1.51	E
				2023	5	3.33	4.31	2.79	0.0929	ABC
				2024	5	2.73	4.39	3.71	-0.248	ABC
2025	5	2.50	1.94	1.46	-0.376	CDE				
% Shredders	ANOVA	log ₁₀ (x+1)	<0.001	2007	3	21.4	21.5	5.95	nc	ABC
				2015	5	25.3	25.7	11.6	0.639	AB
				2016	5	11.8	12.1	8.04	-1.65	BC
				2017	5	14.3	14.6	8.93	-1.21	ABC
				2018	5	7.49	7.68	7.25	-2.45	C
				2019	5	20.1	21.0	16.9	-0.216	ABC
				2020	5	11.1	11.2	6.98	-1.79	BC
				2021	5	6.13	6.17	3.08	-2.70	C
				2022	5	15.1	15.2	5.11	-1.06	ABC
				2023	5	28.9	29.2	9.26	1.22	A
				2024	5	16.6	16.8	6.99	-0.813	ABC
2025	5	7.13	7.14	1.72	-2.52	C				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskall-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.14: Benthic Invertebrate Community Endpoints for Littoral Habitats of Mine-Exposed Lakes and Reference Lake 3, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), August 2025

Endpoints	Area	n	Mean	Standard Deviation	Standard Error	Minimum	Median	Maximum
Density (org/m ²)	Reference Lake 3	5	1,311	1,387	620	456	801	3,754
	Camp Lake	5	2,384	514	230	1,679	2,308	3,040
	Sheardown Lake Northwest (NW)	5	3,687	4,341	1,941	1,188	1,800	11,401
	Sheardown Lake Southeast (SE)	5	4,402	954	427	3,255	4,271	5,752
	Mary Lake	6	5,086	3,438	1,404	1,429	3,974	10,816
Richness (No. of Taxa)	Reference Lake 3	5	10.0	4.00	1.79	5.00	11.0	15.0
	Camp Lake	5	15.0	3.24	1.45	11.0	17.0	18.0
	Sheardown Lake Northwest (NW)	5	14.6	1.52	0.678	13.0	14.0	17.0
	Sheardown Lake Southeast (SE)	5	9.40	1.14	0.510	8.00	9.00	11.0
	Mary Lake	6	10.7	3.44	1.41	8.00	9.00	16.0
Simpson's E (Krebs)	Reference Lake 3	5	0.741	0.0561	0.0251	0.683	0.739	0.827
	Camp Lake	5	0.822	0.119	0.0532	0.615	0.876	0.897
	Sheardown Lake Northwest (NW)	5	0.823	0.0871	0.0389	0.713	0.838	0.917
	Sheardown Lake Southeast (SE)	5	0.806	0.0688	0.0308	0.697	0.843	0.858
	Mary Lake	6	0.587	0.206	0.0843	0.252	0.597	0.833
Shannon's Diversity	Reference Lake 3	5	2.06	0.429	0.192	1.42	2.22	2.43
	Camp Lake	5	2.73	0.456	0.204	2.02	3.00	3.11
	Sheardown Lake Northwest (NW)	5	2.77	0.372	0.166	2.41	2.73	3.27
	Sheardown Lake Southeast (SE)	5	2.19	0.272	0.122	1.83	2.32	2.49
	Mary Lake	6	1.66	0.752	0.307	0.827	1.37	2.64
% Nematoda	Reference Lake 3	5	2.09	3.96	1.77	0	0	9.09
	Camp Lake	5	1.85	1.18	0.530	0	1.98	3.08
	Sheardown Lake Northwest (NW)	5	3.33	2.44	1.09	0	2.90	6.22
	Sheardown Lake Southeast (SE)	5	0.622	0.606	0.271	0	0.403	1.33
	Mary Lake	6	2.25	3.10	1.27	0	0.540	7.48
% Hydracarina	Reference Lake 3	5	2.82	2.97	1.33	0	1.65	7.53
	Camp Lake	5	0.826	0.714	0.319	0.283	0.641	2.05
	Sheardown Lake Northwest (NW)	5	3.72	2.99	1.34	0.906	2.86	8.14
	Sheardown Lake Southeast (SE)	5	2.17	1.31	0.587	0	2.40	3.43
	Mary Lake	6	1.97	3.05	1.25	0.159	0.940	8.16
% Ostracoda	Reference Lake 3	5	37.6	21.0	9.40	3.45	39.6	57.0
	Camp Lake	5	4.91	8.58	3.84	0	0.373	19.9
	Sheardown Lake Northwest (NW)	5	32.8	19.3	8.65	11.6	24.9	55.9
	Sheardown Lake Southeast (SE)	5	4.26	2.60	1.16	1.59	4.19	7.09
	Mary Lake	6	17.4	23.9	9.76	0	4.75	58.4
% Chironomidae	Reference Lake 3	5	57.5	24.1	10.8	32.2	56.6	96.5
	Camp Lake	5	91.7	8.43	3.77	77.3	94.8	99.4
	Sheardown Lake Northwest (NW)	5	59.0	19.6	8.75	32.5	61.2	82.6
	Sheardown Lake Southeast (SE)	5	93.0	3.16	1.41	89.5	92.2	96.9
	Mary Lake	6	77.8	25.4	10.3	40.4	88.8	99.4
% Metal Sensitive Chironomidae	Reference Lake 3	5	34.2	17.4	7.79	15.7	28.0	58.6
	Camp Lake	5	19.3	4.71	2.11	12.6	21.2	23.6
	Sheardown Lake Northwest (NW)	5	7.26	5.65	2.53	2.94	6.78	16.8
	Sheardown Lake Southeast (SE)	5	35.7	14.3	6.41	14.9	35.6	53.7
	Mary Lake	6	24.8	26.8	10.9	0.606	21.8	72.9
% Collector Gatherers	Reference Lake 3	5	62.6	16.0	7.15	41.4	65.6	82.6
	Camp Lake	5	74.0	2.87	1.28	71.8	72.6	78.4
	Sheardown Lake Northwest (NW)	5	80.2	6.09	2.73	73.5	81.0	87.9
	Sheardown Lake Southeast (SE)	5	35.9	18.1	8.10	15.1	29.9	57.8
	Mary Lake	6	62.2	38.0	15.5	8.51	73.0	97.7
% Filterers	Reference Lake 3	5	33.0	17.8	7.96	14.1	25.8	58.6
	Camp Lake	5	18.2	4.48	2.00	11.9	20.8	22.3
	Sheardown Lake Northwest (NW)	5	6.06	5.98	2.68	1.48	4.00	16.4
	Sheardown Lake Southeast (SE)	5	35.7	14.3	6.39	14.9	35.6	53.7
	Mary Lake	6	23.7	27.1	11.1	0	20.4	72.9
% Shredders	Reference Lake 3	5	1.44	1.84	0.822	0	1.08	4.47
	Camp Lake	5	0.444	0.621	0.278	0	0	1.29
	Sheardown Lake Northwest (NW)	5	0.229	0.511	0.229	0	0	1.14
	Sheardown Lake Southeast (SE)	5	0.106	0.237	0.106	0	0	0.531
	Mary Lake	6	0.140	0.240	0.0981	0	0	0.583
% Clingers	Reference Lake 3	5	35.7	17.5	7.83	15.7	34.4	58.6
	Camp Lake	5	16.4	3.95	1.77	11.2	16.0	21.4
	Sheardown Lake Northwest (NW)	5	5.65	2.79	1.25	2.92	4.57	10.2
	Sheardown Lake Southeast (SE)	5	37.8	14.4	6.46	17.8	37.7	56.1
	Mary Lake	6	28.1	27.2	11.1	0.602	28.6	74.7
% Sprawlers	Reference Lake 3	5	59.5	16.5	7.37	39.7	62.4	75.6
	Camp Lake	5	66.5	10.0	4.48	52.8	65.3	77.0
	Sheardown Lake Northwest (NW)	5	68.0	14.2	6.37	51.4	69.7	84.0
	Sheardown Lake Southeast (SE)	5	32.6	9.20	4.11	19.7	34.7	42.2
	Mary Lake	6	55.8	41.0	16.8	2.87	62.1	98.2
% Burrowers	Reference Lake 3	5	4.81	3.73	1.67	1.62	3.23	9.92
	Camp Lake	5	17.1	7.94	3.55	6.98	16.6	28.3
	Sheardown Lake Northwest (NW)	5	26.3	15.6	6.98	10.5	25.7	45.6
	Sheardown Lake Southeast (SE)	5	29.6	20.8	9.31	9.13	20.1	55.2
	Mary Lake	6	16.1	23.0	9.38	1.02	5.79	60.1

Notes: n/No. = number. org/m² = organisms per square metre. % = percent.

Table E.15: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Littoral Stations in Camp Lake (JL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Lake	Camp Lake (JL0)				
Station Type	Littoral				
Station	2	21	20	19	18
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	60.3	51.7	60.3	34.4
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	-	-	-	-
F. Lumbriculidae	-	-	-	-	-
<i>Lumbriculus</i>	-	25.8	-	25.8	-
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
F. Acalyptonotidae	-	-	-	-	-
<i>Acalyptonotus</i>	17.2	-	25.8	-	8.61
F. Hygrobatidae	-	-	-	-	-
<i>Hygrobates</i>	-	-	-	-	-
F. Lebertiidae	-	-	-	-	-
<i>Lebertia</i>	-	8.61	8.61	8.61	8.61
F. Sperchontidae	-	-	-	-	-
<i>Sperchon</i>	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	-	8.61	-	129	439
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
CADDISFLIES	-	-	-	-	-
O. Trichoptera	-	-	-	-	-
F. Apataniidae	-	-	-	-	-
<i>Apatania</i>	-	17.2	-	17.2	8.61
	-	-	-	-	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	86.1	224	129	215	155
S.F. Chironominae	-	-	-	-	-
<i>Chironomus</i>	-	-	-	-	-
<i>Lipiniella</i>	-	-	-	-	-
<i>Micropsectra</i>	51.7	181	94.7	284	103
<i>Parachironomus</i>	-	-	-	-	-
<i>Paratanytarsus</i>	34.4	60.3	17.2	207	43.1
<i>Polypedilum</i>	-	-	-	-	-
<i>Sergentia</i>	-	-	-	-	-
<i>Stictochironomus</i>	327	499	43.1	439	284
<i>Tanytarsus</i>	224	189	121	94.7	301
S.F. Diamesinae	-	-	-	-	-
<i>Protanypus</i>	17.2	8.61	17.2	51.7	17.2
<i>Pseudodiamesa</i>	-	-	-	-	8.61
<i>Pseudokiefferiella</i>	-	-	-	-	-
S.F. Orthocladiinae	-	-	-	-	-
<i>Abiskomyia</i>	413	267	86.1	715	207
<i>Corynoneura</i>	-	8.61	-	-	-
<i>Cardiocladius</i>	-	-	-	-	-
<i>Heterotrissocladius</i>	1,137	577	999	577	499
<i>Hydrosmittia</i>	-	-	-	-	-
<i>Mesocricotopus</i>	-	8.61	-	-	-
<i>Paracladius</i>	-	25.8	17.2	8.61	-
<i>Parakiefferiella</i>	68.9	8.61	-	8.61	8.61
<i>Zalutschia</i>	-	-	-	25.8	25.8
genus "Greenland"	-	-	-	8.61	-
indeterminate	-	-	-	8.61	-
S.F. Tanypodinae	-	-	-	-	-
<i>Arctopelopia</i>	138	43.1	-	86.1	34.4
<i>Procladius</i>	172	86.1	68.9	68.9	17.2

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.16: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Littoral Stations in Reference Lake 3 (REF-03), Mary River Core Receiving Environment Monitoring Program (CREMP), August 2025

Lake	Reference Lake 3 (REF-03)				
Station Type	Littoral				
Station	1	2	3	4	5
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	-	51.7	94.7	-
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	-	-	-	-
F. Lumbriculidae	-	-	-	-	-
<i>Lumbriculus</i>	-	-	-	-	-
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
F. Acalyptonotidae	-	-	-	-	-
<i>Acalyptonotus</i>	-	34.4	-	-	17.2
F. Hygrobatidae	-	-	-	-	-
<i>Hygrobates</i>	-	-	25.8	8.61	-
F. Lebertiidae	-	-	-	-	-
<i>Lebertia</i>	-	25.8	17.2	8.61	-
F. Sperchontidae	-	-	-	-	-
<i>Sperchon</i>	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	17.2	284	1,963	594	181
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
CADDISFLIES	-	-	-	-	-
O. Trichoptera	-	-	-	-	-
F. Apataniidae	-	-	-	-	-
<i>Apatania</i>	-	-	-	-	-
	-	-	-	-	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	-	-	129	-	-
S.F. Chironominae	-	-	-	-	-
<i>Chironomus</i>	-	-	-	-	-
<i>Lipiniella</i>	-	-	-	-	-
<i>Micropsectra</i>	293	207	482	121	198
<i>Parachironomus</i>	-	-	-	-	-
<i>Paratanytarsus</i>	-	-	60.3	-	-
<i>Polypedilum</i>	-	-	-	-	-
<i>Sergentia</i>	-	8.61	-	-	-
<i>Stictochironomus</i>	8.61	17.2	8.61	-	34.4
<i>Tanytarsus</i>	-	-	267	25.8	-
S.F. Diamesinae	-	-	-	-	-
<i>Protanypus</i>	-	8.61	-	8.61	-
<i>Pseudodiamesa</i>	-	8.61	8.61	8.61	8.61
<i>Pseudokiefferiella</i>	-	-	-	-	-
S.F. Orthocladiinae	-	-	-	-	-
<i>Abiskomyia</i>	164	181	181	86.1	8.61
<i>Cardiocladius</i>	-	-	-	-	-
<i>Heterotrissocladius</i>	17.2	17.2	250	34.4	-
<i>Hydrosmittia</i>	-	-	-	-	-
<i>Mesocricotopus</i>	-	-	-	-	-
<i>Paracladius</i>	-	-	112	34.4	8.61
<i>Parakiefferiella</i>	-	-	34.4	-	-
<i>Zalutschia</i>	-	8.61	155	17.2	-
indeterminate	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-
<i>Arctopelopia</i>	-	-	8.61	-	-
<i>Procladius</i>	-	-	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.17: Statistical Comparison of Bray-Curtis Indices for Littoral Areas of Mine-Exposed Lakes Compared to Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Comparisons		n		Betadisper P-Value	Mantel Test			dbRDA			
		Exposed	Reference		r	R ²	P-Value	F-Value	R ²	R ² _{adj}	P-Value
Camp Lake (JL0)	Reference Lake 3	5	5	0.023	0.593	0.352	0.008	6.69	0.455	0.387	0.006
Sheardown Lake Northwest (NW; DL0-01)	Reference Lake 3	5	5	0.319	0.549	0.302	0.008	4.80	0.375	0.297	0.004
Sheardown Lake Southeast (SE; DL0-02)	Reference Lake 3	5	5	0.016	0.658	0.433	0.008	6.65	0.454	0.386	0.005
Mary Lake (BL0)	Reference Lake 3	5	5	0.196	0.238	0.0565	0.016	2.22	0.217	0.119	0.016

 Highlighted values indicate a significant difference between study areas based on statistical test p-values <0.1.

Notes: n = number of samples. dbRDA = distance-based Redundancy Analysis. < = less than.

Table E.18: Field Observations for Littoral Sampling Stations at Camp Lake (JL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Sample Station	Station Depth (m)	Colour and Texture Observations	Evidence of Anoxia ^a	Plant or Algae Presence
JL0-02	10.1	Sandy	Sparse	Sparse algae
JL0-21	6.3	Sandy	None	Sparse algae
JL0-30	11.6	Sandy	None	Sparse algae
JL0-31	10.1	Sandy	None	Sparse algae
JL0-32	9.7	Sandy	None	Common

Notes: m = metres. Macrophytes were not observed at stations JL0-02, JL0-21, JL0-30, JL0-31, and JL0-32.

^a Evidence of anoxic sediments was assessed visually (presence of blackened substrate) and by smell (based on presence/strength of hydrogen sulphide odour).

Table E.19: Field Observations for Littoral Sampling Stations at Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Station	Station Depth (m)	Colour and Texture Observations	Evidence of Anoxia ^a	Plant or Algae Presence
REF-03-1	8.4	Grey/red mud	None	None
REF-03-2	9.4	Grey mud	None	None
REF-03-3	8.1	Hard clay ground	None	None
REF-03-5	10.3	Grey mud/sandy	None	None
REF-03-24	7.2	Sandy	None	None

Notes: m = metres.

^a Evidence of anoxic sediments was assessed visually (presence of blackened substrate) and by smell (based on presence/strength of hydrogen sulphide odour).

Table E.20: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Camp Lake (JL0) Among Years of Mine Operation (2015 to 2025) and Baseline (2013), fMary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2013	
Density (org/m²)	K-W	rank	0.008	2013	4	9,602	7,752	3,849	nc	A
				2015	5	2,534	3,671	1,891	-34.3	ABCD
				2016	5	2,583	2,639	668	-34.1	BCD
				2017	5	3,204	3,642	1,449	-31.0	ABC
				2018	5	3,018	2,600	998	-31.9	BCD
				2019	5	4,568	5,126	1,390	-24.4	A
				2020	5	5,474	5,122	2,202	-20.0	A
				2021	5	4,891	4,373	994	-22.9	A
				2022	5	3,961	3,918	1,104	-27.4	AB
				2023	5	1,843	2,203	1,645	-37.6	D
2024	5	1,963	2,242	1,226	-37.1	CD				
2025	5	2,308	2,384	514	-35.4	CD				
Richness (No. of Taxa)	K-W	rank	0.142	2013	4	18.0	18.0	4.40	nc	A
				2015	5	12.0	12.8	3.70	-1.16	A
				2016	5	17.0	15.8	3.27	-0.193	A
				2017	5	13.0	12.8	2.28	-0.964	A
				2018	5	15.0	14.2	3.42	-0.578	A
				2019	5	17.0	15.6	3.05	-0.193	A
				2020	5	17.0	16.6	1.67	-0.193	A
				2021	5	13.0	12.8	2.68	-0.964	A
				2022	5	15.0	14.2	1.64	-0.578	A
				2023	5	12.0	12.6	3.13	-1.16	A
2024	5	14.0	11.8	5.07	-0.771	A				
2025	5	17.0	15.0	3.24	-0.193	A				
Simpson's Evenness (Krebs)	K-W	rank	0.013	2013	4	0.913	0.893	0.0535	nc	ABC
				2015	5	0.708	0.712	0.0625	-9.19	E
				2016	5	0.935	0.917	0.0341	1.01	A
				2017	5	0.844	0.848	0.0685	-3.10	BCD
				2018	5	0.858	0.851	0.0569	-2.47	BCD
				2019	5	0.906	0.893	0.0532	-0.321	ABC
				2020	5	0.858	0.842	0.0443	-2.47	BDE
				2021	5	0.816	0.786	0.143	-4.33	DE
				2022	5	0.861	0.843	0.0922	-2.35	BCD
				2023	5	0.890	0.890	0.0145	-1.03	ABCD
2024	5	0.900	0.911	0.0466	-0.595	AC				
2025	5	0.876	0.822	0.119	-1.64	BCD				
% Nematoda	ANOVA	log ₁₀ (x+1)	0.503	2013	4	5.53	5.58	3.57	nc	A
				2015	5	4.63	4.71	4.58	-0.250	A
				2016	5	4.30	4.39	4.85	-0.344	A
				2017	5	4.17	4.24	4.24	-0.381	A
				2018	5	2.77	2.81	3.24	-0.776	A
				2019	5	3.64	3.67	2.52	-0.529	A
				2020	5	2.10	2.10	1.20	-0.970	A
				2021	5	1.51	1.52	1.60	-1.14	A
				2022	5	2.77	2.81	3.37	-0.778	A
				2023	5	6.68	6.84	6.43	0.319	A
2024	5	2.27	2.31	2.98	-0.919	A				
2025	5	1.84	1.85	1.18	-1.04	A				
% Ostracoda	K-W	rank	0.119	2013	4	0.780	0.660	0.466	nc	A
				2015	5	0	0.203	0.326	-2.79	A
				2016	5	2.11	1.84	1.14	4.76	A
				2017	5	0	0.155	0.346	-2.79	A
				2018	5	0	0.356	0.642	-2.79	A
				2019	5	1.21	1.27	0.830	1.52	A
				2020	5	2.11	2.02	1.61	4.76	A
				2021	5	2.20	3.24	4.02	5.08	A
				2022	5	0.858	1.13	0.921	0.280	A
				2023	5	1.32	2.16	2.72	1.92	A
2024	5	0	2.96	5.91	-2.79	A				
2025	5	0.373	4.91	8.58	-1.46	A				
% Chironomidae	ANOVA	none	0.635	2013	4	90.1	90.1	4.38	nc	A
				2015	5	93.2	93.2	4.68	0.690	A
				2016	5	87.4	87.4	6.98	-0.634	A
				2017	5	92.2	92.2	6.46	0.474	A
				2018	5	95.4	95.4	3.97	1.20	A
				2019	5	92.5	92.5	3.64	0.554	A
				2020	5	92.9	92.9	2.00	0.642	A
				2021	5	93.2	93.2	3.76	0.693	A
				2022	5	93.5	93.5	3.31	0.769	A
				2023	5	89.3	89.3	5.64	-0.186	A
2024	5	91.9	91.9	6.27	0.408	A				
2025	5	91.7	91.7	8.43	0.355	A				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.20: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Camp Lake (JL0) Among Years of Mine Operation (2015 to 2025) and Baseline (2013), fMary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2013	
% Metal Sensitive Chironomidae	ANOVA	none	0.178	2013	4	30.8	30.8	14.6	nc	A
				2015	5	38.5	38.5	24.5	0.522	A
				2016	5	29.7	29.7	11.8	-0.0805	A
				2017	5	38.2	38.2	17.3	0.506	A
				2018	5	17.4	17.4	18.5	-0.920	A
				2019	5	34.6	34.6	16.1	0.257	A
				2020	5	30.3	30.3	19.7	-0.0343	A
				2021	5	23.5	23.5	22.4	-0.502	A
				2022	5	21.4	21.4	15.4	-0.647	A
				2023	5	15.4	15.4	10.6	-1.05	A
2024	5	12.4	12.4	10.8	-1.26	A				
2025	5	19.3	19.3	4.71	-0.793	A				
% Collector Gatherers	ANOVA	none	0.177	2013	4	55.9	55.9	12.4	nc	A
				2015	5	51.1	51.1	14.7	-0.390	A
				2016	5	65.8	65.8	7.82	0.797	A
				2017	5	50.8	50.8	17.4	-0.408	A
				2018	5	67.3	67.3	18.6	0.923	A
				2019	5	53.7	53.7	12.4	-0.176	A
				2020	5	56.9	56.9	17.7	0.0788	A
				2021	5	66.8	66.8	22.9	0.883	A
				2022	5	60.1	60.1	22.1	0.340	A
				2023	5	70.6	70.6	13.8	1.19	A
2024	5	74.8	74.8	16.3	1.53	A				
2025	5	74.0	74.0	2.87	1.47	A				
% Filterers	ANOVA	none	0.161	2013	4	30.8	30.8	14.5	nc	A
				2015	5	38.2	38.2	24.3	0.513	A
				2016	5	25.0	25.0	7.48	-0.399	A
				2017	5	37.3	37.3	17.3	0.450	A
				2018	5	16.7	16.7	17.8	-0.974	A
				2019	5	31.9	31.9	15.9	0.0755	A
				2020	5	29.7	29.7	20.2	-0.0738	A
				2021	5	22.7	22.7	21.8	-0.559	A
				2022	5	20.7	20.7	15.6	-0.696	A
				2023	5	15.0	15.0	10.3	-1.09	A
2024	5	11.1	11.1	9.78	-1.36	A				
2025	5	18.2	18.2	4.48	-0.868	A				

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.21: Benthic Invertebrate Community Endpoints forSheardown Lake Tributaries (SDLT) and Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environmental Monitoring Program (CREMP), August 2025

Endpoints	Area	n	Mean	Standard Deviation	Standard Error	Minimum	Median	Maximum
Density (org/m²)	REF-CRK	5	232	137	61.2	108	179	444
	SDLT1	5	1,270	747	334	405	1,032	2,384
	SDLT12	3	907	1,154	666	176	308	2,237
	SDLT9	5	2,540	2,286	1,022	624	2,283	6,401
Richness (No. of Taxa)	REF-CRK	5	14.4	2.88	1.29	10.0	14.0	17.0
	SDLT1	5	11.0	1.87	0.837	8.00	11.0	13.0
	SDLT12	3	12.7	0.577	0.333	12.0	13.0	13.0
	SDLT9	5	17.2	2.68	1.20	14.0	16.0	20.0
Simpson's E (Krebs)	REF-CRK	5	0.909	0.0727	0.0325	0.794	0.930	0.969
	SDLT1	5	0.760	0.0407	0.0182	0.705	0.760	0.813
	SDLT12	3	0.919	0.0295	0.0170	0.896	0.909	0.953
	SDLT9	5	0.853	0.0353	0.0158	0.792	0.862	0.882
% Nematoda	REF-CRK	5	0.667	1.49	0.667	0	0	3.33
	SDLT1	5	1.41	1.05	0.468	0.375	0.913	2.65
	SDLT12	3	13.4	3.23	1.87	9.94	13.9	16.3
	SDLT9	5	1.04	1.36	0.606	0.307	0.448	3.45
% Hydracarina	REF-CRK	5	4.34	2.50	1.12	2.00	3.33	7.69
	SDLT1	5	0.307	0.362	0.162	0	0.301	0.885
	SDLT12	3	0	0	0	0	0	0
	SDLT9	5	3.77	3.77	1.69	0.314	3.40	9.51
% Ostracoda	REF-CRK	5	9.93	8.64	3.87	2.00	10.5	23.3
	SDLT1	5	0.177	0.396	0.177	0	0	0.885
	SDLT12	3	0.680	1.18	0.680	0	0	2.04
	SDLT9	5	4.18	2.54	1.14	1.26	4.08	7.47
% Chironomidae	REF-CRK	5	55.5	17.8	7.97	33.3	51.3	80.0
	SDLT1	5	92.3	5.45	2.44	83.2	93.2	97.8
	SDLT12	3	65.9	21.0	12.1	42.9	70.9	84.0
	SDLT9	5	82.0	6.97	3.12	73.0	83.7	88.6
% Metal Sensitive Chironomida	REF-CRK	5	7.38	3.20	1.43	4.17	6.32	11.2
	SDLT1	5	29.4	13.3	5.97	10.8	29.0	47.3
	SDLT12	3	4.35	5.64	3.25	0	2.33	10.7
	SDLT9	5	3.60	3.30	1.48	0.593	2.46	8.93
% Collector Gatherers	REF-CRK	5	64.2	10.9	4.87	51.3	60.0	76.6
	SDLT1	5	51.0	8.88	3.97	37.9	51.5	61.0
	SDLT12	3	89.0	9.46	5.46	78.7	91.0	97.3
	SDLT9	5	61.5	7.35	3.29	53.5	64.8	69.0
% Filterers	REF-CRK	5	13.1	6.68	2.99	5.65	11.2	23.3
	SDLT1	5	2.23	2.50	1.12	0	1.50	6.29
	SDLT12	3	1.80	2.22	1.28	0	1.12	4.29
	SDLT9	5	0.861	0.735	0.329	0	0.587	1.93
% Shredders	REF-CRK	5	5.20	2.55	1.14	2.56	4.84	8.75
	SDLT1	5	45.9	7.40	3.31	35.7	47.3	54.9
	SDLT12	3	9.21	7.25	4.19	2.73	7.87	17.0
	SDLT9	5	33.7	5.36	2.40	27.4	33.7	41.0
% Clingers	REF-CRK	5	18.1	7.21	3.22	8.06	17.5	26.7
	SDLT1	5	46.7	7.99	3.58	36.7	46.6	58.6
	SDLT12	3	10.3	8.25	4.76	2.73	8.99	19.1
	SDLT9	5	34.3	6.75	3.02	25.6	32.0	41.3
% Sprawlers	REF-CRK	5	72.1	9.40	4.20	60.0	72.5	84.7
	SDLT1	5	47.9	10.6	4.76	31.7	47.9	58.8
	SDLT12	3	56.5	25.2	14.6	29.9	59.5	80.0
	SDLT9	5	51.3	9.11	4.07	38.7	50.1	63.0
% Burrowers	REF-CRK	5	9.83	2.31	1.03	7.27	10.0	13.3
	SDLT1	5	5.44	3.26	1.46	0.749	5.56	9.73
	SDLT12	3	33.2	17.0	9.79	17.2	31.5	51.0
	SDLT9	5	14.4	8.59	3.84	8.58	11.3	29.6
% Oligochaeta	REF-CRK	5	0.250	0.559	0.250	0	0	1.25
	SDLT1	5	1.94	1.17	0.522	0.375	1.83	3.54
	SDLT12	3	17.9	13.5	7.80	6.09	15.1	32.6
	SDLT9	5	2.46	4.75	2.12	0	0.307	10.9
% Simuliidae	REF-CRK	5	13.1	6.68	2.99	5.65	11.2	23.3
	SDLT1	5	1.85	2.07	0.924	0	1.50	5.31
	SDLT12	3	0	0	0	0	0	0
	SDLT9	5	0.925	0.784	0.351	0	0.628	2.04
% Tipulidae	REF-CRK	5	3.40	2.42	1.08	0	3.75	6.67
	SDLT1	5	1.75	1.25	0.560	0	1.74	3.54
	SDLT12	3	0.680	1.18	0.680	0	0	2.04
	SDLT9	5	3.07	1.32	0.591	1.34	2.87	4.76

Notes: n/No. = number. org/m² = organisms per square metre. % = percent.

Table E.22: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Sheardown Lake Tributary 1 (SDLT1), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody	Sheardown Lake Tributary 1 (SDLT1-R1)				
Station	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	3.58	7.17	14.3	57.3	10.7
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	3.58	25.1	28.7	35.8	14.3
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Trombidiformes	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-
<i>Sperchon</i>	-	3.58	-	7.17	3.58
immature	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	-	-	-	-	3.58
SPRINGTAILS	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-
O. Collembola	-	-	-	-	-
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
<i>Acentrella feropagus</i>	-	-	-	-	-
STONEFLIES	-	-	-	-	-
O. Plecoptera	-	-	-	-	-
F. Capniidae	-	-	-	-	-
immature	-	-	-	-	-
CADDISFLIES	-	-	-	-	-
O. Trichoptera	-	-	-	-	-
F. Limnephilidae	-	-	-	-	-
immature	-	-	-	-	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
MIDGES	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
indeterminate	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	46.6	17.9	64.5	21.5	32.2
S.F. Chironominae	-	-	-	-	-
<i>Rheotanytarsus</i>	-	-	14.3	-	3.58
S.F. Diamesinae	-	-	-	-	-
<i>Diamesa</i>	21.5	-	-	-	17.9
<i>Pseudokiefferiella</i>	408	294	505	595	17.9
S.F. Orthocladiinae	-	-	-	-	-
<i>Cardiocladius</i>	-	10.7	-	-	-
<i>Chaetocladius</i>	10.7	-	-	-	-
<i>Cricotopus</i>	172	229	186	219	64.5
<i>Cricotopus (Isocladius)</i>	-	3.58	14.3	-	-
<i>Cricotopus/Orthocladius</i>	118	75.2	57.3	89.6	57.3
<i>Eukiefferiella</i>	-	-	-	-	-
<i>Hydrosmittia</i>	129	258	462	1,168	111
<i>Krenosmittia</i>	-	-	-	-	-
<i>Limnophyes</i>	-	-	-	-	-
<i>Orthocladius (Euorthocladius)</i>	28.7	39.4	86.0	43.0	17.9
<i>Parakiefferiella</i>	-	28.7	28.7	43.0	-
<i>Tokunagaia</i>	-	-	14.3	-	3.58
<i>Tvetenia</i>	-	17.9	28.7	43.0	10.7
indeterminate	-	-	-	-	-
F. Dolichopodidae	-	3.58	-	-	-
F. Empididae	-	-	-	-	-
<i>Clinocera</i>	-	-	7.17	7.17	-
Empididae pupa	-	-	-	-	-
F. Simuliidae	-	-	-	-	-
<i>Gymnopais sp.</i>	14.3	-	28.7	14.3	21.5
<i>Metacnephia</i>	-	-	-	-	-
<i>Prosimulium ursinum</i>	-	-	-	-	-
F. Tipulidae	-	-	-	-	-
<i>Tipula</i>	-	17.9	28.7	39.4	14.3

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.23: Statistical Comparison of Bray-Curtis Indices for Mine-Exposed Sheardown Lake Tributaries (SDLT1, SDLT9, and SDLT12) Relative to Unnammed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Comparisons		n		Betadisper P-Value	Mantel Test			dbRDA			
		Exposed	Reference		r	R ²	P-Value	F-Value	R ²	R ² _{adj}	P-Value
SDLT1	REF-CRK	5	5	0.451	0.862	0.744	0.008	13.0	0.619	0.571	<0.001
SDLT12	REF-CRK	3	5	0.897	0.930	0.865	0.018	9.91	0.623	0.560	0.018
SDLT9	REF-CRK	5	5	0.765	0.833	0.695	0.008	9.72	0.548	0.492	0.008

 Highlighted values indicate a significant difference between study areas based on statistical test p-values <0.1.

Notes: n = number of samples. dbRDA = distance-based Redundancy Analysis. < = less than.

Table E.24: Replicate Grab Data for Benthic Invertebrate Community Samples Collected at Sheardown Lake Tributaries (SDLT1, SDLT12, and SLDT9) and the Unnamed Reference Creek (REF-CRK), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Water Depth (cm)			Water Velocity (m/s)			Embeddedness			In-Stream Vegetation			Algae Presence		
		Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3
Unnamed Reference Creek	REF-CRK-B1	10	10	12	0.34	0.44	0.44	25%	25%	25%	None	None	None	None	None	None
	REF-CRK-B2	9	10	14	0.48	0.39	0.43	25%	50%	25%	None	None	None	None	None	None
	REF-CRK-B3	10	10	8	0.45	0.48	0.44	25%	50%	25%	None	None	None	None	None	None
	REF-CRK-B4	8	14	10	0.45	0.38	0.47	25%	25%	25%	None	None	None	None	None	None
	REF-CRK-B5	14	20	12	0.45	0.51	0.44	25%	25%	25%	None	None	None	None	None	None
Sheardown Lake Tributary 1	SDLT1-R1-B1	18	20	20	0.41	0.32	0.45	25%	50%	50%	Sparse bryophytes	Common bryophytes	Sparse bryophytes	Sparse	Sparse	Sparse
	SDLT1-R1-B2	14	10	10	0.47	0.32	0.38	0%	25%	50%	Sparse bryophytes	Common bryophytes	Sparse bryophytes	Sparse	Common	Common
	SDLT1-R1-B3	6	18	16	0.37	0.55	0.40	25%	25%	0%	None	Common bryophytes	Sparse bryophytes	Sparse	Sparse	Sparse
	SDLT1-R1-B4	11	14	10	0.52	0.37	0.42	25%	25%	25%	Common bryophytes	Sparse bryophytes	Sparse bryophytes	Sparse	Sparse	Sparse
	SDLT1-R1-B5	28	10	13	0.32	0.42	0.57	25%	0%	25%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	Sparse	Sparse	Sparse
Sheardown Lake Tributary 12	SDLT12--B1	13	12	14	0.22	0.11	0.06	25%	25%	50%	None	Abundant bryophytes	Abundant bryophytes	None	Sparse	Sparse
	SDLT12-B2	6	12	16	0.25	0.06	0.14	50%	50%	50%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	None	None	Sparse
	SDLT12--B3	17	12	7	0.08	0.05	0.09	50%	50%	50%	Abundant bryophytes	Common bryophytes	Sparse bryophytes	Sparse	None	None
Sheardown Lake Tributary 9	SDLT9-DS-B1	8	8	10	0.38	0.38	0.41	50%	25%	25%	Sparse bryophytes	Sparse bryophytes	None	Common	Sparse	Sparse
	SDLT9-DS-B2	8	8	10	0.40	0.36	0.37	25%	0%	25%	Common bryophytes	None	Sparse bryophytes	Common	Sparse	Common
	SDLT9-DS-B3	5	7	7	0.42	0.39	0.42	25%	0%	50%	Sparse bryophytes	Sparse bryophytes	Common bryophytes	Sparse	Sparse	Common
	SDLT9-DS-B4	10	10	12	0.30	0.38	0.34	25%	25%	0%	Sparse bryophytes	Sparse bryophytes	Sparse bryophytes	Common	Common	Abundant
	SDLT9-DS-B5	10	6	6	0.40	0.54	0.38	25%	25%	25%	Common bryophytes	Sparse bryophytes	Common bryophytes	Common	Abundant	Common

Notes: cm = centimetres. m/s = metres per second. % = percent.

Table E.25: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Sheardown Lake Tributary 1 (SDLT1) Among Years of Mine Operation (2015 to 2025) and Baseline (2008 and 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall 13 Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2008	vs. Baseline Year 2013	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2008	3	296	300	52.4	nc	nc	C
				2013	3	640	657	176	4.19	nc	ABC
				2015	5	622	722	485	4.04	-0.0933	BC
				2016	5	2,342	2,453	814	11.3	4.38	A
				2017	5	1,194	1,660	1,643	7.59	2.10	AB
				2018	5	895	1,102	766	6.02	1.13	ABC
				2019	5	1,277	1,483	982	7.96	2.33	AB
				2020	5	496	679	625	2.81	-0.856	BC
				2021	5	565	627	345	3.51	-0.420	BC
				2022	5	1,100	1,146	379	7.14	1.83	ABC
				2023	5	514	515	21.7	3.00	-0.734	BC
				2024	5	601	640	214	3.85	-0.210	BC
				2025	5	1,084	1,270	747	7.06	1.78	ABC
Richness (No. of Taxa)	ANOVA	none	0.018	2008	3	12.0	12.0	1.00	nc	nc	A
				2013	3	16.7	16.7	2.52	4.67	nc	A
				2015	5	15.4	15.4	4.34	3.40	-0.503	A
				2016	5	15.2	15.2	2.49	3.20	-0.583	A
				2017	5	14.0	14.0	2.00	2.00	-1.06	A
				2018	5	12.8	12.8	1.64	0.800	-1.54	A
				2019	5	14.8	14.8	1.92	2.80	-0.742	A
				2020	5	12.4	12.4	2.88	0.400	-1.70	A
				2021	5	12.0	12.0	2.24	0	-1.85	A
				2022	5	12.6	12.6	3.05	0.600	-1.62	A
				2023	5	11.6	11.6	2.07	-0.400	-2.01	A
				2024	5	10.8	10.8	2.49	-1.20	-2.33	A
				2025	5	11.0	11.0	1.87	-1.00	-2.25	A
Simpson's Evenness (Krebs)	ANOVA	none	<0.001	2008	3	0.894	0.894	0.0338	nc	nc	A
				2013	3	0.887	0.887	0.0641	-0.204	nc	A
				2015	5	0.869	0.869	0.0670	-0.744	-0.284	A
				2016	5	0.872	0.872	0.0323	-0.650	-0.235	A
				2017	5	0.883	0.883	0.0278	-0.331	-0.0672	A
				2018	5	0.834	0.834	0.0625	-1.77	-0.823	AB
				2019	5	0.787	0.787	0.0258	-3.18	-1.57	AB
				2020	5	0.786	0.786	0.125	-3.21	-1.58	AB
				2021	5	0.814	0.814	0.0765	-2.38	-1.14	AB
				2022	5	0.695	0.695	0.0754	-5.90	-3.00	B
				2023	5	0.796	0.796	0.0918	-2.90	-1.42	AB
				2024	5	0.525	0.525	0.0950	-10.9	-5.64	C
				2025	5	0.760	0.760	0.0407	-3.96	-1.98	AB
% Hydracarina	K-W	rank	<0.001	2008	3	9.54	12.1	4.73	nc	nc	A
				2013	3	4.36	4.58	2.94	-9.54	nc	ABC
				2015	5	4.36	4.63	1.60	-9.55	-0.000747	AB
				2016	5	6.09	5.29	1.28	-6.35	0.451	AB
				2017	5	3.16	3.86	1.99	-11.7	-0.310	ABC
				2018	5	3.70	3.06	1.69	-10.8	-0.172	BCD
				2019	5	1.77	1.29	0.909	-14.3	-0.673	CDEF
				2020	5	1.32	1.09	0.852	-15.2	-0.790	DEF
				2021	5	0.595	0.835	0.741	-16.5	-0.978	EF
				2022	5	0.775	1.02	1.10	-16.1	-0.931	DEF
				2023	5	1.43	2.97	3.14	-14.9	-0.761	BCDE
				2024	5	1.10	1.01	0.844	-15.6	-0.847	DEF
				2025	5	0.301	0.307	0.362	-17.0	-1.05	F
% Oligochaeta	K-W	rank	0.052	2008	3	1.90	2.96	2.49	nc	nc	CD
				2013	3	8.72	7.32	3.33	6.31	nc	ABC
				2015	5	12.1	14.4	10.8	9.42	2.25	A
				2016	5	16.2	14.1	8.77	13.2	5.00	AB
				2017	5	6.33	8.61	7.39	4.10	-1.60	ABC
				2018	5	1.25	2.24	2.75	-0.600	-5.01	D
				2019	5	3.64	3.26	1.04	1.61	-3.41	BCD
				2020	5	1.67	2.28	2.56	-0.215	-4.73	D
				2021	5	4.14	4.25	2.21	2.08	-3.07	ABCD
				2022	5	3.85	3.65	2.62	1.80	-3.27	BCD
				2023	5	2.86	2.82	1.46	0.887	-3.93	CD
				2024	5	2.75	3.07	1.49	0.785	-4.01	BCD
				2025	5	1.83	1.94	1.17	-0.0668	-4.62	D
% Chironomidae	ANOVA	none	<0.001	2008	3	69.2	69.2	1.97	nc	nc	E
				2013	3	81.1	81.1	3.91	6.04	nc	ABCDE
				2015	5	72.0	72.0	9.01	1.44	-2.31	DE
				2016	5	73.1	73.1	11.9	1.97	-2.04	CDE
				2017	5	82.4	82.4	10.1	6.72	0.342	ABCDE
				2018	5	90.7	90.7	4.42	10.9	2.44	AB
				2019	5	91.6	91.6	1.60	11.4	2.69	AB
				2020	5	85.0	85.0	6.86	7.99	0.982	ABCD
				2021	5	78.4	78.4	6.22	4.68	-0.684	BCDE
				2022	5	86.2	86.2	4.25	8.64	1.31	ABC
				2023	5	82.3	82.3	5.35	6.65	0.310	ABCDE
				2024	5	89.7	89.7	3.96	10.4	2.20	AB
				2025	5	92.3	92.3	5.45	11.8	2.87	A

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.25: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Sheardown Lake Tributary 1 (SDLT1) Among Years of Mine Operation (2015 to 2025) and Baseline (2008 and 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall 13 Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2008	vs. Baseline Year 2013	
% Metal Sensitive Chironomidae	ANOVA	none	<0.001	2008	3	27.5	27.5	5.45	nc	nc	ABC
				2013	3	19.9	19.9	14.3	-1.40	nc	ABC
				2015	5	6.09	6.09	2.91	-3.94	-0.968	C
				2016	5	15.6	15.6	4.39	-2.20	-0.304	ABC
				2017	5	26.1	26.1	15.6	-0.260	0.434	AB
				2018	5	19.8	19.8	12.4	-1.42	-0.00731	ABC
				2019	5	31.2	31.2	11.0	0.670	0.789	A
				2020	5	10.5	10.5	5.34	-3.13	-0.661	BC
				2021	5	13.2	13.2	5.11	-2.63	-0.470	ABC
				2022	5	11.1	11.1	3.86	-3.02	-0.617	BC
				2023	5	28.7	28.7	13.0	0.221	0.618	AB
				2024	5	11.9	11.9	5.24	-2.87	-0.560	ABC
2025	5	29.4	29.4	13.3	0.341	0.663	AB				
% Tipulidae	ANOVA	log ₁₀ (x+1)	<0.001	2008	3	14.6	14.7	2.71	nc	nc	A
				2013	3	3.81	3.81	0.475	-4.23	nc	B
				2015	5	2.05	2.06	1.33	-4.95	-3.73	B
				2016	5	3.50	3.51	1.87	-4.35	-0.655	B
				2017	5	2.76	2.79	2.73	-4.66	-2.22	B
				2018	5	1.91	1.92	1.34	-5.01	-4.03	B
				2019	5	2.10	2.11	1.62	-4.93	-3.64	B
				2020	5	3.85	3.87	2.49	-4.21	0.0830	B
				2021	5	3.21	3.22	1.48	-4.47	-1.27	B
				2022	5	2.79	2.80	1.54	-4.65	-2.16	B
				2023	5	2.52	2.54	2.30	-4.76	-2.74	B
				2024	5	2.73	2.74	1.90	-4.67	-2.29	B
2025	5	1.75	1.75	1.25	-5.08	-4.39	B				
% Collector Gatherers	K-W	rank	<0.001	2008	3	40.4	40.3	2.91	nc	nc	DEF
				2013	3	51.3	55.5	7.46	2.64	nc	BCDE
				2015	5	60.6	64.2	5.20	4.87	18.6	AB
				2016	5	61.9	58.6	10.7	5.19	21.2	BC
				2017	5	54.1	55.3	8.01	3.32	5.63	BCDE
				2018	5	67.6	62.2	9.28	6.56	32.7	AB
				2019	5	82.1	81.6	4.89	10.1	61.8	A
				2020	5	42.9	47.2	12.7	0.610	-16.9	CDE
				2021	5	54.9	54.5	12.0	3.50	7.15	BCD
				2022	5	37.8	37.7	8.35	-0.622	-27.2	EF
				2023	5	59.0	54.8	18.1	4.48	15.3	BCD
				2024	5	25.5	24.8	5.68	-3.57	-51.8	F
2025	5	51.5	51.0	8.88	2.68	0.320	BCDE				
% Filterers	K-W	rank	<0.001	2008	3	5.06	5.18	3.48	nc	nc	ABC
				2013	3	9.03	8.45	1.64	0.809	nc	A
				2015	5	4.65	4.46	1.40	-0.0846	-4.26	AB
				2016	5	6.81	7.56	3.29	0.357	-2.16	A
				2017	5	4.81	8.86	7.96	-0.0516	-4.11	A
				2018	5	0.800	1.56	1.39	-0.869	-8.01	BCD
				2019	5	1.09	1.26	0.922	-0.809	-7.72	CDE
				2020	5	0.870	1.38	1.38	-0.855	-7.94	DE
				2021	5	0.609	0.765	0.739	-0.908	-8.19	DE
				2022	5	0.663	1.09	1.47	-0.897	-8.14	DE
				2023	5	1.34	0.850	0.778	-0.760	-7.49	DE
				2024	5	0	0.214	0.297	-1.03	-8.79	E
2025	5	1.50	2.23	2.50	-0.727	-7.33	BCD				
% Shredders	ANOVA	log10	<0.001	2008	3	40.5	40.6	4.23	nc	nc	BCD
				2013	3	28.1	28.7	7.38	-3.55	nc	CDE
				2015	5	22.5	22.9	4.53	-5.71	-0.896	EF
				2016	5	26.3	27.4	9.44	-4.21	-0.273	DE
				2017	5	30.8	31.6	7.68	-2.66	0.369	CDE
				2018	5	32.0	32.8	8.15	-2.30	0.519	CDE
				2019	5	14.4	15.0	4.26	-10.1	-2.70	F
				2020	5	47.5	49.2	13.8	1.54	2.11	ABC
				2021	5	41.1	42.4	11.8	0.150	1.53	BCD
				2022	5	58.9	59.4	8.90	3.64	2.98	AB
				2023	5	38.8	40.9	16.6	-0.431	1.29	BCD
				2024	5	73.4	73.6	5.51	5.78	3.87	A
2025	5	45.4	45.9	7.40	1.11	1.93	ABC				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.26: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Sheardown Lake Tributary 12 (SDLT12), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody Station	Sheardown Lake Tributary 9 (SDLT12-DS)		
	B1	B2	B3
ROUNDWORMS	-	-	-
P. Nemata	222	43.0	28.7
	-	-	-
ANNELIDS	-	-	-
P. Annelida	-	-	-
WORMS	-	-	-
Cl. Oligochaeta	-	-	-
F. Enchytraeidae	136	46.6	57.3
	-	-	-
ARTHROPODS	-	-	-
P. Arthropoda	-	-	-
MITES	-	-	-
Cl. Arachnida	-	-	-
O. Trombidiformes	-	-	-
F. Sperchonidae	-	-	-
Sperchon	-	-	-
immature	-	-	-
SEED SHRIMPS	-	-	-
Cl. Ostracoda	-	-	3.58
SPRINGTAILS	-	-	-
Cl. Entognatha	-	-	-
O. Collembola	-	-	7.17
	-	-	-
INSECTS	-	-	-
Cl. Insecta	-	-	-
MAYFLIES	-	-	-
O. Ephemeroptera	-	-	-
F. Baetidae	-	-	-
Acentrella feropagus	-	-	-
STONEFLIES	-	-	-
O. Plecoptera	-	-	-
F. Capniidae	-	-	-
immature	-	-	-
CADDISFLIES	-	-	-
O. Trichoptera	-	-	-
F. Limnephilidae	-	-	-
immature	-	-	-
TRUE FLIES	-	-	-
O. Diptera	-	-	-
MIDGES	-	-	-
BITING-MIDGE	-	-	-
F. Ceratopogonidae	-	-	-
indeterminate	-	-	-
F. Chironomidae	-	-	-
chironomid pupae	-	-	3.58
S.F. Chironominae	-	-	-
Paratanytarsus	-	-	7.17
Rheotanytarsus	-	-	-
Tanytarsus	-	3.58	-
S.F. Diamesinae	-	-	-
Diamesa	-	3.58	3.58
Pagastia	-	-	7.17
Pseudokiefferiella	-	-	-
S.F. Orthoclaadiinae	-	-	-
Chaetocladius	340	68.1	3.58
Corynoneura	14.3	-	-
Cricotopus	-	-	7.17
Cricotopus/Orthocladius	60.9	25.1	17.9
Diplocladius	322	78.8	14.3
Eukiefferiella	122	7.17	-
Hydrosmittia	32.2	-	-
Krenosmittia	-	-	-
Limnophyes	107	10.7	-
Metriocnemus	32.2	10.7	-
Orthocladius (Euorthocladius)	-	-	-
Parakiefferiella	-	-	-
Paraphaenocladius	215	-	-
Tokunagaia	430	3.58	3.58
Tvetenia	-	-	3.58
indeterminate	186	7.17	3.58
S.F. Podonominae	-	-	-
Trichotanypus	14.3	-	-
F. Empididae	-	-	-
Clinocera	-	-	-
Empididae pupa	-	-	-
F. Simuliidae	-	-	-
Gymnopsis sp.	-	-	-
Metacnephia	-	-	-
Prosimulium ursinum	-	-	-
F. Tipulidae	-	-	-
Tipula	-	-	3.58

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.27: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Sheardown Lake Tributary 12 (SDLT12) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
Density (org/m ²)	ANOVA	log10	0.157	2007	5	846	1,016	669	nc	A
				2015	3	706	841	575	-0.262	A
				2016	3	812	894	502	-0.0594	A
				2017	3	656	783	561	-0.368	A
				2018	3	2,274	2,826	2,237	1.43	A
				2019	3	2,423	3,078	2,660	1.52	A
				2020	3	1,318	1,318	26.4	0.641	A
				2021	3	291	693	964	-1.55	A
				2025	3	495	907	1,154	-0.777	A
Richness (No. of Taxa)	ANOVA	none	0.001	2007	5	19.0	19.0	1.87	nc	A
				2015	3	12.0	12.0	1.00	-3.74	C
				2016	3	18.3	18.3	1.15	-0.356	AB
				2017	3	15.3	15.3	0.577	-1.96	ABC
				2018	3	14.3	14.3	2.52	-2.49	ABC
				2019	3	15.0	15.0	2.00	-2.14	ABC
				2020	3	17.0	17.0	3.61	-1.07	ABC
				2021	3	11.3	11.3	4.16	-4.10	C
				2025	3	12.7	12.7	0.577	-3.39	BC
Simpson's Evenness (Krebs)	ANOVA	none	<0.001	2007	5	0.854	0.854	0.0198	nc	A
				2015	3	0.884	0.884	0.0412	1.55	A
				2016	3	0.884	0.884	0.0462	1.52	A
				2017	3	0.931	0.931	0.0205	3.94	A
				2018	3	0.659	0.659	0.152	-9.86	BC
				2019	3	0.613	0.613	0.0951	-12.2	C
				2020	3	0.825	0.825	0.0597	-1.43	AB
				2021	3	0.903	0.903	0.0454	2.50	A
				2025	3	0.919	0.919	0.0295	3.31	A
% Hydracarina	K-W	rank	0.089	2007	5	2.25	2.95	2.94	nc	A
				2015	3	0	0	0	-0.674	B
				2016	3	0.476	0.398	0.365	-0.532	AB
				2017	3	0	0	0	-0.674	B
				2018	3	0	0.691	1.20	-0.674	AB
				2019	3	0	0.398	0.690	-0.674	AB
				2020	3	0.266	0.181	0.157	-0.595	AB
				2021	3	0	0	0	-0.674	B
				2025	3	0	0	0	-0.674	B
% Oligochaeta	K-W	rank	0.002	2007	5	0.719	0.687	0.577	nc	C
				2015	3	29.5	28.8	8.79	57.5	A
				2016	3	34.0	31.6	11.1	66.6	A
				2017	3	17.7	21.9	8.39	33.9	AB
				2018	3	2.70	3.40	1.47	3.96	BC
				2019	3	2.55	2.30	0.581	3.66	C
				2020	3	3.31	3.36	0.188	5.19	BC
				2021	3	20.3	17.8	11.5	39.3	AB
				2025	3	15.1	17.9	13.5	28.8	AB
% Chironomidae	ANOVA	none	<0.001	2007	5	88.0	88.0	10.2	nc	AB
				2015	3	65.1	65.1	6.71	-2.25	BC
				2016	3	54.9	54.9	18.0	-3.25	C
				2017	3	64.6	64.6	7.23	-2.29	BC
				2018	3	92.1	92.1	4.03	0.405	AB
				2019	3	95.1	95.1	1.86	0.694	A
				2020	3	88.6	88.6	2.10	0.0583	AB
				2021	3	65.5	65.5	14.1	-2.21	BC
				2025	3	65.9	65.9	21.0	-2.17	BC
% Metal Sensitive Chironomidae	K-W	rank	0.147	2007	5	3.69	3.25	2.01	nc	A
				2015	3	1.22	1.41	1.51	-0.853	A
				2016	3	2.76	2.55	0.508	-0.321	A
				2017	3	10.1	12.7	5.18	2.20	A
				2018	3	0.674	0.602	0.569	-1.04	A
				2019	3	0.522	2.34	3.28	-1.09	A
				2020	3	0.551	0.454	0.414	-1.08	A
				2021	3	2.99	4.70	5.75	-0.242	A
				2025	3	2.33	4.35	5.64	-0.470	A
% Tipulidae	ANOVA	log10(x+1)	0.020	2007	5	0.299	0.299	0.485	nc	A
				2015	3	3.35	3.35	1.26	6.21	AB
				2016	3	3.74	3.77	3.06	7.00	B
				2017	3	3.42	3.43	2.04	6.34	AB
				2018	3	2.16	2.17	1.54	3.82	AB
				2019	3	0.605	0.605	0.336	0.632	AB
				2020	3	1.46	1.46	0.653	2.38	AB
				2021	3	3.63	3.64	1.80	6.78	AB
				2025	3	0.676	0.680	1.18	0.778	AB

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.27: Statistical Comparisons of Benthic Invertebrate Community Endpoints for Sheardown Lake Tributary 12 (SDLT12) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Collector Gatherers	ANOVA	none	0.002	2007	5	57.8	57.8	15.8	nc	B
				2015	3	83.7	83.7	11.4	1.64	A
				2016	3	87.0	87.0	2.59	1.85	A
				2017	3	88.5	88.5	3.22	1.94	A
				2018	3	87.6	87.6	9.39	1.88	A
				2019	3	82.0	82.0	5.00	1.53	A
				2020	3	82.1	82.1	1.31	1.54	A
				2021	3	76.9	76.9	4.73	1.21	AB
% Filterers	K-W	rank	0.110	2007	5	4.55	6.85	9.16	nc	A
				2015	3	0	0	0	-0.736	A
				2016	3	2.04	2.05	0.0870	-0.406	A
				2017	3	2.29	3.52	2.78	-0.365	A
				2018	3	0.337	0.364	0.378	-0.682	A
				2019	3	0.522	2.22	3.40	-0.652	A
				2020	3	0	0.177	0.307	-0.736	A
				2021	3	0	0.850	1.47	-0.736	A
% Shredders	ANOVA	none	0.085	2007	5	22.5	22.5	8.91	nc	A
				2015	3	16.3	16.3	11.4	-0.690	A
				2016	3	9.29	9.29	1.48	-1.48	A
				2017	3	7.98	7.98	2.08	-1.63	A
				2018	3	11.3	11.3	7.90	-1.25	A
				2019	3	15.2	15.2	8.62	-0.813	A
				2020	3	17.0	17.0	1.36	-0.609	A
				2021	3	22.3	22.3	3.59	-0.0207	A
	3	9.21	9.21	7.25	-1.49	A				

 Indicates a statistically significant difference for respective comparison (p-value <0.1).

 Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.28: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Sheardown Lake Tributary 9 (SDLT9), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody	Sheardown Lake Tributary 9 (SDLT9-DS)				
Station	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	21.5	28.7	7.17	7.17	7.17
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	68.1	7.17	21.5	7.17	-
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Trombidiformes	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-
<i>Sperchon</i>	3.58	322	7.17	222	35.8
<i>immature</i>	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	46.6	143	28.7	136	43.0
SPRINGTAILS	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-
O. Collembola	-	7.17	-	7.17	-
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
<i>Acentrella feropagus</i>	-	28.7	57.3	14.3	-
STONEFLIES	-	-	-	-	-
O. Plecoptera	-	-	-	-	-
F. Capniidae	-	-	-	-	-
<i>immature</i>	-	7.17	35.8	64.5	7.17
F. Chloroperlidae	-	-	-	-	-
<i>Sweltsa</i>	3.58	-	-	-	-
CADDISFLIES	-	-	-	-	-
O. Trichoptera	-	-	-	-	-
F. Limnephilidae	-	-	-	-	-
<i>immature</i>	-	-	-	-	7.17
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
MIDGES	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
<i>indeterminate</i>	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
<i>chironomid pupae</i>	14.3	244	244	244	150
S.F. Chironominae	-	-	-	-	-
<i>Rheotanytarsus</i>	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-
<i>Diamesa</i>	3.58	96.7	111	60.9	21.5
<i>Pseudokiefferiella</i>	-	-	68.1	28.7	-
S.F. Orthocladiinae	-	-	-	-	-
<i>Chaetocladius</i>	7.17	-	-	14.3	-
<i>Corynoneura</i>	-	161	-	-	-
<i>Cricotopus</i>	3.58	355	28.7	165	50.2
<i>Cricotopus/Orthocladius</i>	211	1,423	502	509	272
<i>Eukiefferiella</i>	-	677	140	-	7.17
<i>Hydrosmittia</i>	3.58	-	-	-	7.17
<i>Krenosmittia</i>	-	-	-	14.3	14.3
<i>Limnophyes</i>	-	-	-	-	-
<i>Metriocnemus</i>	100	677	140	122	50.2
<i>Orthocladius (Euorthocladius)</i>	-	-	-	-	-
<i>Parakiefferiella</i>	-	-	-	-	-
<i>Rheocricotopus</i>	7.17	-	-	-	-
<i>Tokunagaia</i>	-	258	183	122	-
<i>Tvetenia</i>	35.8	129	57.3	136	57.3
<i>indeterminate</i>	-	1,100	541	315	236
S.F. Podonominae	-	-	-	-	-
<i>Trichotanypus</i>	-	32.2	-	14.3	-
S.F. Tanypodinae	-	-	-	-	-
<i>Thienemannimyia complex</i>	3.58	-	-	-	-
F. Empididae	-	-	-	-	-
<i>Clinocera</i>	3.58	-	7.17	14.3	-
<i>Empididae pupa</i>	-	-	-	-	-
F. Ephydriidae	3.58	-	-	-	-
F. Muscidae	-	14.3	-	-	-
F. Simuliidae	-	-	-	-	-
<i>Gymnopais sp.</i>	-	7.17	7.17	14.3	14.3
<i>Metacnephia</i>	-	28.7	7.17	-	7.17
<i>Stegopterna</i>	-	21.5	-	-	-
<i>pupae</i>	-	28.7	-	-	-
<i>Prosimulium ursinum</i>	-	-	-	-	-
F. Tipulidae	-	-	-	-	-
<i>Tipula</i>	17.9	86.0	89.6	57.3	50.2

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.29: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Sheardown Lake Tributary 9 (SDLT9) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2013	
Density (org/m²)	K-W	rank	0.039	2007	3	702	712	41.9	nc	nc	E
				2013	3	863	1,240	690	4.18	nc	BE
				2015	5	2,228	2,147	942	39.6	21.4	BCD
				2016	5	2,254	2,401	1,054	40.3	21.8	ABCD
				2017	5	2,646	3,404	1,983	50.4	28.0	AC
				2018	5	1,366	1,482	375	17.2	7.89	BCDE
				2019	5	1,668	1,575	705	25.1	12.6	BDE
				2020	5	1,111	1,601	841	10.6	3.89	BCDE
				2021	5	2,878	2,661	1,929	56.5	31.6	BCD
				2022	4	4,996	5,522	1,900	111	64.8	A
				2023	5	3,043	2,629	1,148	60.7	34.2	ACD
Richness (No. of Taxa)	ANOVA	none	<0.001	2007	3	22.3	22.3	3.21	nc	nc	A
				2013	3	19.0	19.0	3.61	-1.04	nc	AB
				2015	5	19.4	19.4	4.83	-0.913	0.111	AB
				2016	5	18.2	18.2	2.59	-1.29	-0.222	AB
				2017	5	20.8	20.8	2.77	-0.477	0.499	A
				2018	5	17.8	17.8	3.90	-1.41	-0.333	AB
				2019	5	21.0	21.0	2.00	-0.415	0.555	A
				2020	5	16.6	16.6	4.16	-1.78	-0.666	ABC
				2021	5	16.8	16.8	2.68	-1.72	-0.610	ABC
				2022	4	14.8	14.8	1.89	-2.36	-1.18	ABC
				2023	5	14.0	14.0	1.22	-2.59	-1.39	BC
Simpson's Evenness (Krebs)	K-W	rank	0.052	2007	3	0.865	0.865	0.0490	nc	nc	ABCD
				2013	3	0.890	0.899	0.0180	0.340	nc	AB
				2015	5	0.896	0.892	0.0604	0.425	1.37	AB
				2016	5	0.870	0.843	0.0635	0.0702	-4.38	BCD
				2017	5	0.888	0.883	0.0422	0.310	-0.492	ABC
				2018	5	0.892	0.889	0.0473	0.363	0.362	AB
				2019	5	0.900	0.899	0.00797	0.479	2.26	A
				2020	5	0.841	0.835	0.0207	-0.337	-11.0	D
				2021	5	0.802	0.819	0.0541	-0.870	-19.6	D
				2022	4	0.870	0.842	0.0636	0.0686	-4.41	BCD
				2023	5	0.831	0.831	0.0270	-0.468	-13.1	CD
% Hydracarina	K-W	rank	0.003	2007	3	4.29	3.35	2.00	nc	nc	ACD
				2013	3	8.57	8.98	4.19	7.03	nc	AB
				2015	5	2.37	4.20	4.11	-3.15	-1.17	AC
				2016	5	5.02	4.61	3.24	1.20	-0.670	ABC
				2017	5	3.99	3.25	2.01	-0.500	-0.866	CD
				2018	5	8.30	8.47	2.32	6.58	-0.0519	B
				2019	5	2.77	2.72	1.13	-2.49	-1.09	CD
				2020	5	3.37	4.15	1.82	-1.52	-0.983	ABC
				2021	5	2.49	2.15	0.859	-2.95	-1.15	CDE
				2022	4	3.01	3.10	1.38	-2.10	-1.05	CD
				2023	5	0.926	0.813	0.517	-5.52	-1.44	E
% Oligochaeta	K-W	rank	0.008	2007	3	5.18	5.92	4.06	nc	nc	A
				2013	3	0	0.650	1.13	-1.20	nc	CD
				2015	5	0.879	0.837	0.429	-1.00	nm	BCD
				2016	5	1.07	1.54	1.01	-0.955	nm	ABC
				2017	5	2.15	2.95	2.77	-0.704	nm	ABC
				2018	5	0.807	0.941	0.972	-1.02	nm	BCD
				2019	5	1.39	2.08	1.72	-0.880	nm	ABC
				2020	5	2.26	2.06	0.856	-0.679	nm	AB
				2021	5	1.49	3.01	4.03	-0.857	nm	ABC
				2022	4	2.37	2.64	2.10	-0.652	nm	AB
				2023	5	0	0.0942	0.211	-1.20	nm	D
% Chironomidae	K-W	rank	0.207	2007	3	78.0	77.5	5.81	nc	nc	A
				2013	3	72.0	73.3	4.44	-0.798	nc	A
				2015	5	81.2	78.7	8.66	0.432	2.69	A
				2016	5	68.1	67.1	8.79	-1.31	-1.12	A
				2017	5	77.0	73.4	10.1	-0.131	1.46	A
				2018	5	82.9	75.8	11.1	0.660	3.19	A
				2019	5	64.1	63.7	6.93	-1.85	-2.29	A
				2020	5	72.9	70.3	4.27	-0.669	0.284	A
				2021	5	75.2	72.0	9.40	-0.365	0.948	A
				2022	4	70.6	66.9	18.0	-0.975	-0.386	A
				2023	5	75.5	75.5	11.2	-0.333	1.02	A
2024	5	85.6	77.0	23.6	1.01	3.97	A				
2025	5	83.7	82.0	6.97	0.757	3.41	A				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{baseline})/SD_{baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.29: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Sheardown Lake Tributary 9 (SDLT9) Among Years of Mine Operation (2015 to 2025) and Baseline (2007 and 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2013	
% Metal Sensitive Chironomidae	K-W	rank	<0.001	2007	3	2.85	2.56	0.872	nc	nc	BCDEF
				2013	3	0.927	0.996	0.545	-3.20	nc	EF
				2015	5	3.90	5.01	2.52	1.75	4.57	ABCD
				2016	5	0.350	0.756	1.23	-4.16	-0.886	F
				2017	5	1.17	1.12	1.30	-2.80	0.367	EF
				2018	5	0.865	0.815	0.648	-3.30	-0.0959	F
				2019	5	2.74	2.51	1.13	-0.179	2.79	DEF
				2020	5	2.08	3.19	3.64	-1.28	1.77	DEF
				2021	5	8.42	8.48	5.15	9.26	11.5	ABC
				2022	4	2.41	2.52	0.930	-0.732	2.28	DEF
				2023	5	9.01	10.9	5.17	10.2	12.4	A
2024	5	8.33	12.4	9.52	9.12	11.4	AB				
2025	5	2.46	3.60	3.30	-0.646	2.36	CDE				
% Tipulidae	K-W	rank	0.017	2007	3	4.13	4.61	1.86	nc	nc	AB
				2013	3	4.75	4.43	2.08	0.381	nc	AB
				2015	5	2.50	3.92	3.42	-1.00	-0.954	BCD
				2016	5	9.00	8.03	3.30	2.99	1.80	A
				2017	5	2.46	5.84	5.58	-1.03	-0.973	ABC
				2018	5	3.71	3.61	2.27	-0.261	-0.443	BC
				2019	5	1.32	1.41	0.780	-1.73	-1.46	DE
				2020	5	2.52	3.12	1.30	-0.988	-0.944	BCD
				2021	5	1.37	1.73	0.944	-1.70	-1.43	CDE
				2022	4	3.40	3.13	1.08	-0.451	-0.573	BCD
				2023	5	1.75	1.82	1.51	-1.46	-1.27	CDE
2024	5	0.791	1.50	2.36	-2.05	-1.68	E				
2025	5	2.87	3.07	1.32	-0.773	-0.796	BCD				
% Collector Gatherers	ANOVA	none	0.099	2007	3	57.8	57.8	3.09	nc	nc	AB
				2013	3	60.6	60.6	6.91	0.914	nc	AB
				2015	5	60.7	60.7	20.5	0.949	0.0156	AB
				2016	5	44.6	44.6	15.7	-4.27	-2.32	A
				2017	5	57.5	57.5	11.6	-0.0909	-0.449	AB
				2018	5	52.6	52.6	7.32	-1.67	-1.16	AB
				2019	5	62.5	62.5	6.51	1.53	0.277	AB
				2020	5	61.0	61.0	8.58	1.04	0.0572	AB
				2021	5	50.8	50.8	9.84	-2.26	-1.42	AB
				2022	4	67.3	67.3	9.16	3.09	0.972	AB
				2023	5	60.5	60.5	8.38	0.870	-0.0199	AB
2024	5	69.7	69.7	14.7	3.87	1.32	B				
2025	5	61.5	61.5	7.35	1.22	0.135	AB				
% Filterers	K-W	rank	0.033	2007	3	1.14	1.34	0.937	nc	nc	BC
				2013	3	1.71	1.93	0.880	0.626	nc	AB
				2015	5	1.32	2.03	1.80	0.198	-0.495	AB
				2016	5	0.350	0.482	0.406	-0.871	-1.73	C
				2017	5	0.529	0.817	0.689	-0.673	-1.50	BC
				2018	5	1.21	1.42	1.40	0.0742	-0.639	BC
				2019	5	2.16	2.01	0.992	1.13	0.583	AB
				2020	5	0	0.533	0.905	-1.26	-2.18	C
				2021	5	6.50	7.61	5.05	5.91	6.12	A
				2022	4	1.73	1.47	1.14	0.653	0.0316	BC
				2023	5	1.08	4.93	6.52	-0.0669	-0.802	AB
2024	5	0.593	2.40	4.12	-0.602	-1.42	BC				
2025	5	0.587	0.861	0.735	-0.609	-1.43	BC				
% Shredders	ANOVA	none	0.196	2007	3	26.8	26.8	3.91	nc	nc	A
				2013	3	28.4	28.4	4.37	0.401	nc	A
				2015	5	32.0	32.0	18.2	1.34	0.845	A
				2016	5	49.1	49.1	15.0	5.70	4.74	A
				2017	5	37.7	37.7	10.7	2.79	2.14	A
				2018	5	37.2	37.2	9.72	2.66	2.02	A
				2019	5	32.0	32.0	7.21	1.33	0.829	A
				2020	5	31.9	31.9	8.55	1.31	0.811	A
				2021	5	37.7	37.7	12.6	2.78	2.13	A
				2022	4	27.3	27.3	9.42	0.130	-0.243	A
				2023	5	33.4	33.4	7.81	1.70	1.16	A
2024	5	26.5	26.5	15.4	-0.0681	-0.420	A				
2025	5	33.7	33.7	5.36	1.76	1.22	A				

Table E.30: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Sheardown Lake Northwest (NW; DL0-01, DD-HAB-09), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Lake	DL0-01				DD-HAB-09
Station Type	Littoral				Littoral
Station	3	8	9	10	2
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	-	138	-	-
	-	-	-	-	0
ANNELIDS	-	-	-	-	0
P. Annelida	-	-	-	-	0
WORMS	-	-	-	-	0
Cl. Oligochaeta	-	-	-	-	0
F. Enchytraeidae	-	-	-	-	-
F. Lumbriculidae	-	-	-	-	0
Lumbriculus	-	-	-	-	-
	-	-	-	-	0
ARTHROPODS	-	-	-	-	0
P. Arthropoda	-	-	-	-	0
MITES	-	-	-	-	0
Cl. Arachnida	-	-	-	-	0
O. Acarina	-	-	-	-	0
F. Acalyptonotidae	-	-	-	-	0
Acalyptonotus	138	17.2	-	68.9	138
F. Hygrobatidae	-	-	-	-	0
Hygrobates	-	-	-	34.4	-
F. Lebertiidae	-	-	-	-	0
Lebertia	-	-	-	34.4	-
F. Sperchontidae	-	-	-	-	0
Sperchon	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	0
Cl. Ostracoda	3,996	1,154	1,653	2,893	3,996
	-	-	-	-	0
INSECTS	-	-	-	-	0
Cl. Insecta	-	-	-	-	0
CADDISFLIES	-	-	-	-	0
O. Trichoptera	-	-	-	-	0
F. Apataniidae	-	-	-	-	0
Apatania	-	-	-	34.4	-
	-	-	-	-	0
TRUE FLIES	-	-	-	-	0
O. Diptera	-	-	-	-	0
MIDGES	-	-	-	-	0
F. Chironomidae	-	-	-	-	0
chironomid pupae	-	34.4	-	-	-
S.F. Chironominae	-	-	-	-	0
Chironomus	-	103	-	-	-
Lipiniella	-	-	-	-	-
Micropsectra	-	-	-	34.4	-
Parachironomus	-	-	-	-	-
Paratanytarsus	138	34.4	2,962	68.9	138
Polypedilum	-	-	-	-	-
Sergentia	207	34.4	276	-	207
Stictochironomus	276	276	827	482	276
Tanytarsus	137.8	17.2	-	68.9	138
S.F. Diamesinae	-	-	-	-	0
Protanypus	-	-	-	-	-
Pseudodiamesa	-	-	-	34.4	-
Pseudokiefferiella	-	-	-	-	-
S.F. Orthocladiinae	-	-	-	-	0
Abiskomyia	-	-	344	172	-
Cardiocladius	-	-	-	-	-
Cricotopus/Orthocladius	276	51.7	1,102	276	276
Heterotrissocladius	-	-	-	-	-
Hydrosmittia	-	-	-	-	-
Mesocricotopus	-	-	68.9	34.4	-
Paracladius	-	-	-	-	-
Parakiefferiella	-	-	68.9	103	-
Zalutschia	-	-	-	-	-
indeterminate	-	-	-	-	0
S.F. Tanypodinae	413	138	276	207	413
Arctopelopia	-	-	68.9	172	-
Procladius	16.00	8.00	7.00	11.00	138

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.31: Field Observations for Littoral Sampling Stations at Sheardown Lake Northwest (NW; DL0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Station	Station Depth (m)	Colour and Texture Observations	Evidence of Anoxia ^a	Plant or Algae Presence
DL0-01-3	6.3	Lots of organics	Organic smell	Abundant macrophytes and common algae
DL0-01-8	9.1	Sandy	None	Sparse macrophytes and sparse algae
DL0-01-9	8.5	Black mud/sandy	Odour	Sparse macrophytes and sparse algae
DL0-01-10	8.7	Sandy	None	Sparse algae
DD-HAB-9-STN2	11.1	Sandy	None	Sparse macrophytes and common algae

Notes: m = metres.

^a Evidence of anoxic sediments was assessed visually (presence of blackened substrate) and by smell (based on presence/strength of hydrogen sulphide odour).

Table E.32: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Sheardown Lake Northwest (NW; DL0-01) Among Years of Mine Operation (2015 to 2025) and Baseline (2007, 2008, and 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a			
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b			Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2008	vs. Baseline Year 2013	
Density (org/m²)	ANOVA	log ₁₀	0.407	2007	4	5,354	5,974	3,000	nc	nc	nc	A
				2008	4	6,201	7,536	5,273	0.261	nc	nc	A
				2013	3	9,691	9,940	2,634	1.05	0.602	nc	A
				2015	5	5,109	5,665	3,230	-0.0831	-0.261	-2.28	A
				2016	5	3,983	5,503	4,184	-0.525	-0.597	-3.17	A
				2017	5	4,863	5,216	2,398	-0.171	-0.328	-2.46	A
				2018	5	5,501	6,334	3,717	0.0480	-0.162	-2.02	A
				2019	5	5,491	6,207	2,673	0.0450	-0.164	-2.02	A
				2020	5	5,672	6,631	3,914	0.102	-0.120	-1.91	A
				2021	5	4,572	5,399	3,000	-0.281	-0.411	-2.68	A
				2022	5	6,270	6,455	1,665	0.280	0.0148	-1.55	A
				2023	5	3,914	4,547	2,732	-0.557	-0.621	-3.23	A
Richness (No. of Taxa)	ANOVA	log ₁₀	0.028	2007	4	12.3	12.3	1.52	nc	nc	nc	AB
				2008	4	14.4	14.5	1.68	1.33	nc	nc	AB
				2013	3	17.5	17.7	3.21	2.91	1.55	nc	A
				2015	5	13.7	13.8	1.92	0.903	-0.422	-1.26	AB
				2016	5	14.4	14.6	2.41	1.35	0.0139	-0.982	AB
				2017	5	13.7	14.0	3.16	0.933	-0.394	-1.24	AB
				2018	5	15.0	15.0	1.22	1.64	0.298	-0.800	AB
				2019	5	12.9	13.2	3.56	0.387	-0.930	-1.59	AB
				2020	5	15.4	15.4	1.14	1.86	0.515	-0.661	A
				2021	5	11.7	11.8	1.79	-0.401	-1.71	-2.08	AB
				2022	5	13.8	14.0	2.74	0.967	-0.360	-1.22	AB
				2023	5	12.5	13.0	4.18	0.144	-1.17	-1.74	AB
Simpson's Evenness (Krebs)	ANOVA	none	0.006	2007	4	0.768	0.768	0.0553	nc	nc	nc	ABC
				2008	4	0.840	0.840	0.0980	1.30	nc	nc	ABC
				2013	3	0.863	0.863	0.0466	1.72	0.239	nc	ABC
				2015	5	0.759	0.759	0.0957	-0.167	-0.827	-2.24	ABC
				2016	5	0.893	0.893	0.0235	2.26	0.543	0.638	A
				2017	5	0.842	0.842	0.0485	1.34	0.0212	-0.459	AB
				2018	5	0.769	0.769	0.163	0.0236	-0.720	-2.02	ABC
				2019	5	0.686	0.686	0.114	-1.48	-1.57	-3.80	BC
				2020	5	0.773	0.773	0.0548	0.0832	-0.686	-1.95	ABC
				2021	5	0.750	0.750	0.101	-0.328	-0.918	-2.43	ABC
				2022	5	0.853	0.853	0.0347	1.53	0.130	-0.229	AB
				2023	5	0.804	0.804	0.122	0.650	-0.366	-1.27	ABC
% Nematoda	K-W	rank	0.279	2007	4	1.23	1.52	1.58	nc	nc	nc	A
				2008	4	0.695	1.09	0.976	-0.403	nc	nc	A
				2013	3	0.214	0.592	0.846	-0.767	-2.25	nc	A
				2015	5	0.611	0.851	1.07	-0.467	-0.394	1.25	A
				2016	5	1.20	1.14	0.713	-0.0204	2.37	3.12	A
				2017	5	0.528	1.26	1.55	-0.530	-0.785	0.990	A
				2018	5	1.17	1.34	1.03	-0.0413	2.24	3.03	A
				2019	5	0	0.165	0.226	-0.929	-3.25	-0.674	A
				2020	5	0.833	0.610	0.569	-0.299	0.646	1.95	A
				2021	5	0.344	0.644	0.786	-0.669	-1.65	0.410	A
				2022	5	0.450	2.57	3.49	-0.588	-1.15	0.747	A
				2023	5	1.64	1.33	1.35	0.311	4.42	4.50	A
% Ostracoda	K-W	rank	0.002	2007	4	10.3	11.9	12.8	nc	nc	nc	DEF
				2008	4	7.33	10.8	8.73	-0.219	nc	nc	DEF
				2013	3	26.1	23.4	8.14	1.14	6.77	nc	ABCD
				2015	5	6.77	7.84	3.72	-0.260	-0.204	-3.56	F
				2016	5	7.11	9.19	6.13	-0.235	-0.0791	-3.50	EF
				2017	5	14.7	19.5	11.1	0.315	2.65	-2.10	BCDE
				2018	5	11.6	13.0	4.10	0.0932	1.55	-2.66	DEF
				2019	5	12.6	16.0	5.73	0.160	1.89	-2.49	CDEF
				2020	5	28.0	25.6	8.56	1.28	7.46	0.351	ABC
				2021	5	20.6	25.0	16.5	0.744	4.79	-1.01	ABCD
				2022	5	18.3	21.4	6.45	0.576	3.96	-1.44	ABCD
				2023	5	42.3	42.7	14.5	2.31	12.6	2.97	A
2024	6	57.9	45.6	27.1	3.44	18.2	5.84	AB				
2025	5	24.9	32.8	19.3	1.05	6.32	-0.230	ABC				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.32: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Sheardown Lake Northwest (NW; DL0-01) Among Years of Mine Operation (2015 to 2025) and Baseline (2007, 2008, and 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a			
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b			Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2008	vs. Baseline Year 2013	
% Chironomidae	K-W	rank	<0.001	2007	4	83.4	83.0	8.28	nc	nc	nc	ABCD
				2008	4	79.6	81.2	6.67	-0.416	nc	nc	ABCD
				2013	3	67.5	70.5	9.64	-1.74	-2.72	nc	CDEF
				2015	5	90.2	89.8	3.20	0.745	2.39	3.14	A
				2016	5	86.6	85.0	6.59	0.344	1.57	2.63	AB
				2017	5	71.6	73.5	11.2	-1.29	-1.81	0.561	BCDE
				2018	5	84.8	83.7	2.85	0.148	1.16	2.38	ABC
				2019	5	83.9	82.1	5.95	0.0488	0.958	2.26	ABCD
				2020	5	70.1	70.4	9.29	-1.46	-2.14	0.355	DEF
				2021	5	77.0	70.1	16.0	-0.703	-0.590	1.31	CDEF
				2022	5	72.1	72.5	8.08	-1.24	-1.70	0.628	CDEF
				2023	5	53.3	51.1	13.5	-3.30	-5.93	-1.97	F
2024	6	40.8	51.5	25.6	-4.66	-8.74	-3.69	EF				
2025	5	61.2	59.0	19.6	-2.42	-4.13	-0.868	EF				
% Metal Sensitive Chironomidae	ANOVA	log ₁₀	0.024	2007	4	9.82	16.9	16.9	nc	nc	nc	AB
				2008	4	14.5	20.7	17.2	0.299	nc	nc	AB
				2013	3	20.7	21.0	4.65	0.568	0.344	nc	AB
				2015	5	17.9	19.1	7.18	0.456	0.200	-0.704	AB
				2016	5	19.8	24.6	15.2	0.533	0.298	-0.222	AB
				2017	5	15.4	16.6	7.91	0.341	0.0533	-1.42	AB
				2018	5	10.7	18.3	15.0	0.0643	-0.299	-3.15	AB
				2019	5	9.15	10.6	5.98	-0.0540	-0.450	-3.88	AB
				2020	5	9.18	15.4	14.3	-0.0513	-0.447	-3.87	AB
				2021	5	9.25	11.8	9.95	-0.0458	-0.440	-3.83	AB
				2022	5	45.0	45.3	5.70	1.16	1.10	3.69	A
				2023	5	8.93	11.2	8.03	-0.0729	-0.474	-4.00	AB
2024	6	4.42	9.05	14.3	-0.609	-1.16	-7.35	B				
2025	5	5.83	7.26	5.65	-0.397	-0.888	-6.03	B				
% Collector Gatherers	ANOVA	log ₁₀	<0.001	2007	4	70.6	71.6	13.4	nc	nc	nc	AB
				2008	4	59.9	61.1	15.0	-0.843	nc	nc	AB
				2013	3	64.9	65.3	8.98	-0.430	0.355	nc	AB
				2015	5	68.5	68.9	7.97	-0.153	0.594	0.386	AB
				2016	5	56.3	56.8	7.68	-1.15	-0.266	-1.01	BC
				2017	5	68.9	69.4	9.19	-0.123	0.620	0.429	AB
				2018	5	75.3	76.2	13.1	0.333	1.01	1.06	AB
				2019	5	81.4	81.7	8.43	0.727	1.35	1.61	A
				2020	5	76.3	77.5	14.1	0.399	1.07	1.16	AB
				2021	5	79.7	80.1	8.20	0.623	1.26	1.47	A
				2022	5	42.6	43.2	8.15	-2.58	-1.50	-3.00	C
				2023	5	72.4	72.7	7.06	0.131	0.839	0.782	AB
2024	6	79.1	80.0	12.3	0.580	1.23	1.41	A				
2025	5	80.0	80.2	6.09	0.643	1.28	1.50	A				
% Filterers	ANOVA	log ₁₀ (x+1)	0.003	2007	4	15.8	16.7	17.1	nc	nc	nc	B
				2008	4	19.0	19.9	17.1	0.191	nc	nc	AB
				2013	3	20.9	21.0	4.68	0.305	0.115	nc	AB
				2015	5	18.4	18.6	6.83	0.157	-0.0347	-0.554	AB
				2016	5	22.0	23.0	17.3	0.368	0.179	0.239	AB
				2017	5	16.3	16.5	7.99	0.0325	-0.161	-1.02	B
				2018	5	16.6	17.5	15.7	0.0538	-0.139	-0.943	B
				2019	5	9.87	9.99	5.81	-0.363	-0.561	-2.51	B
				2020	5	13.9	14.6	14.5	-0.110	-0.306	-1.56	B
				2021	5	10.9	11.2	10.5	-0.300	-0.498	-2.27	B
				2022	5	45.2	45.3	5.70	1.58	1.40	4.78	A
				2023	5	9.66	9.95	9.04	-0.376	-0.575	-2.56	B
2024	6	7.88	8.59	14.5	-0.490	-0.690	-2.99	B				
2025	5	5.93	6.06	5.98	-0.617	-0.819	-3.46	B				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency, MOD = Magnitude of Difference, org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.33: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Sheardown Lake Southeast (SE; DL0-02), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Lake	Sheardown Lake SE (DL0-02)				
Station Type	Littoral				
Station	1	3	9	11	13
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	51.7	8.61	68.9	17.2
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	-	-	-	-
F. Lumbriculidae	-	-	-	-	-
Lumbriculus	-	-	-	-	-
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
F. Acalyptonotidae	-	-	-	-	-
Acalyptonotus	51.7	-	86.1	129	112
F. Hygrobatidae	-	-	-	-	-
Hygrobates	-	-	8.61	8.61	17.2
F. Lebertiidae	-	-	-	-	-
Lebertia	43.1	-	8.61	-	17.2
F. Sperchontidae	-	-	-	-	-
Sperchon	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	51.7	68.9	344	241	284
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
CADDISFLIES	-	-	-	-	-
O. Trichoptera	-	-	-	-	-
F. Apataniidae	-	-	-	-	-
Apatania	-	-	-	-	-
	-	-	-	-	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	8.61	34.4	17.2	-	8.61
S.F. Chironominae	-	-	-	-	-
Chironomus	-	34.4	-	-	-
Lipiniella	-	-	-	-	-
Micropsectra	431	1,051	1,429	1,826	1,309
Parachironomus	-	-	-	-	-
Paratanytarsus	-	-	-	-	-
Polypedilum	-	-	-	-	-
Sergentia	-	-	-	-	-
Stictochironomus	1,791	1,774	964	456	603
Tanytarsus	51.7	172	293	1,266	491
S.F. Diamesinae	-	-	-	-	-
Protanypus	-	-	-	-	17.2
Pseudodiamesa	-	-	-	-	-
Pseudokiefferiella	-	-	-	-	-
S.F. Orthocladiinae	-	-	-	-	-
Abiskomyia	34.4	51.7	129	103	146
Cardiocladius	-	-	-	-	-
Heterotrissocladius	-	-	-	-	-
Hydrosmittia	-	-	-	-	-
Mesocricotopus	-	-	-	-	-
Paracladius	-	-	-	-	-
Parakiefferiella	-	-	-	-	-
Zalutschia	17.2	-	-	-	-
indeterminate	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-
Arctopelopia	-	-	-	-	-
Procladius	775	637	1,567	1,653	1,249

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.34: Field Observations for Littoral Sampling Stations at Sheardown Lake Southeast (SE; DL0-02), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Station	Station Depth (m)	Colour and Texture Observations	Evidence of Anoxia ^a	Plant or Algae Presence
DL0-02-1	8.1	Sandy	None	None
DL0-02-3	13.1	Sandy	None	None
DL0-02-9	9.1	Brown/sandy, lots of mud	None	None
DL0-02-11	8.4	Sandy, lots of mud	None	Sparse algae
DL0-02-13	12.0	Grey mud	None	None

Notes: m = metres. None of the stations had visible macrophytes.

^a Evidence of anoxic sediments was assessed visually (presence of blackened substrate) and by smell (based on presence/strength of hydrogen sulphide odour).

Table E.35: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Sheardown Lake Southeast (SE; DL0-02) Among Years of Mine Operation (2015 to 2025) and Baseline (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2013	
Density (org/m²)	ANOVA	none	<0.001	2013	5	10,649	10,649	4,062	nc	A
				2015	5	4,829	4,829	1,898	-1.43	BC
				2016	5	3,700	3,700	1,485	-1.71	BC
				2017	5	4,417	4,417	1,317	-1.53	BC
				2018	5	4,240	4,240	1,520	-1.58	BC
				2019	5	5,080	5,080	1,329	-1.37	BC
				2020	5	5,407	5,407	1,391	-1.29	BC
				2021	5	5,253	5,253	858	-1.33	BC
				2022	5	7,559	7,559	2,968	-0.761	AB
				2023	5	1,669	1,669	1,457	-2.21	C
				2024	5	4,728	4,728	1,639	-1.46	BC
2025	5	4,402	4,402	954	-1.54	BC				
Richness (No. of Taxa)	ANOVA	none	<0.001	2013	5	14.2	14.2	3.96	nc	A
				2015	5	10.6	10.6	2.51	-0.909	ABC
				2016	5	11.4	11.4	2.30	-0.707	ABC
				2017	5	9.00	9.00	0.707	-1.31	BD
				2018	5	10.2	10.2	2.59	-1.01	ABCD
				2019	5	11.6	11.6	0.894	-0.656	ABC
				2020	5	12.2	12.2	1.64	-0.505	ABC
				2021	5	12.0	12.0	1.87	-0.555	ABC
				2022	5	13.4	13.4	1.14	-0.202	AC
				2023	5	6.40	6.40	1.14	-1.97	D
				2024	5	13.0	13.0	2.55	-0.303	ABC
2025	5	9.40	9.40	1.14	-1.21	BCD				
Simpson's Evenness (Krebs)	ANOVA	none	0.042	2013	5	0.785	0.785	0.0960	nc	AB
				2015	5	0.759	0.759	0.123	-0.271	AB
				2016	5	0.772	0.772	0.0891	-0.141	AB
				2017	5	0.712	0.712	0.0547	-0.769	AB
				2018	5	0.704	0.704	0.131	-0.846	AB
				2019	5	0.826	0.826	0.0577	0.427	AB
				2020	5	0.826	0.826	0.0683	0.418	AB
				2021	5	0.811	0.811	0.0502	0.268	AB
				2022	5	0.886	0.886	0.0473	1.05	A
				2023	5	0.645	0.645	0.183	-1.46	B
				2024	5	0.783	0.783	0.137	-0.0217	AB
2025	5	0.806	0.806	0.0688	0.216	AB				
% Nematoda	K-W	rank	0.366	2013	5	0.202	0.217	0.189	nc	A
				2015	5	0	1.55	2.91	-2.16	A
				2016	5	0.548	1.06	1.29	3.69	A
				2017	5	0.207	0.473	0.637	0.0538	A
				2018	5	0.610	0.557	0.476	4.36	A
				2019	5	1.06	1.07	1.30	9.15	A
				2020	5	0	0.366	0.733	-2.16	A
				2021	5	0.340	0.490	0.464	1.47	A
				2022	5	0.499	0.766	0.724	3.17	A
				2023	5	0	0	0	-2.16	A
				2024	5	0.355	0.314	0.114	1.63	A
2025	5	0.403	0.622	0.606	2.15	A				
% Ostracoda	K-W	rank	0.086	2013	5	0	5.90	8.75	nc	BC
				2015	5	0.208	5.47	10.1	nm	BC
				2016	5	0.290	1.74	2.52	nm	C
				2017	5	0.372	0.838	0.815	nm	C
				2018	5	2.02	6.05	9.85	nm	ABC
				2019	5	2.41	5.42	7.73	nm	ABC
				2020	5	8.14	6.80	3.46	nm	AB
				2021	5	4.54	5.57	4.66	nm	AB
				2022	5	9.88	10.6	7.98	nm	A
				2023	5	8.89	15.5	21.6	nm	A
				2024	5	12.3	13.7	13.9	nm	A
2025	5	4.19	4.26	2.60	nm	ABC				
% Chironomidae	K-W	rank	0.118	2013	5	94.1	89.9	7.54	nc	A
				2015	5	92.8	88.9	9.37	-0.481	A
				2016	5	96.4	95.4	3.90	0.859	A
				2017	5	95.5	95.6	1.84	0.503	A
				2018	5	96.5	92.4	9.99	0.909	A
				2019	5	93.7	90.3	9.16	-0.149	A
				2020	5	89.0	89.2	5.14	-1.88	A
				2021	5	91.0	89.7	5.20	-1.15	A
				2022	5	85.5	85.7	8.58	-3.18	A
				2023	5	88.4	80.5	21.6	-2.10	A
				2024	5	82.1	82.0	13.5	-4.46	A
2025	5	92.2	93.0	3.16	-0.699	A				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.35: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Sheardown Lake Southeast (SE; DL0-02) Among Years of Mine Operation (2015 to 2025) and Baseline (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2013	
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	<0.001	2013	5	14.8	15.1	9.76	nc	BC
				2015	5	12.3	12.7	10.4	-0.260	BC
				2016	5	6.77	6.83	4.16	-0.860	BC
				2017	5	12.0	12.1	4.18	-0.290	BC
				2018	5	11.8	12.1	8.87	-0.313	BC
				2019	5	16.1	16.3	7.79	0.136	BC
				2020	5	12.1	12.3	6.48	-0.280	BC
				2021	5	12.9	13.1	6.86	-0.195	BC
				2022	5	21.6	21.9	8.85	0.687	AB
				2023	5	1.14	1.15	2.12	-1.50	C
				2024	5	18.1	18.9	15.2	0.338	AB
% Collector Gatherers	ANOVA	none	0.007	2025	5	35.1	35.7	14.3	1.94	A
				2013	5	44.6	44.6	8.22	nc	B
				2015	5	59.0	59.0	10.6	1.76	AB
				2016	5	56.5	56.5	12.8	1.46	AB
				2017	5	48.4	48.4	18.8	0.463	B
				2018	5	52.5	52.5	11.1	0.962	AB
				2019	5	51.9	51.9	14.6	0.890	B
				2020	5	54.0	54.0	14.9	1.14	AB
				2021	5	56.3	56.3	5.39	1.43	AB
				2022	5	51.5	51.5	6.40	0.840	B
				2023	5	79.1	79.1	14.6	4.20	A
% Filterers	ANOVA	log ₁₀ (x+1)	<0.001	2024	5	49.1	49.1	19.0	0.548	B
				2025	5	35.9	35.9	18.1	-1.06	B
				2013	5	14.8	15.1	9.76	nc	BC
				2015	5	12.2	12.6	10.4	-0.273	BC
				2016	5	6.59	6.66	4.42	-0.880	BC
				2017	5	12.0	12.1	4.18	-0.290	BC
				2018	5	11.8	12.1	8.87	-0.313	BC
				2019	5	16.1	16.3	7.79	0.136	ABC
				2020	5	12.1	12.3	6.48	-0.280	BC
				2021	5	12.8	13.0	7.03	-0.205	BC
				2022	5	21.3	21.6	9.26	0.654	AB
2023	5	1.14	1.15	2.12	-1.50	C				
2024	5	17.9	18.7	15.4	0.317	AB				
2025	5	35.0	35.7	14.3	1.93	A				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.36: Benthic Invertebrate Community Endpoints for Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mary River Project Core Receiving Environmental Monitoring Program (CREMP), August 2025

Endpoints	Area	n	Mean	Standard Deviation	Standard Error	Minimum	Median	Maximum
Density (org/m²)	G0-09	5	165	160	71.5	43.0	57.4	394
	G0-03	5	40.1	16.7	7.47	17.9	39.4	64.5
	E0-01	6	29.3	21.3	8.70	7.17	26.9	57.4
	E0-20	5	145	145	64.7	25.1	93.2	366
	C0-05	5	836	693	310	158	502	1,878
Richness (No. of Taxa)	G0-09	5	7.20	2.17	0.970	5.00	6.00	10.0
	G0-03	5	6.80	1.64	0.735	4.00	7.00	8.00
	E0-01	6	4.50	2.43	0.992	1.00	5.50	7.00
	E0-20	5	9.20	3.35	1.50	5.00	9.00	13.0
	C0-05	5	15.4	2.70	1.21	13.0	15.0	20.0
Simpson's E (Krebs)	G0-09	5	0.913	0.0443	0.0198	0.863	0.913	0.974
	G0-03	5	0.938	0.0742	0.0332	0.811	0.961	1.00
	E0-01	5	0.970	0.0344	0.0154	0.920	0.985	1.00
	E0-20	5	0.911	0.0530	0.0237	0.839	0.918	0.984
	C0-05	5	0.622	0.243	0.109	0.339	0.618	0.951
% Nematoda	G0-09	5	1.25	2.80	1.25	0	0	6.25
	G0-03	5	1.82	4.07	1.82	0	0	9.09
	E0-01	6	0	0	0	0	0	0
	E0-20	5	5.87	10.8	4.82	0	0.980	25.0
	C0-05	5	1.95	2.89	1.29	0	0.573	6.82
% Hydracarina	G0-09	5	0.182	0.407	0.182	0	0	0.909
	G0-03	5	3.82	5.24	2.34	0	0	10.0
	E0-01	6	2.78	6.80	2.78	0	0	16.7
	E0-20	5	3.59	6.05	2.71	0	1.69	14.3
	C0-05	5	1.05	2.05	0.916	0	0	4.69
% Chironomidae	G0-09	5	73.4	7.13	3.19	62.5	75.0	81.2
	G0-03	5	63.6	22.9	10.2	44.4	58.3	100
	E0-01	6	80.2	18.5	7.54	55.6	79.5	100
	E0-20	5	67.2	15.3	6.86	42.9	71.2	80.8
	C0-05	5	87.1	11.3	5.07	68.2	92.1	95.2
% Metal Sensitive Chironomidae	G0-09	5	31.1	13.3	5.94	20.8	25.0	52.8
	G0-03	5	27.9	6.13	2.74	22.2	25.0	35.0
	E0-01	6	25.6	18.5	7.56	0	25.7	50.0
	E0-20	5	25.6	5.99	2.68	15.4	28.6	29.7
	C0-05	5	60.0	22.7	10.2	25.0	65.3	82.1
% Collector Gatherers	G0-09	5	71.3	3.75	1.68	66.7	72.2	76.3
	G0-03	5	54.0	13.3	5.94	43.2	50.0	75.0
	E0-01	6	57.0	35.2	14.4	0	60.0	100
	E0-20	5	49.5	17.4	7.77	28.6	46.1	75.0
	C0-05	5	81.7	9.09	4.07	70.5	83.3	91.4
% Filterers	G0-09	5	21.9	5.41	2.42	12.5	25.0	25.0
	G0-03	5	22.4	19.0	8.51	0	25.0	50.0
	E0-01	6	4.46	6.94	2.83	0	0	14.3
	E0-20	5	18.8	21.8	9.76	3.85	12.5	57.1
	C0-05	5	5.00	3.83	1.71	1.53	3.62	11.4
% Shredders	G0-09	5	6.43	5.65	2.53	0	6.25	14.8
	G0-03	5	13.1	12.1	5.42	0	20.0	25.0
	E0-01	6	10.7	9.96	4.06	0	9.96	22.2
	E0-20	5	22.2	16.8	7.49	0	21.5	38.6
	C0-05	5	8.92	4.79	2.14	4.99	5.95	14.6
% Clingers	G0-09	5	28.5	4.07	1.82	22.7	27.8	33.3
	G0-03	5	35.9	13.3	5.96	20.0	36.7	50.0
	E0-01	6	16.1	15.3	6.25	0	16.7	38.9
	E0-20	5	45.3	16.9	7.53	25.0	42.3	71.4
	C0-05	5	13.9	8.17	3.65	6.33	9.72	24.8
% Sprawlers	G0-09	5	68.6	5.26	2.35	62.5	66.7	76.3
	G0-03	5	50.5	17.1	7.65	34.1	50.0	75.0
	E0-01	6	57.0	35.2	14.4	0	60.0	100
	E0-20	5	42.2	8.68	3.88	28.6	42.3	50.0
	C0-05	5	79.3	11.3	5.07	63.6	81.9	90.3
% Burrowers	G0-09	5	2.95	3.05	1.36	0	1.32	6.25
	G0-03	5	13.6	13.0	5.80	0	18.2	28.3
	E0-01	6	26.9	39.8	16.3	0	8.33	100
	E0-20	5	12.6	9.02	4.03	0	11.9	25.0
	C0-05	5	6.74	5.61	2.51	2.87	3.39	15.9
% Simuliidae	G0-09	5	21.9	5.41	2.42	12.5	25.0	25.0
	G0-03	5	22.4	19.0	8.51	0	25.0	50.0
	E0-01	6	4.46	6.94	2.83	0	0	14.3
	E0-20	5	15.9	15.6	6.97	3.85	12.5	42.9
	C0-05	5	4.85	3.91	1.75	1.53	3.03	11.4
% Tipulidae	G0-09	5	1.25	2.80	1.25	0	0	6.25
	G0-03	5	3.48	4.78	2.14	0	0	9.09
	E0-01	6	1.85	4.54	1.85	0	0	11.1
	E0-20	5	0.339	0.758	0.339	0	0	1.69
	C0-05	5	1.70	1.62	0.725	0.606	1.15	4.55

Notes: n/No. = number. org/m² = organisms per square metre. % = percent.

Table E.37: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for the Upstream Reference (G0-09) Area on the Mary River, Mary River Project Core Receiving

Waterbody	Mary River Upstream Reference (G0-09)				
Station	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	-	3.58	-	-
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	-	-	-	3.58
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-
Sperchon	-	-	-	3.58	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	-	-	-	-	-
SPRINGTAILS	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-
O. Collembola	3.58	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
Acentrella feropagus	-	-	-	-	7.17
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
indeterminate	-	-	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	3.58	-	7.17	10.7	10.7
S.F. Chironominae	-	-	-	-	-
Micropsectra	-	-	-	-	-
Stictochironomus	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-
Diamesa	10.7	10.7	10.7	86.0	68.1
Pseudokiefferiella	-	-	-	115	21.5
S.F. Orthocladiinae	-	-	-	-	-
Cardiocladius	-	-	-	3.58	-
Corynoneura	-	-	-	-	3.58
Cricotopus	-	-	-	-	-
Cricotopus/Orthocladius	-	3.58	7.17	-	7.17
Diplocladius	-	-	-	-	-
Eukiefferiella	17.9	14.3	10.7	78.8	64.5
Hydrobaenus	-	3.58	-	-	-
Hydrosmittia	-	-	-	-	-
Krenosmittia	-	-	-	3.58	-
Limnophyes	-	-	-	3.58	3.58
Orthocladius (Euorthocladius)	-	-	-	-	-
Parakiefferiella	-	-	-	-	-
Paraphaenocladius	-	-	-	-	-
Rheocricotopus	-	-	-	-	-
Thienemanniella	-	-	-	-	-
Tokunagaia	3.58	-	10.7	3.58	14.3
Tvetenia	-	-	-	-	-
indeterminate	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-
Thienemannimyia complex	-	-	-	-	-
F. Empididae	-	-	-	-	-
Clinocera	-	-	-	-	-
F. Simuliidae	-	-	-	-	-
Gymnopais	14.3	10.7	7.17	86.0	68.1
Helodon irkutensis	-	-	-	-	-
Metacnephia	-	-	-	-	-
Prosimulium ursinum	-	-	-	-	-
F. Tipulidae	-	-	-	-	-
Tipula	3.58	-	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.38: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for the Upstream Mine-exposed (G0-03) Area on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody	Mary River Upstream Mine-exposed (G0-03)				
Station	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	-	3.58	-	-
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	-	-	-	3.58
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
Sperchonidae	-	-	-	-	-
Sperchon	-	3.58	3.58	-	-
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	-	-	-	-	-
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
Acentrella feropagus	-	-	-	-	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
indeterminate	-	3.58	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	-	3.58	3.58	3.58	7.17
S.F. Chironominae	-	-	-	-	-
Micropsectra	-	-	-	-	-
Stictochironomus	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-
Diamesa	7.17	-	3.58	-	3.58
Pseudokiefferiella	7.17	10.7	7.17	3.58	3.58
S.F. Orthocladiinae	-	-	-	-	-
Cardiocladius	-	3.58	-	-	3.58
Cricotopus	-	-	-	-	-
Cricotopus/Orthocladius	-	-	3.58	3.58	3.58
Diplocladius	-	-	-	3.58	-
Eukiefferiella	3.58	-	-	-	-
Hydrobaenus	-	3.58	-	-	-
Hydrosmittia	-	-	-	-	-
Krenosmittia	-	-	-	-	-
Limnophyes	3.58	-	-	-	-
Orthocladius (Euorthocladius)	-	-	-	-	-
Parakiefferiella	-	-	-	-	-
Paraphaenocladius	-	-	-	-	-
Rheocricotopus	-	-	-	-	-
Thienemanniella	-	-	-	-	-
Tokunagaia	3.58	3.58	-	3.58	3.58
Tvetenia	3.58	-	-	-	-
indeterminate	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-
Thienemannimyia complex	-	-	-	-	-
F. Empididae	-	-	-	-	-
Clinocera	-	-	-	-	-
F. Simuliidae	-	-	-	-	-
pupae	-	-	-	-	-
Gymnopais	32.2	3.58	3.58	-	10.7
Helodon irkutensis	-	-	3.58	-	-
Metacnephia	-	-	3.58	-	-
F. Tipulidae	-	-	-	-	-
Tipula	-	-	3.58	-	3.58

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.39: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for the Upstream Mine-exposed (E0-01) Area on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody Station	Mary River Upstream Mine-exposed (E0-01)					
	B1	B2A	B2B	B3	B4	B5
ROUNDWORMS	-	-	-	-	-	-
P. Nemata	-	-	-	-	-	-
	-	-	-	-	-	-
ANNELIDS	-	-	-	-	-	-
P. Annelida	-	-	-	-	-	-
WORMS	-	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-	-
F. Enchytraeidae	-	-	-	-	-	-
F. Lumbriculidae	-	-	-	-	-	-
Lumbriculus	-	-	-	-	-	-
	-	-	-	-	-	-
ARTHROPODS	-	-	-	-	-	-
P. Arthropoda	-	-	-	-	-	-
MITES	-	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-	-
O. Acarina	-	-	-	-	-	-
immature	-	-	-	-	-	-
indeterminate	-	-	-	-	3.58	-
F. Lebertiidae	-	-	-	-	-	-
Lebertia	-	-	-	-	-	-
F. Pionidae	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-	-
Sperchon	-	-	-	-	-	-
SEED SHRIMPS	-	-	-	-	-	-
Cl. Ostracoda	-	-	-	-	-	-
SPRINGTAILS	-	-	-	-	-	-
Cl. Entognatha	-	-	-	-	-	-
O. Collembola	-	-	-	-	-	-
	-	-	-	-	-	-
INSECTS	-	-	-	-	-	-
Cl. Insecta	-	-	-	-	-	-
MAYFLIES	-	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-	-
F. Baetidae	-	-	-	-	-	-
Acentrella feropagus	7.17	-	-	-	-	-
STONEFLIES	-	-	-	-	-	-
O. Plecoptera	-	-	-	-	-	-
F. Capniidae	-	-	-	-	-	-
immature	-	-	-	-	-	-
TRUE FLIES	-	-	-	-	-	-
O. Diptera	-	-	-	-	-	-
indeterminate	-	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-	-
Culicoides	-	-	-	-	3.58	10.7
MIDGES	-	-	-	-	-	-
F. Chironomidae	-	-	-	-	-	-
chironomid pupae	10.7	3.58	17.9	-	3.58	-
S.F. Chironominae	-	-	-	-	-	-
Paratanytarsus	-	-	-	-	-	-
Rheotanytarsus	-	-	-	-	-	-
Tanytarsus	-	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-	-
Diamesa	7.17	-	3.58	3.58	-	-
Pseudokiefferiella	7.17	-	7.17	-	3.58	3.58
S.F. Orthocladiinae	-	-	-	-	-	-
Cardiocladius	-	3.58	-	-	-	-
Chaetocladius	-	-	-	-	-	-
Cricotopus	-	-	-	-	-	-
Cricotopus/Orthocladius	3.58	-	3.58	-	3.58	3.58
Diplocladius	3.58	-	-	3.58	-	3.58
Eukiefferiella	-	-	14.3	-	3.58	-
Hydrobaenus	-	-	-	-	-	-
Hydrosmittia	-	-	-	-	-	-
Krenosmittia	-	-	-	-	-	-
Limnophyes	-	-	-	-	-	-
Orthocladius (Euorthocladius)	-	-	-	-	-	-
Parakiefferiella	-	-	-	-	-	-
Parametriocnemus	-	-	-	-	-	-
Paraphaenocladius	-	-	-	-	-	-
Synorthocladius	-	-	-	-	-	-
Thienemanniella	-	-	-	-	-	-
Tokunagaia	3.58	-	-	-	-	-
Tvetenia	-	-	3.58	-	-	3.58
indeterminate	-	-	-	-	-	3.58
S.F. Tanypodinae	-	-	-	-	-	-
Procladius	-	-	-	-	-	-
Thienemannimyia complex	-	-	-	-	-	-
F. Empididae	-	-	-	-	-	-
Clinocera	-	-	-	-	-	-
F. Muscidae	-	-	-	-	-	-
F. Simuliidae	-	-	-	-	-	-
Gymnopaïs	7.17	-	7.17	-	-	-
Helodon irkutensis	-	-	-	-	-	-
Metacnephia	-	-	-	-	-	-
Prosimulium ursinum	-	-	-	-	-	-
pupae	-	-	-	-	-	-
F. Tipulidae	-	-	-	-	-	-
Tipula	-	-	-	-	-	3.58
	-	-	-	-	-	-
CLAMS	-	-	-	-	-	-
Cl. Bivalvia	-	-	-	-	-	-
F. Sphaeriidae	-	-	-	-	-	-
Pisidium (Cyclocalyx)	-	-	-	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.40: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for the Middle Mine-exposed (E0-20) Area on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody	Mary River Middle Mine-Exposed (E0-20)				
Station	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	-	3.58	-	7.17	7.17
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	3.58	-	-	-	7.17
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-
Sperchon	-	7.17	3.58	-	3.58
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	-	-	-	-	-
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
Acentrella feropagus	-	7.17	-	-	-
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
indeterminate	10.7	35.8	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
chironomid pupae	-	46.6	-	-	21.5
S.F. Chironominae	-	-	-	-	-
Rheotanytarsus	-	-	-	-	-
Tanytarsus	-	-	3.58	-	-
S.F. Diamesinae	-	-	-	-	-
Diamesa	10.7	75.2	3.58	3.58	46.6
Pseudokiefferiella	3.58	14.3	-	3.58	7.17
S.F. Orthocladiinae	-	-	-	-	-
Cardiocladius	-	3.58	-	-	3.58
Cricotopus	-	7.17	-	-	10.7
Cricotopus/Orthocladius	35.8	111	-	3.58	25.1
Diplocladius	-	-	-	-	-
Eukiefferiella	-	14.3	-	-	7.17
Hydrobaenus	-	-	-	-	-
Hydrosmittia	-	-	-	-	-
Krenosmittia	7.17	-	-	-	-
Limnophyes	3.58	-	3.58	-	-
Orthocladius (Euorthocladius)	-	-	-	-	-
Parakiefferiella	-	-	-	-	-
Paraphaenocladius	-	-	-	-	-
Rheocricotopus	-	-	-	-	-
Thienemanniella	-	7.17	-	-	-
Tokunagaia	14.3	-	-	-	17.9
Tvetenia	-	7.17	-	3.58	10.7
indeterminate	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-
Thienemannimyia complex	-	-	-	3.58	-
F. Empididae	-	-	-	-	-
Clinocera	-	-	-	-	10.7
F. Simuliidae	-	-	-	-	-
Gymnopaïs	3.58	17.9	10.7	3.58	28.7
Helodon irkutensis	-	3.58	-	-	-
Metacnephia	-	3.58	-	-	-
Prosimulium ursinum	-	-	-	-	-
F. Tipulidae	-	-	-	-	-
Tipula	-	-	-	-	3.58

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.41: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for the Lower Mine-exposed (C0-05) Area on the Mary River, Mary River Core Receiving Environment Monitoring Program (CREMP), August 2025

Waterbody Station	Mary River Lower Mine-exposed (C0-05)				
	B1	B2	B3	B4	B5
ROUNDWORMS	-	-	-	-	-
P. Nemata	10.7	-	10.7	-	10.7
	-	-	-	-	-
ANNELIDS	-	-	-	-	-
P. Annelida	-	-	-	-	-
WORMS	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-
F. Enchytraeidae	-	7.2	-	3.6	10.7
	-	-	-	-	-
ARTHROPODS	-	-	-	-	-
P. Arthropoda	-	-	-	-	-
MITES	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-
O. Acarina	-	-	-	-	-
F. Sperchonidae	-	-	-	-	-
<i>Sperchon</i>	-	-	21.5	-	10.7
SEED SHRIMPS	-	-	-	-	-
Cl. Ostracoda	10.7	-	-	3.6	-
	-	-	-	-	-
INSECTS	-	-	-	-	-
Cl. Insecta	-	-	-	-	-
MAYFLIES	-	-	-	-	-
O. Ephemeroptera	-	-	-	-	-
F. Baetidae	-	-	-	-	-
<i>Acentrella feropagus</i>	3.6	-	3.6	7.2	3.6
TRUE FLIES	-	-	-	-	-
O. Diptera	-	-	-	-	-
BITING-MIDGE	-	-	-	-	-
F. Ceratopogonidae	-	-	-	-	-
<i>indeterminate</i>	-	-	-	-	-
MIDGES	-	-	-	-	-
F. Chironomidae	-	-	-	-	-
<i>chironomid pupae</i>	-	32.2	7.2	28.7	17.9
S.F. Chironominae	-	-	-	-	-
Rheotanytarsus	-	3.6	-	-	-
Tanytarsus	-	-	-	-	-
S.F. Diamesinae	-	-	-	-	-
<i>Diamesa</i>	3.6	3.6	3.6	3.6	-
<i>Pseudokiefferiella</i>	35.8	297	229	871	1,526
S.F. Orthoclaadiinae	-	-	-	-	-
Cardiocladius	7.2	25.1	-	21.5	17.9
<i>Cricotopus</i>	-	-	17.9	32.2	43.0
<i>Cricotopus/Orthocladus</i>	14.3	17.9	43.0	32.2	21.5
Diplocladius	-	-	7.2	-	-
<i>Eukiefferiella</i>	-	3.6	-	7.2	10.7
<i>Hydrobaenus</i>	-	-	-	-	10.7
<i>Hydrosmittia</i>	-	3.6	3.6	10.7	28.7
<i>Krenosmittia</i>	-	-	-	-	-
<i>Limnophyes</i>	-	3.6	3.6	-	3.6
<i>Orthocladus (Euorthocladus)</i>	-	-	-	7.2	3.6
<i>Parakiefferiella</i>	-	-	-	-	3.6
<i>Paraphaenocladus</i>	3.6	-	-	7.2	3.6
<i>Rheocricotopus</i>	-	-	-	-	-
<i>Thienemanniella</i>	3.6	7.2	-	21.5	3.6
<i>Tokunagaia</i>	14.3	43.0	28.7	75.2	43.0
<i>Tvetenia</i>	21.5	14.3	46.6	7.2	43.0
<i>indeterminate</i>	3.6	3.6	-	-	-
S.F. Tanypodinae	-	-	-	-	-
<i>Thienemannimyia complex</i>	-	3.6	-	-	3.6
F. Empididae	-	-	-	-	-
<i>Clinocera</i>	-	10.7	3.6	-	7.2
F. Simuliidae	-	-	-	-	-
<i>Gymnopais</i>	-	-	3.6	-	-
<i>Helodon irkutensis</i>	3.6	3.6	7.2	-	7.2
<i>Metacnephia</i>	14.3	3.6	10.7	28.7	21.5
<i>Prosimulium ursinum</i>	-	7.2	3.6	7.2	-
F. Tipulidae	-	-	-	-	-
<i>Tipula</i>	7.2	7.2	3.6	7.2	21.5

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

Table E.42: Statistical Comparison of Bray-Curtis Indices for the Mine-exposed (G0-03, E0-01, E0-20, and C0-05) and Reference (G0-09) Areas on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Comparisons		n		Betadisper P-Value	Mantel Test			dbRDA			
		Exposed	Reference		r	R ²	P-Value	F-Value	R ²	R ² _{adj}	P-Value
G0-03	G0-09	5	5	0.315	0.340	0.115	0.008	3.04	0.275	0.184	0.003
E0-01	G0-09	6	5	0.048	0.181	0.0328	0.037	2.65	0.227	0.141	0.006
E0-20	G0-09	5	5	0.162	0.216	0.0465	0.049	1.87	0.190	0.0886	0.053
C0-05	G0-09	5	5	0.091	0.787	0.620	0.008	8.61	0.518	0.458	0.009

 Highlighted values indicate a significant difference between study areas based on statistical test p-values <0.1.

Notes: n = number of samples. dbRDA = distance-based Redundancy Analysis. < = less than.

Table E.43: Replicate Grab Data for Benthic Invertebrate Community Samples Collected at Mine-exposed (G0, E0, and C0) and Reference (G0-09) Areas on the Mary River, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Study Area	Station	Water Depth (cm)			Water Velocity (m/s)			Embeddedness			In-Stream Vegetation			Algae Presence		
		Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3	Replicate Grab 1	Replicate Grab 2	Replicate Grab 3
Mary River Upstream Reference (G0-09)	G0-09-B1	10	16	12	0.45	0.39	0.52	0%	50%	50%	None	None	None	Sparse	Sparse	Sparse
	G0-09-B2	25	18	18	0.52	0.42	0.45	25%	0%	25%	None	None	None	None	None	None
	G0-09-B3	12	14	20	0.41	0.47	0.42	25%	50%	25%	None	None	None	Sparse	None	None
	G0-09-B4	10	20	15	0.48	0.42	0.51	25%	50%	50%	Sparse	None	None	None	None	Sparse
	G0-09-B5	6	28	18	0.51	0.39	0.52	25%	25%	25%	Sparse	None	None	None	Sparse	Sparse
Mary River Upstream Mine-exposed (G0-03)	G0-03-B1	18	21	18	0.44	0.46	0.54	25%	25%	25%	None	None	None	None	None	None
	G0-03-B2	20	15	20	0.36	0.32	0.44	25%	25%	50%	None	None	None	None	None	None
	G0-03-B3	18	18	20	0.35	0.56	0.36	0%	0%	0%	None	None	None	None	None	None
	G0-03-B4	18	12	20	0.36	0.33	0.37	25%	0%	0%	None	None	None	None	None	None
	G0-03-B5	10	12	20	0.53	0.45	0.33	0%	0%	25%	None	None	None	None	None	None
Mary River Upstream Mine-Exposed (E0-01)	E0-01-B1	28	30	32	0.44	0.44	0.54	50%	50%	50%	None	None	None	None	None	None
	E0-01-B2	5	16	16	0.35	0.32	0.32	50%	25%	50%	None	None	None	None	None	None
	E0-01-B3	14	10	22	0.59	0.54	0.38	50%	50%	50%	None	None	None	None	None	None
	E0-01-B4	12	15	24	0.32	0.43	0.35	25%	25%	0%	None	None	None	None	None	None
	E0-01-B5	10	18	18	0.45	0.55	0.45	25%	25%	0%	None	None	None	None	None	None
Mary River Middle Mine-Exposed (E0-20)	E0-20-B1	17	12	20	0.51	0.44	0.42	75%	50%	25%	None	None	None	None	None	None
	E0-20-B2	20	14	14	0.34	0.37	0.46	0%	25%	25%	None	None	None	Sparse	Sparse	None
	E0-20-B3	20	20	16	0.44	0.49	0.47	25%	50%	25%	None	None	None	None	None	None
	E0-20-B4	24	25	30	0.45	0.43	0.47	0%	25%	50%	None	None	None	None	None	None
	E0-20-B5	10	10	10	0.38	0.34	0.47	0%	25%	25%	None	None	None	Sparse	Sparse	Sparse
Mary River Lower Mine-Exposed (C0-05)	C0-05-B1	10	7	10	0.40	0.41	0.55	25%	75%	0%	Sparse	Sparse	None	Sparse	Sparse	None
	C0-05-B2	10	10	10	0.41	0.56	0.31	50%	25%	25%	Sparse	Sparse	Sparse	None	Sparse	None
	C0-05-B3	12	16	24	0.43	0.32	0.56	50%	25%	25%	Sparse	Sparse	Sparse	Sparse	Sparse	Sparse
	C0-05-B4	12	16	18	0.45	0.37	0.43	50%	50%	25%	Sparse	Sparse	Sparse	None	None	Sparse
	C0-05-B5	18	11	17	0.33	0.47	0.51	25%	50%	25%	Sparse	Sparse	Sparse	None	None	None

Notes: cm = centimetres. m/s = metres per second. % = percent.

Table E.44: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area G0-03 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2007	3	134	136	29.3	nc	BCD
				2015	5	138	169	122	0.127	BC
				2016	5	275	287	92.1	3.14	AB
				2017	5	233	282	172	2.42	ABC
				2018	5	157	165	53.9	0.710	BC
				2019	5	564	634	315	6.25	A
				2020	5	176	196	95.3	1.21	BC
				2021	5	396	468	275	4.71	AB
				2022	5	132	151	73.1	-0.0422	BC
				2023	5	244	266	143	2.61	ABC
				2024	5	79.2	101	70.8	-2.28	CD
2025	5	37.1	40.1	16.7	-5.57	D				
Richness (No. of Taxa)	ANOVA	none	<0.001	2007	3	6.33	6.33	1.15	nc	CD
				2015	5	9.40	9.40	3.51	2.66	BCD
				2016	5	14.4	14.4	1.82	6.99	AB
				2017	5	13.6	13.6	3.91	6.29	AB
				2018	5	12.2	12.2	3.49	5.08	ABCD
				2019	5	11.2	11.2	1.64	4.21	ABCD
				2020	5	12.6	12.6	3.13	5.43	ABD
				2021	5	16.8	16.8	4.87	9.06	A
				2022	5	10.8	10.8	3.90	3.87	ABCD
				2023	5	7.40	7.40	0.894	0.924	CD
				2024	5	6.40	6.40	2.70	0.0577	C
2025	5	6.80	6.80	1.64	0.404	CD				
Simpson's Evenness (Krebs)	K-W	rank	0.009	2007	3	0.593	0.591	0.00289	nc	E
				2015	5	0.943	0.921	0.0450	nm	AB
				2016	5	0.902	0.899	0.0407	nm	BCD
				2017	5	0.938	0.873	0.142	nm	ABC
				2018	5	0.938	0.868	0.119	nm	ABCD
				2019	5	0.854	0.858	0.0485	nm	CDE
				2020	5	0.924	0.915	0.0256	nm	ABCD
				2021	5	0.941	0.913	0.0559	nm	ABC
				2022	5	0.949	0.951	0.0108	nm	A
				2023	5	0.762	0.751	0.161	nm	DE
				2024	5	0.940	0.930	0.0363	nm	AB
2025	5	0.961	0.938	0.0742	nm	A				
% Nematoda	K-W	rank	0.015	2007	3	0	0	0	nc	D
				2015	5	0	0	0	nm	D
				2016	5	3.00	2.60	0.548	nm	AB
				2017	5	2.00	1.40	1.34	nm	BCD
				2018	5	5.00	4.40	1.95	nm	A
				2019	5	0	0.800	1.30	nm	CD
				2020	5	2.25	2.38	2.85	nm	ABC
				2021	5	1.68	2.60	2.20	nm	ABC
				2022	5	1.52	1.11	1.04	nm	BCD
				2023	5	0	0.635	1.42	nm	CD
				2024	5	0	0.800	1.79	nm	CD
2025	5	0	1.82	4.07	nm	CD				
% Hydracarina	K-W	rank	0.010	2007	3	0	0.667	1.15	nc	CE
				2015	5	8.00	7.20	2.59	nm	AB
				2016	5	8.00	9.80	4.71	nm	A
				2017	5	3.00	2.00	1.87	nm	CE
				2018	5	2.00	3.40	4.22	nm	BCDE
				2019	5	2.00	2.20	1.79	nm	CDE
				2020	5	4.65	4.25	3.13	nm	ABCD
				2021	5	2.19	2.20	1.05	nm	BCDE
				2022	5	4.35	10.2	11.2	nm	ABD
				2023	5	0	0.317	0.710	nm	E
				2024	5	0	2.00	4.47	nm	CE
2025	5	0	3.82	5.24	nm	CDE				
% Chironomidae	ANOVA	none	0.001	2007	3	97.0	97.0	1.00	nc	A
				2015	5	72.2	72.2	8.64	-24.8	ABC
				2016	5	77.6	77.6	7.20	-19.4	ABC
				2017	5	75.4	75.4	10.4	-21.6	ABC
				2018	5	83.4	83.4	9.26	-13.6	ABC
				2019	5	93.0	93.0	7.07	-4.00	A
				2020	5	69.9	69.9	13.6	-27.1	ABC
				2021	5	79.8	79.8	9.63	-17.2	ABC
				2022	5	71.5	71.5	13.2	-25.5	ABC
				2023	5	85.7	85.7	3.40	-11.3	AB
				2024	5	61.2	61.2	18.2	-35.8	C
2025	5	63.6	63.6	22.9	-33.4	BC				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.44: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area G0-03 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	<0.001	2007	3	5.33	5.33	1.15	nc	C
				2015	5	8.10	8.20	5.07	2.36	C
				2016	5	8.47	8.60	6.07	2.67	BC
				2017	5	46.6	47.0	12.6	30.1	A
				2018	5	31.1	32.4	21.2	19.9	AD
				2019	5	17.0	17.4	11.0	9.54	BCD
				2020	5	12.2	12.3	5.84	5.73	BCD
				2021	5	26.1	26.7	14.6	16.4	ABCD
				2022	5	29.1	29.4	9.84	18.5	ABD
				2023	5	24.9	25.8	16.8	15.5	ABCD
				2024	5	31.2	31.4	6.67	20.0	AD
2025	5	27.8	27.9	6.13	17.6	ABCD				
% Tipulidae	K-W	rank	0.009	2007	3	3.00	2.33	2.08	nc	BCDE
				2015	5	22.0	19.0	6.12	12.8	A
				2016	5	6.00	8.60	7.02	2.02	ABC
				2017	5	4.00	3.00	2.00	0.674	BCDE
				2018	5	3.00	1.80	1.64	0	DE
				2019	5	1.00	2.60	3.78	-1.35	DE
				2020	5	4.17	6.18	5.08	0.787	ABCD
				2021	5	1.68	1.60	1.04	-0.890	E
				2022	5	7.58	9.42	7.21	3.09	AB
				2023	5	1.67	1.39	0.813	-0.899	E
				2024	5	0	5.24	9.65	-2.02	CDE
2025	5	0	3.48	4.78	-2.02	CDE				
% Collector Gatherers	ANOVA	log ₁₀	0.001	2007	3	94.3	94.3	2.08	nc	A
				2015	5	60.2	60.8	9.23	-20.2	ABCD
				2016	5	63.8	64.0	6.04	-17.7	ABCD
				2017	5	73.8	74.4	10.6	-11.1	ABC
				2018	5	80.1	80.8	11.3	-7.35	AB
				2019	5	68.1	68.8	10.7	-14.7	ABCD
				2020	5	61.7	63.1	14.7	-19.1	ABCD
				2021	5	68.9	69.8	12.5	-14.1	ABCD
				2022	5	56.4	57.0	9.81	-23.2	BCD
				2023	5	69.5	72.2	20.8	-13.8	ABCD
				2024	5	49.7	51.3	16.2	-28.9	D
2025	5	52.8	54.0	13.3	-26.2	CD				
% Filterers	K-W	rank	<0.001	2007	3	0	0	0	nc	E
				2015	5	0	1.00	1.41	nm	E
				2016	5	0	0.800	1.10	nm	E
				2017	5	15.0	15.4	5.41	nm	AB
				2018	5	0	3.80	5.31	nm	DE
				2019	5	0	0	0	nm	E
				2020	5	4.76	3.10	2.84	nm	CDE
				2021	5	3.97	9.31	9.18	nm	BCD
				2022	5	3.33	3.18	3.15	nm	CDE
				2023	5	10.3	9.86	2.70	nm	ABC
				2024	5	32.7	30.0	13.8	nm	A
2025	5	25.0	22.4	19.0	nm	AB				
% Shredders	ANOVA	log ₁₀ (x+1)	0.002	2007	3	5.00	5.00	1.00	nc	B
				2015	5	29.4	29.6	8.59	21.9	A
				2016	5	20.7	20.8	5.26	14.6	AB
				2017	5	5.78	5.80	2.17	0.783	B
				2018	5	11.6	11.8	8.35	6.36	AB
				2019	5	22.1	22.2	6.02	15.8	AB
				2020	5	16.5	16.6	4.69	10.9	AB
				2021	5	14.5	15.0	11.1	9.11	AB
				2022	5	17.1	17.4	9.83	11.5	AB
				2023	5	5.31	5.65	9.81	0.312	B
				2024	5	15.1	15.7	13.0	9.66	AB
2025	5	12.6	13.1	12.1	7.30	AB				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.45: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area E0-01 Among Years of Mine Operation (2015 to 2025) and Baseline (2007), for the Mary River Project Core Receiving Environment Monitoring Program, August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2007	3	451	797	648	nc	A
				2015	5	86.4	116	96.5	-1.01	ABC
				2016	5	208	230	109	-0.475	AB
				2017	5	84.4	126	106	-1.03	ABC
				2018	5	66.5	119	164	-1.17	ABC
				2019	5	298	312	115	-0.253	A
				2020	5	423	513	420	-0.0387	A
				2021	5	137	173	140	-0.729	AB
				2022	5	75.4	107	96.6	-1.10	ABC
				2023	5	82.8	93.9	58.3	-1.04	ABC
				2024	5	36.1	57.4	41.4	-1.55	BC
Richness (No. of Taxa)	ANOVA	none	<0.001	2007	3	16.3	16.3	8.14	nc	A
				2015	5	7.80	7.80	2.68	-1.05	AB
				2016	5	13.2	13.2	4.15	-0.385	A
				2017	5	10.6	10.6	5.32	-0.704	AB
				2018	5	7.80	7.80	4.87	-1.05	AB
				2019	5	11.0	11.0	0.707	-0.655	AB
				2020	5	14.8	14.8	1.64	-0.188	A
				2021	5	13.2	13.2	4.60	-0.385	A
				2022	5	11.2	11.2	5.45	-0.630	AB
				2023	5	9.40	9.40	1.67	-0.851	AB
				2024	5	5.20	5.20	2.77	-1.37	B
Simpson's Evenness (Krebs)	ANOVA	log ₁₀	<0.001	2007	3	0.665	0.667	0.0577	nc	C
				2015	5	0.877	0.880	0.0837	3.11	AB
				2016	5	0.859	0.860	0.0548	2.87	B
				2017	5	0.939	0.940	0.0548	3.87	AB
				2018	5	0.939	0.940	0.0548	3.87	AB
				2019	5	0.900	0.900	0	3.40	AB
				2020	5	0.910	0.910	0.0165	3.52	AB
				2021	5	0.949	0.949	0.0194	4.00	AB
				2022	5	0.959	0.960	0.0254	4.12	A
				2023	5	0.931	0.932	0.0512	3.78	AB
				2024	4	0.874	0.875	0.0492	3.08	AB
% Nematoda	K-W	rank	0.307	2007	3	2.00	2.67	3.06	nc	A
				2015	5	0	1.20	2.68	-0.674	A
				2016	5	2.00	2.00	1.58	0	A
				2017	5	0	0.800	1.79	-0.674	A
				2018	5	6.00	7.80	10.7	1.35	A
				2019	5	1.00	1.40	1.67	-0.337	A
				2020	5	0	0.773	1.21	-0.674	A
				2021	5	1.89	1.77	1.85	-0.0382	A
				2022	5	1.35	2.32	2.90	-0.219	A
				2023	5	1.85	3.65	4.53	-0.0500	A
				2024	5	0	0.667	1.49	-0.674	A
% Hydracarina	K-W	rank	0.646	2007	3	0	2.00	3.46	nc	A
				2015	5	0	2.00	2.83	nm	A
				2016	5	10.0	7.20	4.66	nm	A
				2017	5	3.00	2.20	2.05	nm	A
				2018	5	3.00	4.60	5.27	nm	A
				2019	5	5.00	4.00	2.35	nm	A
				2020	5	2.85	3.13	2.91	nm	A
				2021	5	0.877	1.16	1.30	nm	A
				2022	5	3.33	4.25	5.16	nm	A
				2023	5	3.70	4.77	5.88	nm	A
				2024	5	4.17	3.42	3.26	nm	A
% Chironomidae	K-W	rank	0.017	2007	3	88.0	89.0	3.61	nc	ABC
				2015	5	83.0	82.8	5.85	-1.69	ABCD
				2016	5	84.0	82.8	6.87	-1.35	ABCD
				2017	5	81.0	78.0	7.07	-2.36	BCDE
				2018	5	79.0	72.2	16.0	-3.04	CDE
				2019	5	92.0	93.8	3.27	1.35	A
				2020	5	93.5	88.2	9.20	1.84	AB
				2021	5	73.6	72.0	4.74	-4.86	DE
				2022	5	55.2	54.3	23.8	-11.1	E
				2023	5	58.8	68.5	18.4	-9.84	DE
				2024	5	75.0	65.3	38.0	-4.38	BCDE
2025	6	79.5	80.2	18.5	-2.88	BCD				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.45: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area E0-01 Among Years of Mine Operation (2015 to 2025) and Baseline (2007), for the Mary River Project Core Receiving Environment Monitoring Program, August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Metal Sensitive Chironomidae	K-W	rank	0.010	2007	3	49.0	36.3	31.9	nc	ABC
				2015	5	5.00	6.60	5.68	-2.70	D
				2016	5	4.00	5.60	4.72	-2.76	D
				2017	5	33.0	28.8	7.95	-0.981	AB
				2018	5	40.0	35.2	20.2	-0.552	AB
				2019	5	4.00	5.20	4.09	-2.76	D
				2020	5	12.4	11.0	2.53	-2.24	BCD
				2021	5	17.4	18.2	7.42	-1.94	ABCD
				2022	5	1.52	11.8	15.5	-2.91	CD
				2023	5	28.6	32.5	16.4	-1.25	AB
				2024	5	51.6	45.1	26.0	0.157	A
2025	6	25.7	25.6	18.5	-1.43	ABC				
% Tipulidae	K-W	rank	0.046	2007	3	1.00	3.67	4.62	nc	ABC
				2015	5	5.00	7.60	5.37	nm	A
				2016	5	4.00	3.20	2.17	nm	AB
				2017	5	0	0.200	0.447	nm	D
				2018	5	0	0.400	0.894	nm	CD
				2019	5	0	0.800	1.10	nm	BCD
				2020	5	4.41	5.66	4.26	nm	A
				2021	5	4.35	3.03	2.80	nm	ABCD
				2022	5	0	4.57	6.30	nm	ABCD
				2023	5	3.70	4.52	5.02	nm	ABCD
				2024	5	0	20.0	44.7	nm	BCD
2025	6	0	1.85	4.54	nm	BCD				
% Collector Gatherers	K-W	rank	0.138	2007	3	33.0	43.7	26.6	nc	A
				2015	5	79.0	71.4	16.9	3.45	A
				2016	5	79.0	77.6	6.66	3.45	A
				2017	5	84.0	80.4	8.32	3.82	A
				2018	5	73.0	62.6	37.3	3.00	A
				2019	5	64.0	64.0	2.12	2.32	A
				2020	5	56.5	59.1	7.62	1.76	A
				2021	5	73.9	69.0	12.7	3.07	A
				2022	5	62.5	59.3	13.2	2.21	A
				2023	5	54.4	57.3	17.3	1.60	A
				2024	5	75.0	65.0	38.0	3.15	A
2025	6	60.0	57.0	35.2	2.02	A				
% Filterers	K-W	rank	0.014	2007	3	49.0	36.0	31.6	nc	AB
				2015	5	0	0	0	-3.31	E
				2016	5	1.00	0.800	0.837	-3.24	CDE
				2017	5	12.0	14.0	11.0	-2.50	A
				2018	5	7.00	7.00	8.57	-2.83	ABCD
				2019	5	0	0.400	0.894	-3.31	DE
				2020	5	6.22	5.15	3.63	-2.89	ABCD
				2021	5	7.28	7.50	4.07	-2.81	AB
				2022	5	12.5	10.8	3.22	-2.46	A
				2023	5	5.26	6.89	8.48	-2.95	ABCD
				2024	5	10.0	8.25	8.18	-2.63	ABC
2025	6	0	4.46	6.94	-3.31	BCDE				
% Shredders	K-W	rank	0.026	2007	3	5.00	8.00	7.94	nc	BC
				2015	5	14.0	20.0	18.3	2.02	AB
				2016	5	7.00	8.40	6.80	0.450	BC
				2017	5	0	2.40	5.37	-1.12	C
				2018	5	10.0	15.4	13.6	1.12	AB
				2019	5	25.0	24.2	3.42	4.50	A
				2020	5	29.1	27.6	7.40	5.42	A
				2021	5	4.92	9.43	9.82	-0.0184	BC
				2022	5	12.5	12.8	11.2	1.69	B
				2023	5	6.43	9.21	8.00	0.322	BC
				2024	5	4.69	22.6	43.4	-0.0703	BC
2025	6	9.96	10.7	9.96	1.12	BC				

Table E.46: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area E0-20 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2011	
Density (org/m²)	K-W	rank	<0.001	2011	3	963	854	348	nc	AB
				2015	5	250	278	146	-2.81	BC
				2016	5	228	283	118	-2.90	BC
				2017	5	78.0	382	665	-3.49	CD
				2018	5	62.0	60.6	22.9	-3.55	D
				2019	5	927	2,939	3,175	-0.142	A
				2020	5	1,186	1,441	553	0.881	A
				2021	5	276	304	158	-2.71	BC
				2022	5	237	503	671	-2.87	BC
				2023	5	186	211	111	-3.06	CD
Richness (No. of Taxa)	ANOVA	log ₁₀	<0.001	2024	5	143	524	717	-3.23	BC
				2025	5	93.2	145	145	-3.43	CD
				2011	3	13.8	14.0	2.65	nc	A
				2015	5	11.4	11.6	2.19	-1.06	AB
				2016	5	13.3	13.6	3.13	-0.210	A
				2017	5	11.6	12.4	5.03	-0.992	AB
				2018	5	6.55	6.80	1.92	-4.10	B
				2019	5	14.7	14.8	2.05	0.326	A
				2020	5	13.0	13.2	2.28	-0.326	A
				2021	5	12.5	12.8	3.03	-0.555	A
Simpson's Evenness (Krebs)	K-W	rank	0.038	2022	5	14.2	14.4	2.70	0.128	A
				2023	5	8.80	9.00	2.12	-2.48	AB
				2024	5	8.80	9.60	4.51	-2.48	AB
				2025	5	8.68	9.20	3.35	-2.56	AB
				2011	3	0.356	0.483	0.247	nc	D
				2015	5	0.718	0.726	0.140	8.14	CD
				2016	5	0.852	0.835	0.0383	11.2	BCD
				2017	5	0.932	0.902	0.103	12.9	A
				2018	5	0.914	0.895	0.0472	12.5	AB
				2019	5	0.888	0.863	0.0489	12.0	ABC
% Nematoda	K-W	rank	0.413	2020	5	0.893	0.872	0.0455	12.1	ABC
				2021	5	0.911	0.915	0.0134	12.5	A
				2022	5	0.921	0.859	0.106	12.7	AB
				2023	5	0.869	0.836	0.116	11.5	ABC
				2024	5	0.873	0.875	0.0524	11.6	AB
				2025	5	0.918	0.911	0.0530	12.6	A
				2011	3	1.00	0.667	0.577	nc	A
				2015	5	0	0.200	0.447	nm	A
				2016	5	2.00	1.60	1.14	nm	A
				2017	5	0	0.600	1.34	nm	A
% Hydracarina	K-W	rank	0.007	2018	5	0	1.60	3.58	nm	A
				2019	5	1.00	1.00	1.22	nm	A
				2020	5	0	0.0437	0.0976	nm	A
				2021	5	1.30	1.31	0.954	nm	A
				2022	5	1.52	1.18	1.11	nm	A
				2023	5	1.92	1.98	2.04	nm	A
				2024	5	0	1.30	2.58	nm	A
				2025	5	0.980	5.87	10.8	nm	A
				2011	3	1.00	1.00	1.00	nc	BCD
				2015	5	3.00	3.80	1.30	1.35	AC
% Chironomidae	ANOVA	none	<0.001	2016	5	6.00	6.40	2.88	3.37	A
				2017	5	4.00	4.00	2.92	2.02	ABC
				2018	5	0	0.800	1.79	-0.674	D
				2019	5	1.00	1.00	1.22	0	BD
				2020	5	0.774	0.804	0.426	-0.152	BD
				2021	5	1.02	1.25	1.60	0.0138	BD
				2022	5	0.634	2.14	2.90	-0.247	BCD
				2023	5	0	0.333	0.745	-0.674	D
				2024	5	0	0.162	0.264	-0.674	D
				2025	5	1.69	3.59	6.05	0.469	BCD

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.46: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area E0-20 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2011	
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	<0.001	2011	3	2.91	3.00	5.20	nc	CE
				2015	5	3.59	3.60	1.82	0.131	C
				2016	5	4.37	4.40	2.88	0.282	CE
				2017	5	29.9	31.4	22.6	4.68	ABD
				2018	5	48.6	49.0	12.9	7.38	A
				2019	5	18.7	20.0	20.1	2.87	BCDE
				2020	5	9.16	9.44	9.07	1.18	CDE
				2021	5	22.5	22.6	5.65	3.51	BCDE
				2022	5	16.7	16.9	8.19	2.52	BCDE
				2023	5	22.9	23.1	8.32	3.56	BCDE
				2024	5	38.9	39.6	16.0	6.02	AB
% Tipulidae	K-W	rank	0.011	2015	5	25.5	25.6	5.99	3.98	ABDE
				2011	3	1.00	2.00	1.73	nc	ABC
				2015	5	4.00	4.40	2.51	nm	A
				2016	5	3.00	4.20	4.60	nm	AB
				2017	5	1.00	2.60	3.44	nm	ABCD
				2018	5	0	2.00	2.83	nm	BCD
				2019	5	0	0.400	0.548	nm	CD
				2020	5	0.310	0.561	0.886	nm	CD
				2021	5	2.60	3.43	2.96	nm	AB
				2022	5	3.33	2.87	1.85	nm	AB
				2023	5	3.64	3.09	1.80	nm	AB
2024	5	0	0.0821	0.184	nm	D				
2025	5	0	0.339	0.758	nm	CD				
% Collector Gatherers	ANOVA	none	<0.001	2011	3	22.0	22.0	16.0	nc	C
				2015	5	77.0	77.0	6.20	3.44	A
				2016	5	70.4	70.4	7.40	3.02	AB
				2017	5	68.0	68.0	5.15	2.88	AB
				2018	5	78.2	78.2	6.53	3.51	A
				2019	5	63.6	63.6	8.96	2.60	AB
				2020	5	54.6	54.6	13.2	2.04	AB
				2021	5	56.5	56.5	9.34	2.15	AB
				2022	5	59.3	59.3	16.0	2.33	AB
				2023	5	64.7	64.7	20.1	2.67	AB
				2024	5	70.0	70.0	13.2	3.00	AB
2025	5	49.5	49.5	17.4	1.72	BC				
% Filterers	K-W	rank	<0.001	2011	3	0	3.00	5.20	nc	CD
				2015	5	0	0.600	0.894	nm	D
				2016	5	0	0.400	0.894	nm	D
				2017	5	15.0	16.8	7.05	nm	A
				2018	5	6.00	9.00	8.43	nm	ABC
				2019	5	1.00	0.800	0.837	nm	D
				2020	5	5.51	4.79	4.19	nm	BCD
				2021	5	16.7	14.8	6.61	nm	A
				2022	5	3.03	3.43	2.29	nm	BCD
				2023	5	6.98	10.5	7.23	nm	AB
				2024	5	9.65	14.6	8.07	nm	A
2025	5	12.5	18.8	21.8	nm	AB				
% Shredders	ANOVA	log ₁₀ (x+1)	<0.001	2011	3	6.16	6.33	7.51	nc	BC
				2015	5	12.9	13.0	3.74	0.895	ABC
				2016	5	8.49	8.60	5.41	0.314	BC
				2017	5	7.13	7.20	4.15	0.132	BC
				2018	5	11.3	11.6	8.32	0.688	ABC
				2019	5	32.3	32.4	5.50	3.18	A
				2020	5	15.5	15.8	9.41	1.21	ABC
				2021	5	4.57	4.60	2.81	-0.218	C
				2022	5	27.2	28.6	21.4	2.61	AB
				2023	5	6.37	6.55	7.18	0.0283	C
				2024	5	8.02	8.70	14.1	0.251	BC
2025	5	21.3	22.2	16.8	1.92	ABC				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.47: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area E0-20 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2007, 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
Density (org/m²)	ANOVA	none	0.021	2007	3	311	311	230	nc	nc	A
				2011	3	491	491	455	0.784	nc	A
				2015	5	234	234	168	-0.332	-0.565	A
				2016	5	1,161	1,161	584	3.69	1.47	A
				2017	5	1,214	1,214	654	3.93	1.59	A
				2018	5	1,391	1,391	1,083	4.69	1.98	A
				2019	5	1,470	1,470	693	5.04	2.15	A
				2020	5	906	906	818	2.59	0.913	A
				2021	5	1,458	1,458	885	4.99	2.13	A
				2022	5	398	398	238	0.379	-0.205	A
				2023	5	536	536	379	0.980	0.0994	A
				2024	5	612	612	479	1.31	0.267	A
2025	5	836	836	693	2.28	0.759	A				
Richness (No. of Taxa)	ANOVA	none	<0.001	2007	3	10.7	10.7	3.79	nc	nc	D
				2011	3	19.0	19.0	4.00	2.20	nc	ABC
				2015	5	13.2	13.2	2.68	0.669	-1.45	BD
				2016	5	19.6	19.6	3.29	2.36	0.150	AC
				2017	5	22.0	22.0	3.16	2.99	0.750	A
				2018	5	18.6	18.6	0.894	2.10	-0.1000	ABC
				2019	5	15.8	15.8	2.86	1.36	-0.800	ABCD
				2020	5	13.0	13.0	1.87	0.616	-1.50	BD
				2021	5	16.8	16.8	3.77	1.62	-0.550	ABCD
				2022	5	14.2	14.2	4.09	0.933	-1.20	BCD
				2023	5	14.2	14.2	2.59	0.933	-1.20	BCD
				2024	5	13.0	13.0	3.74	0.616	-1.50	BD
2025	5	15.4	15.4	2.70	1.25	-0.900	BCD				
Simpson's Evenness (Krebs)	ANOVA	none	0.003	2007	3	0.668	0.668	0.0216	nc	nc	ABC
				2011	3	0.879	0.879	0.0786	9.78	nc	ABC
				2015	5	0.923	0.923	0.0382	11.8	0.560	A
				2016	5	0.849	0.849	0.0148	8.37	-0.387	ABC
				2017	5	0.798	0.798	0.161	6.04	-1.03	ABC
				2018	5	0.675	0.675	0.149	0.353	-2.59	BC
				2019	5	0.716	0.716	0.0924	2.25	-2.07	ABC
				2020	5	0.821	0.821	0.0585	7.11	-0.734	ABC
				2021	5	0.879	0.879	0.0554	9.76	-0.00434	AB
				2022	5	0.884	0.884	0.0679	10.0	0.0683	AB
				2023	5	0.768	0.768	0.122	4.62	-1.42	ABC
				2024	5	0.733	0.733	0.160	3.00	-1.86	ABC
2025	5	0.622	0.622	0.243	-2.11	-3.26	C				
% Nemata	K-W	rank	0.013	2007	3	0	0.333	0.577	nc	nc	C
				2011	3	4.00	3.67	1.53	nm	nc	AB
				2015	5	3.00	3.00	2.24	nm	-0.674	B
				2016	5	1.00	1.60	0.894	nm	-2.02	BC
				2017	5	2.00	2.20	1.64	nm	-1.35	B
				2018	5	1.00	2.20	1.79	nm	-2.02	BC
				2019	5	1.00	0.600	0.548	nm	-2.02	C
				2020	5	1.33	1.54	0.572	nm	-1.80	BC
				2021	5	10.2	15.3	12.2	nm	4.16	A
				2022	5	2.70	7.18	8.18	nm	-0.875	AB
				2023	5	2.00	2.80	1.75	nm	-1.35	AB
				2024	5	1.12	2.20	3.28	nm	-1.94	BC
2025	5	0.573	1.95	2.89	nm	-2.31	BC				
% Hydracarina	K-W	rank	0.005	2007	3	1.00	0.667	0.577	nc	nc	BCD
				2011	3	1.00	0.667	0.577	nm	nc	BCD
				2015	5	1.00	2.20	2.95	nm	nm	BCD
				2016	5	7.00	6.40	2.61	nm	nm	A
				2017	5	2.00	3.80	4.82	nm	nm	AB
				2018	5	1.00	1.60	2.51	nm	nm	BCD
				2019	5	2.00	2.00	1.00	nm	nm	AB
				2020	5	4.00	6.04	4.89	nm	nm	A
				2021	5	0	0.0862	0.193	nm	nm	D
				2022	5	0.901	1.40	1.75	nm	nm	BCD
				2023	5	1.82	1.67	1.61	nm	nm	BC
				2024	5	0	0.351	0.589	nm	nm	CD
2025	5	0	1.05	2.05	nm	nm	BCD				
% Chironomidae	K-W	rank	<0.001	2007	3	99.0	99.3	0.577	nc	nc	A
				2011	3	89.0	90.0	4.58	nm	nc	ABC
				2015	5	79.0	78.0	9.85	nm	-2.25	CDEF
				2016	5	88.0	88.0	3.08	nm	-0.225	BC
				2017	5	65.0	63.6	12.6	nm	-5.40	D
				2018	5	88.0	85.6	6.88	nm	-0.225	C
				2019	5	95.0	95.0	1.87	nm	1.35	AB
				2020	5	82.7	84.8	8.02	nm	-1.42	CE
				2021	5	67.9	63.9	22.9	nm	-4.75	DEF
				2022	5	74.7	68.6	14.9	nm	-3.21	DF
				2023	5	85.8	82.0	7.42	nm	-0.729	CDEF
				2024	5	85.6	83.9	7.38	nm	-0.765	CEF
2025	5	92.1	87.1	11.3	nm	0.707	ABC				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.47: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Mine-exposed Area E0-20 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2007, 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2007	vs. Baseline Year 2011	
% Metal Sensitive Chironomidae	ANOVA	none	<0.001	2007	3	37.0	37.0	16.1	nc	nc	ABCD
				2011	3	14.3	14.3	10.7	-1.41	nc	BCD
				2015	5	17.0	17.0	10.7	-1.24	0.249	CD
				2016	5	29.0	29.0	13.9	-0.497	1.37	ABCD
				2017	5	39.0	39.0	23.5	0.124	2.31	ABC
				2018	5	59.6	59.6	11.5	1.40	4.23	A
				2019	5	49.2	49.2	16.6	0.758	3.26	AB
				2020	5	19.4	19.4	9.57	-1.09	0.479	BCD
				2021	5	7.04	7.04	5.06	-1.86	-0.682	D
				2022	5	4.64	4.64	4.93	-2.01	-0.906	D
				2023	5	46.1	46.1	16.0	0.565	2.97	ABC
				2024	5	49.1	49.1	22.0	0.752	3.25	AB
2025	5	60.0	60.0	22.7	1.43	4.27	A				
% Tipulidae	K-W	rank	0.223	2007	3	0	0	0	nc	nc	A
				2011	3	1.00	2.00	2.65	nm	nc	A
				2015	5	1.00	5.20	8.11	nm	0	A
				2016	5	2.00	1.80	0.837	nm	0.674	A
				2017	5	1.00	1.20	1.64	nm	0	A
				2018	5	0	0.400	0.548	nm	-0.674	A
				2019	5	0	0.400	0.548	nm	-0.674	A
				2020	5	1.33	1.37	0.898	nm	0.225	A
				2021	5	0.267	0.323	0.372	nm	-0.494	A
				2022	5	0.901	0.875	0.907	nm	-0.0668	A
				2023	5	0.619	1.03	1.37	nm	-0.257	A
				2024	5	0.543	1.35	1.63	nm	-0.308	A
2025	5	1.15	1.70	1.62	nm	0.0978	A				
% Collector Gatherers	ANOVA	none	<0.001	2007	3	35.0	35.0	15.4	nc	nc	D
				2011	3	66.3	66.3	16.3	2.04	nc	BC
				2015	5	80.6	80.6	13.0	2.96	0.876	ABC
				2016	5	59.8	59.8	10.5	1.61	-0.401	CD
				2017	5	64.0	64.0	13.5	1.88	-0.143	C
				2018	5	83.6	83.6	8.26	3.16	1.06	ABC
				2019	5	67.0	67.0	15.6	2.08	0.0409	BC
				2020	5	71.8	71.8	5.10	2.39	0.338	ABC
				2021	5	94.6	94.6	2.21	3.87	1.73	A
				2022	5	90.2	90.2	4.21	3.59	1.47	AB
				2023	5	70.3	70.3	17.6	2.30	0.246	BC
				2024	5	73.8	73.8	14.2	2.52	0.457	ABC
2025	5	81.7	81.7	9.09	3.04	0.945	ABC				
% Filterers	K-W	rank	<0.001	2007	3	8.00	21.0	28.8	nc	nc	AB
				2011	3	20.0	14.3	10.7	1.16	nc	AB
				2015	5	0	0.800	1.30	-0.771	-13.5	D
				2016	5	1.00	0.600	0.548	-0.674	-12.8	D
				2017	5	13.0	20.0	10.4	0.482	-4.72	A
				2018	5	7.00	6.20	4.09	-0.0964	-8.77	AB
				2019	5	1.00	1.00	0.707	-0.674	-12.8	CD
				2020	5	1.17	4.33	4.95	-0.658	-12.7	BCD
				2021	5	0.394	0.504	0.703	-0.733	-13.2	D
				2022	5	0	0.599	0.926	-0.771	-13.5	D
				2023	5	5.62	6.96	6.33	-0.230	-9.70	ABC
				2024	5	8.00	9.90	7.53	0	-8.09	AB
2025	5	3.62	5.00	3.83	-0.422	-11.0	AB				
% Shredders	K-W	rank	0.001	2007	3	44.0	40.3	20.7	nc	nc	A
				2011	3	7.00	7.00	6.00	-1.66	nc	CD
				2015	5	15.0	15.8	9.98	-1.30	0.899	ABC
				2016	5	9.00	10.0	5.39	-1.57	0.225	BC
				2017	5	6.00	6.80	3.11	-1.71	-0.112	CD
				2018	5	4.00	4.00	2.55	-1.80	-0.337	D
				2019	5	17.0	18.0	3.54	-1.21	1.12	AB
				2020	5	11.9	14.5	9.99	-1.45	0.546	ABC
				2021	5	5.75	3.85	3.17	-1.72	-0.140	D
				2022	5	7.03	6.34	2.59	-1.66	0.00324	CD
				2023	5	11.2	11.4	3.48	-1.47	0.478	ABC
				2024	5	3.37	5.03	4.13	-1.83	-0.408	D
2025	5	5.95	8.92	4.79	-1.71	-0.118	CD				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.48: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Reference Area G0-09 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2007, 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2006	vs. Baseline Year 2007	
Density (org/m²)	ANOVA	log ₁₀	<0.001	2006	3	386	404	149	nc	nc	ABCD
				2007	3	736	739	83.8	1.74	nc	AB
				2015	5	414	472	255	0.193	-4.94	BC
				2016	5	604	662	320	1.21	-1.70	AB
				2017	5	342	410	313	-0.321	-6.58	BCD
				2018	5	169	194	112	-2.22	-12.6	CD
				2019	5	1,488	1,623	700	3.63	6.05	A
				2020	5	632	886	831	1.33	-1.30	AB
				2021	5	418	471	219	0.218	-4.86	BC
				2022	5	388	452	331	0.0201	-5.49	BC
				2023	5	391	434	212	0.0369	-5.44	BC
Richness (No. of Taxa)	ANOVA	none	<0.001	2006	3	7.33	7.33	2.89	nc	nc	CDE
				2007	3	13.3	13.3	0.577	2.08	nc	AB
				2015	5	11.4	11.4	3.21	1.41	-3.35	ABCD
				2016	5	14.0	14.0	1.58	2.31	1.15	A
				2017	5	11.2	11.2	2.95	1.34	-3.70	ABCD
				2018	5	11.8	11.8	2.28	1.55	-2.66	ABC
				2019	5	11.4	11.4	1.52	1.41	-3.35	ABCD
				2020	5	14.2	14.2	1.64	2.38	1.50	A
				2021	5	14.8	14.8	2.49	2.59	2.54	A
				2022	5	13.8	13.8	1.10	2.24	0.808	A
				2023	5	9.00	9.00	3.16	0.577	-7.51	BCD
Simpson's Evenness (Krebs)	K-W	rank	<0.001	2006	3	0.377	0.324	0.0953	nc	nc	D
				2007	3	0.658	0.655	0.0386	47.4	nc	D
				2015	5	0.868	0.878	0.0493	82.8	4.17	AB
				2016	5	0.914	0.907	0.0227	90.5	5.08	A
				2017	5	0.729	0.769	0.0973	59.4	1.41	BCD
				2018	5	0.907	0.907	0.0300	89.4	4.94	A
				2019	5	0.695	0.687	0.0953	53.6	0.734	D
				2020	5	0.907	0.828	0.153	89.3	4.94	ABC
				2021	5	0.894	0.860	0.108	87.1	4.68	AB
				2022	5	0.938	0.887	0.103	94.6	5.56	A
				2023	5	0.734	0.727	0.0740	60.1	1.50	CD
% Nematoda	K-W	rank	0.630	2006	3	1.00	0.667	0.577	nc	nc	A
				2007	3	0	0.333	0.577	nm	nc	A
				2015	5	0	0.400	0.548	nm	nm	A
				2016	5	2.00	1.60	1.14	nm	nm	A
				2017	5	0	0.400	0.894	nm	nm	A
				2018	5	0	1.80	2.49	nm	nm	A
				2019	5	1.00	0.600	0.548	nm	nm	A
				2020	5	0.325	0.505	0.562	nm	nm	A
				2021	5	0.556	1.17	1.74	nm	nm	A
				2022	5	2.22	2.05	1.69	nm	nm	A
				2023	5	0	0.292	0.423	nm	nm	A
% Hydracarina	K-W	rank	0.001	2006	3	0	0.333	0.577	nc	nc	DE
				2007	3	0	0.333	0.577	nm	nc	DE
				2015	5	3.00	4.20	3.11	nm	nm	AB
				2016	5	4.00	4.60	2.30	nm	nm	A
				2017	5	0	0	0	nm	nm	E
				2018	5	0	0.400	0.894	nm	nm	DE
				2019	5	0	0.800	1.30	nm	nm	DE
				2020	5	0.885	1.10	1.31	nm	nm	CDE
				2021	5	1.15	1.11	0.852	nm	nm	BCD
				2022	5	1.25	2.03	1.40	nm	nm	ABC
				2023	5	0.535	0.404	0.400	nm	nm	DE
% Chironomidae	K-W	rank	<0.001	2006	3	99.0	98.7	0.577	nc	nc	A
				2007	3	98.0	97.3	1.15	nm	nc	ABC
				2015	5	88.0	88.0	2.74	nm	nm	BCD
				2016	5	87.0	84.0	4.64	nm	nm	DEF
				2017	5	81.0	79.2	6.46	nm	nm	DEFG
				2018	5	81.0	78.8	12.3	nm	nm	DEF
				2019	5	98.0	97.0	2.35	nm	nm	AB
				2020	5	87.8	89.6	5.11	nm	nm	ABCD
				2021	5	84.4	85.6	4.38	nm	nm	DEF
				2022	5	88.9	86.4	6.85	nm	nm	CDE
				2023	5	59.3	56.3	10.9	nm	nm	G
	5	66.7	66.0	24.6	nm	nm	EFG				
	5	75.0	73.4	7.13	nm	nm	FG				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{baseline})/SD_{baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.48: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Reference Area G0-09 on the Mary River Among Years of Mine Operation (2015 to 2025) and Baseline (2007, 2011), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a		
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b		Pairwise Comparison
									vs. Baseline Year 2006	vs. Baseline Year 2007	
% Metal Sensitive Chironomidae	ANOVA	log ₁₀ (x+1)	0.001	2006	3	62.0	62.0	3.46	nc	nc	A
				2007	3	30.2	31.0	17.6	-10.2	nc	AB
				2015	5	12.4	13.0	14.0	-17.0	-1.05	B
				2016	5	22.7	23.2	12.3	-12.9	-0.422	AB
				2017	5	59.4	59.8	13.1	-0.759	1.45	A
				2018	5	30.6	31.0	10.6	-9.99	0.0258	AB
				2019	5	50.2	51.6	21.5	-3.50	1.03	A
				2020	5	30.5	32.0	23.7	-10.1	0.0157	AB
				2021	5	22.3	23.7	22.3	-13.1	-0.449	AB
				2022	5	30.2	31.2	19.0	-10.1	0.00219	AB
				2023	5	12.0	12.5	13.0	-17.1	-1.08	B
2024	5	42.1	44.7	29.0	-6.10	0.626	AB				
2025	5	30.6	31.1	13.3	-10.0	0.0239	AB				
% Tipulidae	K-W	rank	0.053	2006	3	0	0.333	0.577	nc	nc	BC
				2007	3	1.00	1.67	2.08	nm	nc	AB
				2015	5	4.00	4.40	2.97	nm	2.02	A
				2016	5	2.00	1.80	1.48	nm	0.674	AB
				2017	5	1.00	1.40	1.14	nm	0	AB
				2018	5	3.00	3.20	4.09	nm	1.35	AB
				2019	5	1.00	0.600	0.548	nm	0	BC
				2020	5	1.05	1.22	0.469	nm	0.0355	AB
				2021	5	1.17	1.14	1.21	nm	0.114	B
				2022	5	0	0.688	1.06	nm	-0.674	BC
				2023	5	0.535	0.517	0.517	nm	-0.314	BC
				2024	5	0	0	0	nm	-0.674	C
2025	5	0	1.25	2.80	nm	-0.674	BC				
% Collector Gatherers	ANOVA	none	<0.001	2006	3	98.7	98.7	1.15	nc	nc	A
				2007	3	94.7	94.7	1.15	-3.46	nc	AB
				2015	5	78.0	78.0	12.2	-17.9	-14.4	ABC
				2016	5	75.4	75.4	8.99	-20.1	-16.7	BC
				2017	5	74.6	74.6	6.88	-20.8	-17.4	BC
				2018	5	80.8	80.8	11.4	-15.5	-12.0	ABC
				2019	5	92.6	92.6	5.03	-5.25	-1.79	AB
				2020	5	80.2	80.2	4.13	-15.9	-12.5	ABC
				2021	5	83.9	83.9	2.94	-12.8	-9.35	ABC
				2022	5	74.8	74.8	9.50	-20.7	-17.2	BC
				2023	5	54.8	54.8	9.15	-38.0	-34.6	D
				2024	5	69.3	69.3	20.5	-25.4	-22.0	CD
2025	5	71.3	71.3	3.75	-23.7	-20.2	CD				
% Filterers	K-W	rank	<0.001	2006	3	0	0	0	nc	nc	E
				2007	3	0	0	0	nm	nc	E
				2015	5	1.00	2.00	1.87	nm	nm	DE
				2016	5	7.00	7.20	4.15	nm	nm	BCD
				2017	5	18.0	19.0	5.43	nm	nm	AB
				2018	5	13.0	14.2	9.98	nm	nm	BC
				2019	5	0	0	0	nm	nm	E
				2020	5	3.06	3.83	3.06	nm	nm	CDE
				2021	5	9.77	9.51	2.08	nm	nm	BCD
				2022	5	2.06	4.31	4.36	nm	nm	CDE
				2023	5	38.0	42.4	11.3	nm	nm	A
				2024	5	33.3	29.1	18.8	nm	nm	AB
2025	5	25.0	21.9	5.41	nm	nm	AB				
% Shredders	K-W	rank	<0.001	2006	3	0	0.333	0.577	nc	nc	EF
				2007	3	4.00	4.33	0.577	nm	nc	BCDE
				2015	5	14.0	16.0	11.3	nm	nm	AB
				2016	5	13.0	11.8	3.56	nm	nm	AB
				2017	5	4.00	5.60	2.30	nm	nm	BC
				2018	5	3.00	4.80	6.22	nm	nm	CDEF
				2019	5	4.00	5.00	2.83	nm	nm	BCDE
				2020	5	9.26	11.4	7.26	nm	nm	AB
				2021	5	5.33	4.81	2.40	nm	nm	BC
				2022	5	16.1	17.7	7.34	nm	nm	A
				2023	5	0.926	1.03	1.28	nm	nm	DEF
				2024	5	0	0	0	nm	nm	F
2025	5	6.25	6.43	5.65	nm	nm	BCD				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.49: Benthic Invertebrate Community Data, Expressed in Number of Organisms per Square Metre, for Mary Lake (BL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Lake	Mary Lake (BL0)					
Station Type	Littoral					
Station	1 ^a	6	11	20	21	22
ROUNDWORMS	-	-	-	-	-	-
P. Nemata	-	138	551	51.7	8.61	8.61
	-	-	-	-	-	-
ANNELIDS	-	-	-	-	-	-
P. Annelida	-	-	-	-	-	-
WORMS	-	-	-	-	-	-
Cl. Oligochaeta	-	-	-	-	-	-
F. Enchytraeidae	-	-	172	-	-	-
F. Lumbriculidae	-	-	-	-	-	-
<i>Lumbriculus</i>	-	-	-	-	-	-
	-	-	-	-	-	-
ARTHROPODS	-	-	-	-	-	-
P. Arthropoda	-	-	-	-	-	-
MITES	-	-	-	-	-	-
Cl. Arachnida	-	-	-	-	-	-
O. Acarina	-	-	-	-	-	-
F. Acalyptonotidae	-	-	-	-	-	-
<i>Acalyptonotus</i>	25.8	77.5	-	-	-	34.4
F. Hygrobatidae	-	-	-	-	-	-
<i>Hygrobates</i>	8.61	86.1	68.9	-	-	-
F. Lebertiidae	-	-	-	-	-	-
<i>Lebertia</i>	8.61	77.5	-	-	8.61	-
F. Sperchontidae	-	-	-	-	-	-
<i>Sperchon</i>	-	-	-	17.2	-	-
SEED SHRIMPS	-	-	-	-	-	-
Cl. Ostracoda	77.5	1,033	344	-	68.9	1,981
	-	-	-	-	-	-
INSECTS	-	-	-	-	-	-
Cl. Insecta	-	-	-	-	-	-
CADDISFLIES	-	-	-	-	-	-
O. Trichoptera	-	-	-	-	-	-
F. Apataniidae	-	-	-	-	-	-
<i>Apatania</i>	-	8.61	-	-	-	-
	-	-	-	-	-	-
TRUE FLIES	-	-	-	-	-	-
O. Diptera	-	-	-	-	-	-
MIDGES	-	-	-	-	-	-
F. Chironomidae	-	-	-	-	-	-
chironomid pupae	-	-	379	-	8.61	17.2
S.F. Chironominae	-	-	-	-	-	-
<i>Chironomus</i>	-	-	-	172	-	-
<i>Lipiniella</i>	-	-	-	-	-	-
<i>Micropsectra</i>	1,274	792	827	7,888	-	-
<i>Parachironomus</i>	-	-	-	-	-	-
<i>Paratanytarsus</i>	34.4	-	34.4	-	-	-
<i>Polypedilum</i>	-	-	-	-	-	-
<i>Sergentia</i>	-	-	896	172	-	-
<i>Stictochironomus</i>	276	-	3,444	2,204	8.61	-
<i>Tanytarsus</i>	-	-	103	-	-	-
S.F. Diamesinae	-	-	-	-	-	-
<i>Protanypus</i>	-	25.8	34.4	-	-	25.8
<i>Pseudodiamesa</i>	-	77.5	-	-	8.61	25.8
<i>Pseudokiefferiella</i>	-	-	34.4	-	-	-
S.F. Orthocladiinae	-	-	-	-	-	-
<i>Abiskomyia</i>	34.4	68.9	-	-	8.61	-
<i>Cardiocladius</i>	-	-	-	-	-	-
<i>Heterotrissocladius</i>	-	474	68.9	34.4	1,249	1,257
<i>Hydrosmittia</i>	-	-	103	-	-	-
<i>Mesocricotopus</i>	-	-	-	-	-	-
<i>Paracladius</i>	-	8.61	-	-	17.2	-
<i>Parakiefferiella</i>	-	-	-	-	-	-
<i>Zalutschia</i>	-	17.2	-	-	-	8.61
indeterminate	-	-	-	-	-	-
S.F. Tanypodinae	-	-	-	-	-	-
<i>Arctopelopia</i>	-	-	-	-	-	-
<i>Procladius</i>	2,816	68.9	-	276	43.1	34.4
F. Empididae	-	-	-	-	-	-
<i>Clinocera</i>	-	-	68.9	-	-	-

Notes: - = not present in sample. Numbers in bold were excluded from the taxa count.

^a Station BL0-01 is in the north basin of Mary Lake, whereas the remaining stations are in the south.

Table E.50: Field Observations for Littoral Sampling Stations at Mary Lake (BL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Station	Station Depth (m)	Colour and Texture Observations	Evidence of Anoxia ^a	Plant or Algae Presence
BL0-01	9.0	Sticky clay/mud	None	None
BL0-04	6.6	Sandy	None	None
BL0-06	5.1	Sandy	None	None
BL0-20	11.4	Dark brown mud	None	None
BL0-21	11.4	Dark brown mud	None	None
BL0-22 ^b	11.9	Rusty mud	None	None

Notes: m = metres. No visible macrophytes were observed at Stations BL0-01, BL0-04, BL0-06, BL0-20, BL0-21, and BL0-22.

^a Evidence of anoxic sediments was assessed visually (presence of blackened substrate) and by smell (based on presence/strength of hydrogen sulphide odour).

^b The water depth at this specific benthic invertebrate community sampling station was not recorded in the field. The depth for the adjacent coring (sediment quality) station BL0-22 was used.

Table E.51: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Mary Lake (BL0) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
Density (org/m²)	ANOVA	log ₁₀	0.743	2007	3	2,303	2,667	1,454	nc	A
				2015	4	1,507	2,453	2,186	-0.584	A
				2016	6	1,445	1,946	1,591	-0.642	A
				2017	4	951	1,839	1,853	-1.22	A
				2018	4	1,154	1,718	1,418	-0.953	A
				2019	4	1,778	2,448	2,313	-0.356	A
				2020	4	2,651	4,086	3,955	0.194	A
				2021	4	2,003	2,685	1,758	-0.192	A
				2022	4	1,549	2,202	1,373	-0.547	A
				2023	3	1,676	2,819	2,992	-0.438	A
				2024	4	768	2,454	3,474	-1.51	A
2025	6	4,163	5,086	3,438	0.816	A				
Richness (No. of Taxa)	ANOVA	log ₁₀	0.559	2007	3	7.83	8.00	2.00	nc	A
				2015	4	8.86	9.00	1.83	0.482	A
				2016	6	8.65	8.67	0.516	0.391	A
				2017	4	9.32	9.50	2.08	0.682	A
				2018	4	9.05	9.25	2.22	0.567	A
				2019	4	10.7	11.5	5.00	1.21	A
				2020	4	10.9	11.5	4.20	1.29	A
				2021	4	12.3	12.8	3.77	1.76	A
				2022	4	10.5	10.8	2.63	1.13	A
				2023	3	11.3	12.0	4.58	1.44	A
				2024	4	7.36	8.25	4.72	-0.240	A
2025	6	10.2	10.7	3.44	1.05	A				
Simpson's Evenness (Krebs)	ANOVA	none	0.222	2007	3	0.718	0.718	0.0411	nc	A
				2015	4	0.761	0.761	0.0583	1.05	A
				2016	6	0.574	0.574	0.299	-3.49	A
				2017	4	0.818	0.818	0.110	2.44	A
				2018	4	0.575	0.575	0.293	-3.47	A
				2019	4	0.663	0.663	0.169	-1.34	A
				2020	4	0.765	0.765	0.0409	1.14	A
				2021	4	0.783	0.783	0.0712	1.59	A
				2022	4	0.726	0.726	0.0312	0.204	A
				2023	3	0.832	0.832	0.131	2.77	A
				2024	4	0.811	0.811	0.110	2.28	A
2025	6	0.587	0.587	0.206	-3.17	A				
% Nematoda	K-W	rank	0.819	2007	3	1.58	7.29	11.2	nc	A
				2015	4	4.28	5.64	6.29	1.21	A
				2016	6	0.542	3.64	7.47	-0.466	A
				2017	4	0.588	3.50	6.25	-0.445	A
				2018	4	0.452	3.50	6.41	-0.506	A
				2019	4	1.27	2.38	2.40	-0.138	A
				2020	4	0.461	1.12	1.69	-0.502	A
				2021	4	0.508	1.56	2.46	-0.481	A
				2022	4	0.303	1.46	2.54	-0.573	A
				2023	3	2.13	6.37	8.75	0.245	A
				2024	4	0.794	1.85	2.75	-0.353	A
2025	6	0.540	2.25	3.10	-0.466	A				
% Ostracoda	K-W	rank	0.027	2007	3	0	0.218	0.378	nc	D
				2015	4	1.58	1.86	2.20	nm	BCD
				2016	6	2.36	2.29	2.22	nm	BCD
				2017	4	1.69	2.11	2.17	nm	BCD
				2018	4	4.53	8.86	10.9	nm	AB
				2019	4	2.02	2.02	1.14	nm	BCD
				2020	4	48.2	42.7	12.7	nm	A
				2021	4	13.7	10.8	6.78	nm	AB
				2022	4	2.42	10.6	17.7	nm	BC
				2023	3	4.26	7.15	7.37	nm	ABC
				2024	4	0.907	1.03	1.21	nm	CD
2025	6	4.75	17.4	23.9	nm	AB				
% Chironomidae	K-W	rank	0.193	2007	3	96.4	90.8	11.8	nc	A
				2015	4	92.0	91.0	7.74	-1.22	A
				2016	6	93.8	90.6	12.2	-0.731	A
				2017	4	91.0	85.7	13.1	-1.49	A
				2018	4	94.5	86.2	18.7	-0.510	A
				2019	4	94.4	93.4	3.97	-0.539	A
				2020	4	45.8	52.5	14.7	-14.1	A
				2021	4	82.5	84.1	9.23	-3.88	A
				2022	4	95.4	86.6	19.9	-0.271	A
				2023	3	72.3	75.5	17.5	-6.70	A
				2024	4	98.1	96.7	4.40	0.472	A
2025	6	88.8	77.8	25.4	-2.11	A				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

Table E.51: Statistical Comparisons of Benthic Invertebrate Community Endpoints at Littoral Habitats of Mary Lake (BL0) Among Years of Mine Operation (2015 to 2025) and Baseline (2007), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Endpoints	Overall Year Comparison			Year	Summary Statistic				Pairwise Post-hoc Comparisons ^a	
	Statistical Test	Data Transformation	P-Value		Sample Size	MCT	Mean	Standard Deviation	MOD ^b	Pairwise Comparison
									vs. Baseline Year 2007	
% Metal Sensitive Chionomidae	K-W	rank	0.695	2007	3	26.1	22.4	19.8	nc	A
				2015	4	14.5	15.8	14.6	-0.969	A
				2016	6	18.2	19.2	13.3	-0.660	A
				2017	4	18.7	21.3	7.70	-0.621	A
				2018	4	9.91	11.6	9.83	-1.36	A
				2019	4	13.6	14.2	12.2	-1.05	A
				2020	4	5.18	8.05	6.63	-1.76	A
				2021	4	6.67	10.8	9.08	-1.63	A
				2022	4	8.48	9.49	6.99	-1.48	A
				2023	3	15.3	13.1	8.32	-0.901	A
				2024	4	8.85	9.43	9.24	-1.45	A
2025	6	21.8	24.8	26.8	-0.355	A				
% Collector Gatherers	K-W	rank	0.970	2007	3	68.3	66.0	26.7	nc	A
				2015	4	76.5	72.8	23.1	0.238	A
				2016	6	83.4	73.5	24.7	0.441	A
				2017	4	56.8	52.2	23.6	-0.333	A
				2018	4	91.8	76.1	36.4	0.686	A
				2019	4	76.0	65.1	24.9	0.224	A
				2020	4	73.2	68.8	24.9	0.144	A
				2021	4	68.0	61.1	35.7	-0.00867	A
				2022	4	62.9	61.3	35.5	-0.157	A
				2023	3	68.5	72.1	19.6	0.00639	A
				2024	4	73.2	72.3	11.0	0.145	A
2025	6	73.0	62.2	38.0	0.137	A				
% Filterers	K-W	rank	0.751	2007	3	25.9	22.0	14.5	nc	A
				2015	4	13.0	14.4	16.2	-1.08	A
				2016	6	8.14	12.4	13.2	-1.48	A
				2017	4	10.6	13.3	16.0	-1.28	A
				2018	4	0.621	4.06	7.31	-2.10	A
				2019	4	9.11	11.5	13.8	-1.40	A
				2020	4	2.13	5.46	8.33	-1.98	A
				2021	4	3.01	7.60	11.4	-1.90	A
				2022	4	4.58	6.97	8.83	-1.77	A
				2023	3	3.91	7.36	7.51	-1.83	A
				2024	4	1.81	3.89	5.63	-2.00	A
2025	6	20.4	23.7	27.1	-0.461	A				

Indicates a statistically significant difference for respective comparison (p-value <0.1).

Indicates a statistically significant difference with a MOD outside of the CES of ± 2 SD of respective baseline year mean, suggesting an ecologically meaningful difference in endpoint values between study years

Notes: MCT = Measure of Central Tendency. MOD = Magnitude of Difference. org/m² = organisms per square metre. ANOVA = Analysis of Variance. < = less than. nc = not calculable. No. = number. K-W = Kruskal-Wallis H-test. % = percent. nm = MOD could not be calculated due to SD = 0. - = not applicable. CES = Critical Effect Size. SD = standard deviation. HSD = Honestly Significant Difference.

^a Statistical tests include ANOVA followed by Tukey's HSD post-hoc tests, or K-W test followed by Mann-Whitney U-test (M-W).

^b MOD = (MCT_{year1} - MCT_{Baseline})/SD_{Baseline}. MCT and SD reported as median and MAD (Median Absolute Deviation) for rank-transformed data, as transformed means and SD for log transformed data, and as untransformed means and SD for untransformed data.

APPENDIX F

FISH

FIGURES

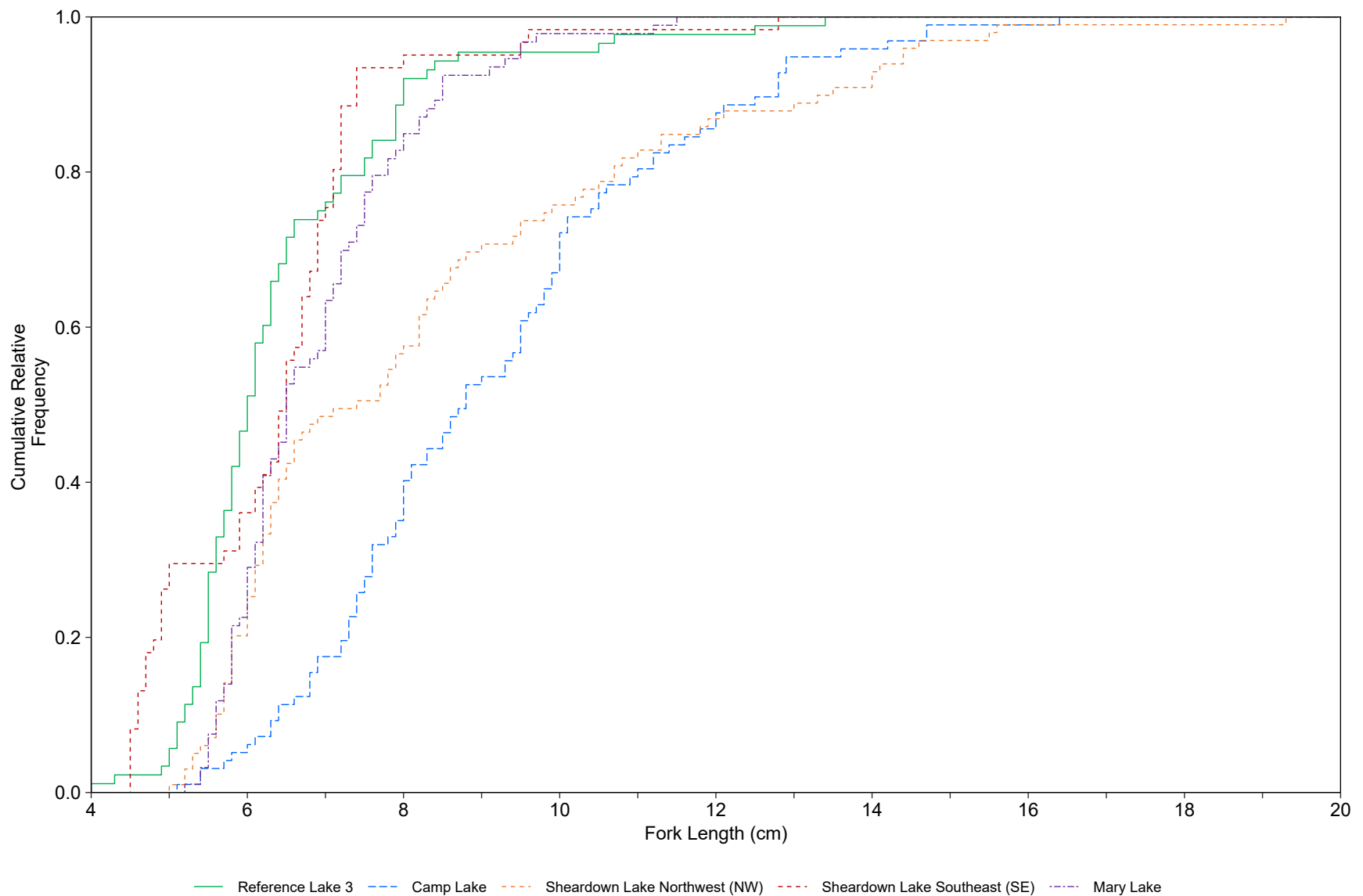


Figure F.1: Cumulative Length–frequency Distribution for Non–young-of-the–year (non–YOY) Arctic Charr Captured by Backpack Electrofishing at Mine–exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

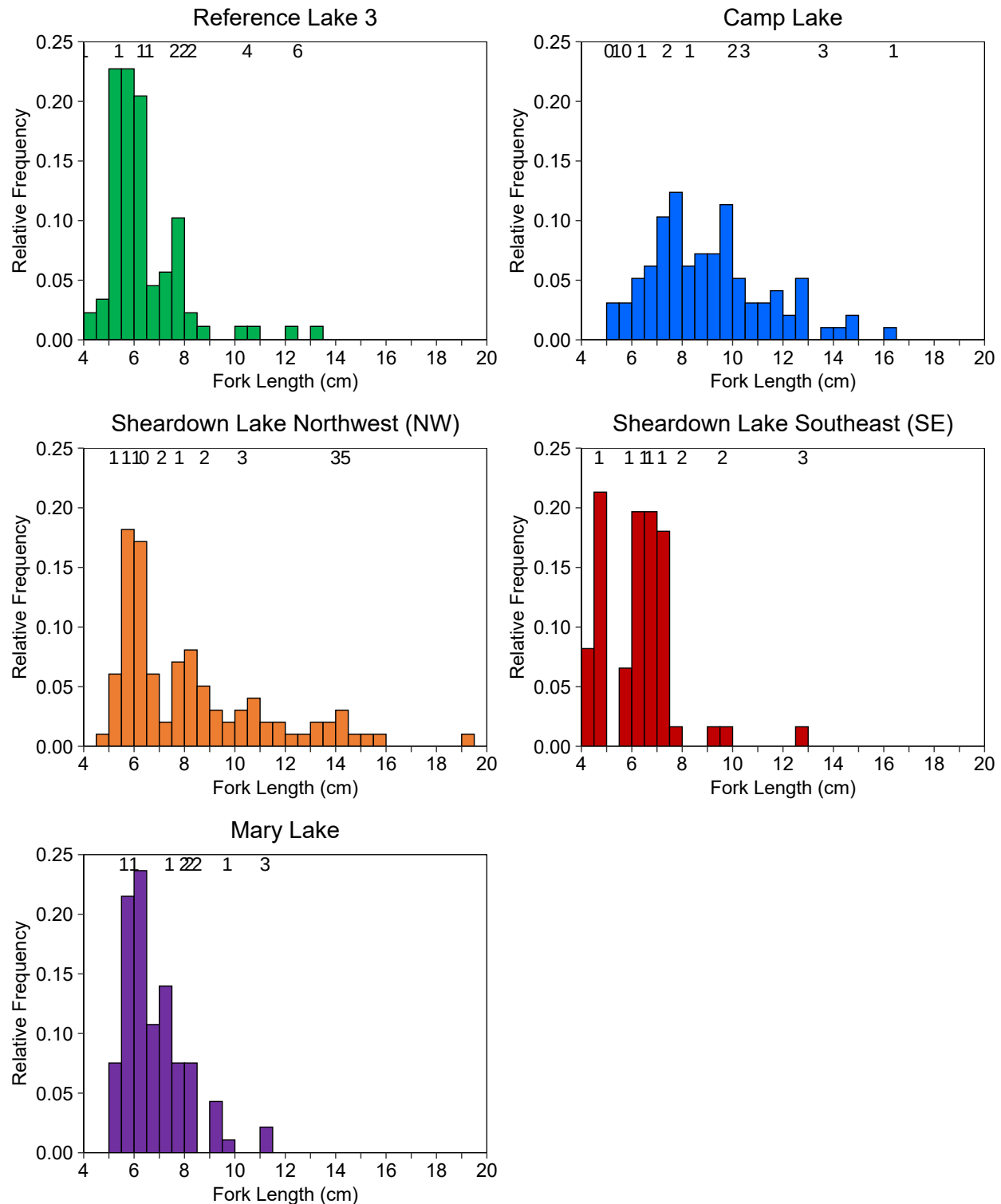


Figure F.2: Relative Length–frequency for Non–young-of-the-year (non-YOY) Arctic Charr Captured by Backpack Electrofishing at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Fish ages are shown above the bars, where available.

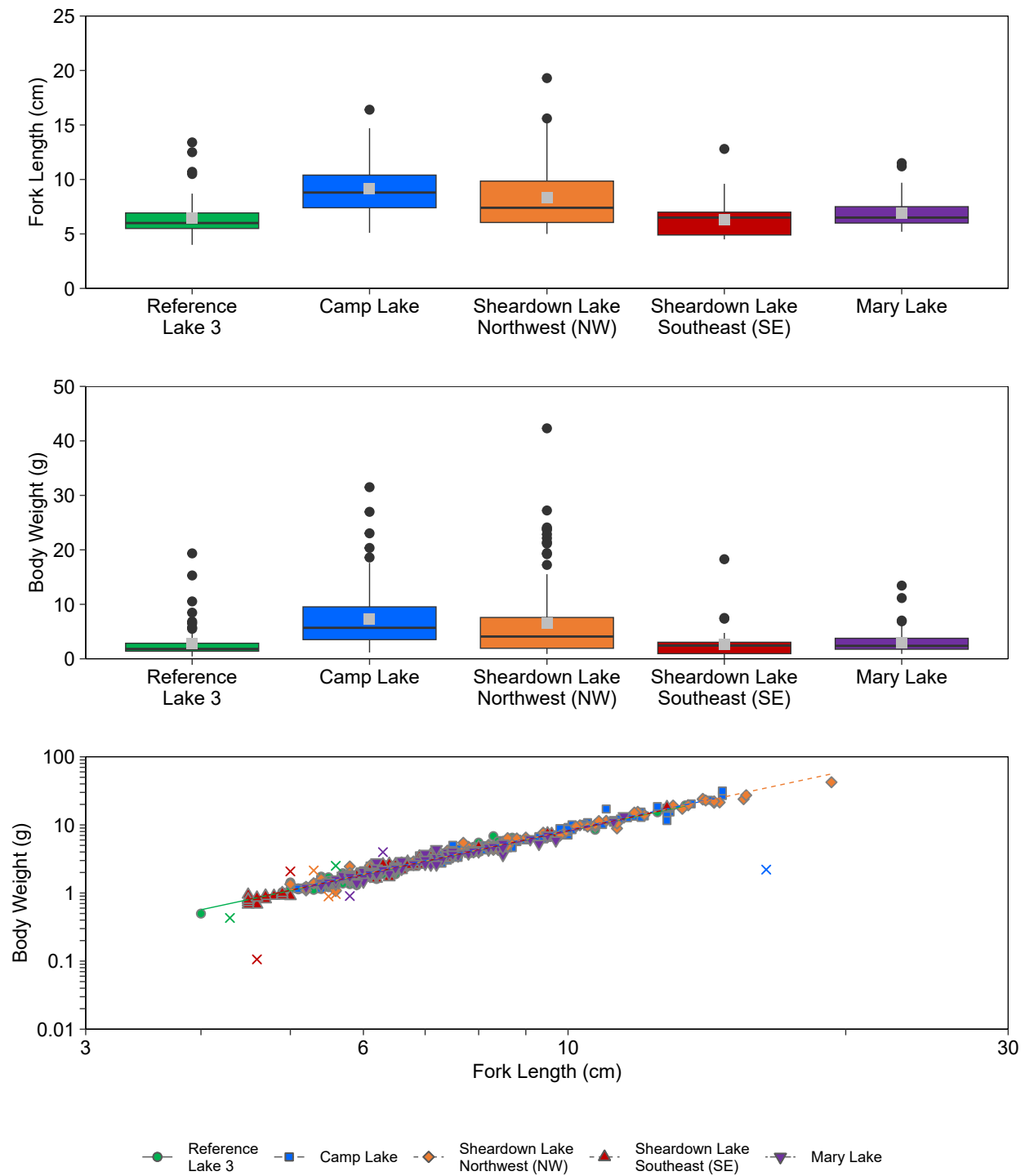


Figure F.3: Comparison of Body Condition (weight-at-fork-length) for Non-young-of-the-year (non-YOY) Arctic Charr Captured by Backpack Electrofishing at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

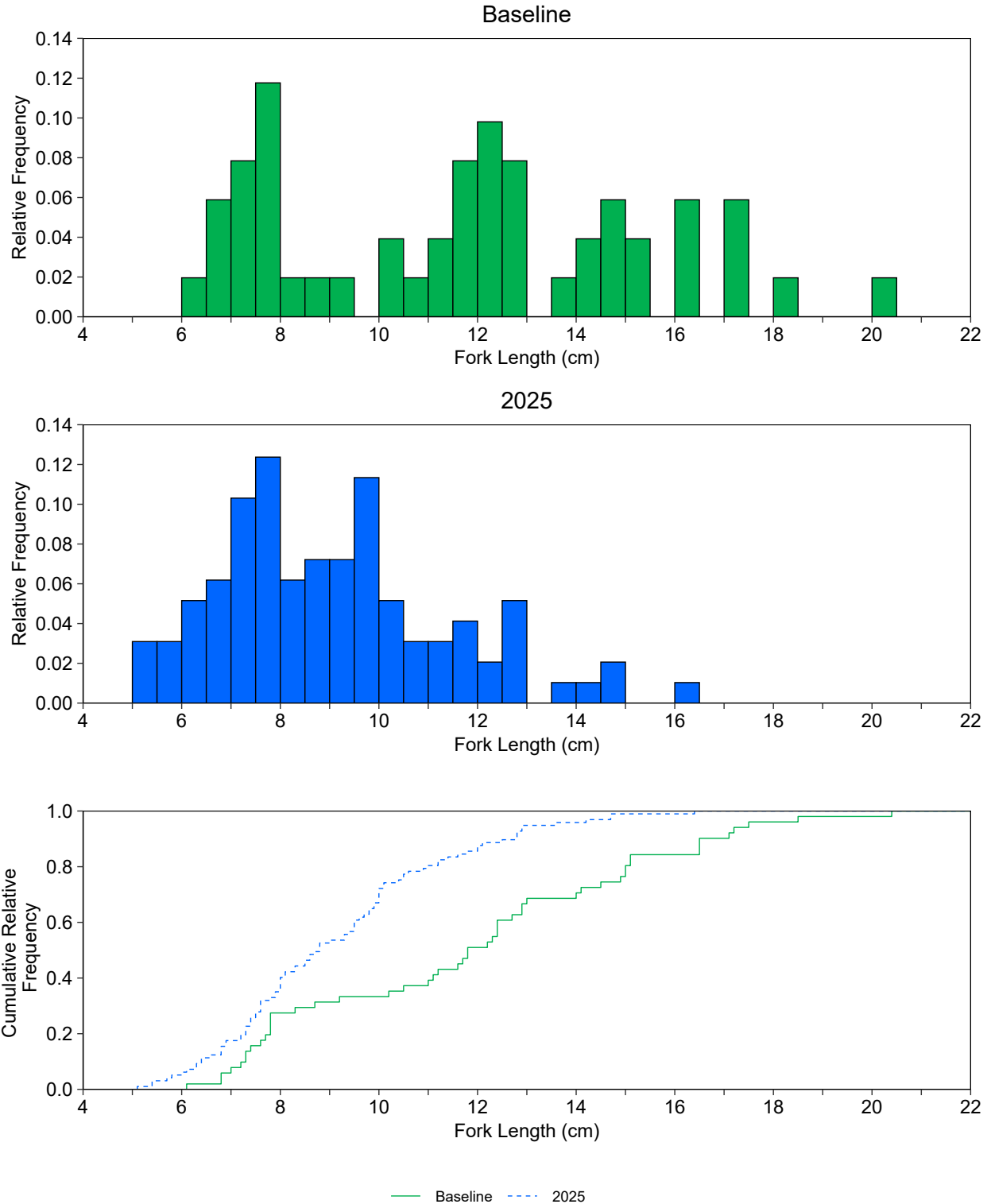


Figure F.4: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Backpack Electrofishing at Camp Lake (JL0) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Camp Lake n = 97; baseline n = 51.

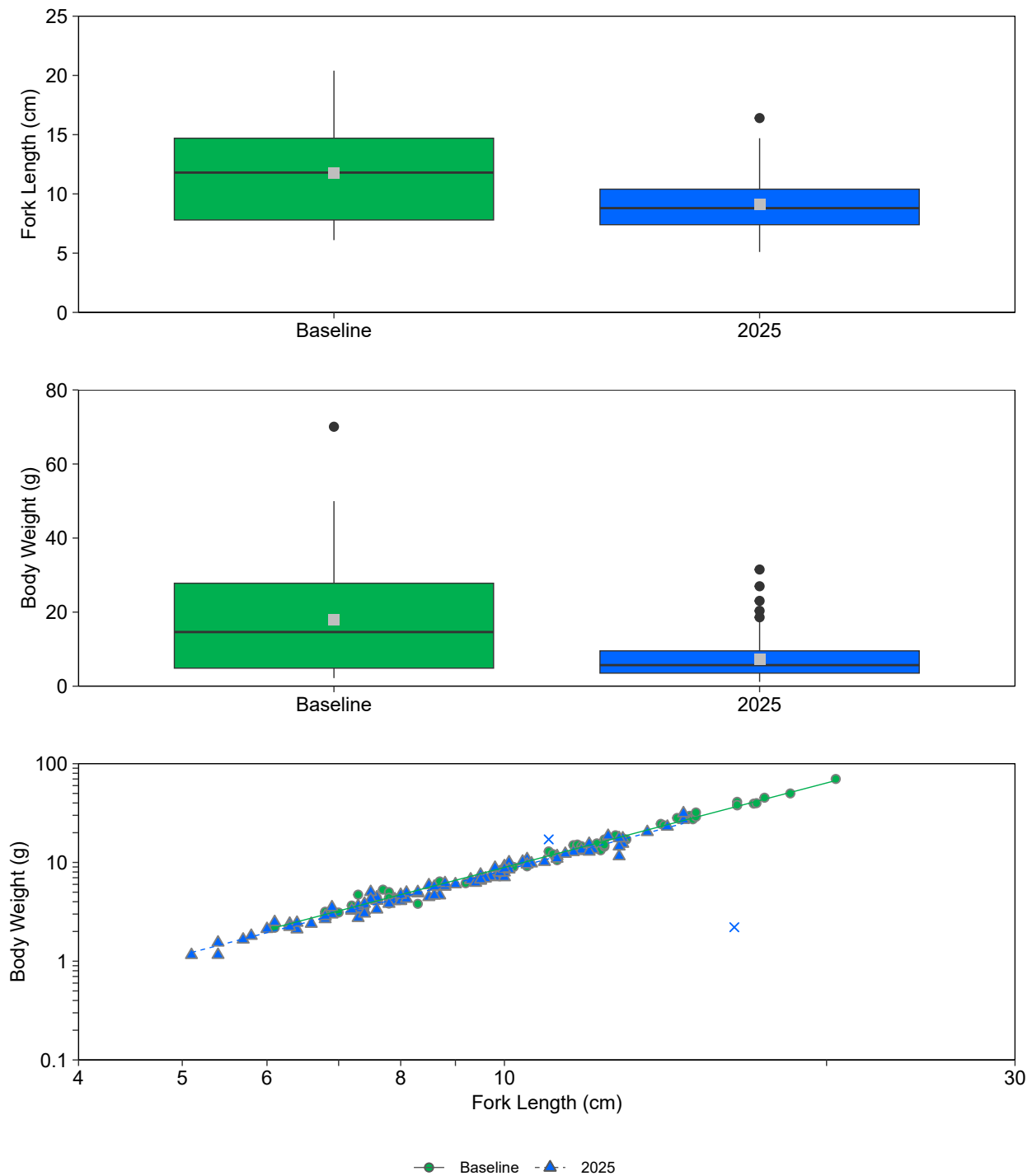


Figure F.5: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Backpack Electrofishing at Camp Lake (JL0) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

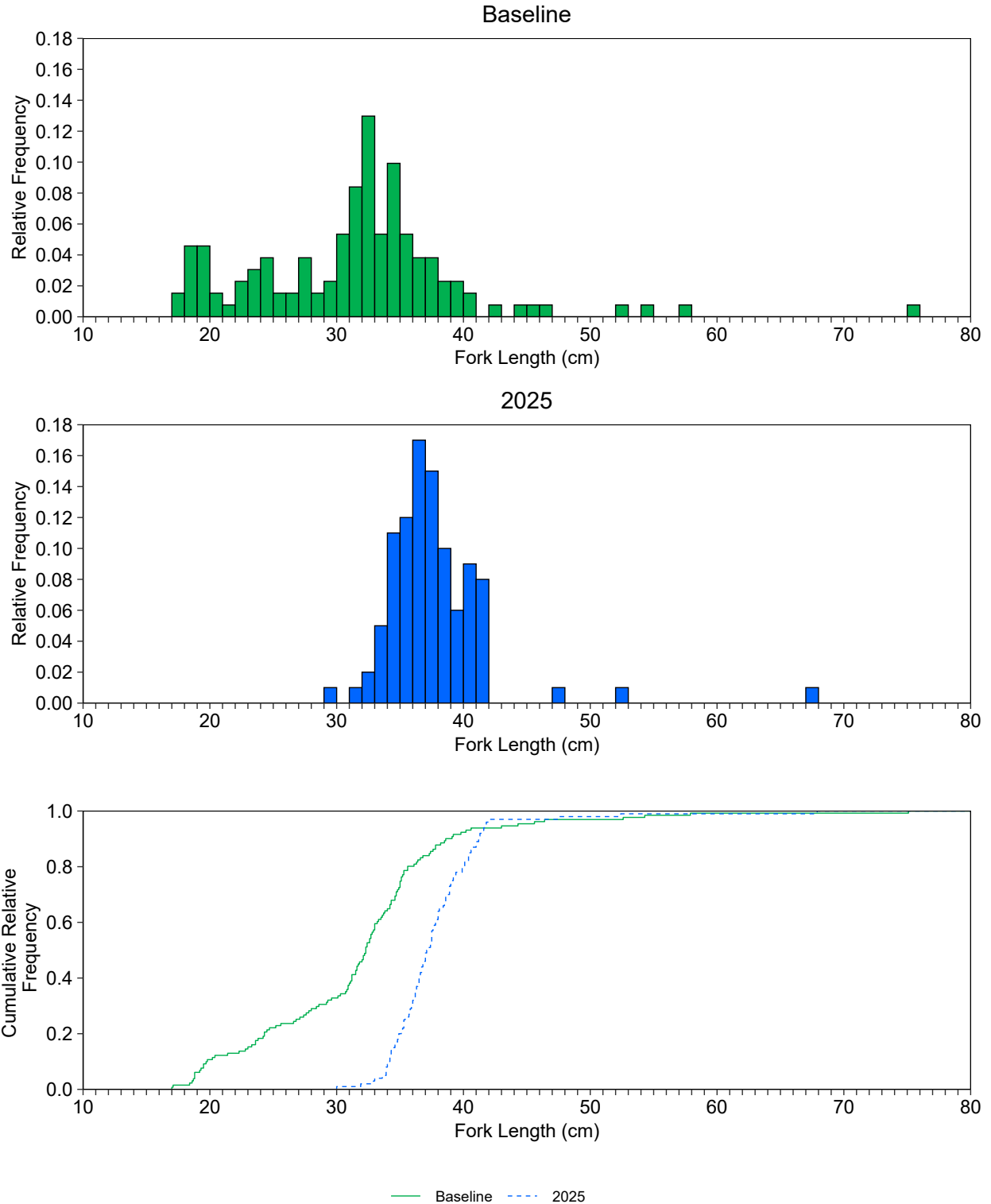


Figure F.6: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Gill Netting at Camp Lake (JL0) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Camp Lake n = 100; baseline n = 131.

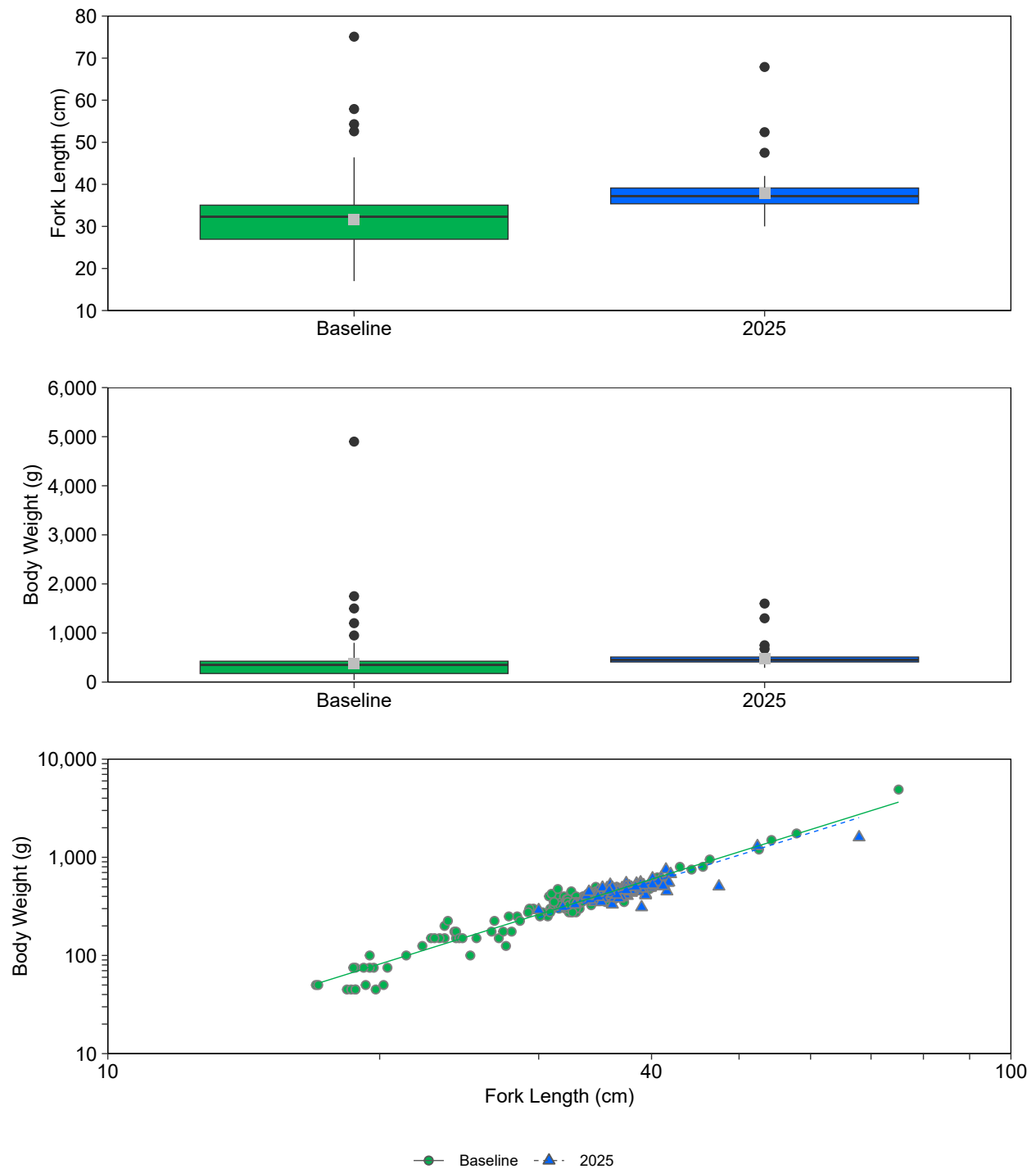


Figure F.7: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Gill Netting at Camp Lake (JL0) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

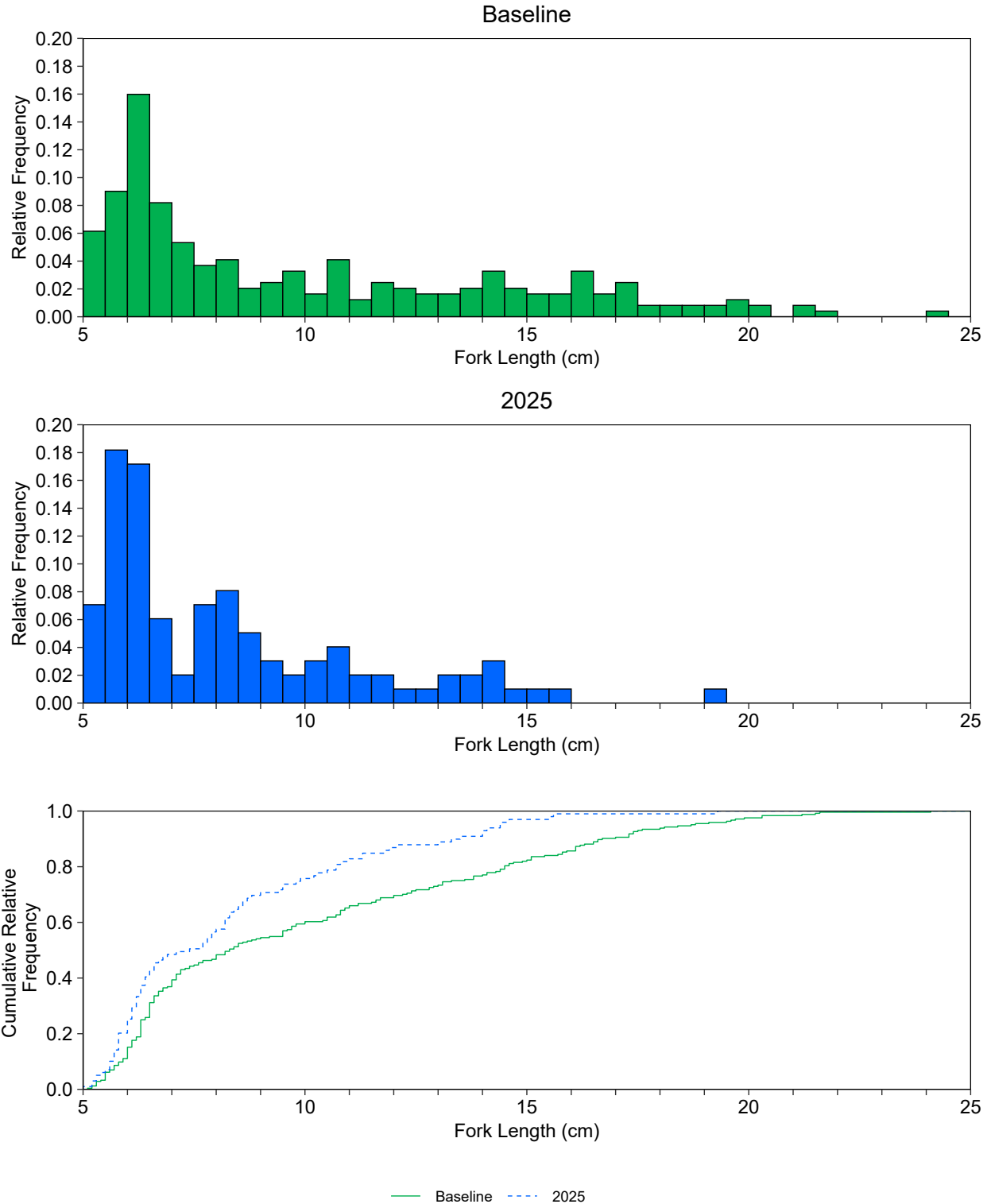


Figure F.8: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Backpack Electrofishing at Sheardown Lake Northwest (NW; DL0-01) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Sheardown Lake Northwest (NW) n = 99; baseline n = 244.

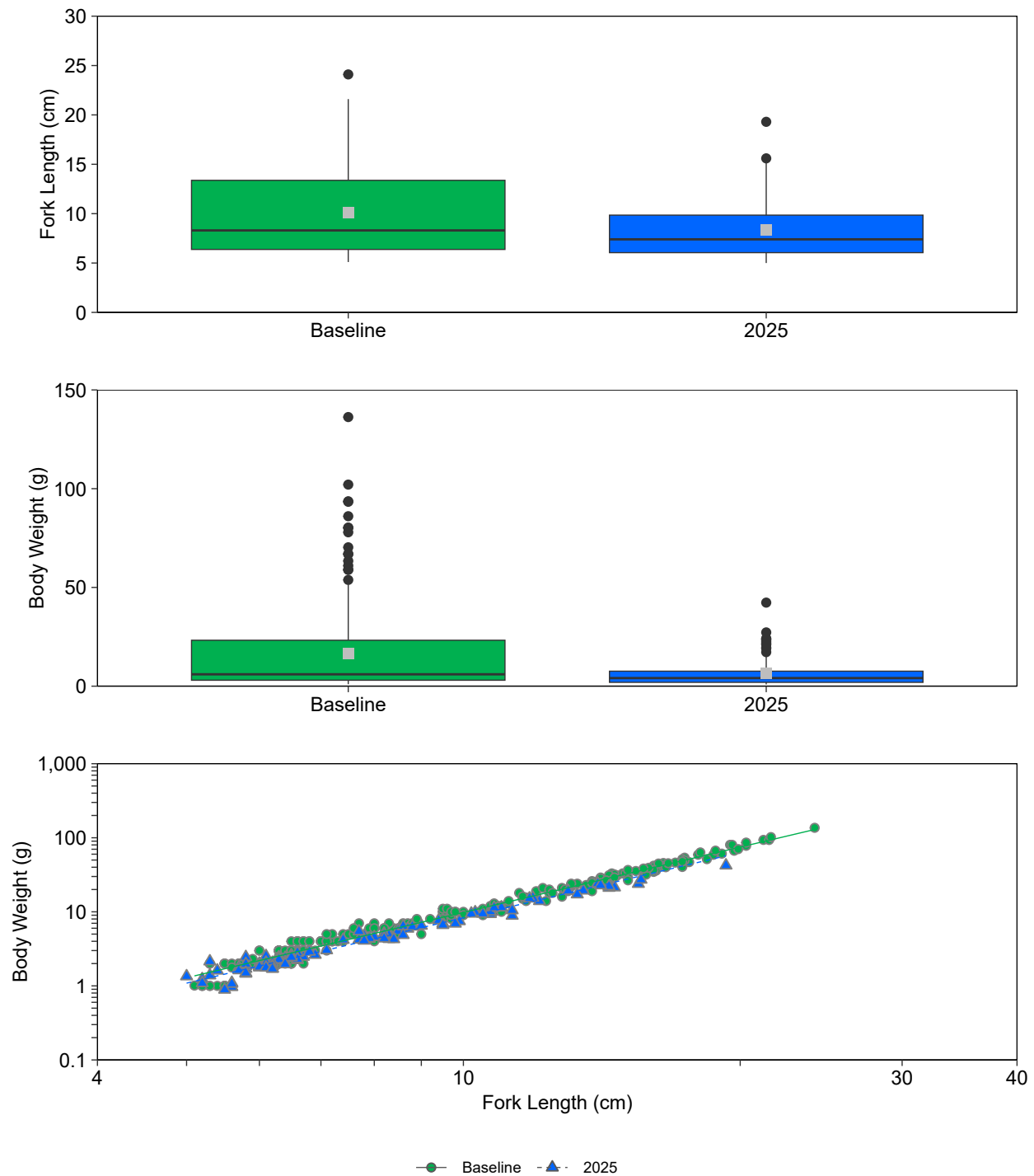


Figure F.9: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Backpack Electrofishing at Sheardown Lake Northwest (NW; DL0-01) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

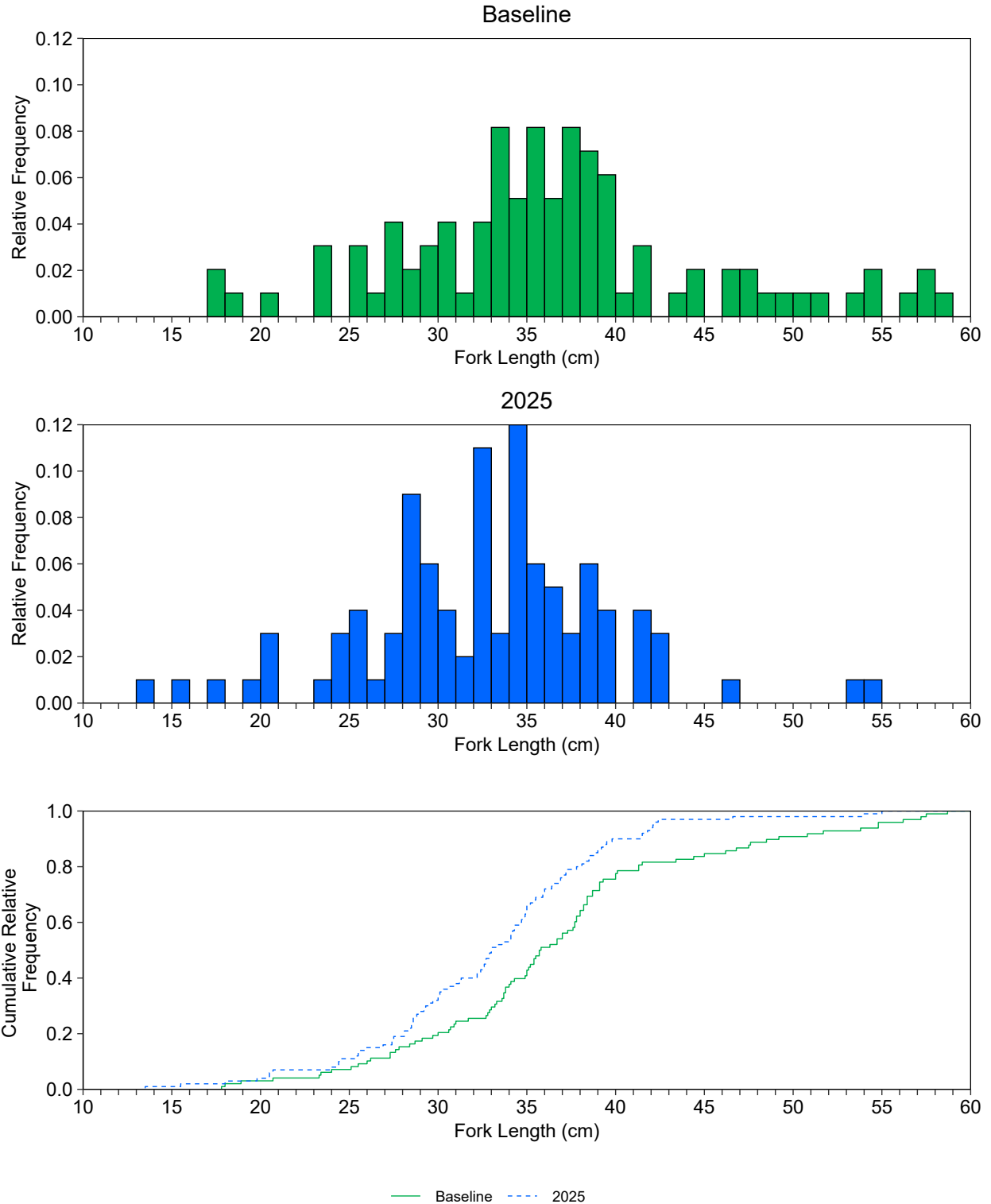


Figure F.10: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Gill Netting at Sheardown Lake Northwest (NW; DL0-01) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Sheardown Lake Northwest (NW) n = 100; baseline n = 98.

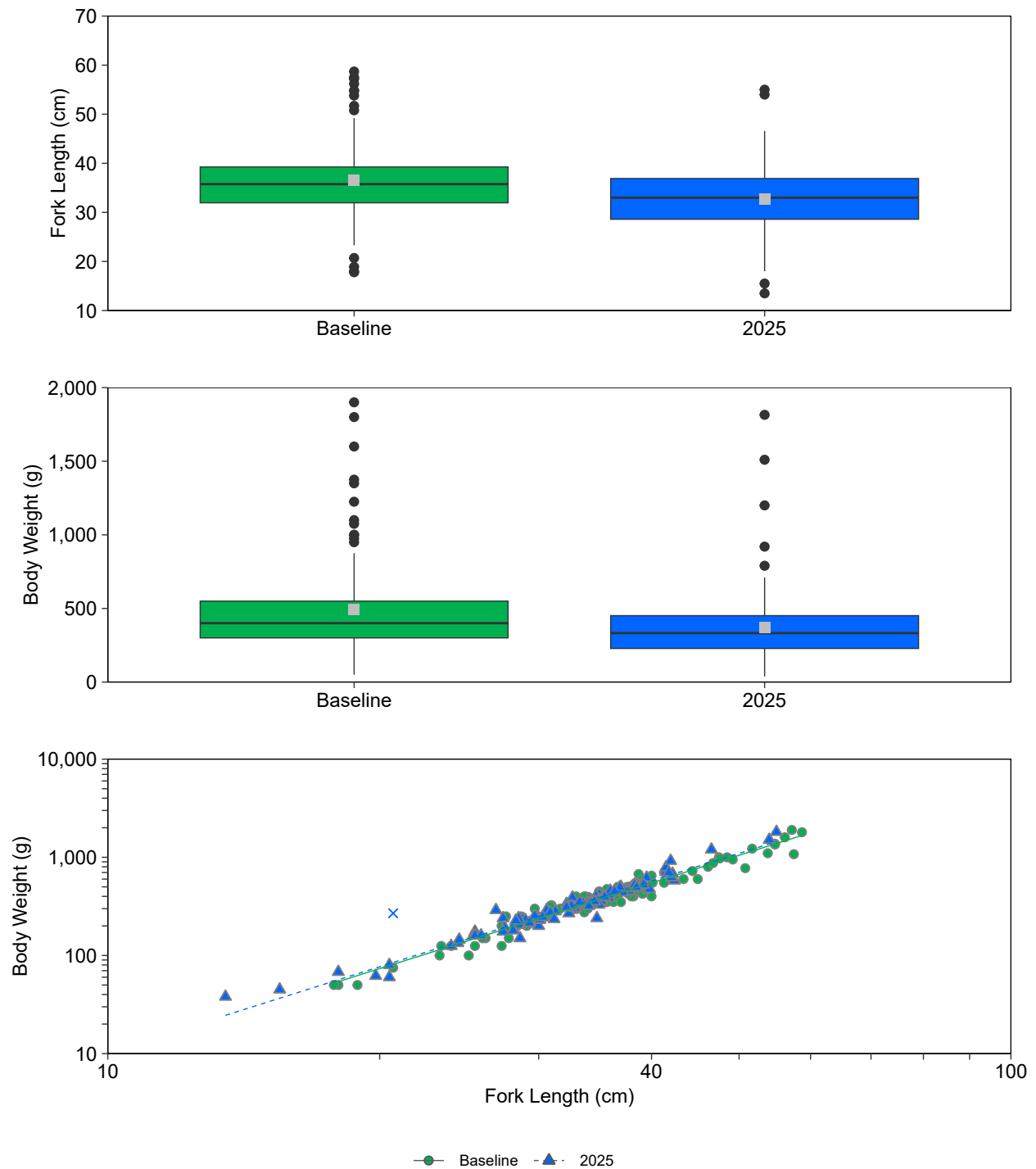


Figure F.11: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Gill Netting at Sheardown Lake Northwest (NW; DL0-01) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

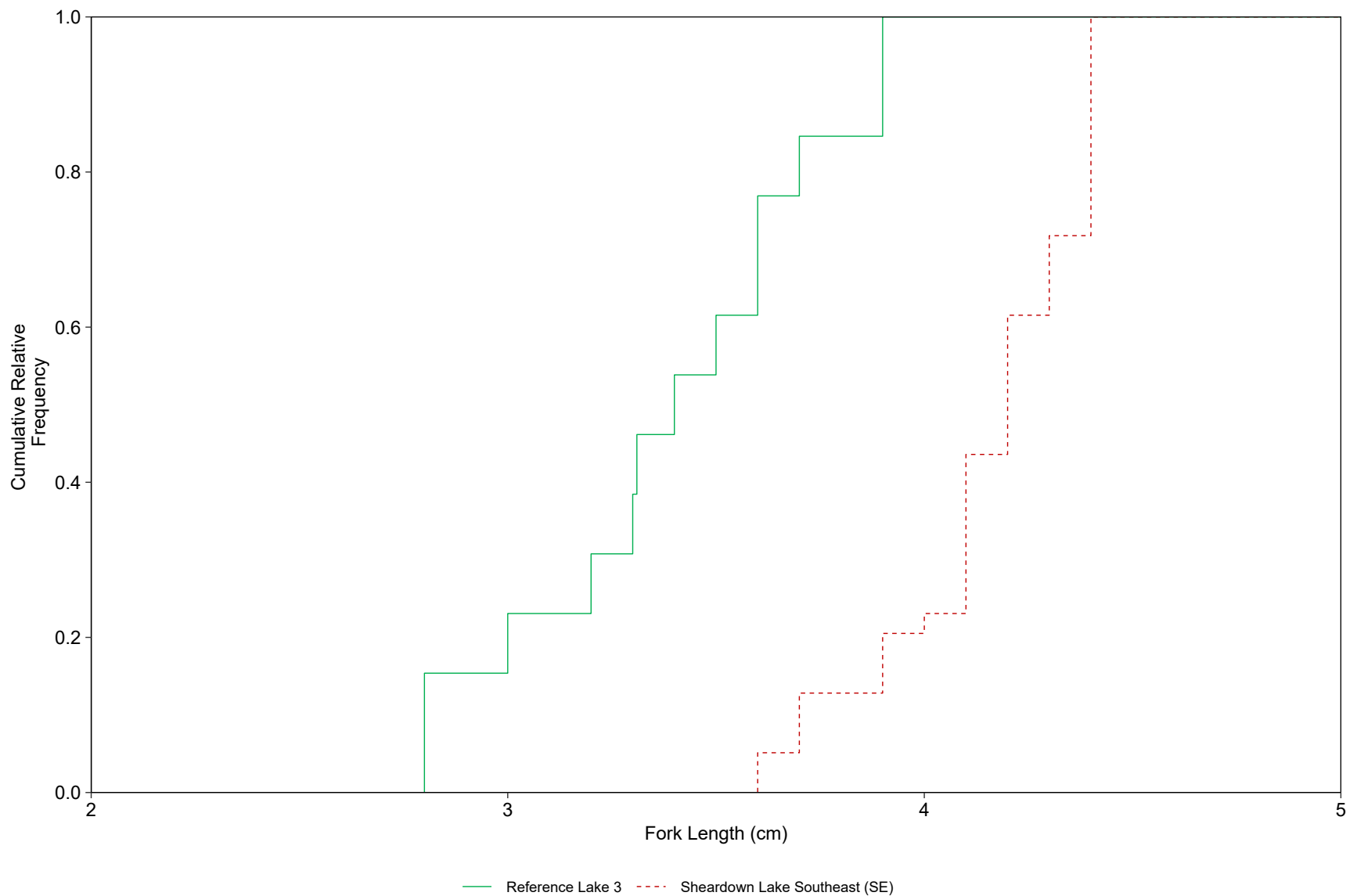


Figure F.12: Cumulative Length–frequency Distribution for Young-of-the-year (YOY) Arctic Charr Captured by Backpack Electrofishing at Sheardown Lake Southeast (SE; DL0-02), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

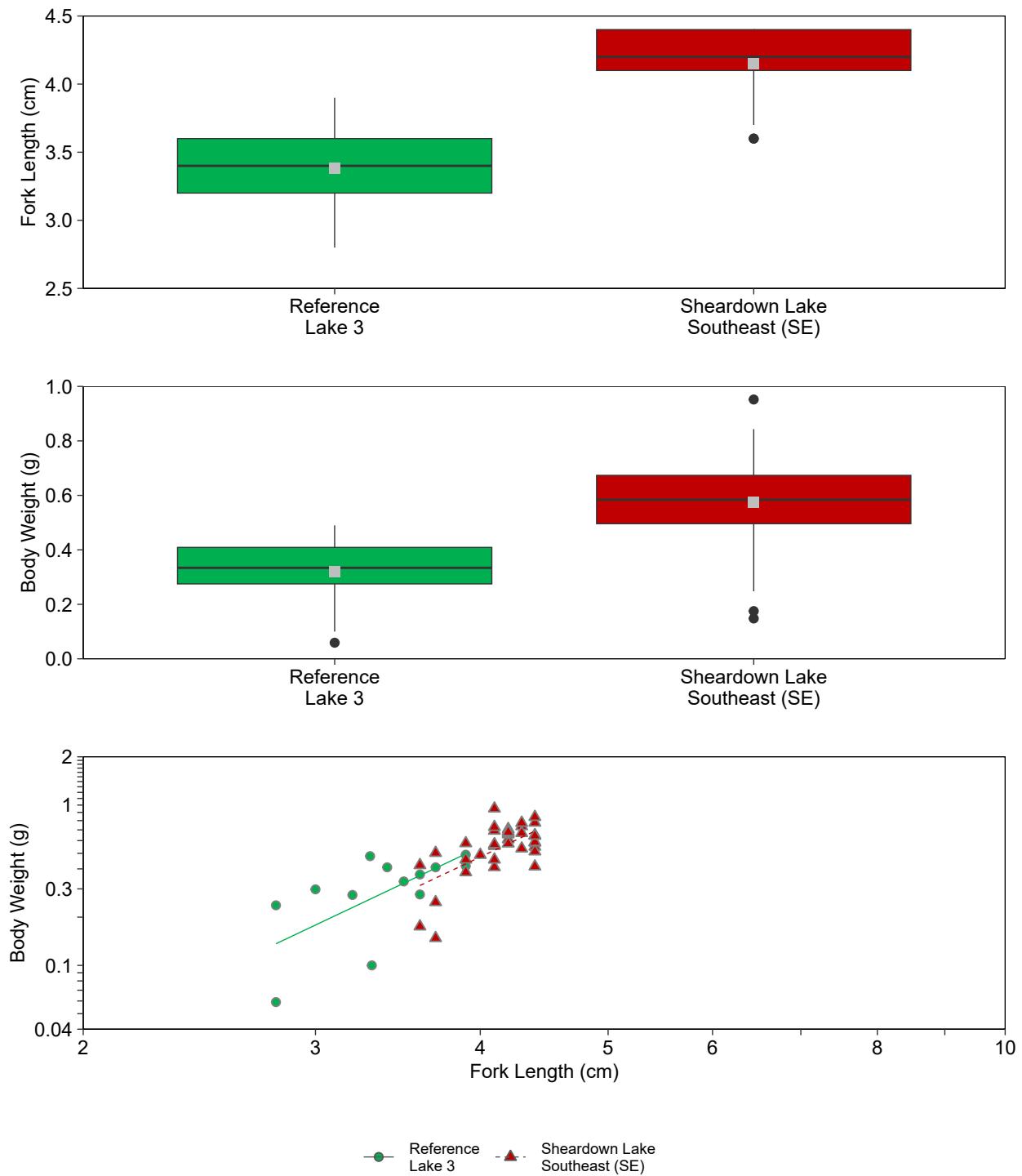


Figure F.13: Comparison of Body Condition (weight-at-fork-length) for Young-of-the-year (YOY) Arctic Charr Captured by Backpack Electrofishing at Sheardown Lake Southeast (SE; DL0-02) and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

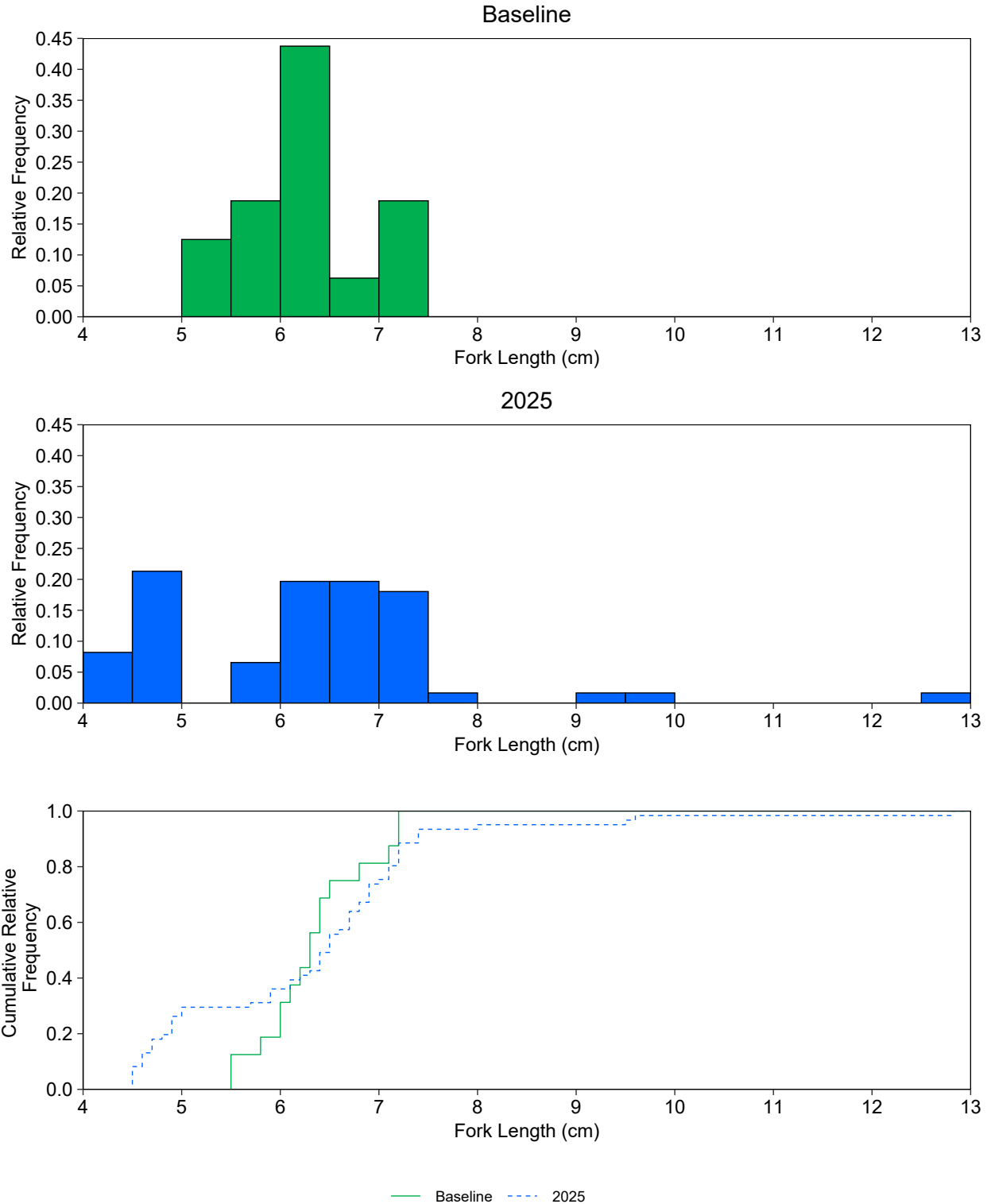


Figure F.14: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Backpack Electrofishing at Sheardown Lake Southeast (SE; DL0-02) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Sheardown Lake Southeast (SE) n = 61; baseline n = 16.

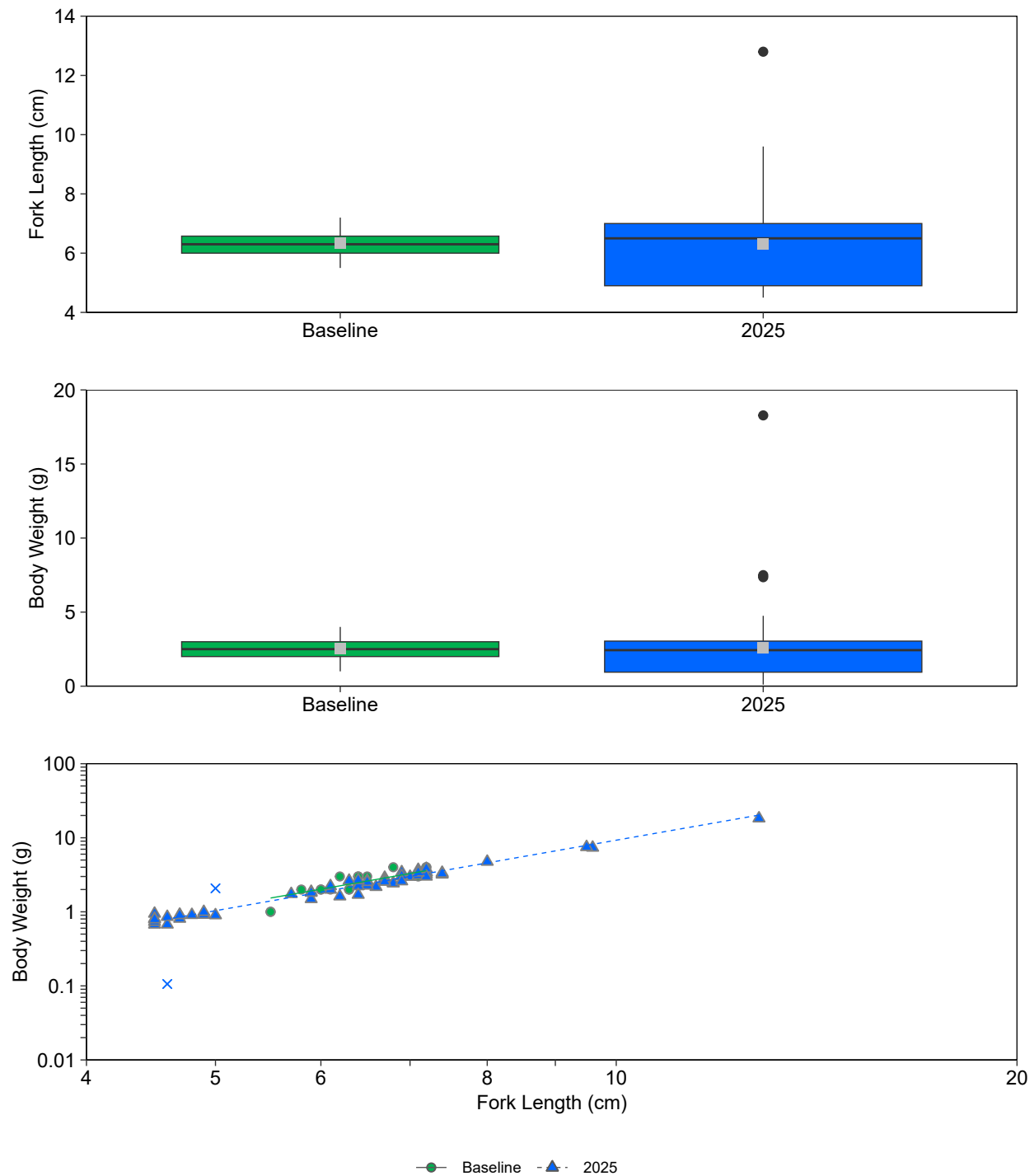


Figure F.15: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Backpack Electrofishing at Sheardown Lake Southeast (SE; DL0-02) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

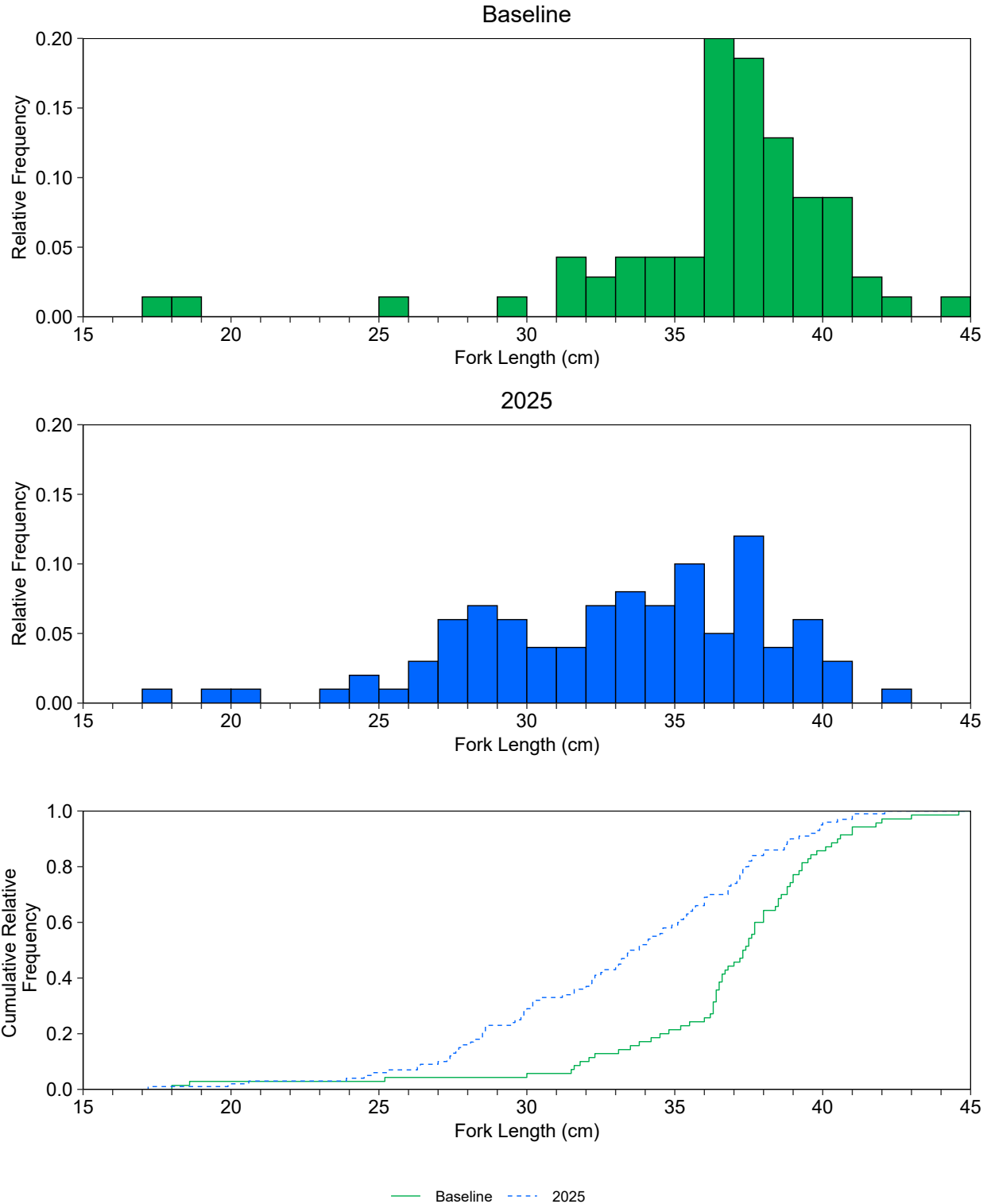


Figure F.16: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Gill Netting at Sheardown Lake Southeast (SE; DL0-02) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Sheardown Lake Southeast (SE) n = 100; baseline n = 70.

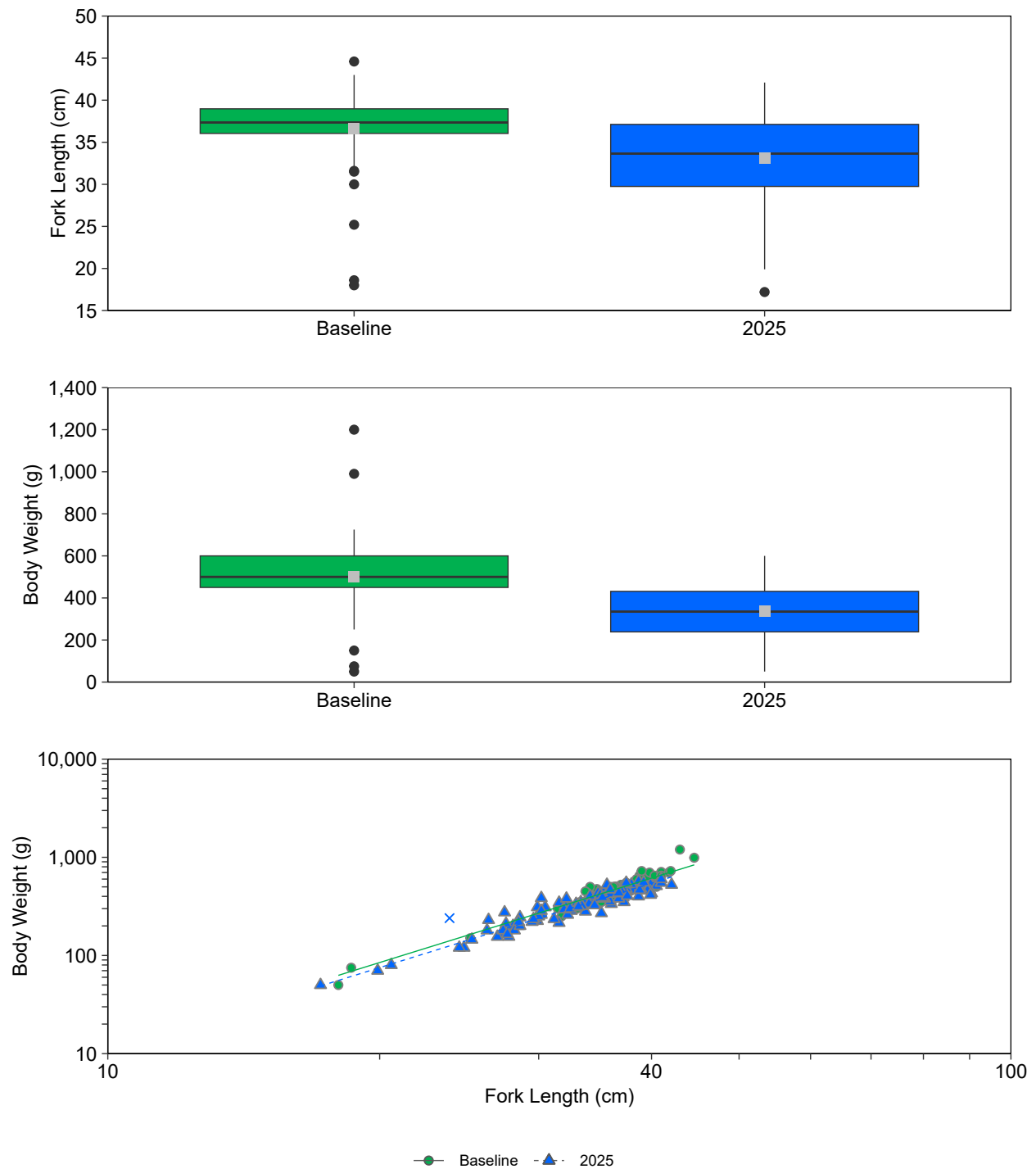


Figure F.17: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Gill Netting at Sheardown Lake Southeast (SE; DL0-02) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

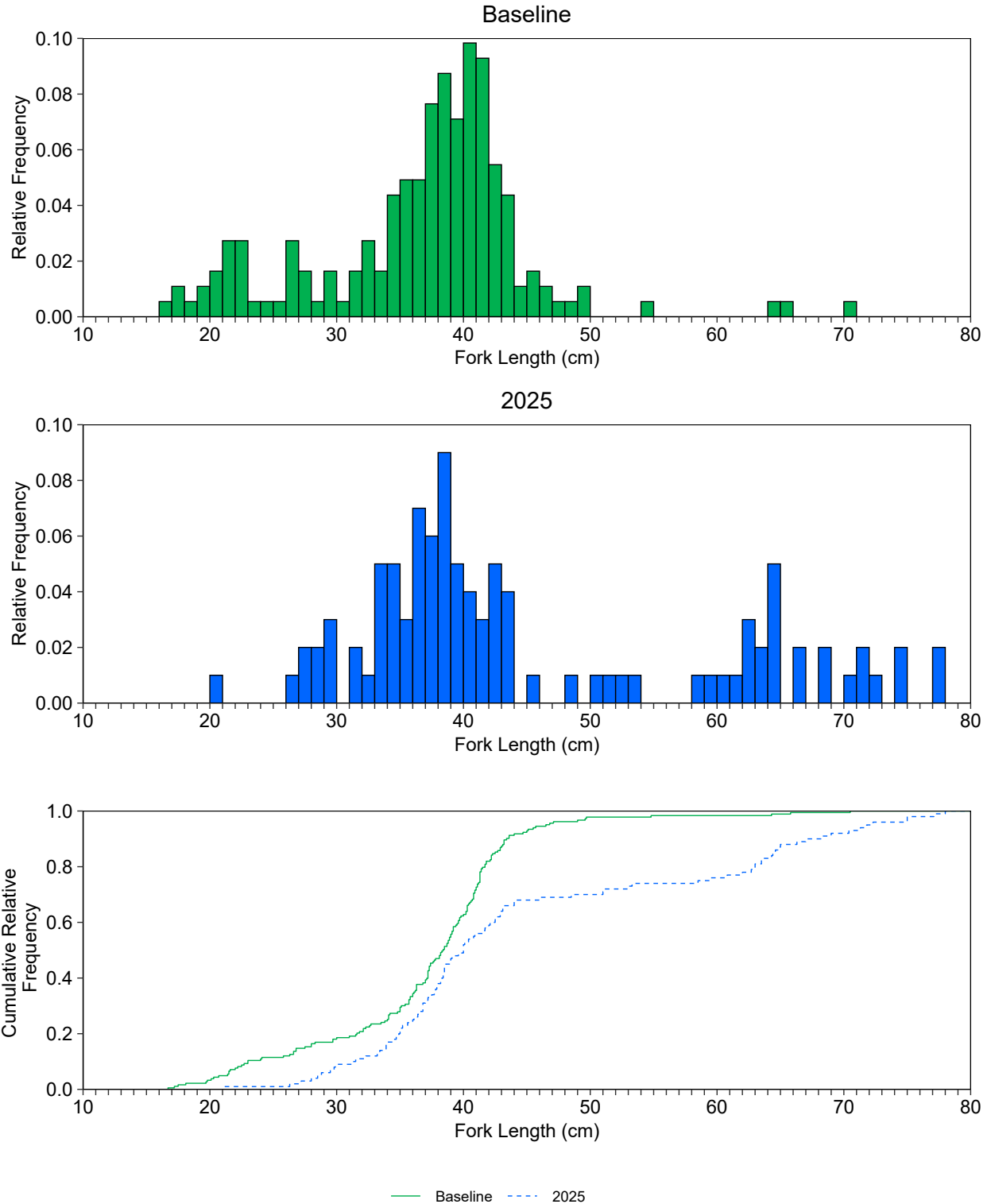


Figure F.18: Relative Length–frequency and Cumulative Length–frequency Distributions for Arctic Charr Captured by Gill Netting at Mary Lake (BL0) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Mary Lake n = 100; baseline n = 183.

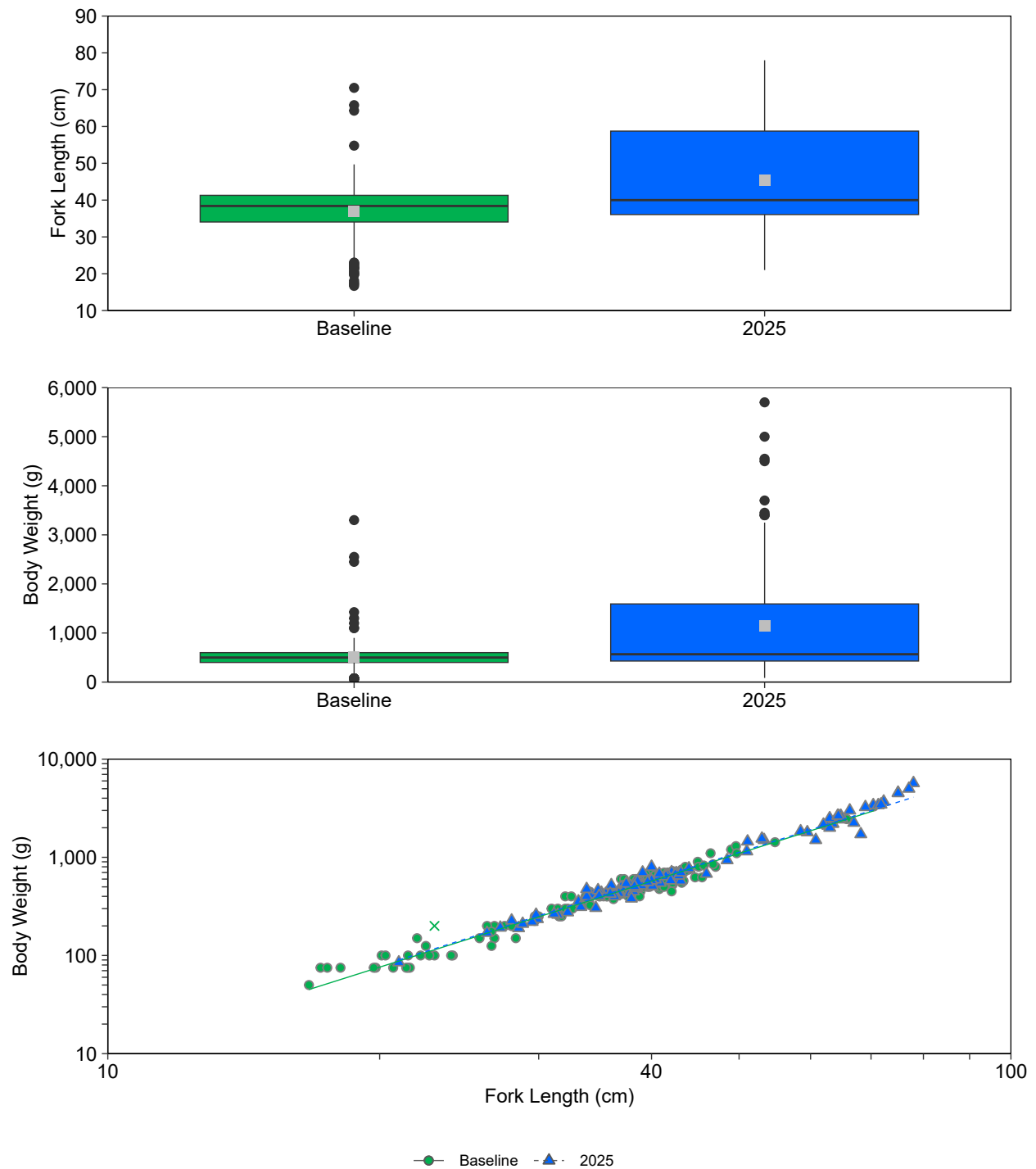


Figure F.19: Comparison of Body Condition (weight-at-fork length) for Arctic Charr Captured by Gill Netting at Mary Lake (BL0) in 2025 and During the Mine Baseline Period (2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Notes: Outliers are marked with an 'X'.

TABLES

Table F.1: Electrofishing Catch Records, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Waterbody	Station ID	Pass No.	Location (NAD83, UTM Zone 17W)				Fishing Date	Electrofisher Settings			Effort (seconds)	Fish Species						Total (all species)	
												Arctic Charr			Ninespine Stickleback				
			Start		Finish			Output Voltage (volts)	Cycle Frequency (Hz)	Duty Cycle (%)		No. Captured	No. Mortalities / Retained	CPUE ^a	No. Captured	No. Mortalities / Retained	CPUE ^a	Total Catch	CPUE ^a
			Easting	Northing	Easting	Northing													
Reference Lake 3	REF-03-25-EF-1	1	575061	7853065	574897	7853081	10-Aug-25	525	30	12	4,480	89	10	1.19	6	0	0.08	95	1.27
	REF-03-25-EF-2	1	575061	7853065	574763	7853055	11-Aug-25	525	30	12	508	12	0	1.42	0	0	0	12	1.42
Camp Lake	JL0-25-EF-1	1	557791	7914647	557808	7914597	31-Jul-25	500	28	14	1,188	103	10	5.20	0	0	0	103	5.20
	JL0-25-EF-1	2	557706	7914460	557808	7914595	31-Jul-25	500	45	18	1,411	0	0	0.00	10	0	0.43	10	0.43
	JL0-25-EF-1	3	557791	7914647	557800	7914628	31-Jul-25	500	28	14	253	13	1	3.08	0	0	0	13	3.08
Sheardown Lake Northwest	DL0-01-25-EF-1	1	560323	7913470	560379	7913386	31-Jul-25	500	25	12	980	47	2	2.88	0	0	0	47	2.88
	DL0-01-25-EF-1	2	560323	7913470	560379	7913386	31-Jul-25	500	25	12	865	53	8	3.68	0	0	0	53	3.68
Sheardown Lake Southeast	DL0-02-25-EF-1	1	560713	7912316	560758	7912319	8-Aug-25	350	30	12	1,740	100	12	3.45	4	0	0.14	104	3.59
Mary Lake	BL0-25-EF-1	1	555431	7905157	555472	7905064	13-Aug-25	525	30	12	3,393	106	10	1.87	1	0	0.02	107	1.89

Notes: ID = identifier. No. = number. NAD = North American Datum. UTM = Universal Transverse Mercator. Hz = hertz. % = percent. Catch-per-unit-effort (CPUE) represents the number of fish captured per electrofishing minute.

Table F.2: Gill Netting Catch Records for Arctic Charr in Camp Lake (JL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Gill Net Set ID	Location (NAD83, UTM Zone 17N)		Length (m)	Set Date	Lift Date	Set Time	Lift Time	Fishing Hours	Effort (m*hrs/100 m)	Total Catch	Mortalities	CPUE
	Easting	Northing										
JL0-25-GN-01	557746	7914610	91.0	8-Aug-25	8-Aug-25	8:33	9:30	0.95	0.86	27	4	31.2
JL0-25-GN-02	557764	7914502	91.0	8-Aug-25	8-Aug-25	9:00	10:15	1.25	1.14	40	5	35.2
JL0-25-GN-03	557746	7914610	91.0	8-Aug-25	8-Aug-25	10:13	11:18	1.08	0.99	13	1	13.2
JL0-25-GN-04	557764	7914502	91.0	8-Aug-25	8-Aug-25	11:50	12:50	1.00	0.91	20	2	22.0
Total									3.90	100	12	25.7

Notes: ID = identifier. NAD83 = North American Datum of 1983. UTM = Universal Transverse Mercator. m = metres. hrs = hours. Catch-per-unit-effort (CPUE) represents the number of fish captured per 100 m·hours of net.

Table F.3: Gill Netting Catch Records for Arctic Charr in Reference Lake 3 (REF-03), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Gill Net Set ID	Location (NAD83, UTM Zone 17N)		Length (m)	Set Date	Lift Date	Set Time	Lift Time	Fishing Hours	Effort (m*hrs/100 m)	Total Catch	Mortalities	CPUE
	Easting	Northing										
REF-03-25-GN-01	574459	7852367	91.0	10-Aug-25	10-Aug-25	11:46	12:10	0.40	0.36	5	0	13.74
REF-03-25-GN-02	574547	7853037	91.0	10-Aug-25	10-Aug-25	12:30	13:30	1.00	0.91	0	0	0
REF-03-25-GN-03	574258	7852452	91.0	10-Aug-25	10-Aug-25	13:35	14:40	1.08	0.99	3	0	3.04
REF-03-25-GN-04	574897	7852944	91.0	10-Aug-25	10-Aug-25	13:50	14:50	1.00	0.91	2	0	2.20
REF-03-25-GN-05	574459	7852367	91.0	10-Aug-25	10-Aug-25	14:55	15:50	0.92	0.83	4	1	4.80
REF-03-25-GN-06	574338	7852240	91.0	12-Aug-25	12-Aug-25	13:04	14:00	0.93	0.85	0	0	0
REF-03-25-GN-07	574206	7852426	91.0	12-Aug-25	12-Aug-25	13:10	14:12	1.03	0.94	3	1	3.19
REF-03-25-GN-08	574272	7852740	91.0	12-Aug-25	12-Aug-25	14:47	15:47	1.00	0.91	1	0	1.10
REF-03-25-GN-09	574056	7852194	91.0	12-Aug-25	12-Aug-25	14:30	15:35	1.08	0.99	1	0	1.01
REF-03-25-GN-10	573944	7852762	91.0	16-Aug-25	16-Aug-25	9:53	10:46	0.88	0.80	1	1	1.24
REF-03-25-GN-11	574125	7852762	91.0	16-Aug-25	16-Aug-25	10:02	11:04	1.03	0.94	0	0	0
REF-03-25-GN-12	574317	7852441	91.0	16-Aug-25	16-Aug-25	11:12	12:22	1.17	1.06	0	0	0
REF-03-25-GN-13A	574446	7852428	91.0	16-Aug-25	16-Aug-25	11:20	12:38	1.30	1.18	1	1	0.85
REF-03-25-GN-13B	574446	7852428	91.0	16-Aug-25	16-Aug-25	12:45	13:44	0.98	0.89	0	0	0
REF-03-25-GN-14	574397	7352253	91.0	16-Aug-25	16-Aug-25	12:15	13:55	1.67	1.52	0	0	0
REF-03-25-GN-15	574440	7852808	91.0	16-Aug-25	16-Aug-25	14:06	14:59	0.88	0.80	3	0	3.73
REF-03-25-GN-16	574451	7852903	91.0	16-Aug-25	16-Aug-25	14:17	15:21	1.07	0.97	0	0	0
REF-03-25-GN-17	574440	7852717	91.0	17-Aug-25	17-Aug-25	9:13	10:17	1.07	0.97	1	0	1.03
REF-03-25-GN-18	574317	7852693	91.0	17-Aug-25	17-Aug-25	9:20	10:34	1.23	1.12	2	1	1.78
REF-03-25-GN-19	574502	7853366	91.0	17-Aug-25	17-Aug-25	10:54	12:07	1.22	1.11	0	0	0
REF-03-25-GN-20	574429	7853596	91.0	17-Aug-25	17-Aug-25	11:00	12:22	1.37	1.24	1	0	0.80
REF-03-25-GN-21	575845	7852776	91.0	17-Aug-25	17-Aug-25	12:38	13:59	1.35	1.23	2	0	1.63
REF-03-25-GN-22	575967	7852542	91.0	17-Aug-25	17-Aug-25	12:44	14:10	1.43	1.30	2	1	1.53
REF-03-25-GN-23	575845	7852776	91.0	17-Aug-25	17-Aug-25	14:04	15:20	1.27	1.15	0	0	0
REF-03-25-GN-24	575967	7852542	91.0	17-Aug-25	17-Aug-25	14:15	15:46	1.52	1.38	1	0	0.72
REF-03-25-GN-25	575835	7852583	91.0	18-Aug-25	18-Aug-25	10:17	11:20	1.05	0.96	0	0	0
REF-03-25-GN-26	575835	7852583	91.0	18-Aug-25	18-Aug-25	10:22	11:46	1.40	1.27	0	0	0
REF-03-25-GN-27	575766	7852598	91.0	18-Aug-25	18-Aug-25	11:29	12:50	1.35	1.23	2	0	1.63
REF-03-25-GN-28	575752	7852685	91.0	18-Aug-25	18-Aug-25	11:50	13:02	1.20	1.09	0	0	0
REF-03-25-GN-29	575766	7852598	91.0	18-Aug-25	18-Aug-25	12:54	14:06	1.20	1.09	0	0	0
REF-03-25-GN-30	575609	7852605	91.0	18-Aug-25	18-Aug-25	13:10	14:27	1.28	1.17	0	0	0
REF-03-25-GN-31	575684	7852771	91.0	18-Aug-25	18-Aug-25	14:13	15:28	1.25	1.14	0	0	0
REF-03-25-GN-32	575584	7852606	91.0	18-Aug-25	18-Aug-25	14:35	15:39	1.07	0.97	0	0	0
REF-03-25-GN-33	576088	7852469	91.0	19-Aug-25	19-Aug-25	9:20	10:25	1.08	0.99	0	0	0
REF-03-25-GN-34	576123	7852474	91.0	19-Aug-25	19-Aug-25	9:30	10:32	1.03	0.94	0	0	0
REF-03-25-GN-35	576088	7852469	91.0	19-Aug-25	19-Aug-25	10:30	11:35	1.08	0.99	0	0	0
REF-03-25-GN-36	576123	7852474	91.0	19-Aug-25	19-Aug-25	10:35	11:50	1.25	1.14	0	0	0
REF-03-25-GN-37	574390	7852452	91.0	19-Aug-25	19-Aug-25	12:05	13:15	1.17	1.06	2	0	1.88
REF-03-25-GN-38	574310	7852374	91.0	19-Aug-25	19-Aug-25	12:15	13:25	1.17	1.06	0	0	0
REF-03-25-GN-39	574390	7852452	91.0	19-Aug-25	19-Aug-25	13:30	14:30	1.00	0.91	1	0	1.10
REF-03-25-GN-40	574374	7852308	91.0	19-Aug-25	19-Aug-25	13:35	14:45	1.17	1.06	4	0	3.77
REF-03-25-GN-A	575604	7852852	91.0	16-Aug-25	16-Aug-25	9:50	11:05	1.25	1.14	0	0	0
REF-03-25-GN-B	575850	7852759	91.0	16-Aug-25	16-Aug-25	10:05	11:20	1.25	1.14	0	0	0
REF-03-25-GN-C	575612	7852514	91.0	16-Aug-25	16-Aug-25	11:10	12:20	1.17	1.06	0	0	0
REF-03-25-GN-D	576122	7852460	91.0	16-Aug-25	16-Aug-25	11:25	12:35	1.17	1.06	0	0	0
REF-03-25-GN-E	574069	7852320	91.0	16-Aug-25	16-Aug-25	12:55	14:15	1.33	1.21	3	0	2.47
REF-03-25-GN-F	574325	7852481	91.0	16-Aug-25	16-Aug-25	13:00	14:25	1.42	1.29	0	0	0
REF-03-25-GN-G	574069	7852320	91.0	16-Aug-25	16-Aug-25	14:17	15:30	1.22	1.11	0	0	0
REF-03-25-GN-H	574069	7852320	91.0	16-Aug-25	16-Aug-25	14:40	15:45	1.08	0.99	2	0	2.03
REF-03-25-GN-I	574906	7852907	91.0	17-Aug-25	17-Aug-25	9:15	10:30	1.25	1.14	0	0	0
REF-03-25-GN-J	574792	7852554	91.0	17-Aug-25	17-Aug-25	9:30	10:45	1.25	1.14	0	0	0
REF-03-25-GN-K	574515	7852313	91.0	17-Aug-25	17-Aug-25	10:55	12:15	1.33	1.21	0	0	0
REF-03-25-GN-L	574143	7852323	91.0	17-Aug-25	17-Aug-25	11:10	12:30	1.33	1.21	0	0	0
REF-03-25-GN-M	574428	7853374	91.0	17-Aug-25	17-Aug-25	12:45	14:00	1.25	1.14	0	0	0
REF-03-25-GN-N	574334	7853523	91.0	17-Aug-25	17-Aug-25	12:55	14:15	1.33	1.21	0	0	0
REF-03-25-GN-O	575560	7852772	91.0	17-Aug-25	17-Aug-25	14:35	15:42	1.12	1.02	1	0	0.98
REF-03-25-GN-P	575378	7852789	91.0	17-Aug-25	17-Aug-25	14:50	15:45	0.92	0.83	1	0	1.20
REF-03-25-GN-Q	576092	7852451	91.0	18-Aug-25	18-Aug-25	9:45	10:50	1.08	0.99	2	1	2.03
REF-03-25-GN-R	576053	7852526	91.0	18-Aug-25	18-Aug-25	9:58	11:08	1.17	1.06	1	0	0.94
REF-03-25-GN-S	576092	7852451	91.0	18-Aug-25	18-Aug-25	11:07	12:10	1.05	0.96	2	0	2.09
REF-03-25-GN-T	576017	7852593	91.0	18-Aug-25	18-Aug-25	11:22	12:28	1.10	1.00	0	0	0
REF-03-25-GN-U	576092	7852451	91.0	18-Aug-25	18-Aug-25	12:25	13:30	1.08	0.99	0	0	0
REF-03-25-GN-V	575902	7852650	91.0	18-Aug-25	18-Aug-25	12:40	13:42	1.03	0.94	0	0	0
REF-03-25-GN-W	575669	7852497	91.0	18-Aug-25	18-Aug-25	13:52	14:58	1.10	1.00	0	0	0
REF-03-25-GN-X	575849	7852797	91.0	18-Aug-25	18-Aug-25	13:58	15:12	1.23	1.12	0	0	0
REF-03-25-GN-Y	574898	7852982	91.0	18-Aug-25	18-Aug-25	15:25	15:53	0.47	0.42	0	0	0.0
Total									35.28	54	7	1.53

Notes: ID = identifier. NAD83 = North American Datum of 1983. UTM = Universal Transverse Mercator. m = metres. hrs = hours. Catch-per-unit-effort (CPUE) represents the number of fish captured per 100 m·hours of net.

Table F.4: Measurements from Arctic Charr Captured at Camp Lake (JL0) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
JL0-25-ACJ-01	9.8	10.2	7.097	-	0.754
JL0-25-ACJ-02	10.5	11.2	10.805	3	0.933
JL0-25-ACJ-03	10.0	10.7	9.175	2	0.918
JL0-25-ACJ-04	3.6	3.8	0.081	-	0.174
JL0-25-ACJ-05	12.1	12.5	13.543	-	0.764
JL0-25-ACJ-06	12.9	13.7	15.467	-	0.721
JL0-25-ACJ-07	8.8	9.2	5.686	-	0.834
JL0-25-ACJ-08	9.5	10.0	6.534	-	0.762
JL0-25-ACJ-09	8.8	9.9	5.743	-	0.843
JL0-25-ACJ-10	7.2	7.4	3.242	-	0.869
JL0-25-ACJ-11	6.9	7.3	2.973	-	0.905
JL0-25-ACJ-12	11.8	12.2	13.374	-	0.814
JL0-25-ACJ-13	6.3	6.4	2.400	-	0.960
JL0-25-ACJ-14	16.4	16.7	2.206	1	0.050
JL0-25-ACJ-15	6.4	6.8	2.098	1	0.800
JL0-25-ACJ-16	5.1	5.3	1.156	0	0.871
JL0-25-ACJ-17	4.9	5.1	0.856	1	0.728
JL0-25-ACJ-18	7.4	7.9	3.260	2	0.804
JL0-25-ACJ-19	5.4	6.2	1.159	1	0.736
JL0-25-ACJ-20	6.4	6.6	2.453	-	0.936
JL0-25-ACJ-21	8.5	8.9	4.463	-	0.727
JL0-25-ACJ-22	7.3	7.4	2.740	-	0.704
JL0-25-ACJ-23	10.1	10.3	10.037	-	0.974
JL0-25-ACJ-24	12.0	12.4	12.874	-	0.745
JL0-25-ACJ-25	8.3	8.7	4.873	1	0.852
JL0-25-ACJ-26	5.8	6.2	1.809	0	0.927
JL0-25-ACJ-27	12.9	14.0	17.535	-	0.817
JL0-25-ACJ-28	8.3	8.6	5.014	-	0.877
JL0-25-ACJ-29	6.0	6.3	2.121	-	0.982
JL0-25-ACJ-30	6.8	7.1	2.824	-	0.898
JL0-25-ACJ-31	8.0	8.5	4.280	-	0.836
JL0-25-ACJ-32	7.9	8.3	4.238	-	0.860
JL0-25-ACJ-33	12.8	13.9	14.539	-	0.693
JL0-25-ACJ-34	12.8	13.1	11.575	-	0.552
JL0-25-ACJ-35	9.9	10.5	7.957	-	0.820
JL0-25-ACJ-36	14.7	15.7	26.981	-	0.849
JL0-25-ACJ-37	7.6	8.0	4.093	-	0.932
JL0-25-ACJ-38	7.6	8.1	4.115	-	0.937
JL0-25-ACJ-39	11.6	12.4	12.747	-	0.817
JL0-25-ACJ-40	10.0	19.5	7.092	-	0.709
JL0-25-ACJ-41	10.0	10.6	7.933	-	0.793
JL0-25-ACJ-42	11.0	11.8	17.113	-	1.286
JL0-25-ACJ-43	7.9	8.4	4.068	-	0.825
JL0-25-ACJ-44	10.1	10.7	8.501	-	0.825
JL0-25-ACJ-45	9.5	10.1	7.145	-	0.833
JL0-25-ACJ-46	6.8	7.1	2.667	-	0.848
JL0-25-ACJ-47	14.7	15.9	31.500	-	0.992
JL0-25-ACJ-48	12.0	13.0	15.442	-	0.894
JL0-25-ACJ-49	6.1	6.4	2.492	-	1.098
JL0-25-ACJ-50	14.2	15.5	23.036	-	0.805
JL0-25-ACJ-51	9.5	10.2	7.535	-	0.879
JL0-25-ACJ-52	13.6	14.8	20.350	3	0.809
JL0-25-ACJ-53	8.0	8.5	4.091	-	0.799
JL0-25-ACJ-54	7.8	8.2	3.814	-	0.804
JL0-25-ACJ-55	9.3	9.8	6.734	-	0.837
JL0-25-ACJ-56	10.4	11.2	10.190	-	0.906
JL0-25-ACJ-57	12.5	13.4	18.600	-	0.952
JL0-25-ACJ-58	9.3	9.4	6.620	-	0.823
JL0-25-ACJ-59	12.8	13.9	17.617	-	0.840
JL0-25-ACJ-60	7.3	7.7	3.399	-	0.874

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.4: Measurements from Arctic Charr Captured at Camp Lake (JL0) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID		Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
JL0-25-ACJ-61		10.6	11.4	9.784	-	0.821
JL0-25-ACJ-62		7.3	7.7	3.635	-	0.934
JL0-25-ACJ-63		7.2	7.6	3.315	-	0.888
JL0-25-ACJ-64		8.0	8.5	4.522	-	0.883
JL0-25-ACJ-65		7.6	8.2	3.336	-	0.760
JL0-25-ACJ-66		8.7	9.0	4.644	-	0.705
JL0-25-ACJ-67		10.0	10.7	8.644	-	0.864
JL0-25-ACJ-68		10.5	11.4	9.536	-	0.824
JL0-25-ACJ-69		8.6	9.1	4.617	-	0.726
JL0-25-ACJ-70		7.6	8.1	4.432	-	1.010
JL0-25-ACJ-71		11.2	12.3	11.602	-	0.826
JL0-25-ACJ-72		9.7	9.9	7.175	-	0.786
JL0-25-ACJ-73		11.4	12.3	12.235	-	0.826
JL0-25-ACJ-74		9.4	10.0	6.225	-	0.749
JL0-25-ACJ-75		9.6	10.2	6.882	-	0.778
JL0-25-ACJ-76		9.0	9.5	6.019	-	0.826
JL0-25-ACJ-77		7.5	8.0	5.023	-	1.191
JL0-25-ACJ-79		8.0	8.5	4.072	-	0.795
JL0-25-ACJ-80		9.9	10.7	7.882	-	0.812
JL0-25-ACJ-81		8.8	9.3	6.174	-	0.906
JL0-25-ACJ-82		10.9	11.8	10.133	-	0.782
JL0-25-ACJ-83		11.2	12.1	10.933	-	0.778
JL0-25-ACJ-84		6.3	6.6	2.225	-	0.890
JL0-25-ACJ-85		6.8	7.2	2.861	-	0.910
JL0-25-ACJ-86		9.5	10.2	6.716	-	0.783
JL0-25-ACJ-87		8.1	8.6	4.288	-	0.807
JL0-25-ACJ-88		9.8	10.5	8.833	-	0.938
JL0-25-ACJ-89		8.5	9.0	5.883	-	0.958
JL0-25-ACJ-90		8.1	8.5	4.950	-	0.931
JL0-25-ACJ-91		6.6	7.0	2.393	-	0.832
JL0-25-ACJ-92		10.0	10.7	8.652	-	0.865
JL0-25-ACJ-93		8.0	8.5	4.702	-	0.918
JL0-25-ACJ-94		7.5	8.0	4.215	-	0.999
JL0-25-ACJ-95		8.6	9.3	5.684	-	0.894
JL0-25-ACJ-96		5.4	5.7	1.545	-	0.981
JL0-25-ACJ-97		6.9	7.5	3.519	-	1.071
JL0-25-ACJ-98		7.4	7.8	3.038	-	0.750
JL0-25-ACJ-99		7.4	7.8	3.819	-	0.942
JL0-25-ACJ-100		5.7	6.0	1.657	-	0.895
Overall Catch Summary	Sample Size (N)	99	99	99	11	99
	Mean	9.0	9.7	7.231	1.4	0.841
	Median	8.7	9.2	5.684	1.0	0.836
	Standard Deviation	2.4	2.8	5.685	1.027	0.147
	Standard Error	0.24	0.28	0.571	0.3	0.015
	Minimum	3.6	3.8	0.081	0	0.050
	Maximum	16.4	19.5	31.500	3	1.286
Young-of-the-Year Catch Summary	Proportion of YOY	2%				
	Sample Size (N)	2	2	2	-	2
	Mean	4.3	4.5	0.469	-	0.451
	Median	4.3	4.5	0.469	-	0.451
	Standard Deviation	0.9	0.9	0.548	-	0.392
	Standard Error	0.7	0.7	0.388	-	0.277
	Minimum	3.6	3.8	0.081	-	0.174
	Maximum	4.9	5.1	0.856	-	0.728

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.5: Measurements from Arctic Charr Captured at Reference Lake 3 (REF-03) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
REF-03-25-ACJ-01	6.3	6.7	2.643	-	1.057
REF-03-25-ACJ-02	6.5	6.8	2.098	-	0.764
REF-03-25-ACJ-03	5.8	6.1	1.685	-	0.864
REF-03-25-ACJ-04	5.0	5.4	1.144	-	0.915
REF-03-25-ACJ-05	8.3	8.9	6.845	2	1.197
REF-03-25-ACJ-06	7.6	8.0	4.210	2	0.959
REF-03-25-ACJ-07	6.6	7.9	2.188	1	0.761
REF-03-25-ACJ-08	7.5	8.0	3.845		0.911
REF-03-25-ACJ-09	5.4	6.1	1.741	1	1.106
REF-03-25-ACJ-10	4.0	4.2	0.498	1	0.778
REF-03-25-ACJ-11	12.5	13.5	15.300	6	0.783
REF-03-25-ACJ-12	5.5	5.8	1.218	-	0.732
REF-03-25-ACJ-13	8.4	8.9	5.755	-	0.971
REF-03-25-ACJ-14	6.5	6.7	1.884	-	0.686
REF-03-25-ACJ-15	6.0	6.3	1.801	-	0.834
REF-03-25-ACJ-16	6.0	6.4	1.802	-	0.834
REF-03-25-ACJ-17	7.2	7.7	3.562	-	0.954
REF-03-25-ACJ-18	5.1	5.3	1.130	-	0.852
REF-03-25-ACJ-19	6.4	6.7	1.992	-	0.760
REF-03-25-ACJ-20	6.1	6.5	2.130	-	0.938
REF-03-25-ACJ-21	8.0	8.5	5.500	2	1.074
REF-03-25-ACJ-22	3.0	3.3	0.298	3	1.104
REF-03-25-ACJ-23	8.0	8.3	3.981	-	0.778
REF-03-25-ACJ-24	6.1	6.5	2.045	-	0.901
REF-03-25-ACJ-25	6.4	6.8	2.619	-	0.999
REF-03-25-ACJ-26	10.5	11.5	10.536	4	0.910
REF-03-25-ACJ-27	10.7	11.0	8.468	-	0.691
REF-03-25-ACJ-28	8.0	8.6	4.274	-	0.835
REF-03-25-ACJ-29	5.0	5.6	1.427	-	1.142
REF-03-25-ACJ-30	6.6	7.0	2.830	-	0.984
REF-03-25-ACJ-31	7.1	7.5	2.944	-	0.823
REF-03-25-ACJ-32	3.3	3.5	0.100	-	0.276
REF-03-25-ACJ-33	5.6	6.0	1.408	-	0.802
REF-03-25-ACJ-34	7.9	8.4	3.961	-	0.803
REF-03-25-ACJ-35	13.4	14.5	19.352	-	0.804
REF-03-25-ACJ-36	5.5	6.0	1.667	-	1.002
REF-03-25-ACJ-37	5.9	6.2	1.749	-	0.852
REF-03-25-ACJ-38	5.5	5.8	1.480	-	0.890
REF-03-25-ACJ-39	5.3	5.5	1.111	-	0.746
REF-03-25-ACJ-40	5.6	6.0	1.407	-	0.801
REF-03-25-ACJ-41	5.5	6.0	1.513	-	0.909
REF-03-25-ACJ-42	7.2	7.5	3.372	-	0.903
REF-03-25-ACJ-43	7.9	8.5	4.171	-	0.846
REF-03-25-ACJ-44	7.9	8.5	4.765	-	0.966
REF-03-25-ACJ-45	7.5	8.1	3.675	-	0.871
REF-03-25-ACJ-46	5.9	6.3	1.800	-	0.876
REF-03-25-ACJ-47	5.5	6.1	1.702	-	1.023
REF-03-25-ACJ-48	6.3	6.5	2.101	-	0.840
REF-03-25-ACJ-49	5.8	6.1	1.598	-	0.819
REF-03-25-ACJ-50	6.9	7.3	2.772	-	0.844
REF-03-25-ACJ-51	6.3	7.1	1.994	1	0.797
REF-03-25-ACJ-52	7.0	7.6	3.097	-	0.903
REF-03-25-ACJ-53	6.0	6.4	1.664	-	0.770
REF-03-25-ACJ-54	8.7	9.2	6.497	-	0.987
REF-03-25-ACJ-55	6.1	6.4	2.095	-	0.923
REF-03-25-ACJ-56	6.2	6.4	2.138	-	0.897
REF-03-25-ACJ-57	5.2	5.5	1.234	-	0.878
REF-03-25-ACJ-58	3.4	3.6	0.409	-	1.041
REF-03-25-ACJ-59	6.1	6.5	2.075	-	0.914
REF-03-25-ACJ-60	2.8	3.0	0.237	-	1.080

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.5: Measurements from Arctic Charr Captured at Reference Lake 3 (REF-03) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID		Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
REF-03-25-ACJ-61		5.6	6.0	2.506	-	1.427
REF-03-25-ACJ-62		5.4	5.6	1.303	-	0.827
REF-03-25-ACJ-63		2.8	3.1	0.059	-	0.269
REF-03-25-ACJ-64		5.1	5.5	1.140	-	0.859
REF-03-25-ACJ-65		5.1	5.8	1.171	-	0.883
REF-03-25-ACJ-66		7.6	8.0	3.448	-	0.785
REF-03-25-ACJ-67		5.4	5.7	1.216	-	0.772
REF-03-25-ACJ-68		5.5	5.9	1.508	-	0.906
REF-03-25-ACJ-69		5.8	6.1	1.624	-	0.832
REF-03-25-ACJ-70		6.5	7.0	2.448	-	0.891
REF-03-25-ACJ-71		5.5	5.7	1.226	-	0.737
REF-03-25-ACJ-72		4.3	4.3	0.430	-	0.541
REF-03-25-ACJ-73		6.1	6.4	1.703	-	0.750
REF-03-25-ACJ-74		3.6	3.8	0.369	-	0.791
REF-03-25-ACJ-75		6.3	6.6	1.948	-	0.779
REF-03-25-ACJ-76		5.8	6.4	1.709	-	0.876
REF-03-25-ACJ-77		5.5	5.7	1.366	-	0.821
REF-03-25-ACJ-78		3.2	3.4	0.275	-	0.839
REF-03-25-ACJ-79		6.3	6.7	1.891	-	0.756
REF-03-25-ACJ-80		6.2	6.5	1.604	-	0.673
REF-03-25-ACJ-81		6.1	6.5	1.762	-	0.776
REF-03-25-ACJ-82		4.9	5.2	1.029	-	0.875
REF-03-25-ACJ-83		5.7	6.0	1.458	-	0.787
REF-03-25-ACJ-84		5.3	5.5	1.360	-	0.914
REF-03-25-ACJ-85		5.9	6.3	1.520	-	0.740
REF-03-25-ACJ-86		5.2	5.5	1.187	-	0.844
REF-03-25-ACJ-87		5.8	6.0	1.346	-	0.690
REF-03-25-ACJ-88		5.9	6.1	1.306	-	0.636
REF-03-25-ACJ-89		3.3	3.5	0.480	-	1.336
REF-03-25-ACJ-90		5.4	5.7	1.210	-	0.768
REF-03-25-ACJ-91		6.0	6.3	1.780	-	0.824
REF-03-25-ACJ-92		7.9	8.4	3.930	-	0.797
REF-03-25-ACJ-93		5.7	6.0	1.952	-	1.054
REF-03-25-ACJ-94		3.6	3.7	0.277	-	0.594
REF-03-25-ACJ-95		3.9	4.1	0.490	-	0.826
REF-03-25-ACJ-96		3.7	3.9	0.409	-	0.807
REF-03-25-ACJ-97		5.7	5.9	1.377	-	0.744
REF-03-25-ACJ-98		5.4	5.7	1.145	-	0.727
REF-03-25-ACJ-99		5.6	5.9	1.295	-	0.737
REF-03-25-ACJ-100		3.9	4.1	0.417	-	0.703
REF-03-25-ACJ-101		3.5	3.6	0.334	-	0.779
Overall Catch Summary	Sample Size (N)	101	101	101	10	101
	Mean	6.0	6.4	2.421	2.3	0.851
	Median	5.9	6.2	1.703	2	0.835
	Standard Deviation	1.8	1.9	2.745	1.6	0.160
	Standard Error	0.18	0.19	0.273	0.52	0.016
	Minimum	2.8	3.0	0.059	1	0.269
	Maximum	13.4	14.5	19.352	6	1.427
Young-of-the-Year Catch Summary	Proportion of YOY	13%				
	Sample Size (N)	13	13	13	-	13
	Mean	3.4	3.6	0.332	-	0.802
	Median	3.5	3.6	0.352	-	0.799
	Standard Deviation	0.4	0.4	0.136	-	0.295
	Standard Error	0.1	0.1	0.038	-	0.082
	Minimum	2.8	3.0	0.059	-	0.269
	Maximum	4.0	4.2	0.498	-	1.336

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.6: Statistical Comparisons of Health Endpoints for Arctic Charr Caught by Electrofishing at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Group	Indicator	Endpoint	Variables		Lake	Sample Size	Test	ANCOVA Model Statistics			Summary Statistics ^b		Area P-value	Post-hoc Contrasts Exposed versus Reference Lake		
			Response	Covariate				Interaction Model	Parallel Slope Model	Covariate Value for Comparisons ^a				P-Value	MOD (%) ^c	
											Interaction P-value	Covariate P-value				Statistic
All Fish	Survival/ Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	Reference Lake 3	101	K-S	-	-	-	0	-	-	nc		
					Camp Lake	99						-	-	<0.001	63	
					Sheardown Lake Northwest	100						-	-	<0.001	35	
					Sheardown Lake Southeast	100						-	-	<0.001	-39	
					Mary Lake	100						-	-	0.002	26	
Non-YOY	Survival/ Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	Reference Lake 3	88	K-S	-	-	-	0	-	-	nc		
					Camp Lake	97						-	-	<0.001	61	
					Sheardown Lake Northwest	99						-	-	<0.001	34	
					Sheardown Lake Southeast	61						-	-	0.018	-24	
					Mary Lake	93						-	-	0.002	26	
	Body Size	Fork Length	Fork Length (cm)	-	Reference Lake 3	88	K-W	-	-	-	Median	6.00	<0.001	nc		
					Camp Lake	97						8.80		<0.001	47	
					Sheardown Lake Northwest	99						7.40		<0.001	23	
					Sheardown Lake Southeast	61						6.50		0.729	ns	
					Mary Lake	93						6.50		0.009	8.3	
		Body Weight	Body Weight (g)	-	Reference Lake 3	88	K-W	-	-	-	Median	1.80	<0.001	nc		
					Camp Lake	97						5.69		<0.001	216	
					Sheardown Lake Northwest	99						4.09		<0.001	127	
					Sheardown Lake Southeast	61						2.43		0.645	ns	
					Mary Lake	93						2.38		0.019	32	
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	Reference Lake 3	88	ANCOVA	<0.001 ^d	<0.001	7.24	Adjusted Mean	3.16	0.825	nc		
					Camp Lake	97						3.22		ns	ns	
					Sheardown Lake Northwest	99						3.23		ns	ns	
					Sheardown Lake Southeast	61						3.11		ns	ns	
					Mary Lake	93						3.14		ns	ns	
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	Reference Lake 3	86 ^e	ANCOVA	<0.001 ^j	<0.001	7.27	Adjusted Mean	3.22	0.171	nc		
					Camp Lake	96 ^f						3.33		ns	ns	
					Sheardown Lake Northwest	96 ^g						3.28		ns	ns	
					Sheardown Lake Southeast	59 ^h						3.25		ns	ns	
					Mary Lake	91 ⁱ						3.19		ns	ns	
YOY	Survival/ Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	Reference Lake 3	13	K-S	-	-	-	0	-	<0.001	nc		
					Camp Lake	-						-	<0.001	-	-	
					Sheardown Lake Northwest	-						-	<0.001	-	-	
					Sheardown Lake Southeast	39						-	<0.001	<0.001	79	
					Mary Lake	-						-	<0.001	-	-	
	Body Size	Fork Length	Fork Length (cm)	-	Reference Lake 3	13	M-W	-	-	-	Median	3.40	<0.001	nc		
					Camp Lake	-						-		-	-	-
					Sheardown Lake Northwest	-						-		-	-	-
					Sheardown Lake Southeast	39						4.20		<0.001	24	
					Mary Lake	-						-		-	-	-
		Body Weight	Body Weight (g)	-	Reference Lake 3	13	tequal	-	-	-	Mean	0.320	<0.001	nc		
					Camp Lake	-						-		-	-	-
					Sheardown Lake Northwest	-						-		-	-	-
					Sheardown Lake Southeast	39						0.575		<0.001	80	
					Mary Lake	-						-		-	-	-
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	Reference Lake 3	13	ANCOVA	0.587	<0.001	3.93	Adjusted Mean	0.512	0.413	nc		
					Camp Lake	-						-		-	-	-
					Sheardown Lake Northwest	-						-		-	-	-
					Sheardown Lake Southeast	39						0.444		ns	ns	
					Mary Lake	-						-		-	-	-

Area p-value <0.1 or interaction p-value <0.05.

Absolute MOD ≥10% for condition or ≥25% for length-frequency distribution.

Notes: ANCOVA = Analysis of Covariance. MCT = Measure of Central Tendency. MOD = Magnitude of Difference. % = percent. cm = centimetres. - = no data/comparison. K-S = Kolmogorov-Smirnov Test. nc = not calculable. < = less than. YOY = Young-of-the-year. K-W = Kruskal-Wallis Test. g = grams. M-W = Mann-Whitney U Test. tequal = t-test with equal variances. ≥ = greater than or equal to. EEM = Environmental Effects Monitoring. Stdnt resid = Studentized residual.

^a The mean value of the covariate (that corresponds to the adjusted means for the response variable) for the parallel slope ANCOVA model or the minimum and maximum values of the overlap in covariate values for the interaction ANCOVA model.

^b The median, mean (geometric mean for log₁₀-transformed variables), and adjusted mean are reported for Kruskal-Wallis, t-test and ANCOVA, respectively, and the predicted mean values from the regression line equations for minimum and maximum values of the covariate (where the data sets overlap) for ANCOVAs where a significant interaction was detected.

^c For endpoints other than the length-frequency distribution, the MOD is calculated as: [(exposed area mean - reference area mean) / reference area mean] x 100. When there is a significant interaction in the ANCOVA, the MOD is calculated at the minimum and maximum values of overlap in covariate values as : [(exposed area predicted mean - reference area predicted mean) / reference area predicted mean] x 100. For the length-frequency distribution the MOD is calculated as the maximum difference in the cumulative relative frequency distributions (CRFD) between areas. A negative difference implies that the exposed area has a greater number of fish with length measures that are less than where the maximum difference in CRFDs was observed. A positive difference implies that the exposed area has fewer fish with length measures that are less than where the maximum difference in CRFDs was observed.

^d ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9351 and R² of parallel slope model = 0.9317; a difference <0.02) following Environment Canada (2012).

^e Outliers (REF-03-25_ACJ-61_2025-08, Stdnt resid: 4.228; REF-03-25_ACJ-72_2025-08, Stdnt resid: -4.021) removed from analysis

^f Outliers (JLO-25_ACJ-14_2025-07, Stdnt resid: -15.648) removed from analysis

^g Outliers (DLO-01-25_ACJ-100_2025-07, Stdnt resid: -4.087; DLO-01-25_ACJ-098_2025-07, Stdnt resid: -4.087; DLO-01-25_ACJ-47_2025-07, Stdnt resid: 4.056) removed from analysis

^h Outliers (DLO-02-25_ACJ-09_2025-08, Stdnt resid: -10.691; DLO-02-25_ACJ-99_2025-08, Stdnt resid: 4.983) removed from analysis

ⁱ Outliers (BLO-25_ACJ-62_2025-08, Stdnt resid: 4.769; BLO-25_ACJ-72_2025-08, Stdnt resid: -4.529) removed from analysis

^j ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9784 and R² of parallel slope model = 0.9774; a difference < 0.02) following Environment Canada (2012).

Table F.11: Statistical Comparison of Health Endpoints for Arctic Charr Caught by Gill Netting at Mine-exposed Lakes During 2025 and the Baseline Period (2006 to 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Lake	Indicator	Endpoint	Variables		Sample Size		Test	ANCOVA Model Statistics			Summary Statistics ^b			2025 versus Baseline	
			Response	Covariate	Baseline	2025		Interaction Model	Parallel Slope Model	Covariate Value for Comparisons ^a					
								Interaction P-value	Covariate P-value		Statistic	Baseline	2025	Test P-value	MOD (%) ^c
Camp Lake	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	131	100	K-S	-	-	-	-	-	-	<0.001	59
	Body Size	Fork Length	Fork Length (cm)	-	131	100	M-W	-	-	-	Median	32.3	37.2	<0.001	15
		Body Weight	Body Weight (g)	-	131	100	M-W	-	-	-	Median	350	452	<0.001	29
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	131	100	ANCOVA	<0.001 ^d	<0.001	33.5	Adjusted Mean	359	333	0.004	-7.3
Sheardown Lake Northwest	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	98	100	K-S	-	-	-	-	-	-	0.007	-23
	Body Size	Fork Length	Fork Length (cm)	-	98	100	M-W	-	-	-	Median	35.8	33.0	0.001	-7.7
		Body Weight	Body Weight (g)	-	98	100	M-W	-	-	-	Median	400	332	0.002	-17
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	98	100	ANCOVA	0.124	<0.001	33.7	Adjusted Mean	335	353	0.035	5.2
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	98	99 ^e	ANCOVA	0.523	<0.001	33.8	Adjusted Mean	337	352	0.036	4.5
Sheardown Lake Southeast	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	70	100	K-S	-	-	-	-	-	-	<0.001	-44
	Body Size	Fork Length	Fork Length (cm)	-	70	100	M-W	-	-	-	Median	37.4	33.6	<0.001	-9.9
		Body Weight	Body Weight (g)	-	70	100	M-W	-	-	-	Median	500	335	<0.001	-33
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	70	100	ANCOVA	0.003 ^f	<0.001	34.1	Adjusted Mean	390	347	<0.001	-11
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	70	99 ^g	ANCOVA	0.011 ^h	<0.001	34.2	Adjusted Mean	391	347	<0.001	-11
Mary Lake	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	183	100	K-S	-	-	-	-	-	-	<0.001	28
	Body Size	Fork Length	Fork Length (cm)	-	183	100	M-W	-	-	-	Median	38.4	40.0	<0.001	4.2
		Body Weight	Body Weight (g)	-	183	100	M-W	-	-	-	Median	500	568	<0.001	14
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	183	100	ANCOVA	0.002 ⁱ	<0.001	38.4	Adjusted Mean	508	520	0.214	ns
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	182 ^j	100	ANCOVA	0.002 ^k	<0.001	38.4	Adjusted Mean	509	521	0.191	ns

Year p-value <0.1 or Interaction p-value <0.05.

Absolute MOD ≥10% for condition or ≥25% for length-frequency distribution.

Notes: ANCOVA = Analysis of Covariance. MOD = Magnitude of Difference. % = percent. cm = centimetres. - = no data/comparison. K-S = Kolmogorov-Smirnov Test. < = less than. M-W = Mann-Whitney U Test. g = grams. ns = not significant. ≥ = greater than or equal to. EEM = Environmental Effects Monitoring.Stdnt resid = Studentized residual.

^a The mean value of the covariate (that corresponds to the adjusted means for the response variable) for the parallel slope ANCOVA model or the minimum and maximum values of the overlap in covariate values for the interaction ANCOVA model.

^b The median, mean (geometric mean for log₁₀-transformed variables), and adjusted mean are reported for Mann-Whitney, t-test and ANCOVA, respectively, and the predicted mean values from the regression line equations for minimum and maximum values of the covariate (where the data sets overlap) for ANCOVAs where a significant interaction was detected.

^c For endpoint other than the length-frequency distribution, the MOD is calculated as: [(current year mean - baseline year mean) / baseline year mean] x 100. When there is a significant interaction in the ANCOVA, the MOD is calculated at the minimum and maximum values of overlap in covariate values as : [(current year predicted mean - baseline year predicted mean) / baseline year predicted mean] x 100. For the length-frequency distribution the MOD is calculated as the maximum difference in the cumulative relative frequency distributions (CRFD) between areas. A negative difference implies that the exposed area has a greater number of fish with length measures that are less than where the maximum difference in CRFDs was observed. A positive difference implies that the exposed area has fewer fish with length measures that are less than where the maximum difference in CRFDs was observed.

^d ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9389 and R² of parallel slope model = 0.9307; a difference <0.02) following Environment Canada (2012).

^e Outliers (DLO-01-25_ACC-70_2025-08, Stdnt resid: 7.766) removed from analysis.

^f ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9258 and R² of parallel slope model = 0.9219; a difference <0.02) following Environment Canada (2012).

^g Outliers (DLO-02-25_ACC-63_2025-08 Stdnt resid:4.54) removed from analysis.

^h ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9338 and R² of parallel slope model = 0.9311; a difference <0.02) following Environment Canada (2012).

ⁱ ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9716 and R² of parallel slope model = 0.9705; a difference <0.02) following Environment Canada (2012).

^j Outliers (MLS-06-AC-11, Stdnt resid: 4.007) removed from analysis.

^k ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9716 and R² of parallel slope model = 0.9705; a difference <0.02) following Environment Canada (2012).

Table F.8: Measurements from Arctic Charr Captured at Camp Lake (JL0) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities / Comments	Fulton's Condition Factor (K) ^a
JL0-25-AC-01	JL0-25_GN-1_2025-08	3	40.6	43.5	525	-	0.784
JL0-25-AC-02	JL0-25_GN-1_2025-08	3	38.6	41.9	450	-	0.782
JL0-25-AC-03	JL0-25_GN-1_2025-08	3	38.0	41.4	435	-	0.793
JL0-25-AC-04	JL0-25_GN-1_2025-08	3	40.4	43.6	520	-	0.789
JL0-25-AC-05	JL0-25_GN-1_2025-08	3	35.4	38.6	440	-	0.992
JL0-25-AC-06	JL0-25_GN-1_2025-08	3	38.0	41.9	490	-	0.893
JL0-25-AC-07	JL0-25_GN-1_2025-08	3	41.7	45.6	550	-	0.758
JL0-25-AC-08	JL0-25_GN-1_2025-08	2	33.0	35.9	335	-	0.932
JL0-25-AC-09	JL0-25_GN-1_2025-08	2	37.4	40.3	495	-	0.946
JL0-25-AC-10	JL0-25_GN-1_2025-08	2	33.9	36.5	400	-	1.027
JL0-25-AC-11	JL0-25_GN-1_2025-08	2	36.8	39.3	445	-	0.893
JL0-25-AC-12	JL0-25_GN-1_2025-08	2	37.1	40.0	485	-	0.950
JL0-25-AC-13	JL0-25_GN-1_2025-08	2	34.3	36.7	410	-	1.016
JL0-25-AC-14	JL0-25_GN-1_2025-08	2	34.3	37.7	415	-	1.028
JL0-25-AC-15	JL0-25_GN-1_2025-08	2	38.9	41.4	555	-	0.943
JL0-25-AC-16	JL0-25_GN-1_2025-08	2	41.5	45.0	750	-	1.049
JL0-25-AC-17	JL0-25_GN-1_2025-08	2	39.0	40.6	310	-	0.523
JL0-25-AC-18	JL0-25_GN-1_2025-08	2	34.6	37.0	410	-	0.990
JL0-25-AC-19	JL0-25_GN-1_2025-08	2	36.1	38.5	400	-	0.850
JL0-25-AC-20	JL0-25_GN-1_2025-08	2	33.6	36.2	380	-	1.002
JL0-25-AC-21	JL0-25_GN-1_2025-08	1.5	41.0	44.3	620	-	0.900
JL0-25-AC-22	JL0-25_GN-1_2025-08	1.5	35.3	38.1	380	-	0.864
JL0-25-AC-23	JL0-25_GN-1_2025-08	1.5	37.0	41.3	460	-	0.908
JL0-25-AC-24	JL0-25_GN-1_2025-08	1.5	35.7	38.1	485	-	1.066
JL0-25-AC-25	JL0-25_GN-1_2025-08	1.5	39.9	43.1	555	-	0.874
JL0-25-AC-26	JL0-25_GN-1_2025-08	1.5	35.1	35.5	425	-	0.983
JL0-25-AC-27	JL0-25_GN-1_2025-08	1.5	39.4	41.6	420	-	0.687
JL0-25-AC-28	JL0-25_GN-2_2025-08	3	41.2	45.1	535	-	0.765
JL0-25-AC-29	JL0-25_GN-2_2025-08	3	39.4	42.1	410	-	0.670
JL0-25-AC-30	JL0-25_GN-2_2025-08	3	38.0	40.6	490	-	0.893
JL0-25-AC-31	JL0-25_GN-2_2025-08	3	37.0	39.9	390	-	0.770
JL0-25-AC-32	JL0-25_GN-2_2025-08	3	37.6	40.0	405	-	0.762
JL0-25-AC-33	JL0-25_GN-2_2025-08	3	38.5	41.0	540	-	0.946
JL0-25-AC-34	JL0-25_GN-2_2025-08	3	40.4	43.4	565	-	0.857
JL0-25-AC-35	JL0-25_GN-2_2025-08	3	36.6	38.5	475	-	0.969
JL0-25-AC-36	JL0-25_GN-2_2025-08	3	34.2	36.5	420	-	1.050
JL0-25-AC-37	JL0-25_GN-2_2025-08	3	41.3	44.0	510	-	0.724
JL0-25-AC-38	JL0-25_GN-2_2025-08	3	47.5	55.0	505	-	0.471
JL0-25-AC-39	JL0-25_GN-2_2025-08	3	41.6	43.9	450	-	0.625
JL0-25-AC-40	JL0-25_GN-2_2025-08	3	39.9	43.0	490	-	0.771
JL0-25-AC-41	JL0-25_GN-2_2025-08	3	37.5	40.4	545	-	1.033
JL0-25-AC-42	JL0-25_GN-2_2025-08	3	36.7	39.3	450	-	0.910
JL0-25-AC-43	JL0-25_GN-2_2025-08	3	37.3	40.9	465	-	0.896
JL0-25-AC-44	JL0-25_GN-2_2025-08	3	39.1	42.0	485	-	0.811
JL0-25-AC-45	JL0-25_GN-2_2025-08	2	40.1	43.2	610	-	0.946
JL0-25-AC-46	JL0-25_GN-2_2025-08	2	36.5	39.3	445	-	0.915
JL0-25-AC-47	JL0-25_GN-2_2025-08	2	35.8	38.5	440	-	0.959
JL0-25-AC-48	JL0-25_GN-2_2025-08	2	36.2	39.1	330	-	0.696
JL0-25-AC-49	JL0-25_GN-2_2025-08	2	42.0	45.9	675	-	0.911
JL0-25-AC-50	JL0-25_GN-2_2025-08	2	37.8	41.2	505	-	0.935
JL0-25-AC-51	JL0-25_GN-2_2025-08	2	40.4	44.0	510	-	0.773
JL0-25-AC-52	JL0-25_GN-2_2025-08	2	37.5	40.3	470	-	0.891
JL0-25-AC-53	JL0-25_GN-2_2025-08	2	67.9	70.9	1,600	-	0.511
JL0-25-AC-54	JL0-25_GN-2_2025-08	2	36.0	38.8	525	-	1.125
JL0-25-AC-55	JL0-25_GN-2_2025-08	2	34.6	37.3	350	-	0.845
JL0-25-AC-56	JL0-25_GN-2_2025-08	2	36.7	39.4	445	-	0.900
JL0-25-AC-57	JL0-25_GN-2_2025-08	2	32.9	35.0	330	-	0.927
JL0-25-AC-58	JL0-25_GN-2_2025-08	2	34.9	37.5	455	-	1.070
JL0-25-AC-59	JL0-25_GN-2_2025-08	2	36.5	39.2	400	-	0.823
JL0-25-AC-60	JL0-25_GN-2_2025-08	1.5	36.0	38.5	430	-	0.922
JL0-25-AC-61	JL0-25_GN-2_2025-08	1.5	34.4	35.8	395	-	0.970
JL0-25-AC-62	JL0-25_GN-2_2025-08	1.5	33.9	35.9	370	-	0.950
JL0-25-AC-63	JL0-25_GN-2_2025-08	1.5	41.0	44.7	570	-	0.827
JL0-25-AC-64	JL0-25_GN-2_2025-08	1.5	31.9	33.9	310	-	0.955
JL0-25-AC-65	JL0-25_GN-2_2025-08	1.5	36.3	39.5	440	-	0.920
JL0-25-AC-66	JL0-25_GN-2_2025-08	1.5	40.7	43.4	560	-	0.831
JL0-25-AC-67	JL0-25_GN-2_2025-08	1.5	30.0	32.3	290	-	1.074
JL0-25-AC-68	JL0-25_GN-3_2025-08	3	38.6	41.7	510	-	0.887
JL0-25-AC-69	JL0-25_GN-3_2025-08	3	35.3	38.1	485	-	1.103

Notes: ID = identifier. cm = centimetres. g = grams. - = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.8: Measurements from Arctic Charr Captured at Camp Lake (JL0) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities / Comments	Fulton's Condition Factor (K) ^a
JL0-25-AC-70	JL0-25_GN-3_2025-08	3	37.4	40.1	415	-	0.793
JL0-25-AC-71	JL0-25_GN-3_2025-08	3	41.8	44.4	555	-	0.760
JL0-25-AC-72	JL0-25_GN-3_2025-08	2	37.7	40.6	470	-	0.877
JL0-25-AC-73	JL0-25_GN-3_2025-08	2	52.4	56.1	1,300	-	0.904
JL0-25-AC-74	JL0-25_GN-3_2025-08	2	34.0	36.4	400	-	1.018
JL0-25-AC-75	JL0-25_GN-3_2025-08	2	34.2	37.3	370	-	0.925
JL0-25-AC-76	JL0-25_GN-3_2025-08	1.5	37.9	39.8	450	-	0.827
JL0-25-AC-77	JL0-25_GN-3_2025-08	1.5	40.1	44.0	525	-	0.814
JL0-25-AC-78	JL0-25_GN-3_2025-08	1.5	38.6	41.2	450	-	0.782
JL0-25-AC-79	JL0-25_GN-3_2025-08	1.5	35.8	38.8	425	-	0.926
JL0-25-AC-80	JL0-25_GN-3_2025-08	1.5	33.9	37.0	405	-	1.040
JL0-25-AC-81	JL0-25_GN-4_2025-08	3	38.1	41.0	460	-	0.832
JL0-25-AC-82	JL0-25_GN-4_2025-08	3	38.9	42.4	530	-	0.900
JL0-25-AC-83	JL0-25_GN-4_2025-08	3	36.2	39.5	430	-	0.906
JL0-25-AC-84	JL0-25_GN-4_2025-08	3	35.3	38.0	490	-	1.114
JL0-25-AC-85	JL0-25_GN-4_2025-08	3	38.9	41.8	480	-	0.815
JL0-25-AC-86	JL0-25_GN-4_2025-08	3	41.2	44.5	510	-	0.729
JL0-25-AC-87	JL0-25_GN-4_2025-08	3	36.4	38.9	385	-	0.798
JL0-25-AC-88	JL0-25_GN-4_2025-08	3	39.2	40.9	520	-	0.863
JL0-25-AC-89	JL0-25_GN-4_2025-08	2	37.0	39.8	400	-	0.790
JL0-25-AC-90	JL0-25_GN-4_2025-08	2	37.5	40.7	500	-	0.948
JL0-25-AC-91	JL0-25_GN-4_2025-08	2	36.8	39.6	380	-	0.763
JL0-25-AC-92	JL0-25_GN-4_2025-08	2	34.8	37.6	410	-	0.973
JL0-25-AC-93	JL0-25_GN-4_2025-08	2	36.2	38.0	490	-	1.033
JL0-25-AC-94	JL0-25_GN-4_2025-08	2	37.5	40.6	460	-	0.872
JL0-25-AC-95	JL0-25_GN-4_2025-08	2	35.2	39.0	350	-	0.802
JL0-25-AC-96	JL0-25_GN-4_2025-08	2	34.1	37.0	445	-	1.122
JL0-25-AC-97	JL0-25_GN-4_2025-08	1.5	36.6	39.2	415	-	0.846
JL0-25-AC-98	JL0-25_GN-4_2025-08	1.5	35.9	38.4	455	-	0.983
JL0-25-AC-99	JL0-25_GN-4_2025-08	1.5	34.9	37.2	395	-	0.929
JL0-25-AC-100	JL0-25_GN-4_2025-08	1.5	38.4	42.2	500	-	0.883
Overall Catch Summary	Sample Size (N)		100	100	100	-	100
	Mean		37.8	40.6	479	-	0.884
	Median		37.2	40.0	453	-	0.898
	Standard Deviation		4.3	4.7	160	-	0.126
	Standard Error		0.43	0.47	16	-	0.013
	Minimum		30.0	32.3	290	-	0.471
	Maximum		67.9	70.9	1,600	-	1.125

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.9: Measurements from Arctic Charr Captured at Reference Lake 3 (REF-03) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
REF-03-25-AC-01	REF-03-25_GN-1_2025-08	3	48.0	51.0	775	-	0.701
REF-03-25-AC-02	REF-03-25_GN-1_2025-08	2	27.5	30.0	70	-	0.337
REF-03-25-AC-03	REF-03-25_GN-1_2025-08	2	32.5	35.0	80	-	0.233
REF-03-25-AC-04	REF-03-25_GN-1_2025-08	2	30.0	33.0	160	-	0.593
REF-03-25-AC-05	REF-03-25_GN-1_2025-08	2	28.6	31.0	125	-	0.534
REF-03-25-AC-06	REF-03-25_GN-3_2025-08	2	32.7	34.4	320	-	0.915
REF-03-25-AC-07	REF-03-25_GN-3_2025-08	2	33.4	35.9	225	-	0.604
REF-03-25-AC-08	REF-03-25_GN-3_2025-08	1.5	30.4	32.8	180	-	0.641
REF-03-25-AC-09	REF-03-25_GN-4_2025-08	2	30.1	32.3	225	-	0.825
REF-03-25-AC-10	REF-03-25_GN-4_2025-08	2	28.5	30.6	195	-	0.842
REF-03-25-AC-11	REF-03-25_GN-5_2025-08	3	47.4	50.2	875	-	0.822
REF-03-25-AC-12	REF-03-25_GN-5_2025-08	1.5	28.8	31.1	205	-	0.858
REF-03-25-AC-13	REF-03-25_GN-5_2025-08	1.5	29.5	32.5	200	-	0.779
REF-03-25-AC-14	REF-03-25_GN-5_2025-08	1.5	28.7	31.2	192	-	0.812
REF-03-25-AC-15	REF-03-25_GN-7_2025-08	2	30.0	32.5	225	-	0.833
REF-03-25-AC-16	REF-03-25_GN-7_2025-08	1.5	29.5	32.1	205	-	0.799
REF-03-25-AC-17	REF-03-25_GN-7_2025-08	1.5	30.9	33.2	225	-	0.763
REF-03-25-AC-18	REF-03-25_GN-8_2025-08	2	30.4	33.1	229	-	0.815
REF-03-25-AC-19	REF-03-25_GN-9_2025-08	1.5	29.5	31.7	185	-	0.721
REF-03-25-AC-20	REF-03-25_GN-10_2025-08	2	29.0	31.1	200	-	0.820
REF-03-25-AC-21	REF-03-25_GN-13_2025-08	2	32.1	34.3	220	-	0.665
REF-03-25-AC-22	REF-03-25_GN-15_2025-08	2	29.5	32.6	225	-	0.876
REF-03-25-AC-23	REF-03-25_GN-15_2025-08	2	29.6	31.8	230	-	0.887
REF-03-25-AC-24	REF-03-25_GN-15_2025-08	1.5	28.2	30.4	190	-	0.847
REF-03-25-AC-25	REF-03-25_GN-17_2025-08	2	30.1	32.1	340	-	1.247
REF-03-25-AC-26	REF-03-25_GN-18_2025-08	2	33.9	37.0	270	-	0.693
REF-03-25-AC-27	REF-03-25_GN-18_2025-08	1.5	26.6	28.8	180	-	0.956
REF-03-25-AC-28	REF-03-25_GN-20_2025-08	2	28.4	30.7	210	-	0.917
REF-03-25-AC-29	REF-03-25_GN-21_2025-08	2	30.5	33.0	240	-	0.846
REF-03-25-AC-30	REF-03-25_GN-21_2025-08	1.5	31.5	34.6	280	-	0.896
REF-03-25-AC-31	REF-03-25_GN-22_2025-08	2	32.8	35.2	260	-	0.737
REF-03-25-AC-32	REF-03-25_GN-22_2025-08	2	35.3	38.0	330	-	0.750
REF-03-25-AC-33	REF-03-25_GN-24_2025-08	2	32.2	34.7	280	-	0.839
REF-03-25-AC-34	REF-03-25_GN-27_2025-08	2	31.5	33.6	265	-	0.848
REF-03-25-AC-35	REF-03-25_GN-27_2025-08	2	31.8	34.4	260	-	0.809
REF-03-25-AC-36	REF-03-25_GN-37_2025-08	2	38.0	40.1	425	-	0.775
REF-03-25-AC-37	REF-03-25_GN-37_2025-08	1.5	27.1	29.2	165	-	0.829
REF-03-25-AC-38	REF-03-25_GN-39_2025-08	1.5	21.1	23.2	90	-	0.958
REF-03-25-AC-39	REF-03-25_GN-40_2025-08	2	28.7	31.1	205	-	0.867
REF-03-25-AC-40	REF-03-25_GN-40_2025-08	2	24.1	26.0	135	-	0.964
REF-03-25-AC-41	REF-03-25_GN-40_2025-08	2	31.0	33.6	255	-	0.856
REF-03-25-AC-42	REF-03-25_GN-40_2025-08	1.5	25.8	28.1	150	-	0.873
REF-03-25-AC-43	REF-03-25_GN-E_2025-08	2	28.7	31.3	220	-	0.931
REF-03-25-AC-44	REF-03-25_GN-E_2025-08	2	33.0	35.5	285	-	0.793
REF-03-25-AC-45	REF-03-25_GN-E_2025-08	1.5	53.5	56.9	1,300	-	0.849
REF-03-25-AC-46	REF-03-25_GN-H_2025-08	3	29.3	31.9	210	-	0.835
REF-03-25-AC-47	REF-03-25_GN-H_2025-08	2	30.0	32.5	250	-	0.926
REF-03-25-AC-48	REF-03-25_GN-O_2025-08	1.5	27.0	29.0	160	-	0.813
REF-03-25-AC-49	REF-03-25_GN-P_2025-08	2	28.5	31.1	269	-	1.162
REF-03-25-AC-50	REF-03-25_GN-Q_2025-08	2	25.6	27.7	140	-	0.834
REF-03-25-AC-51	REF-03-25_GN-Q_2025-08	1.5	27.4	29.5	180	-	0.875
REF-03-25-AC-52	REF-03-25_GN-R_2025-08	2	34.3	36.8	315	-	0.781
REF-03-25-AC-53	REF-03-25_GN-S_2025-08	1.5	29.6	31.9	235	-	0.906
REF-03-25-AC-54	REF-03-25_GN-S_2025-08	1.5	30.8	33.0	235	-	0.804
Overall Catch Summary	Sample Size (N)		54	54	54	-	54
	Average		31.0	33.4	261	-	0.809
	Median		30.0	32.5	225	-	0.831
	Standard Deviation		5.4	5.6	196	-	0.157
	Standard Error		0.7	0.8	27	-	0.021
	Minimum		21.1	23.2	70	-	0.233
	Maximum		53.5	56.9	1,300	-	1.247

Notes: ID = identifier. cm = centimetres. g = grams. - = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.10: Statistical Comparison of Health Endpoints for Arctic Charr Caught by Gill Netting at Mine-exposed and Reference Lakes, Mary River Project Core Receiving Environment Monitoring Program (CREMP), August 2025

Indicator	Endpoint	Variables		Lake	Sample Size	Test	ANCOVA Model Statistics			Summary Statistics ^b		Area P-value	Post-hoc Contrasts Exposed versus Reference Lake	
		Response	Covariate				Interaction Model	Parallel Slope Model	Covariate Value for Comparisons ^a				P-Value	MOD (%) ^c
							Interaction P-value	Covariate P-value		Statistic	MCT			
Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	Reference Lake 3	54	K-S	-	-	-	0	-	-	nc	
				Camp Lake	100						-	-	<0.001	83
				Sheardown Lake Northwest	100						-	-	<0.001	36
				Sheardown Lake Southeast	100						-	-	<0.001	41
				Mary Lake	100						-	-	<0.001	74
Body Size	Fork Length	Fork Length (cm)	-	Reference Lake 3	54	K-W	-	-	-	Median	30.0	<0.001	nc	
				Camp Lake	100						37.2		<0.001	24
				Sheardown Lake Northwest	100						33.0		0.005	10
				Sheardown Lake Southeast	100						33.6		0.002	12
				Mary Lake	100						40.0		<0.001	33
	Body Weight	Body Weight (g)	-	Reference Lake 3	54	K-W	-	-	-	Median	225	<0.001	nc	
				Camp Lake	100						452		<0.001	101
				Sheardown Lake Northwest	100						332		<0.001	48
				Sheardown Lake Southeast	100						335		<0.001	49
				Mary Lake	100						568		<0.001	152
Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	Reference Lake 3	54	ANCOVA	<0.001	<0.001	35.4	Adjusted Mean	342	<0.001	nc	
				Camp Lake	100						393		<0.001	15
				Sheardown Lake Northwest	100						405		<0.001	18
				Sheardown Lake Southeast	100						387		<0.001	13
				Mary Lake	100						419		<0.001	22
		log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	Reference Lake 3	52 ^d	ANCOVA	<0.001 ⁱ	<0.001	35.5	Adjusted Mean	360	<0.001	nc	
				Camp Lake	99 ^e						395		0.001	9.7
				Sheardown Lake Northwest	99 ^f						404		<0.001	12
				Sheardown Lake Southeast	99 ^g						387		0.018	7.5
				Mary Lake	99 ^h						417		<0.001	16

Area p-value <0.1 or interaction p-value <0.05.

Absolute MOD ≥10% for condition or ≥25% for length-frequency distribution.

Notes: ANCOVA = Analysis of Covariance. MCT = Measure of Central Tendency. MOD = Magnitude of Difference. % = percent. cm = centimetres. K-S = Kolmogorov-Smirnov Test. - = no data/comparison. nc = not calculable. < = less than. K-W = Kruskal-Wallis Test. g = grams. ≥ = greater than or equal to. EEM = Environmental Effects Monitoring. Stdnt resid = Studentized residual.

^a The mean value of the covariate (that corresponds to the adjusted means for the response variable) for the parallel slope ANCOVA model or the minimum and maximum values of the overlap in covariate values for the interaction ANCOVA model.

^b The median, mean (geometric mean for log₁₀-transformed variables), and adjusted mean are reported for Kruskal-Wallis, t-test and ANCOVA, respectively, and the predicted mean values from the regression line equations for minimum and maximum values of the covariate (where the data sets overlap) for ANCOVAs where a significant interaction was detected.

^c For endpoints other than the length-frequency distribution, the MOD is calculated as: [(exposed area mean - reference area mean) / reference area mean] x 100. When there is a significant interaction in the ANCOVA, the MOD is calculated at the minimum and maximum values of overlap in covariate values as : [(exposed area predicted mean - reference area predicted mean) / reference area predicted mean] x 100. For the length-frequency distribution the MOD is calculated as the maximum difference in the cumulative relative frequency distributions (CRFD) between areas. A negative difference implies that the exposed area has a greater number of fish with length measures that are less than where the maximum difference in CRFDs was observed. A positive difference implies that the exposed area has fewer fish with length measures that are less than where the maximum difference in CRFDs was observed.

^d Outliers (REF-03-25_ACC-2_2025-08, Stdnt resid: -5.655; REF-03-25_ACC-3_2025-08, Stdnt resid: -8.013) removed from analysis.

^e Outliers (JLO-25_ACC-38_2025-08, Stdnt resid: -4.336) removed from analysis.

^f Outliers (DLO-01-25_ACC-70_2025-08, Stdnt resid: 7.234) removed from analysis.

^g Outliers (DLO-02-25_ACC-63_2025-08, Stdnt resid: 4.472) removed from analysis.

^h Outliers (BLO-25_ACC-51_2025-08, Stdnt resid: -4.055) removed from analysis.

ⁱ ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9666 and R² of parallel slope model = 0.9619; a difference <0.02) following Environment Canada (2012).

Table F.11: Statistical Comparison of Health Endpoints for Arctic Charr Caught by Gill Netting at Mine-exposed Lakes During 2025 and the Baseline Period (2006 to 2013), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Lake	Indicator	Endpoint	Variables		Sample Size		Test	ANCOVA Model Statistics			Summary Statistics ^b			2025 versus Baseline	
			Response	Covariate	Baseline	2025		Interaction Model	Parallel Slope Model	Covariate Value for Comparisons ^a					
								Interaction P-value	Covariate P-value		Statistic	Baseline	2025	Test P-value	MOD (%) ^c
Camp Lake	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	131	100	K-S	-	-	-	-	-	-	<0.001	59
	Body Size	Fork Length	Fork Length (cm)	-	131	100	M-W	-	-	-	Median	32.3	37.2	<0.001	15
		Body Weight	Body Weight (g)	-	131	100	M-W	-	-	-	Median	350	452	<0.001	29
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	131	100	ANCOVA	<0.001 ^d	<0.001	33.5	Adjusted Mean	359	333	0.004	-7.3
Sheardown Lake Northwest	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	98	100	K-S	-	-	-	-	-	-	0.007	-23
	Body Size	Fork Length	Fork Length (cm)	-	98	100	M-W	-	-	-	Median	35.8	33.0	0.001	-7.7
		Body Weight	Body Weight (g)	-	98	100	M-W	-	-	-	Median	400	332	0.002	-17
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	98	100	ANCOVA	0.124	<0.001	33.7	Adjusted Mean	335	353	0.035	5.2
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	98	99 ^e	ANCOVA	0.523	<0.001	33.8	Adjusted Mean	337	352	0.036	4.5
Sheardown Lake Southeast	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	70	100	K-S	-	-	-	-	-	-	<0.001	-44
	Body Size	Fork Length	Fork Length (cm)	-	70	100	M-W	-	-	-	Median	37.4	33.6	<0.001	-9.9
		Body Weight	Body Weight (g)	-	70	100	M-W	-	-	-	Median	500	335	<0.001	-33
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	70	100	ANCOVA	0.003 ^f	<0.001	34.1	Adjusted Mean	390	347	<0.001	-11
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	70	99 ^g	ANCOVA	0.011 ^h	<0.001	34.2	Adjusted Mean	391	347	<0.001	-11
Mary Lake	Survival/Recruitment	Length-Frequency Distribution	Fork Length (cm)	-	183	100	K-S	-	-	-	-	-	-	<0.001	28
	Body Size	Fork Length	Fork Length (cm)	-	183	100	M-W	-	-	-	Median	38.4	40.0	<0.001	4.2
		Body Weight	Body Weight (g)	-	183	100	M-W	-	-	-	Median	500	568	<0.001	14
	Energy Storage	Condition	log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	183	100	ANCOVA	0.002 ⁱ	<0.001	38.4	Adjusted Mean	508	520	0.214	ns
			log ₁₀ [Body Weight (g)]	log ₁₀ [Fork Length (cm)]	182 ^j	100	ANCOVA	0.002 ^k	<0.001	38.4	Adjusted Mean	509	521	0.191	ns

 Year p-value <0.1 or Interaction p-value <0.05.

 Absolute MOD ≥10% for condition or ≥25% for length-frequency distribution.

Notes: ANCOVA = Analysis of Covariance. MOD = Magnitude of Difference. % = percent. cm = centimetres. - = no data/comparison. K-S = Kolmogorov-Smirnov Test. < = less than. M-W = Mann-Whitney U Test. g = grams. ns = not significant. ≥ = greater than or equal to. EEM = Environmental Effects Monitoring.Stdnt resid = Studentized residual.

^a The mean value of the covariate (that corresponds to the adjusted means for the response variable) for the parallel slope ANCOVA model or the minimum and maximum values of the overlap in covariate values for the interaction ANCOVA model.

^b The median, mean (geometric mean for log₁₀-transformed variables), and adjusted mean are reported for Mann-Whitney, t-test and ANCOVA, respectively, and the predicted mean values from the regression line equations for minimum and maximum values of the covariate (where the data sets overlap) for ANCOVAs where a significant interaction was detected.

^c For endpoint other than the length-frequency distribution, the MOD is calculated as: [(current year mean - baseline year mean) / baseline year mean] x 100. When there is a significant interaction in the ANCOVA, the MOD is calculated at the minimum and maximum values of overlap in covariate values as : [(current year predicted mean - baseline year predicted mean) / baseline year predicted mean] x 100. For the length-frequency distribution the MOD is calculated as the maximum difference in the cumulative relative frequency distributions (CRFD) between areas. A negative difference implies that the exposed area has a greater number of fish with length measures that are less than where the maximum difference in CRFDs was observed. A positive difference implies that the exposed area has fewer fish with length measures that are less than where the maximum difference in CRFDs was observed.

^d ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9389 and R² of parallel slope model = 0.9307; a difference <0.02) following Environment Canada (2012).

^e Outliers (DLO-01-25_ACC-70_2025-08, Stdnt resid: 7.766) removed from analysis.

^f ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9258 and R² of parallel slope model = 0.9219; a difference <0.02) following Environment Canada (2012).

^g Outliers (DLO-02-25_ACC-63_2025-08 Stdnt resid:4.54) removed from analysis.

^h ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9338 and R² of parallel slope model = 0.9311; a difference <0.02) following Environment Canada (2012).

ⁱ ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9716 and R² of parallel slope model = 0.9705; a difference <0.02) following Environment Canada (2012).

^j Outliers (MLS-06-AC-11, Stdnt resid: 4.007) removed from analysis.

^k ANCOVA proceeded under the assumption that the slopes are practically parallel (R² of interaction model = 0.9716 and R² of parallel slope model = 0.9705; a difference <0.02) following Environment Canada (2012).

Table F.12: Gill Netting Catch Records for Arctic Charr in Sheardown Lake Northwest (NW; DL0-01), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Gill Net Set ID	Location (NAD83, UTM Zone 17N)		Length (m)	Set Date	Lift Date	Set Time	Lift Time	Fishing Hours	Effort (m*hrs / 100 m)	Total Catch	Mortalities	CPUE
	Eastings	Northing										
DL0-01-25-GN-01	559752	7913580	91.0	31-Jul-25	31-Jul-25	13:18	14:05	0.78	0.71	4	0	5.61
DL0-01-25-GN-02	559824	7913639	91.0	31-Jul-25	31-Jul-25	13:30	14:25	0.92	0.83	7	0	8.39
DL0-01-25-GN-03	559824	7913639	91.0	31-Jul-25	31-Jul-25	14:44	15:42	0.97	0.88	4	0	4.55
DL0-01-25-GN-04	559752	7913580	91.0	31-Jul-25	31-Jul-25	14:57	16:00	1.05	0.96	3	1	3.14
DL0-01-25-GN-05	559824	7913639	91.0	31-Jul-25	31-Jul-25	15:58	16:35	0.62	0.56	2	0	3.56
DL0-01-25-GN-06	559752	7913580	91.0	31-Jul-25	31-Jul-25	16:14	16:45	0.52	0.47	1	0	2.13
DL0-01-25-GN-07	559813	7913700	91.0	6-Aug-25	6-Aug-25	13:44	14:15	0.52	0.47	3	0	6.38
DL0-01-25-GN-08	559680	7913463	91.0	6-Aug-25	6-Aug-25	14:07	15:02	0.92	0.83	0	0	0
DL0-01-25-GN-09	559972	7913584	91.0	6-Aug-25	6-Aug-25	14:25	15:55	1.50	1.37	4	1	2.93
DL0-01-25-GN-10	559925	7913293	91.0	7-Aug-25	7-Aug-25	15:16	16:25	1.15	1.05	0	0	0
DL0-01-25-GN-11	560622	7913134	91.0	7-Aug-25	7-Aug-25	10:24	11:25	1.02	0.93	4	0	4.32
DL0-01-25-GN-12	560476	7913172	91.0	7-Aug-25	7-Aug-25	11:04	12:00	0.93	0.85	3	1	3.53
DL0-01-25-GN-13	560465	7912773	91.0	7-Aug-25	7-Aug-25	11:48	12:44	0.93	0.85	3	0	3.53
DL0-01-25-GN-14	560398	7912695	91.0	7-Aug-25	7-Aug-25	12:20	13:20	1.00	0.91	7	0	7.69
DL0-01-25-GN-15	560495	7912693	91.0	7-Aug-25	7-Aug-25	13:08	14:08	1.00	0.91	5	1	5.49
DL0-01-25-GN-16	559974	7913172	91.0	7-Aug-25	7-Aug-25	14:00	15:00	1.00	0.91	8	0	8.79
DL0-01-25-GN-17	560315	7913321	91.0	7-Aug-25	7-Aug-25	14:38	15:30	0.87	0.79	1	0	1.27
DL0-01-25-GN-18A	559974	7913172	91.0	6-Aug-25	6-Aug-25	15:23	16:00	0.62	0.56	5	1	8.91
DL0-01-25-GN-18B	560463	7913150	91.0	6-Aug-25	6-Aug-25	13:41	14:25	0.73	0.67	17	2	25.5
DL0-01-25-GN-19	560366	7913061	91.0	6-Aug-25	6-Aug-25	13:53	15:04	1.18	1.08	8	2	7.43
DL0-01-25-GN-20	560463	7913150	91.0	6-Aug-25	6-Aug-25	15:36	16:15	0.65	0.59	4	1	6.76
DL0-01-25-GN-21	560366	7913061	91.0	6-Aug-25	6-Aug-25	15:46	16:38	0.87	0.79	4	1	5.07
DL0-01-25-GN-22	560488	7912799	91.0	8-Aug-25	8-Aug-25	15:10	16:05	0.92	0.83	3	0	3.60
DL0-01-25-GN-23	559919	7913313	91.0	10-Aug-25	10-Aug-25	14:10	14:55	0.75	0.68	0	0	0
DL0-01-25-GN-24	559694	7913509	91.0	10-Aug-25	10-Aug-25	15:05	16:00	0.92	0.83	3	0	3.60
Total									20.3	103	11	5.07

Notes: ID = identifier. NAD83 = North American Datum of 1983. UTM = Universal Transverse Mercator. m = metres. hrs = hours. Catch-per-unit-effort (CPUE) represents the number of fish captured per 100 m·hours of net.

Table F.13: Measurements from Arctic Charr Captured at Sheardown Lake Northwest (NW; DL0-01) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
DL0-01-25-ACJ-01	14.4	15.5	21.143	5	0.708
DL0-01-25-ACJ-02	7.8	8.3	4.761	1	1.003
DL0-01-25-ACJ-03	8.7	9.3	5.934	-	0.901
DL0-01-25-ACJ-04	14.6	15.5	21.400	-	0.688
DL0-01-25-ACJ-05	6.7	7.1	2.481	-	0.825
DL0-01-25-ACJ-06	14.4	15.5	22.141	-	0.741
DL0-01-25-ACJ-07	11.3	11.8	8.872	-	0.615
DL0-01-25-ACJ-08	8.5	9.0	5.637	-	0.918
DL0-01-25-ACJ-09	12.1	13.0	14.000	-	0.790
DL0-01-25-ACJ-10	5.7	6.0	1.705	-	0.921
DL0-01-25-ACJ-11	5.0	5.3	1.348	-	1.078
DL0-01-25-ACJ-12	6.6	7.0	2.229	-	0.775
DL0-01-25-ACJ-13	6.1	6.4	2.009	-	0.885
DL0-01-25-ACJ-14	9.9	10.5	7.490	-	0.772
DL0-01-25-ACJ-15	6.4	6.7	2.388	-	0.911
DL0-01-25-ACJ-16	15.5	16.2	23.870	-	0.641
DL0-01-25-ACJ-17	7.7	8.1	4.220	-	0.924
DL0-01-25-ACJ-18	9.8	10.5	6.939	-	0.737
DL0-01-25-ACJ-19	7.9	8.5	4.327	-	0.878
DL0-01-25-ACJ-20	6.9	7.3	2.631	-	0.801
DL0-01-25-ACJ-21	8.0	8.5	4.570	-	0.893
DL0-01-25-ACJ-22	10.7	11.1	9.355	-	0.764
DL0-01-25-ACJ-23	7.9	8.4	4.386	-	0.890
DL0-01-25-ACJ-24	10.7	11.4	10.060	-	0.821
DL0-01-25-ACJ-25	6.3	6.6	2.358	-	0.943
DL0-01-25-ACJ-26	5.3	5.5	1.389	-	0.933
DL0-01-25-ACJ-27	8.2	8.6	4.477	-	0.812
DL0-01-25-ACJ-28	5.4	5.6	1.612	-	1.024
DL0-01-25-ACJ-29	11.3	12.0	10.506	-	0.728
DL0-01-25-ACJ-30	5.7	6.0	1.673	-	0.903
DL0-01-25-ACJ-31	7.4	7.9	4.191	-	1.034
DL0-01-25-ACJ-32	6.8	7.1	2.901	-	0.923
DL0-01-25-ACJ-33	5.2	5.4	1.231	-	0.875
DL0-01-25-ACJ-34	5.8	6.1	1.704	-	0.873
DL0-01-25-ACJ-35	8.2	8.6	5.077	-	0.921
DL0-01-25-ACJ-36	6.6	7.0	2.812	-	0.978
DL0-01-25-ACJ-37	6.0	6.2	1.995	-	0.924
DL0-01-25-ACJ-38	6.3	6.6	2.204	-	0.881
DL0-01-25-ACJ-39	5.8	6.0	1.862	-	0.954
DL0-01-25-ACJ-40	5.7	5.9	1.785	-	0.964
DL0-01-25-ACJ-41	6.3	6.5	2.436	-	0.974
DL0-01-25-ACJ-42	5.8	6.0	2.451	-	1.256
DL0-01-25-ACJ-43	6.6	6.8	2.300	-	0.800
DL0-01-25-ACJ-44	9.5	10.0	7.000	-	0.816
DL0-01-25-ACJ-45	4.0	4.1	1.044	-	1.631
DL0-01-25-ACJ-46	8.6	9.1	6.391	-	1.005
DL0-01-25-ACJ-47	5.3	5.5	2.141	-	1.438
DL0-01-25-ACJ-48	8.8	9.3	6.323	2	0.928
DL0-01-25-ACJ-49	6.1	6.5	2.529	1	1.114
DL0-01-25-ACJ-50	5.2	5.5	1.091	1	0.776
DL0-01-25-ACJ-51	15.6	16.8	27.226	-	0.717
DL0-01-25-ACJ-52	6.1	6.5	2.057	-	0.906
DL0-01-25-ACJ-53	14.0	15.0	23.658	3	0.862
DL0-01-25-ACJ-54	6.4	6.7	2.098	0	0.800
DL0-01-25-ACJ-55	5.7	6.1	1.628	1	0.879
DL0-01-25-ACJ-56	6.0	6.3	1.780	-	0.824
DL0-01-25-ACJ-57	8.3	8.9	4.302	-	0.752
DL0-01-25-ACJ-58	11.9	12.8	15.528	-	0.921

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.13: Measurements from Arctic Charr Captured at Sheardown Lake Northwest (NW; DL0-01) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID		Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
DL0-01-25-ACJ-59		10.3	11.1	9.854	3	0.902
DL0-01-25-ACJ-60		14.0	15.0	24.105	-	0.878
DL0-01-25-ACJ-61		6.0	6.2	1.902	-	0.881
DL0-01-25-ACJ-62		6.3	6.6	2.277	-	0.911
DL0-01-25-ACJ-63		6.2	6.5	2.049	-	0.860
DL0-01-25-ACJ-64		11.8	12.8	15.158	-	0.923
DL0-01-25-ACJ-65		13.0	14.3	19.205	-	0.874
DL0-01-25-ACJ-66		9.0	10.0	6.507	-	0.893
DL0-01-25-ACJ-67		9.4	10.2	7.678	-	0.924
DL0-01-25-ACJ-68		6.2	6.5	1.843	-	0.773
DL0-01-25-ACJ-69		13.5	15.1	19.411	-	0.789
DL0-01-25-ACJ-70		7.1	7.4	3.035	2	0.848
DL0-01-25-ACJ-71		19.3	20.0	42.307	-	0.588
DL0-01-25-ACJ-72		8.3	9.9	4.842	-	0.847
DL0-01-25-ACJ-73		14.1	15.4	22.849	-	0.815
DL0-01-25-ACJ-74		13.3	14.3	17.237	-	0.733
DL0-01-25-ACJ-75		11.0	12.0	11.470	-	0.862
DL0-01-25-ACJ-76		10.8	11.6	11.387	-	0.904
DL0-01-25-ACJ-77		10.5	11.9	9.435	-	0.815
DL0-01-25-ACJ-78		7.7	8.2	5.454	-	1.195
DL0-01-25-ACJ-79		7.8	8.2	4.089	-	0.862
DL0-01-25-ACJ-80		8.2	8.5	4.938	-	0.896
DL0-01-25-ACJ-81		6.5	6.9	2.597	-	0.946
DL0-01-25-ACJ-82		10.2	10.9	9.468	-	0.892
DL0-01-25-ACJ-83		8.4	8.8	4.278	-	0.722
DL0-01-25-ACJ-84		6.0	6.2	1.843	-	0.853
DL0-01-25-ACJ-85		5.8	6.1	1.975	-	1.012
DL0-01-25-ACJ-86		6.0	6.3	1.804	-	0.835
DL0-01-25-ACJ-87		8.6	9.1	4.872	-	0.766
DL0-01-25-ACJ-88		6.5	7.0	2.440	-	0.888
DL0-01-25-ACJ-89		9.5	10.5	6.650	-	0.776
DL0-01-25-ACJ-90		6.4	6.8	1.969	-	0.751
DL0-01-25-ACJ-91		5.8	6.1	1.465	-	0.751
DL0-01-25-ACJ-92		5.8	6.0	1.498	-	0.768
DL0-01-25-ACJ-93		8.2	8.7	4.373	-	0.793
DL0-01-25-ACJ-94		6.1	6.4	1.768	-	0.779
DL0-01-25-ACJ-95		5.6	6.0	1.098	-	0.625
DL0-01-25-ACJ-96		6.2	6.5	1.715	-	0.720
DL0-01-25-ACJ-97		6.2	6.5	1.704	-	0.715
DL0-01-25-ACJ-98		5.6	6.0	0.966	-	0.550
DL0-01-25-ACJ-99		5.6	6.0	1.070	-	0.609
DL0-01-25-ACJ-100		5.5	6.1	0.890	-	0.535
Overall Catch Summary	Sample Size (N)	100	100	100	10	100
	Mean	8.3	9	6.551	1.9	0.862
	Median	7.3	7.7	3.562	2	0.868
	Standard Deviation	3.0	3.3	7.434	1.4	0.156
	Standard Error	0.30	0.33	0.743	0.46	0.016
	Minimum	4.0	4.1	0.890	0	0.535
	Maximum	19.3	20.0	42.307	5	1.631
Young-of-the-Year Catch Summary	Proportion of YOY	1%				
	Sample Size (N)	1	1	1	-	1
	Average	4.0	4.1	1.044	-	1.631
	Mean	4.0	4.1	1.044	-	1.631
	Standard Deviation	-	-	-	-	-
	Standard Error	-	-	-	-	-
	Minimum	4.0	4.1	1.044	-	1.631
	Maximum	4.0	4.1	1.044	-	1.631

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.14: Measurements from Arctic Charr Captured at Sheardown Lake Northwest (NW; DL0-01) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
DL0-01-25-AC-01	DL0-01-25-GN-01	3	42.4	45.7	580	-	0.761
DL0-01-25-AC-02	DL0-01-25-GN-01	3	39.3	42.2	510	-	0.840
DL0-01-25-AC-03	DL0-01-25-GN-02	3	34.8	37.5	240	-	0.569
DL0-01-25-AC-04	DL0-01-25-GN-02	3	35.0	38.0	420	-	0.980
DL0-01-25-AC-05	DL0-01-25-GN-02	2	33.0	35.6	335	-	0.932
DL0-01-25-AC-06	DL0-01-25-GN-02	2	35.9	38.6	385	-	0.832
DL0-01-25-AC-07	DL0-01-25-GN-03	2	38.8	42.5	510	-	0.873
DL0-01-25-AC-08	DL0-01-25-GN-03	2	38.5	42.5	500	-	0.876
DL0-01-25-AC-09	DL0-01-25-GN-03	3	41.5	44.7	710	-	0.993
DL0-01-25-AC-10	DL0-01-25-GN-03	3	46.6	48.7	1,200	-	1.186
DL0-01-25-AC-11	DL0-01-25-GN-03	3	39.5	42.5	620	-	1.006
DL0-01-25-AC-12	DL0-01-25-GN-05	2	39.0	42.3	520	-	0.877
DL0-01-25-AC-13	DL0-01-25-GN-05	2	41.5	44.7	790	-	1.105
DL0-01-25-AC-14	DL0-01-25-GN-07	2	55.0	57.7	1,815	-	1.091
DL0-01-25-AC-15	DL0-01-25-GN-07	3	37.0	40.1	500	-	0.987
DL0-01-25-AC-16	DL0-01-25-GN-07	1.5	42.0	45.3	920	-	1.242
DL0-01-25-AC-17	DL0-01-25-GN-08	1.5	35.0	37.5	370	-	0.863
DL0-01-25-AC-18	DL0-01-25-GN-08	1.5	29.5	32.0	220	-	0.857
DL0-01-25-AC-19	DL0-01-25-GN-09	1.5	34.7	37.6	400	-	0.957
DL0-01-25-AC-20	DL0-01-25-GN-09	3	54.0	57.3	1,510	-	0.959
DL0-01-25-AC-21	DL0-01-25-GN-09	2	36.5	39.7	440	-	0.905
DL0-01-25-AC-22	DL0-01-25-GN-10	1.5	18.0 ^b	19.2	68	-	1.166
DL0-01-25-AC-23	DL0-01-25-GN-10	2	15.5 ^b	16.8	45	-	1.208
DL0-01-25-AC-24	DL0-01-25-GN-10	2	13.5 ^b	14.5	38	-	1.544
DL0-01-25-AC-25	DL0-01-25-GN-10	1.5	34.2	37.0	370	-	0.925
DL0-01-25-AC-26	DL0-01-25-GN-11	2	36.9	40.4	440	-	0.876
DL0-01-25-AC-27	DL0-01-25-GN-11	3	37.3	40.5	460	-	0.886
DL0-01-25-AC-28	DL0-01-25-GN-11	1.5	35.9	39.1	420	-	0.908
DL0-01-25-AC-29	DL0-01-25-GN-12	2	25.5	26.4	175	-	2.533
DL0-01-25-AC-30	DL0-01-25-GN-12	2	30.0	32.4	200	-	0.648
DL0-01-25-AC-31	DL0-01-25-GN-12	3	42.1	45.1	625	-	0.268
DL0-01-25-AC-32	DL0-01-25-GN-12	2	37.8	40.1	455	-	1.157
DL0-01-25-AC-33	DL0-01-25-GN-12	2	34.9	37.7	355	-	1.070
DL0-01-25-AC-34	DL0-01-25-GN-13	1.5	28.8	31.3	235	-	1.486
DL0-01-25-AC-35	DL0-01-25-GN-13	2	28.6	30.8	205	-	1.005
DL0-01-25-AC-36	DL0-01-25-GN-13	2	29.2	31.5	210	-	0.823
DL0-01-25-AC-37	DL0-01-25-GN-14	3	38.1	40.3	485	-	0.380
DL0-01-25-AC-38	DL0-01-25-GN-14	2	28.1	30.1	185	-	2.186
DL0-01-25-AC-39	DL0-01-25-GN-15	2	28.6	29.7	150	-	0.791
DL0-01-25-AC-40	DL0-01-25-GN-15	2	28.1	30.5	180	-	0.676
DL0-01-25-AC-41	DL0-01-25-GN-18	1.5	19.8	-	62	-	2.319
DL0-01-25-AC-42	DL0-01-25-GN-18	1.5	27.4	-	240	-	0.301
DL0-01-25-AC-43	DL0-01-25-GN-18	1.5	32.7	-	292	-	0.835
DL0-01-25-AC-44	DL0-01-25-GN-18	1.5	29.0	-	229	-	0.939
DL0-01-25-AC-45	DL0-01-25-GN-18	2	25.4	-	160	-	0.976
DL0-01-25-AC-46	DL0-01-25-GN-18	2	27.5	-	194	-	0.933
DL0-01-25-AC-47	DL0-01-25-GN-18	2	32.5	-	330	-	0.961
DL0-01-25-AC-48	DL0-01-25-GN-18	2	34.1	-	375	-	0.946
DL0-01-25-AC-49	DL0-01-25-GN-18	2	33.0	-	300	-	0.835
DL0-01-25-AC-50	DL0-01-25-GN-18	2	25.5	-	160	-	0.965
DL0-01-25-AC-51	DL0-01-25-GN-18	2	32.4	-	269	-	0.791
DL0-01-25-AC-52	DL0-01-25-GN-18	2	35.4	-	400	-	0.902
DL0-01-25-AC-53	DL0-01-25-GN-18	2	26.9	-	290	-	1.490
DL0-01-25-AC-54	DL0-01-25-GN-18	2	30.0	-	230	-	0.852
DL0-01-25-AC-55	DL0-01-25-GN-18	2	28.5	-	229	-	0.989
DL0-01-25-AC-56	DL0-01-25-GN-18	2	32.9	-	345	-	0.969
DL0-01-25-AC-57	DL0-01-25-GN-18	2	30.1	-	232	-	0.851
DL0-01-25-AC-58	DL0-01-25-GN-19	2	39.8	-	475	-	0.753
DL0-01-25-AC-59	DL0-01-25-GN-19	2	30.6	-	288	-	1.005
DL0-01-25-AC-60	DL0-01-25-GN-19	2	35.2	-	360	-	0.825
DL0-01-25-AC-61	DL0-01-25-GN-19	2	31.3	-	282	-	0.920

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.14: Measurements from Arctic Charr Captured at Sheardown Lake Northwest (NW; DL0-01) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
DL0-01-25-AC-62	DL0-01-25-GN-19	2	28.5	-	240	-	1.037
DL0-01-25-AC-63	DL0-01-25-GN-19	3	33.6	-	342	-	0.902
DL0-01-25-AC-64	DL0-01-25-GN-19	3	28.3	-	226	-	0.997
DL0-01-25-AC-65	DL0-01-25-GN-19	3	24.4	-	134	-	0.922
DL0-01-25-AC-66	DL0-01-25-GN-20	2	32.7	-	389	-	1.113
DL0-01-25-AC-67	DL0-01-25-GN-20	2	25.9	-	160	-	0.921
DL0-01-25-AC-68	DL0-01-25-GN-20	2	34.0	-	345	-	0.878
DL0-01-25-AC-69	DL0-01-25-GN-20	2	36.0	-	457	-	0.980
DL0-01-25-AC-70	DL0-01-25-GN-21	2	20.7	-	269	-	3.033
DL0-01-25-AC-71	DL0-01-25-GN-21	2	29.7	-	254	-	0.970
DL0-01-25-AC-72	DL0-01-25-GN-21	2	30.3	-	246	-	0.884
DL0-01-25-AC-73	DL0-01-25-GN-21	1.5	32.9	-	305	-	0.856
DL0-01-25-AC-74	DL0-01-25-GN-14	2	20.5	22.6	80	-	0.929
DL0-01-25-AC-75	DL0-01-25-GN-14	1.5	32.2	36.4	335	-	1.003
DL0-01-25-AC-76	DL0-01-25-GN-14	1.5	24.0	25.4	125	-	0.904
DL0-01-25-AC-77	DL0-01-25-GN-14	1.5	39.2	41.6	525	-	0.872
DL0-01-25-AC-78	DL0-01-25-GN-15	3	38.3	40.5	525	-	0.934
DL0-01-25-AC-79	DL0-01-25-GN-15	2	29.3	31.6	215	-	0.855
DL0-01-25-AC-80	DL0-01-25-GN-15	2	27.4	29.0	175	-	0.851
DL0-01-25-AC-81	DL0-01-25-GN-15	2	37.2	40.4	440	-	0.855
DL0-01-25-AC-82	DL0-01-25-GN-15	1.5	24.4	26.6	135	-	0.929
DL0-01-25-AC-83	DL0-01-25-GN-16	3	36.9	40.5	495	-	0.985
DL0-01-25-AC-84	DL0-01-25-GN-16	2	35.0	37.3	330	-	0.770
DL0-01-25-AC-85	DL0-01-25-GN-16	2	30.9	32.6	275	-	0.932
DL0-01-25-AC-86	DL0-01-25-GN-16	2	42.2	45.4	680	-	0.905
DL0-01-25-AC-87	DL0-01-25-GN-16	2	34.3	36.7	365	-	0.905
DL0-01-25-AC-88	DL0-01-25-GN-16	2	34.3	36.9	340	-	0.843
DL0-01-25-AC-89	DL0-01-25-GN-16	1.5	33.3	35.9	350	-	0.948
DL0-01-25-AC-90	DL0-01-25-GN-16	1.5	34.6	37.3	355	-	0.857
DL0-01-25-AC-91	DL0-01-25-GN-17	1.5	20.5	22.2	60	-	0.696
DL0-01-25-AC-92	DL0-01-25-GN-18	3	41.8	45.1	700	-	0.958
DL0-01-25-AC-93	DL0-01-25-GN-18	2	35.5	38.8	395	-	0.883
DL0-01-25-AC-94	DL0-01-25-GN-18	2	32.6	35.4	320	-	0.924
DL0-01-25-AC-95	DL0-01-25-GN-18	2	31.2	33.5	235	-	0.774
DL0-01-25-AC-96	DL0-01-25-GN-18	2	32.2	35.1	310	-	0.929
DL0-01-25-AC-97	DL0-01-25-GN-22	3	36.4	38.9	450	-	0.933
DL0-01-25-AC-98	DL0-01-25-GN-22	3	34.1	37.9	320	-	0.807
DL0-01-25-AC-99	DL0-01-25-GN-22	1.5	24.5	25.2	145	-	0.986
DL0-01-25-AC-100	DL0-01-25-GN-24	2	38.5	41.5	495	-	0.867
Overall Catch Summary	Sample Size (N)		97	64	97	-	97
	Mean		33.3	37.6	381	-	0.971
	Median		33.3	37.8	335	-	0.921
	Standard Deviation		6.28	6.98	262	-	0.370
	Standard Error		0.638	0.872	26.6	-	0.038
	Minimum		19.8	22.2	60.0	-	0.268
	Maximum		55.0	57.7	1,815	-	3.0

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.15: Gill Netting Catch Records for Arctic Charr in Sheardown Lake Southeast (SE; DL0-02), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Gill Net Set ID	Location (NAD83, UTM Zone 17N)		Length (m)	Set Date	Lift Date	Set Time	Lift Time	Fishing Hours	Effort (m*hrs/100 m)	Total Catch	Mortalities	CPUE
	Easting	Northing										
DL0-02-25-GN-01	561052	7911801	91.0	9/Aug/25	9/Aug/25	9:30	10:30	1.00	0.91	8	0	8.79
DL0-02-25-GN-02	560961	7912043	91.0	9/Aug/25	9/Aug/25	10:10	11:15	1.08	0.99	17	2	17.2
DL0-02-25-GN-03	561052	7911801	91.0	9/Aug/25	9/Aug/25	11:00	12:00	1.00	0.91	3	0	3.30
DL0-02-25-GN-04	560961	7912043	91.0	9/Aug/25	9/Aug/25	12:00	13:00	1.00	0.91	15	0	16.5
DL0-02-25-GN-05	561386	7911809	91.0	9/Aug/25	9/Aug/25	12:19	13:40	1.35	1.23	16	0	13.0
DL0-02-25-GN-06	561386	7911809	91.0	9/Aug/25	9/Aug/25	14:25	15:40	1.25	1.14	5	0	4.40
DL0-02-25-GN-07	560985	7911972	91.0	9/Aug/25	9/Aug/25	14:50	15:50	1.00	0.91	9	0	9.89
DL0-02-25-GN-08	560906	7912048	91.0	9/Aug/25	9/Aug/25	15:05	16:00	0.92	0.83	15	2	18.0
DL0-02-25-GN-09	560921	7912027	91.0	9/Aug/25	9/Aug/25	9:00	10:15	1.25	1.14	7	1	6.15
DL0-02-25-GN-10	561111	7911939	91.0	9/Aug/25	9/Aug/25	10:20	11:22	1.03	0.94	7	0	7.44
Total									9.90	102	5	10.30

Notes: ID = identifier. NAD83 = North American Datum of 1983. UTM = Universal Transverse Mercator. m = metres. hrs = hours. Catch-per-unit-effort (CPUE) represents the number of fish captured per 100 m·hours of net.

Table F.16: Measurements from Arctic Charr Captured at Sheardown Lake Southeast (SE; DL0-02) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
DL0-02-25-ACJ-01	6.6	6.8	2.170	-	0.755
DL0-02-25-ACJ-02	4.2	4.4	0.708	-	0.956
DL0-02-25-ACJ-03	6.5	6.8	2.560	1	0.932
DL0-02-25-ACJ-04	4.2	4.3	0.688	-	0.929
DL0-02-25-ACJ-05	4.4	4.6	0.648	-	0.761
DL0-02-25-ACJ-06	4.7	4.8	0.913	1	0.879
DL0-02-25-ACJ-07	8	8.3	4.750	2	0.928
DL0-02-25-ACJ-08	7.2	7.5	3.438	1	0.921
DL0-02-25-ACJ-09	4.6	4.9	0.106	-	0.109
DL0-02-25-ACJ-10	9.6	9.9	7.356	2	0.831
DL0-02-25-ACJ-11	4.2	4.3	0.612	-	0.826
DL0-02-25-ACJ-12	6.7	7	2.883	1	0.959
DL0-02-25-ACJ-13	6.7	7	2.707	-	0.900
DL0-02-25-ACJ-14	3.6	3.7	0.422	2	0.904
DL0-02-25-ACJ-15	7.1	7.5	3.684	-	1.029
DL0-02-25-ACJ-16	5.9	6.1	1.488	1	0.725
DL0-02-25-ACJ-17	4.8	5	0.908	-	0.821
DL0-02-25-ACJ-18	9.5	10.2	7.496	-	0.874
DL0-02-25-ACJ-19	4.4	4.7	0.647	-	0.760
DL0-02-25-ACJ-20	7.4	7.7	3.189	-	0.787
DL0-02-25-ACJ-21	7	7.4	2.970	-	0.866
DL0-02-25-ACJ-22	6.5	6.8	2.635	-	0.959
DL0-02-25-ACJ-23	7.4	7.7	3.365	-	0.830
DL0-02-25-ACJ-24	6.4	6.7	2.378		0.907
DL0-02-25-ACJ-25	12.8	13.4	18.281	3	0.872
DL0-02-25-ACJ-26	6.7	6.9	2.556	-	0.850
DL0-02-25-ACJ-27	6.8	7.1	2.433	-	0.774
DL0-02-25-ACJ-28	7.2	7.5	3.218	-	0.862
DL0-02-25-ACJ-29	4.2	4.4	0.576	-	0.777
DL0-02-25-ACJ-30	3.9	4.1	0.381	-	0.642
DL0-02-25-ACJ-31	7.4	7.7	3.274	-	0.808
DL0-02-25-ACJ-32	6.1	6.3	1.992	-	0.878
DL0-02-25-ACJ-33	5	5.3	0.899	-	0.719
DL0-02-25-ACJ-34	6.8	7.1	2.431	-	0.773
DL0-02-25-ACJ-35	4.4	4.7	0.550	-	0.646
DL0-02-25-ACJ-36	4.7	5	0.807	-	0.777
DL0-02-25-ACJ-37	7.2	7.6	3.411	-	0.914
DL0-02-25-ACJ-38	4.1	4.3	0.564	-	0.818
DL0-02-25-ACJ-39	7.2	7.7	3.808	-	1.020
DL0-02-25-ACJ-40	4.4	4.6	0.586	-	0.688
DL0-02-25-ACJ-41	4.1	4.3	0.410	-	0.595
DL0-02-25-ACJ-42	6.5	6.8	2.261	-	0.823
DL0-02-25-ACJ-43	4.9	5.1	0.927	-	0.788
DL0-02-25-ACJ-44	6.7	7.1	2.558	-	0.851
DL0-02-25-ACJ-45	6.4	6.7	2.218	-	0.846
DL0-02-25-ACJ-46	4.4	4.6	0.584	-	0.686
DL0-02-25-ACJ-47	7.1	7.5	3.091	-	0.864
DL0-02-25-ACJ-48	4.6	4.7	0.674	-	0.692
DL0-02-25-ACJ-49	4.4	4.6	0.587	-	0.689
DL0-02-25-ACJ-50	4.4	4.7	0.514	-	0.603
DL0-02-25-ACJ-51	6.9	7.2	3.019	-	0.919
DL0-02-25-ACJ-52	4.1	4.2	0.556	-	0.807
DL0-02-25-ACJ-53	4.3	4.5	0.536	-	0.674
DL0-02-25-ACJ-54	6.9	7.1	3.428	-	1.044
DL0-02-25-ACJ-55	4.5	4.7	0.944	-	1.036
DL0-02-25-ACJ-56	6.5	6.8	2.530	-	0.921
DL0-02-25-ACJ-57	6.4	6.7	2.673	-	1.020
DL0-02-25-ACJ-58	5.9	6.3	1.863	-	0.907
DL0-02-25-ACJ-59	4	4.2	0.489	-	0.764
DL0-02-25-ACJ-60	4.5	4.7	0.673	-	0.739

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.16: Measurements from Arctic Charr Captured at Sheardown Lake Southeast (SE; DL0-02) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID		Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
DL0-02-25-ACJ-61		7.2	7.6	2.991	-	0.801
DL0-02-25-ACJ-62		4.5	4.9	0.732	-	0.803
DL0-02-25-ACJ-63		4.4	4.6	0.643	-	0.755
DL0-02-25-ACJ-64		6.3	6.9	2.634	-	1.053
DL0-02-25-ACJ-65		4.4	4.7	0.777	-	0.912
DL0-02-25-ACJ-66		4.9	5.1	0.920	-	0.782
DL0-02-25-ACJ-67		4.1	4.3	0.952	-	1.381
DL0-02-25-ACJ-68		4.4	4.8	0.843	-	0.990
DL0-02-25-ACJ-69		7.1	7.5	3.388	-	0.947
DL0-02-25-ACJ-70		4.7	5.0	0.901	-	0.868
DL0-02-25-ACJ-71		4.1	4.3	0.569	-	0.826
DL0-02-25-ACJ-72		4.2	4.5	0.657	-	0.887
DL0-02-25-ACJ-73		4.2	4.5	0.668	-	0.902
DL0-02-25-ACJ-74		4.1	4.4	0.692	-	1.004
DL0-02-25-ACJ-75		4.3	4.6	0.738	-	0.928
DL0-02-25-ACJ-76		6.9	7.3	3.041	-	0.926
DL0-02-25-ACJ-77		5.9	6.2	1.809	-	0.881
DL0-02-25-ACJ-78		3.9	4.2	0.457	-	0.770
DL0-02-25-ACJ-79		3.7	4.0	0.248	-	0.490
DL0-02-25-ACJ-80		3.7	3.9	0.148	-	0.292
DL0-02-25-ACJ-81		4.2	4.5	0.678	-	0.915
DL0-02-25-ACJ-82		3.7	3.9	0.503	-	0.993
DL0-02-25-ACJ-83		3.9	4.1	0.578	-	0.974
DL0-02-25-ACJ-84		4.5	4.8	0.810	-	0.889
DL0-02-25-ACJ-85		4.1	4.3	0.730	-	1.059
DL0-02-25-ACJ-86		4.5	4.8	0.791	-	0.868
DL0-02-25-ACJ-87		6.4	6.8	1.701	-	0.649
DL0-02-25-ACJ-88		6.1	6.5	2.224	-	0.980
DL0-02-25-ACJ-89		4.1	4.3	0.457	-	0.663
DL0-02-25-ACJ-90		6.9	7.3	2.586	-	0.787
DL0-02-25-ACJ-91		4.3	4.5	0.669	-	0.841
DL0-02-25-ACJ-92		4.4	4.7	0.414	-	0.486
DL0-02-25-ACJ-93		6.2	6.5	1.616	-	0.678
DL0-02-25-ACJ-94		4.9	5.2	0.913	-	0.776
DL0-02-25-ACJ-95		5.7	6.1	1.741	-	0.940
DL0-02-25-ACJ-96		4.9	5.1	0.997	-	0.847
DL0-02-25-ACJ-97		3.6	3.8	0.175	-	0.375
DL0-02-25-ACJ-98		4.6	4.9	0.855	-	0.878
DL0-02-25-ACJ-99		5.0	5.2	2.074	-	1.659
DL0-02-25-ACJ-100		4.3	4.6	0.775	-	0.975
Overall Catch Summary	Sample Size (N)	100	100	100	9	100
	Mean	5.5	5.8	1.801	2	0.837
	Median	4.8	5.0	0.913	1	0.850
	Standard Deviation	1.6	1.6	2.164	0.73	0.184
	Standard Error	0.16	0.16	0.216	0.24	0.018
	Minimum	3.6	3.7	0.106	1	0.109
	Maximum	12.8	13.4	18.281	3	1.659
Young-of-the-Year Catch Summary	Proportion of YOY	44%				
	Sample Size (N)	44	44	44	-	44
	Mean	4.2	4.4	0.6	-	0.802
	Median	4.2	4.5	0.600	-	0.813
	Standard Deviation	0.25	0.29	0.174	-	0.194
	Standard Error	0.038	0.043	0.026	-	0.029
	Minimum	3.6	3.7	0.148	-	0.292
	Maximum	4.5	4.9	0.952	-	1.381

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.17: Measurements from Arctic Charr Captured at Sheardown Lake Southeast (SE; DL0-02) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
DL02-25-AC-01	DLO-02-25_GN-1_2025-08	3	37.2	40.5	390	-	0.758
DL02-25-AC-02	DLO-02-25_GN-1_2025-08	3	40.0	43.3	430	-	0.672
DL02-25-AC-03	DLO-02-25_GN-1_2025-08	2	30.5	32.5	310	-	1.093
DL02-25-AC-04	DLO-02-25_GN-1_2025-08	2	39.9	44.6	530	-	0.834
DL02-25-AC-05	DLO-02-25_GN-1_2025-08	2	40.5	43.2	510	-	0.768
DL02-25-AC-06	DLO-02-25_GN-1_2025-08	1.5	33.4	35.1	350	-	0.939
DL02-25-AC-07	DLO-02-25_GN-1_2025-08	1.5	38.7	41.1	570	-	0.983
DL02-25-AC-08	DLO-02-25_GN-1_2025-08	1.5	30.2	32.1	260	-	0.944
DL02-25-AC-09	DLO-02-25_GN-2_2025-08	1.5	28.1	30.1	200	-	0.901
DL02-25-AC-10	DLO-02-25_GN-2_2025-08	1.5	33.1	36.0	310	-	0.855
DL02-25-AC-11	DLO-02-25_GN-2_2025-08	2	33.8	36.6	280	-	0.725
DL02-25-AC-12	DLO-02-25_GN-2_2025-08	2	34.1	37.0	365	-	0.921
DL02-25-AC-13	DLO-02-25_GN-2_2025-08	2	32.2	34.6	295	-	0.884
DL02-25-AC-14	DLO-02-25_GN-2_2025-08	2	29.9	31.2	225	-	0.842
DL02-25-AC-15	DLO-02-25_GN-2_2025-08	2	27.8	30.1	155	-	0.721
DL02-25-AC-16	DLO-02-25_GN-2_2025-08	2	35.4	39.9	440	-	0.992
DL02-25-AC-17	DLO-02-25_GN-2_2025-08	2	33.8	36.7	355	-	0.919
DL02-25-AC-18	DLO-02-25_GN-2_2025-08	3	36.9	39.0	395	-	0.786
DL02-25-AC-19	DLO-02-25_GN-2_2025-08	3	33.4	37.7	320	-	0.859
DL02-25-AC-20	DLO-02-25_GN-2_2025-08	3	34.5	37.7	380	-	0.925
DL02-25-AC-21	DLO-02-25_GN-2_2025-08	3	35.6	38.7	405	-	0.898
DL02-25-AC-22	DLO-02-25_GN-2_2025-08	3	39.8	40.7	465	-	0.738
DL02-25-AC-23	DLO-02-25_GN-2_2025-08	3	38.0	40.9	460	-	0.838
DL02-25-AC-24	DLO-02-25_GN-2_2025-08	3	32.6	34.0	285	-	0.823
DL02-25-AC-25	DLO-02-25_GN-2_2025-08	3	38.7	41.8	400	-	0.690
DL02-25-AC-26	DLO-02-25_GN-3_2025-08	3	34.2	37.4	405	-	1.012
DL02-25-AC-27	DLO-02-25_GN-3_2025-08	2	29.5	32.7	220	-	0.857
DL02-25-AC-28	DLO-02-25_GN-3_2025-08	1.5	37.2	39.4	480	-	0.932
DL02-25-AC-29	DLO-02-25_GN-4_2025-08	1.5	31.6	33.2	215	-	0.681
DL02-25-AC-30	DLO-02-25_GN-4_2025-08	1.5	34.9	37.5	435	-	1.023
DL02-25-AC-31	DLO-02-25_GN-4_2025-08	2	29.9	33.5	310	-	1.160
DL02-25-AC-32	DLO-02-25_GN-4_2025-08	2	31.6	34.9	345	-	1.093
DL02-25-AC-33	DLO-02-25_GN-4_2025-08	2	36.1	38.9	335	-	0.712
DL02-25-AC-34	DLO-02-25_GN-4_2025-08	2	34.6	37.4	325	-	0.785
DL02-25-AC-35	DLO-02-25_GN-4_2025-08	2	27.3	29.8	170	-	0.836
DL02-25-AC-36	DLO-02-25_GN-4_2025-08	2	31.2	34.2	235	-	0.774
DL02-25-AC-37	DLO-02-25_GN-4_2025-08	2	32.3	35.0	260	-	0.772
DL02-25-AC-38	DLO-02-25_GN-4_2025-08	2	30.2	32.9	385	-	1.398
DL02-25-AC-39	DLO-02-25_GN-4_2025-08	3	36.0	38.9	355	-	0.761
DL02-25-AC-40	DLO-02-25_GN-4_2025-08	3	35.7	43.0	525	-	1.154
DL02-25-AC-41	DLO-02-25_GN-4_2025-08	3	37.6	40.5	450	-	0.847
DL02-25-AC-42	DLO-02-25_GN-4_2025-08	3	39.6	43.1	460	-	0.741
DL02-25-AC-43	DLO-02-25_GN-4_2025-08	3	37.3	40.2	440	-	0.848
DL02-25-AC-44	DLO-02-25_GN-5_2025-08	3	39.9	42.0	415	-	0.653
DL02-25-AC-45	DLO-02-25_GN-5_2025-08	3	34.1	36.4	335	-	0.845
DL02-25-AC-46	DLO-02-25_GN-5_2025-08	3	35.2	38.0	270	-	0.619
DL02-25-AC-47	DLO-02-25_GN-5_2025-08	2	26.4	28.5	230	-	1.250
DL02-25-AC-48	DLO-02-25_GN-5_2025-08	2	25.3	27.5	145	-	0.895
DL02-25-AC-49	DLO-02-25_GN-5_2025-08	2	28.5	30.8	200	-	0.864
DL02-25-AC-50	DLO-02-25_GN-5_2025-08	2	32.1	34.4	320	-	0.967
DL02-25-AC-51	DLO-02-25_GN-5_2025-08	2	37.3	40.1	350	-	0.674
DL02-25-AC-52	DLO-02-25_GN-5_2025-08	2	28.6	31.0	245	-	1.047
DL02-25-AC-53	DLO-02-25_GN-5_2025-08	2	28.5	30.9	210	-	0.907
DL02-25-AC-54	DLO-02-25_GN-5_2025-08	2	35.1	38.0	415	-	0.960
DL02-25-AC-55	DLO-02-25_GN-5_2025-08	1.5	24.8	26.2	120	-	0.787
DL02-25-AC-56	DLO-02-25_GN-5_2025-08	1.5	27.6	29.7	210	-	0.999
DL02-25-AC-57	DLO-02-25_GN-5_2025-08	1.5	28.2	30.8	180	-	0.803
DL02-25-AC-58	DLO-02-25_GN-5_2025-08	1.5	37.4	40.4	460	-	0.879
DL02-25-AC-59	DLO-02-25_GN-5_2025-08	1.5	17.2	18.5	50	-	0.983
DL02-25-AC-60	DLO-02-25_GN-6_2025-08	3	32.2	34.6	380	-	1.138
DL02-25-AC-61	DLO-02-25_GN-6_2025-08	2	27.0	29.5	155	-	0.787
DL02-25-AC-62	DLO-02-25_GN-6_2025-08	2	33.0	35.7	335	-	0.932
DL02-25-AC-63	DLO-02-25_GN-6_2025-08	1.5	23.9	28.9	240	-	1.758
DL02-25-AC-64	DLO-02-25_GN-6_2025-08	1.5	36.8	42.0	380	-	0.763
DL02-25-AC-65	DLO-02-25_GN-7_2025-08	3	42.1	45.2	525	-	0.704
DL02-25-AC-66	DLO-02-25_GN-7_2025-08	3	36.0	38.7	425	-	0.911
DL02-25-AC-67	DLO-02-25_GN-7_2025-08	3	33.2	35.6	330	-	0.902
DL02-25-AC-68	DLO-02-25_GN-7_2025-08	2	38.9	40.0	480	-	0.815
DL02-25-AC-69	DLO-02-25_GN-7_2025-08	2	26.3	28.3	180	-	0.989
DL02-25-AC-70	DLO-02-25_GN-7_2025-08	2	29.8	32.5	240	-	0.907

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.17: Measurements from Arctic Charr Captured at Sheardown Lake Southeast (SE; DL0-02) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
DL02-25-AC-71	DLO-02-25_GN-7_2025-08	2	27.4	28.9	180	-	0.875
DL02-25-AC-72	DLO-02-25_GN-7_2025-08	1.5	19.9	20.5	70	-	0.888
DL02-25-AC-73	DLO-02-25_GN-7_2025-08	1.5	20.6	22.1	80	-	0.915
DL02-25-AC-74	DLO-02-25_GN-8_2025-08	3	36.8	40.0	430	-	0.863
DL02-25-AC-75	DLO-02-25_GN-8_2025-08	3	37.5	40.5	480	-	0.910
DL02-25-AC-76	DLO-02-25_GN-8_2025-08	2	38.8	41.7	465	-	0.796
DL02-25-AC-77	DLO-02-25_GN-8_2025-08	2	37.1	40.7	440	-	0.862
DL02-25-AC-78	DLO-02-25_GN-8_2025-08	2	36.0	39.3	470	-	1.007
DL02-25-AC-79	DLO-02-25_GN-8_2025-08	2	32.0	34.6	295	-	0.900
DL02-25-AC-80	DLO-02-25_GN-8_2025-08	2	33.5	36.0	320	-	0.851
DL02-25-AC-81	DLO-02-25_GN-8_2025-08	2	41.0	44.2	550	Deformed jaw	0.798
DL02-25-AC-82	DLO-02-25_GN-8_2025-08	2	32.5	34.9	300	-	0.874
DL02-25-AC-83	DLO-02-25_GN-8_2025-08	2	28.6	31.2	200	-	0.855
DL02-25-AC-84	DLO-02-25_GN-8_2025-08	2	39.2	42.2	555	-	0.921
DL02-25-AC-85	DLO-02-25_GN-8_2025-08	2	28.5	30.7	220	-	0.950
DL02-25-AC-86	DLO-02-25_GN-8_2025-08	2	30.0	32.6	250	-	0.926
DL02-25-AC-87	DLO-02-25_GN-8_2025-08	1.5	36.8	39.4	435	-	0.873
DL02-25-AC-88	DLO-02-25_GN-8_2025-08	1.5	41.0	43.7	600	-	0.871
DL02-25-AC-89	DLO-02-25_GN-9_2025-08	3	35.5	38.1	380	-	0.849
DL02-25-AC-90	DLO-02-25_GN-9_2025-08	3	38.0	41.3	530	-	0.966
DL02-25-AC-91	DLO-02-25_GN-9_2025-08	2	27.5	29.5	275	-	1.322
DL02-25-AC-92	DLO-02-25_GN-9_2025-08	2	35.3	38.2	390	-	0.887
DL02-25-AC-93	DLO-02-25_GN-9_2025-08	1.5	37.6	40.6	405	-	0.762
DL02-25-AC-94	DLO-02-25_GN-9_2025-08	1.5	29.6	32.2	235	-	0.906
DL02-25-AC-95	DLO-02-25_GN-9_2025-08	1.5	37.5	40.6	550	-	1.043
DL02-25-AC-96	DLO-02-25_GN-10_2025-08	2	27.7	29.2	165	-	0.776
DL02-25-AC-97	DLO-02-25_GN-10_2025-08	2	24.5	26.6	120	-	0.816
DL02-25-AC-98	DLO-02-25_GN-10_2025-08	2	33.2	35.9	315	-	0.861
DL02-25-AC-99	DLO-02-25_GN-10_2025-08	2	34.6	37.5	325	-	0.785
DL02-25-AC-100	DLO-02-25_GN-10_2025-08	1.5	30.2	32.5	285	-	1.035
Overall Catch Summary	Sample Size (N)		100	100	100	-	100
	Mean		33.1	35.8	335.8	-	0.893
	Median		33.7	36.5	335.0	-	0.873
	Standard Deviation		5.00	5.41	124.3	-	0.160
	Standard Error		0.500	0.541	12.4	-	0.016
	Minimum		17.2	18.5	50	-	0.619
	Maximum		42.1	45.2	600	-	1.758

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.18: Gill Netting Catch Records for Arctic Charr in Mary Lake (BL0), Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Gill Net Set ID	Location (NAD83, UTM Zone 17N)		Length (m)	Set Date	Lift Date	Set Time	Lift Time	Fishing Hours	Effort (m*hrs / 100 m)	Total Catch ^a	Mortality	CPUE ^a
	Easting	Northing										
BL0-25-GN-01	555434	7905040	91.0	14-Aug-25	14-Aug-25	13:07	14:05	0.97	0.880	2	0	2.27
BL0-25-GN-02	555519	7904827	91.0	14-Aug-25	14-Aug-25	14:20	15:30	1.17	1.062	8	0	7.54
BL0-25-GN-03 ^a	NR	NR	91.0	14-Aug-25	14-Aug-25	NR	NR	0.00	NC	9	1	NC
BL0-25-GN-04	555511	7904821	91.0	15-Aug-25	15-Aug-25	9:15	10:10	0.92	0.834	8	1	9.59
BL0-25-GN-05	555629	7904652	91.0	15-Aug-25	15-Aug-25	9:30	11:00	1.50	1.365	7	1	5.13
BL0-25-GN-06	555511	7904821	91.0	15-Aug-25	15-Aug-25	10:40	11:50	1.17	1.062	7	1	6.59
BL0-25-GN-07	555580	7904655	91.0	15-Aug-25	15-Aug-25	11:05	12:25	1.33	1.213	7	1	5.77
BL0-25-GN-08	555580	7904655	91.0	15-Aug-25	15-Aug-25	12:30	13:55	1.42	1.289	7	0	5.43
BL0-25-GN-09	555782	7904278	91.0	15-Aug-25	15-Aug-25	12:40	14:00	1.33	1.213	8	0	6.59
BL0-25-GN-10	555782	7904278	91.0	15-Aug-25	15-Aug-25	14:30	15:30	1.00	0.910	2	0	2.20
BL0-25-GN-11	555852	7909131	91.0	15-Aug-25	15-Aug-25	14:20	15:40	1.33	1.213	2	1	1.65
BL0-25-GN-12	554832	7905972	91.0	15-Aug-25	15-Aug-25	9:20	10:05	0.75	0.683	5	0	7.33
BL0-25-GN-13	554746	7906000	91.0	15-Aug-25	15-Aug-25	9:20	10:27	1.12	1.016	7	1	6.89
BL0-25-GN-14	554798	7905979	91.0	15-Aug-25	15-Aug-25	11:07	12:00	0.88	0.804	7	1	8.71
BL0-25-GN-15	555643	7904366	91.0	15-Aug-25	15-Aug-25	11:23	12:37	1.23	1.122	3	0	2.67
BL0-25-GN-16	554876	7905968	91.0	15-Aug-25	15-Aug-25	12:33	15:33	3.00	2.730	5	0	1.83
BL0-25-GN-17	555308	7905053	91.0	15-Aug-25	15-Aug-25	13:07	13:55	0.80	0.728	0	0	0.00
BL0-25-GN-18	554844	7905980	91.0	15-Aug-25	15-Aug-25	13:00	14:00	1.00	0.910	2	0	2.20
BL0-25-GN-19	554828	7905994	91.0	15-Aug-25	15-Aug-25	14:17	15:20	1.05	0.956	13	1	13.61
Total, including BL0-25-GN-03									NC	109	8	NC
Total, excluding BL0-25-GN-03									20.0	100	9	5.00

Notes: ID = identifier. NAD83 = North American Datum of 1983. UTM = Universal Transverse Mercator. m = metres. hrs = hours. NR = not recorded. NC = not calculable. Catch-per-unit-effort (CPUE) represents the number of fish captured per 100 m·hours of net.

^a Effort data were not recorded for BL0-25-GN-03. The total catch is shown with and without the fish from this effort included; the CPUE was calculated excluding effort BL0-25-GN-03.

Table F.19: Measurements from Arctic Charr Captured at Mary Lake (BL0) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
BL0-25-ACJ-01	5.4	5.6	1.385	-	0.880
BL0-25-ACJ-02	7.4	7.8	3.946	1	0.974
BL0-25-ACJ-03	7.8	8.3	3.879	-	0.817
BL0-25-ACJ-04	9.7	10.4	5.924	1	0.649
BL0-25-ACJ-05	8.5	8.9	3.615	-	0.589
BL0-25-ACJ-06	7.6	8.0	3.804	-	0.867
BL0-25-ACJ-07	5.6	6.0	1.360	1	0.774
BL0-25-ACJ-08	8.2	8.9	4.334	-	0.786
BL0-25-ACJ-09	7.0	7.5	3.313	-	0.966
BL0-25-ACJ-10	11.2	12.0	11.152	3	0.794
BL0-25-ACJ-11	6.0	6.4	1.630	-	0.755
BL0-25-ACJ-12	7.4	7.7	3.582	-	0.884
BL0-25-ACJ-13	11.5	12.4	13.435	-	0.883
BL0-25-ACJ-14	6.0	6.4	1.576	-	0.730
BL0-25-ACJ-15	4.0	4.4	0.513	0	0.802
BL0-25-ACJ-16	8.2	8.8	4.665	2	0.846
BL0-25-ACJ-17	9.5	10.1	6.878	-	0.802
BL0-25-ACJ-18	9.1	9.7	6.181	-	0.820
BL0-25-ACJ-19	8.0	8.6	4.086	-	0.798
BL0-25-ACJ-20	6.0	6.5	2.069	1	0.958
BL0-25-ACJ-21	7.5	8.0	3.762	-	0.892
BL0-25-ACJ-22	7.5	8.0	4.087	-	0.969
BL0-25-ACJ-23	6.5	6.9	2.208	-	0.804
BL0-25-ACJ-24	8.4	8.9	4.809	-	0.811
BL0-25-ACJ-25	4.3	4.5	0.639	-	0.804
BL0-25-ACJ-26	7.0	7.5	2.748	-	0.801
BL0-25-ACJ-27	7.1	7.5	3.018	-	0.843
BL0-25-ACJ-28	5.6	6.0	1.441	-	0.821
BL0-25-ACJ-29	7.2	7.6	3.208	-	0.859
BL0-25-ACJ-30	7.6	8.0	3.556	-	0.810
BL0-25-ACJ-31	6.2	6.5	2.822	-	1.184
BL0-25-ACJ-32	6.6	7.0	2.943	-	1.024
BL0-25-ACJ-33	9.3	9.9	5.272	-	0.655
BL0-25-ACJ-34	7.2	7.8	3.308	-	0.886
BL0-25-ACJ-35	5.2	5.5	1.202	-	0.855
BL0-25-ACJ-36	7.0	7.5	2.907	-	0.848
BL0-25-ACJ-37	9.5	10.0	7.019	-	0.819
BL0-25-ACJ-38	5.5	6.0	1.339	-	0.805
BL0-25-ACJ-39	7.3	7.7	3.047	-	0.783
BL0-25-ACJ-40	6.5	6.7	2.079	-	0.757
BL0-25-ACJ-41	7.0	7.4	3.769	-	1.099
BL0-25-ACJ-42	6.4	6.8	2.199	-	0.839
BL0-25-ACJ-43	6.0	6.4	1.650	-	0.764
BL0-25-ACJ-44	7.5	8.0	3.468	-	0.822
BL0-25-ACJ-45	7.8	8.3	3.814	-	0.804
BL0-25-ACJ-46	8.3	9.0	4.793	-	0.838
BL0-25-ACJ-47	8.5	9.0	5.321	2	0.866
BL0-25-ACJ-48	8.5	9.0	4.618	-	0.752
BL0-25-ACJ-49	6.2	6.6	2.293	-	0.962
BL0-25-ACJ-50	6.2	6.5	2.065	-	0.866
BL0-25-ACJ-51	7.1	7.6	2.616	-	0.731
BL0-25-ACJ-52	6.9	7.3	2.939	-	0.895
BL0-25-ACJ-53	6.1	6.5	2.007	-	0.884
BL0-25-ACJ-54	6.1	6.5	1.786	-	0.787
BL0-25-ACJ-55	6.6	7.1	2.264	-	0.787
BL0-25-ACJ-56	6.0	6.4	1.702	-	0.788
BL0-25-ACJ-57	4.5	4.7	0.698	-	0.766
BL0-25-ACJ-58	6.2	6.5	1.921	-	0.806
BL0-25-ACJ-59	6.5	6.8	2.189	-	0.797
BL0-25-ACJ-60	7.5	8.0	3.674	-	0.871

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.19: Measurements from Arctic Charr Captured at Mary Lake (BL0) by Backpack Electrofishing, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID		Fork Length (cm)	Total Length (cm)	Body Weight (g)	Age (years)	Fulton's Condition Factor (K) ^a
BL0-25-ACJ-61		5.6	6.0	1.403	-	0.799
BL0-25-ACJ-62		6.3	6.6	3.981	-	1.592
BL0-25-ACJ-63		7.0	7.5	3.075	-	0.897
BL0-25-ACJ-64		6.5	6.9	2.465	-	0.898
BL0-25-ACJ-65		6.5	7.0	2.261	-	0.823
BL0-25-ACJ-66		8.0	8.6	4.256	2	0.831
BL0-25-ACJ-67		6.8	7.1	2.678	-	0.852
BL0-25-ACJ-68		7.9	8.3	4.112	-	0.834
BL0-25-ACJ-69		4.3	4.8	0.846	-	1.064
BL0-25-ACJ-70		6.2	6.5	1.991	-	0.835
BL0-25-ACJ-71		4.5	4.8	0.762	-	0.836
BL0-25-ACJ-72		5.8	6.2	0.902	-	0.462
BL0-25-ACJ-73		5.5	5.8	1.423	-	0.855
BL0-25-ACJ-74		6.4	6.6	1.925	-	0.734
BL0-25-ACJ-75		4.8	5.1	0.808	-	0.731
BL0-25-ACJ-76		5.7	6.0	1.674	-	0.904
BL0-25-ACJ-77		7.2	7.7	4.412	-	1.182
BL0-25-ACJ-78		5.8	6.0	1.598	-	0.819
BL0-25-ACJ-79		6.2	6.4	1.756	-	0.737
BL0-25-ACJ-80		6.3	6.7	2.195	-	0.878
BL0-25-ACJ-81		5.8	6.2	1.867	-	0.957
BL0-25-ACJ-82		6.1	6.5	1.908	-	0.841
BL0-25-ACJ-83		5.8	6.2	1.703	-	0.873
BL0-25-ACJ-84		5.6	6.0	1.584	-	0.902
BL0-25-ACJ-85		6.2	6.5	1.773	-	0.744
BL0-25-ACJ-86		5.7	6.2	1.792	-	0.968
BL0-25-ACJ-87		7.0	7.3	2.683	-	0.782
BL0-25-ACJ-88		4.0	4.2	0.485	-	0.758
BL0-25-ACJ-89		7.2	7.5	2.620	-	0.702
BL0-25-ACJ-90		5.5	5.7	1.369	-	0.823
BL0-25-ACJ-91		5.5	5.7	1.434	-	0.862
BL0-25-ACJ-92		6.0	6.2	1.472	-	0.681
BL0-25-ACJ-93		6.5	6.7	2.376	-	0.865
BL0-25-ACJ-94		6.2	6.5	1.912	-	0.802
BL0-25-ACJ-95		6.5	6.8	2.299	-	0.837
BL0-25-ACJ-96		5.8	6.1	1.624	-	0.832
BL0-25-ACJ-97		5.9	6.2	1.395	-	0.679
BL0-25-ACJ-98		5.4	5.6	1.289	-	0.819
BL0-25-ACJ-99		5.8	6.1	1.817	-	0.931
BL0-25-ACJ-100		5.8	6.1	1.745	-	0.894
Overall Catch Summary	Sample Size (N)	100	100	100	9	100
	Mean	6.7	7.1	2.842	1.4	0.842
	Median	6.5	6.8	2.263	1	0.827
	Standard Deviation	1.4	1.5	1.952	0.9	0.128
	Standard Error	0.14	0.15	0.195	0.29	0.013
	Minimum	4.0	4.2	0.485	0	0.462
	Maximum	11.5	12.4	13.435	3	1.592
Young-of-the-Year Catch Summary	proportion of YOY	7%				
	Sample Size (N)	7	7	7	-	7
	Mean	4.3	4.6	0.679	-	0.823
	Median	4.3	4.7	0.698	-	0.802
	Standard Deviation	0.3	0.3	0.141	-	0.112
	Standard Error	0.11	0.1	0.053	-	0.042
	Minimum	4.0	4.2	0.485	-	0.731
	Maximum	4.8	5.1	0.846	-	1.064

Notes: ID = identifier. cm = centimetres. g = grams. - = data not collected/applicable. YOY = Young-of-the-year.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.20: Measurements from Arctic Charr Captured at Mary Lake (BL0) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
BL0-25-AC-01	BL0-25_GN-1_2025-08	2	29.9	32.5	235	-	0.879
BL0-25-AC-02	BL0-25_GN-1_2025-08	1.5	33.2	36.3	355	-	0.970
BL0-25-AC-03	BL0-25_GN-2_2025-08	3	70.4	76.4	3,400	-	0.974
BL0-25-AC-04	BL0-25_GN-2_2025-08	3	62.7	66.3	2,100	-	0.852
BL0-25-AC-05	BL0-25_GN-2_2025-08	3	67.0	71.3	2,250	-	0.748
BL0-25-AC-06	BL0-25_GN-2_2025-08	2	37.7	40.6	505	-	0.942
BL0-25-AC-07	BL0-25_GN-2_2025-08	2	42.1	46.0	705	-	0.945
BL0-25-AC-08	BL0-25_GN-2_2025-08	2	34.0	36.6	385	-	0.980
BL0-25-AC-09	BL0-25_GN-2_2025-08	1.5	28.5	30.9	190	-	0.821
BL0-25-AC-10	BL0-25_GN-2_2025-08	1.5	40.9	43.8	550	-	0.804
BL0-25-AC-11	BL0-25_GN-3_2025-08	3	34.4	38.0	415	-	1.019
BL0-25-AC-12	BL0-25_GN-3_2025-08	3	42.6	46.2	690	-	0.893
BL0-25-AC-13	BL0-25_GN-3_2025-08	2	29.5	32.5	220	-	0.857
BL0-25-AC-14	BL0-25_GN-3_2025-08	2	46.0	50.0	680	-	0.699
BL0-25-AC-15	BL0-25_GN-3_2025-08	2	31.5	34.1	260	-	0.832
BL0-25-AC-16	BL0-25_GN-3_2025-08	2	29.8	32.5	260	-	0.982
BL0-25-AC-17	BL0-25_GN-3_2025-08	1.5	32.3	34.5	275	-	0.816
BL0-25-AC-18	BL0-25_GN-3_2025-08	1.5	31.2	34.1	265	-	0.873
BL0-25-AC-19	BL0-25_GN-3_2025-08	1.5	63.5	67.6	2,200	-	0.859
BL0-25-AC-20	BL0-25_GN-4_2025-08	3	59.5	63.6	1,800	-	0.855
BL0-25-AC-21	BL0-25_GN-4_2025-08	3	40.0	43.1	800	-	1.250
BL0-25-AC-22	BL0-25_GN-4_2025-08	2	35.0	38.0	420	-	0.980
BL0-25-AC-23	BL0-25_GN-4_2025-08	1.5	40.0	43.3	505	-	0.789
BL0-25-AC-24	BL0-25_GN-4_2025-08	1.5	37.2	40.4	495	-	0.962
BL0-25-AC-25	BL0-25_GN-4_2025-08	1.5	41.7	45.1	650	-	0.896
BL0-25-AC-26	BL0-25_GN-4_2025-08	1.5	44.0	47.0	765	-	0.898
BL0-25-AC-27	BL0-25_GN-4_2025-08	1.5	42.5	46.0	665	-	0.866
BL0-25-AC-28	BL0-25_GN-5_2025-08	2	63.5	67.1	2,200	-	0.859
BL0-25-AC-29	BL0-25_GN-5_2025-08	2	38.5	41.9	510	-	0.894
BL0-25-AC-30	BL0-25_GN-5_2025-08	1.5	64.8	68.4	2,650	-	0.974
BL0-25-AC-31	BL0-25_GN-5_2025-08	1.5	41.5	44.7	640	-	0.895
BL0-25-AC-32	BL0-25_GN-5_2025-08	1.5	69.0	73.3	3,250	-	0.989
BL0-25-AC-33	BL0-25_GN-5_2025-08	1.5	71.3	75.9	3,400	-	0.938
BL0-25-AC-34	BL0-25_GN-5_2025-08	1.5	75.0	79.2	4,550	-	1.079
BL0-25-AC-35	BL0-25_GN-6_2025-08	3	63.0	66.9	2,500		1.000
BL0-25-AC-36	BL0-25_GN-6_2025-08	3	66.3	70.5	3,000	-	1.029
BL0-25-AC-37	BL0-25_GN-6_2025-08	3	72.3	77.0	3,700	-	0.979
BL0-25-AC-38	BL0-25_GN-6_2025-08	2	37.8	39.9	430	-	0.796
BL0-25-AC-39	BL0-25_GN-6_2025-08	2	42.9	46.0	590	-	0.747
BL0-25-AC-40	BL0-25_GN-6_2025-08	2	38.4	41.4	570	-	1.007
BL0-25-AC-41	BL0-25_GN-12_2025-08	3	53.3	56.2	1,500	-	0.991
BL0-25-AC-42	BL0-25_GN-12_2025-08	3	38.5	41.4	505	-	0.885
BL0-25-AC-43	BL0-25_GN-12_2025-08	2	28.0	30.8	227	-	1.034
BL0-25-AC-44	BL0-25_GN-12_2025-08	2	26.3	28.6	170	-	0.935
BL0-25-AC-45	BL0-25_GN-12_2025-08	2	38.2	41.2	450	-	0.807
BL0-25-AC-46	BL0-25_GN-13_2025-08	3	51.1	54.1	1,450	lesions	1.087
BL0-25-AC-47	BL0-25_GN-13_2025-08	3	60.8	62.9	1,500	lesions	0.667
BL0-25-AC-48	BL0-25_GN-13_2025-08	3	43.1	46.1	575	-	0.718
BL0-25-AC-49	BL0-25_GN-13_2025-08	2	28.8	31.8	210	-	0.879
BL0-25-AC-50	BL0-25_GN-13_2025-08	2	33.4	36.2	312	-	0.837
BL0-25-AC-51	BL0-25_GN-13_2025-08	1.5	68.2	71.6	1,720	-	0.542
BL0-25-AC-52	BL0-25_GN-13_2025-08	1.5	40.1	43.6	510	-	0.791
BL0-25-AC-53	BL0-25_GN-14_2025-08	3	78.0	82.0	5,700	-	1.201
BL0-25-AC-54	BL0-25_GN-14_2025-08	2	27.2	29.4	192	-	0.954
BL0-25-AC-55	BL0-25_GN-14_2025-08	2	51.0	54.2	1,150	-	0.867
BL0-25-AC-56	BL0-25_GN-14_2025-08	2	53.0	56.3	1,550	-	1.041
BL0-25-AC-57	BL0-25_GN-14_2025-08	1.5	42.0	45.0	580	-	0.783
BL0-25-AC-58	BL0-25_GN-14_2025-08	1.5	37.0	39.8	495	-	0.977
BL0-25-AC-59	BL0-25_GN-14_2025-08	1.5	36.8	39.8	459	-	0.921
BL0-25-AC-60	BL0-25_GN-15_2025-08	2	64.6	68.2	2,430	-	0.901
BL0-25-AC-61	BL0-25_GN-15_2025-08	2	71.8	75.6	3,450	-	0.932
BL0-25-AC-62	BL0-25_GN-15_2025-08	1.5	21.0	22.9	85	-	0.918
BL0-25-AC-63	BL0-25_GN-16_2025-08	3	40.4	43.7	595	-	0.902
BL0-25-AC-64	BL0-25_GN-16_2025-08	2	62.0	64.8	2,150	lesions	0.902
BL0-25-AC-65	BL0-25_GN-16_2025-08	1.5	36.8	39.7	445	-	0.893
BL0-25-AC-66	BL0-25_GN-16_2025-08	1.5	42.9	45.9	650	-	0.823
BL0-25-AC-67	BL0-25_GN-16_2025-08	1.5	36.8	39.6	430	-	0.863
BL0-25-AC-68	BL0-25_GN-18_2025-08	1.5	40.0	43.5	580	-	0.906

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

Table F.20: Measurements from Arctic Charr Captured at Mary Lake (BL0) by Gill Netting, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Specimen ID	Net ID	Net Mesh Size (inches)	Fork Length (cm)	Total Length (cm)	Body Weight (g)	Abnormalities	Fulton's Condition Factor (K) ^a
BL0-25-AC-69	BL0-25_GN-18_2025-08	1.5	37.9	40.5	510	-	0.937
BL0-25-AC-70	BL0-25_GN-19_2025-08	3	35.6	38.6	425	-	0.942
BL0-25-AC-71	BL0-25_GN-19_2025-08	2	37.5	41.0	540	-	1.024
BL0-25-AC-72	BL0-25_GN-19_2025-08	2	39.1	42.4	700	-	1.171
BL0-25-AC-73	BL0-25_GN-19_2025-08	2	40.8	44.2	680	-	1.001
BL0-25-AC-74	BL0-25_GN-19_2025-08	2	36.1	40.0	520	-	1.105
BL0-25-AC-75	BL0-25_GN-19_2025-08	2	35.2	38.6	435	-	0.997
BL0-25-AC-76	BL0-25_GN-19_2025-08	2	38.4	41.3	485	-	0.857
BL0-25-AC-77	BL0-25_GN-19_2025-08	2	38.9	41.9	545	-	0.926
BL0-25-AC-78	BL0-25_GN-19_2025-08	2	36.5	39.1	410	-	0.843
BL0-25-AC-79	BL0-25_GN-19_2025-08	2	34.7	37.7	305	-	0.730
BL0-25-AC-80	BL0-25_GN-19_2025-08	1.5	34.9	37.9	462	-	1.087
BL0-25-AC-81	BL0-25_GN-6_2025-08	1.5	44.0	47.1	770	-	0.904
BL0-25-AC-82	BL0-25_GN-7_2025-08	3	58.5	62.0	1,840	-	0.919
BL0-25-AC-83	BL0-25_GN-7_2025-08	3	39.0	42.1	515	-	0.868
BL0-25-AC-84	BL0-25_GN-7_2025-08	2	75.0	78.7	4,500	-	1.067
BL0-25-AC-85	BL0-25_GN-7_2025-08	2	63.0	66.4	2,000	-	0.800
BL0-25-AC-86	BL0-25_GN-7_2025-08	2	64.3	68.3	2,650	-	0.997
BL0-25-AC-87	BL0-25_GN-7_2025-08	2	33.9	36.5	400	-	1.027
BL0-25-AC-88	BL0-25_GN-7_2025-08	1.5	38.6	41.5	565	-	0.982
BL0-25-AC-89	BL0-25_GN-8_2025-08	3	77.1	82.2	5,000	-	1.091
BL0-25-AC-90	BL0-25_GN-8_2025-08	3	48.5	51.9	935	-	0.820
BL0-25-AC-91	BL0-25_GN-8_2025-08	2	36.4	39.3	400	-	0.829
BL0-25-AC-92	BL0-25_GN-8_2025-08	2	65.0	69.7	2,500	-	0.910
BL0-25-AC-93	BL0-25_GN-8_2025-08	2	36.0	38.9	425	-	0.911
BL0-25-AC-94	BL0-25_GN-8_2025-08	2	64.4	68.0	2,650	-	0.992
BL0-25-AC-95	BL0-25_GN-8_2025-08	2	43.1	46.5	700	-	0.874
BL0-25-AC-96	BL0-25_GN-9_2025-08	3	39.6	42.7	560	-	0.902
BL0-25-AC-97	BL0-25_GN-9_2025-08	2	38.0	41.0	380	-	0.693
BL0-25-AC-98	BL0-25_GN-9_2025-08	2	38.3	41.3	505	-	0.899
BL0-25-AC-99	BL0-25_GN-9_2025-08	2	35.0	37.7	405	-	0.945
BL0-25-AC-100	BL0-25_GN-9_2025-08	1.5	33.9	36.6	475	-	1.219
Overall Catch Summary	Sample Size (N)		100	100	100	-	100
	Mean		45.4	48.7	1,143	-	0.917
	Median		40.0	43.2	568	-	0.905
	Standard Deviation		14.1	14.6	1,195	-	0.116
	Standard Error		1.41	1.46	119	-	0.012
	Minimum		21.0	22.9	85	-	0.542
	Maximum		78.0	82.2	5,700	-	1.250

Notes: ID = identifier. cm = centimetres. g = grams. "-" = no abnormalities/not applicable.

^a Fulton's condition factor is based on the assumption that fish undergo isometric growth and is expressed as the ratio between body weight and cubic fork length multiplied by 100.

APPENDIX G
SPECIAL INVESTIGATIONS

FIGURES

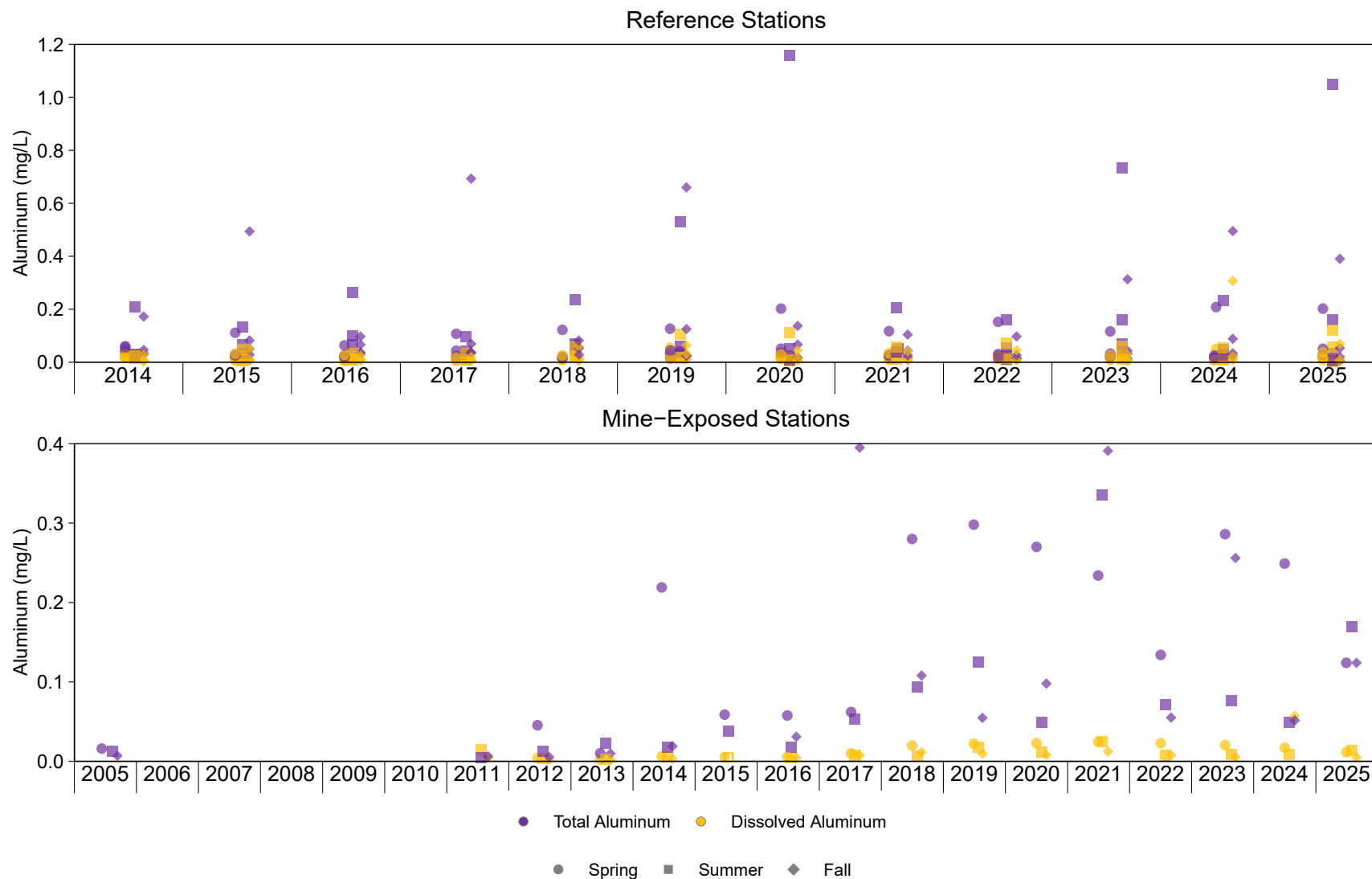


Figure G.1: Temporal Comparison of Total and Dissolved Aluminum, Iron, and Uranium Concentrations at Camp Lake Tributary 1 Upper Main Stem (CLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included L2-03 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, and MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

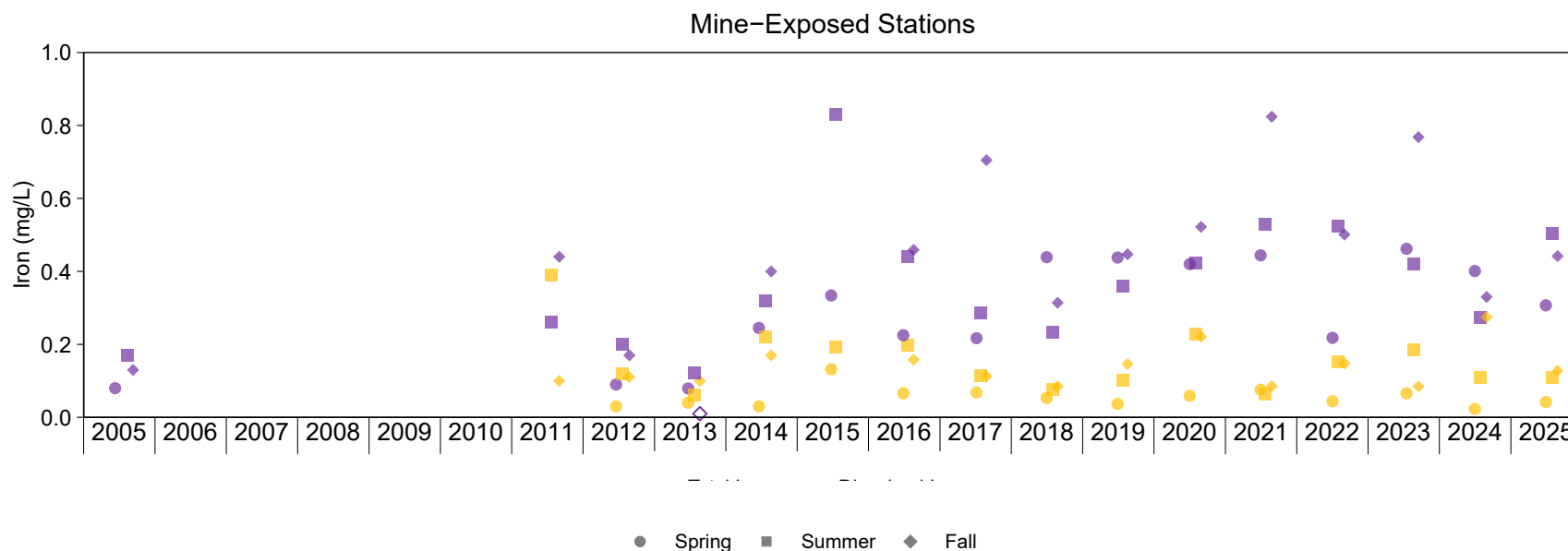
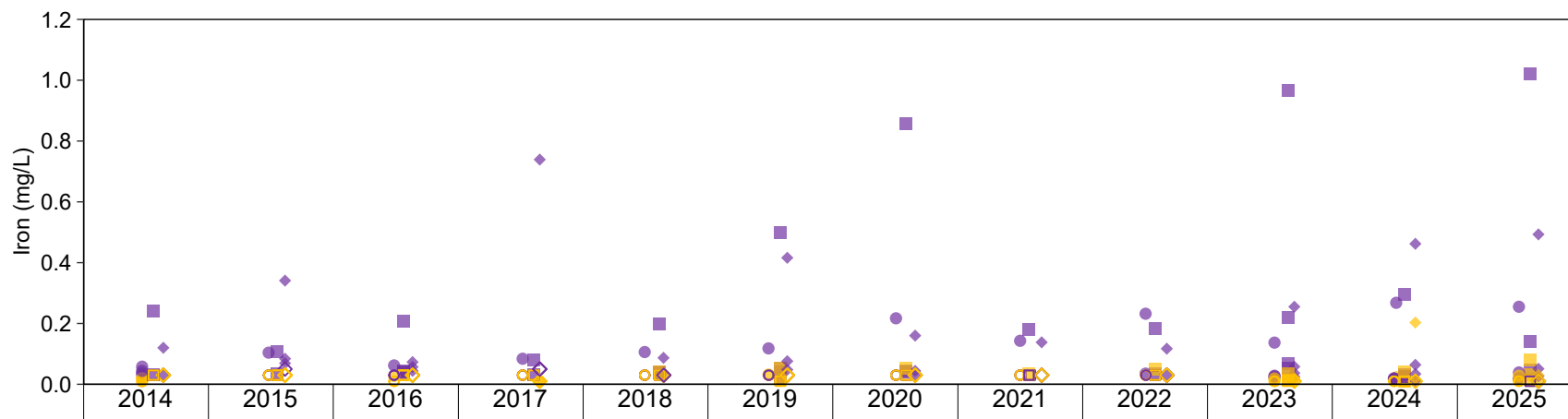


Figure G.1: Temporal Comparison of Total and Dissolved Aluminum, Iron, and Uranium Concentrations at Camp Lake Tributary 1 Upper Main Stem (CLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included L2-03 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, and MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

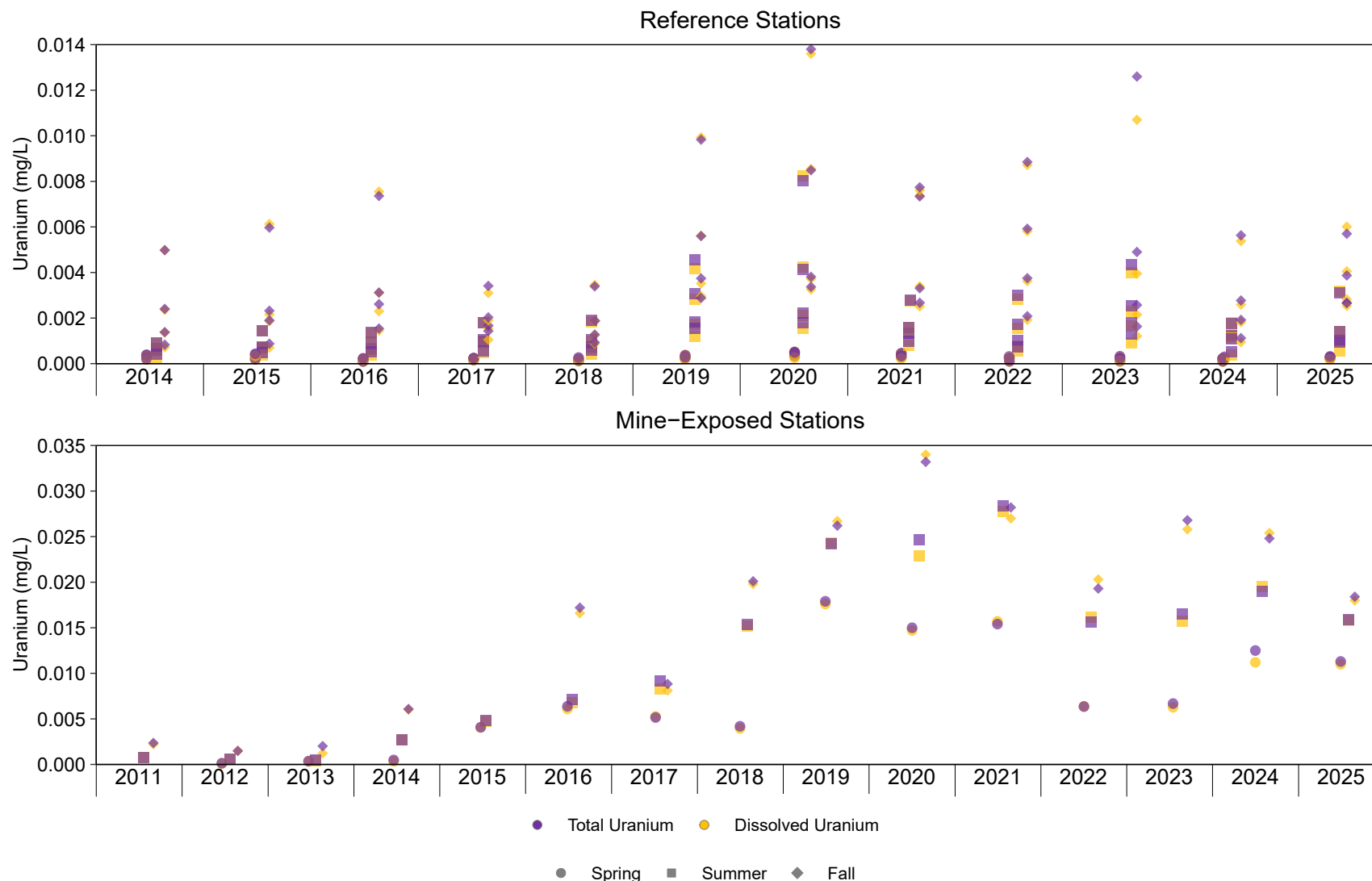


Figure G.1: Temporal Comparison of Total and Dissolved Aluminum, Iron, and Uranium Concentrations at Camp Lake Tributary 1 Upper Main Stem (CLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included L2-03 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, and MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

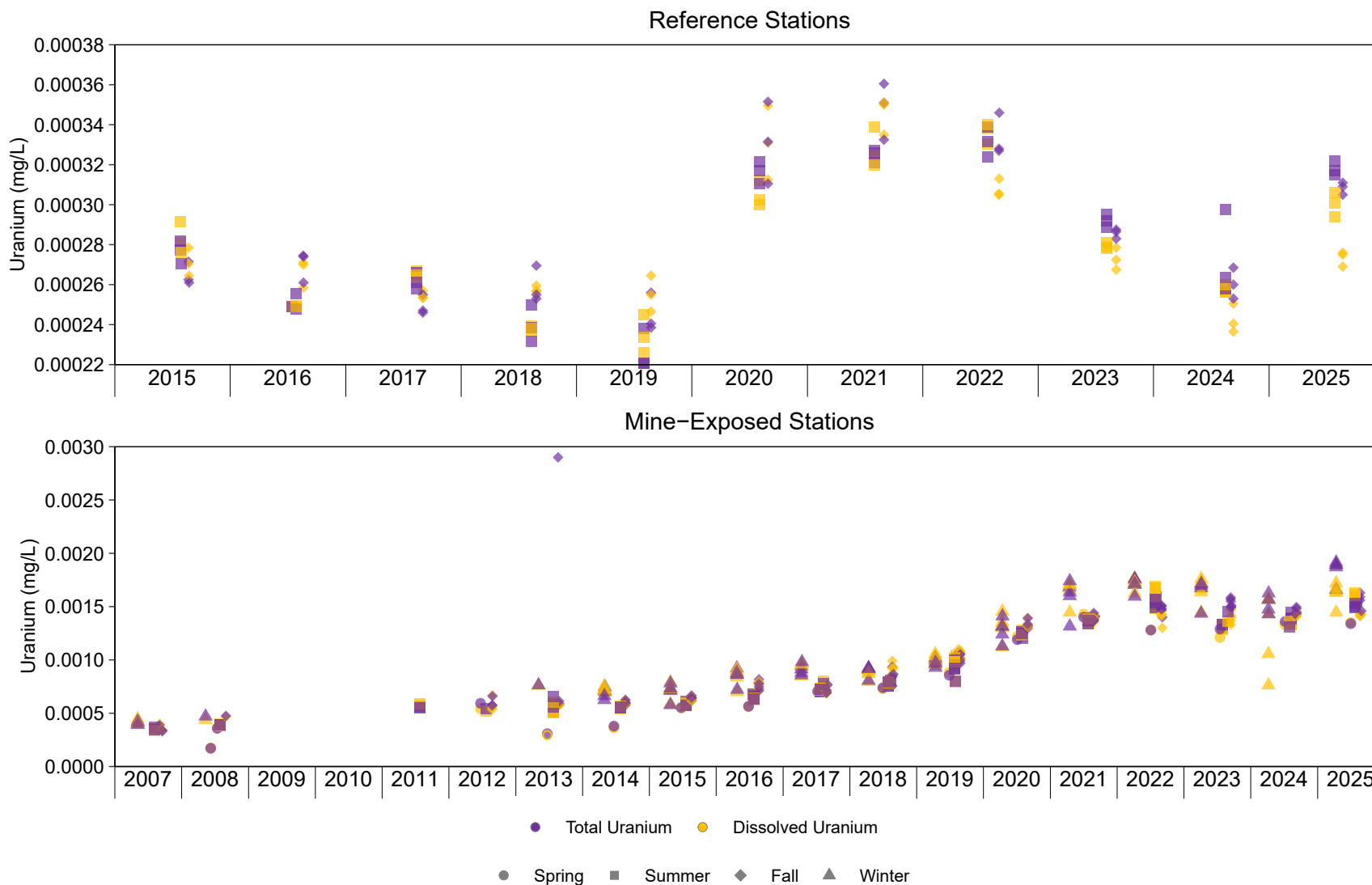


Figure G.2: Temporal Comparison of Total and Dissolved Uranium at Camp Lake (JL0) Over Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Means were plotted for each season. Censored means were plotted as open symbols. Mine-exposed stations included J0-01, JL0-01, JL0-02, JL0-07, JL0-09, and JL0-10 and reference stations included REF3-01, REF3-02, REF3-03. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

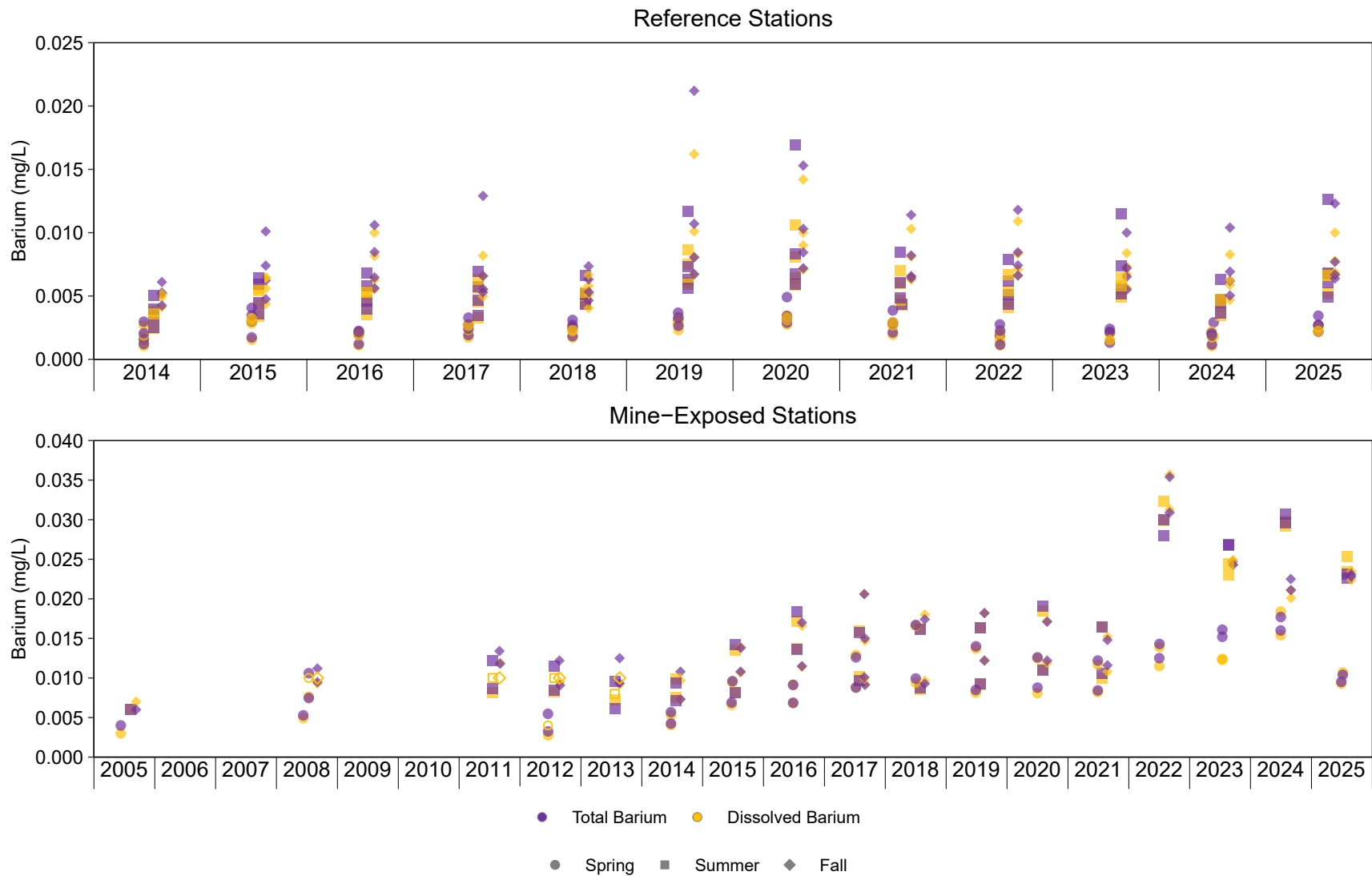


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

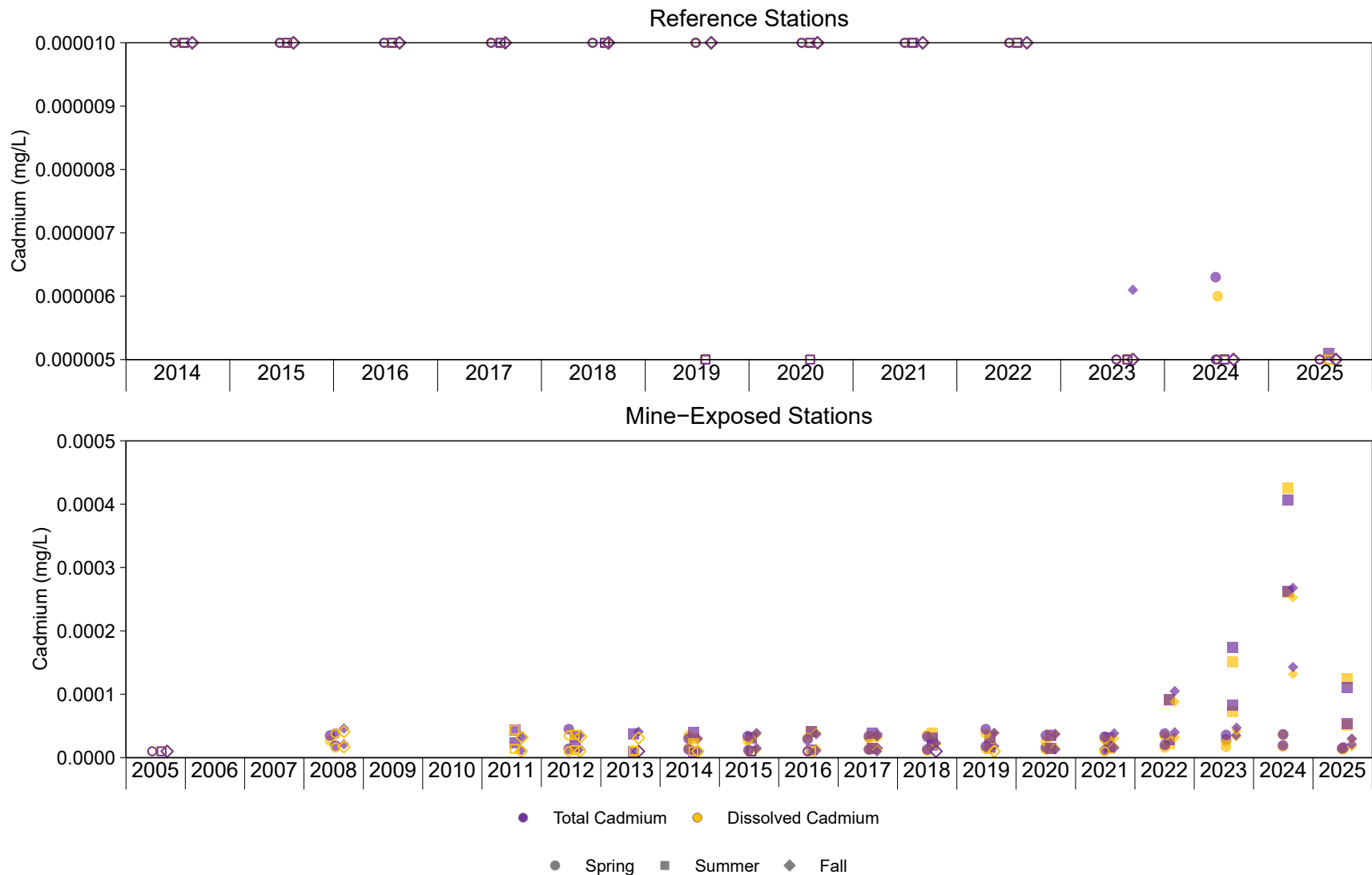


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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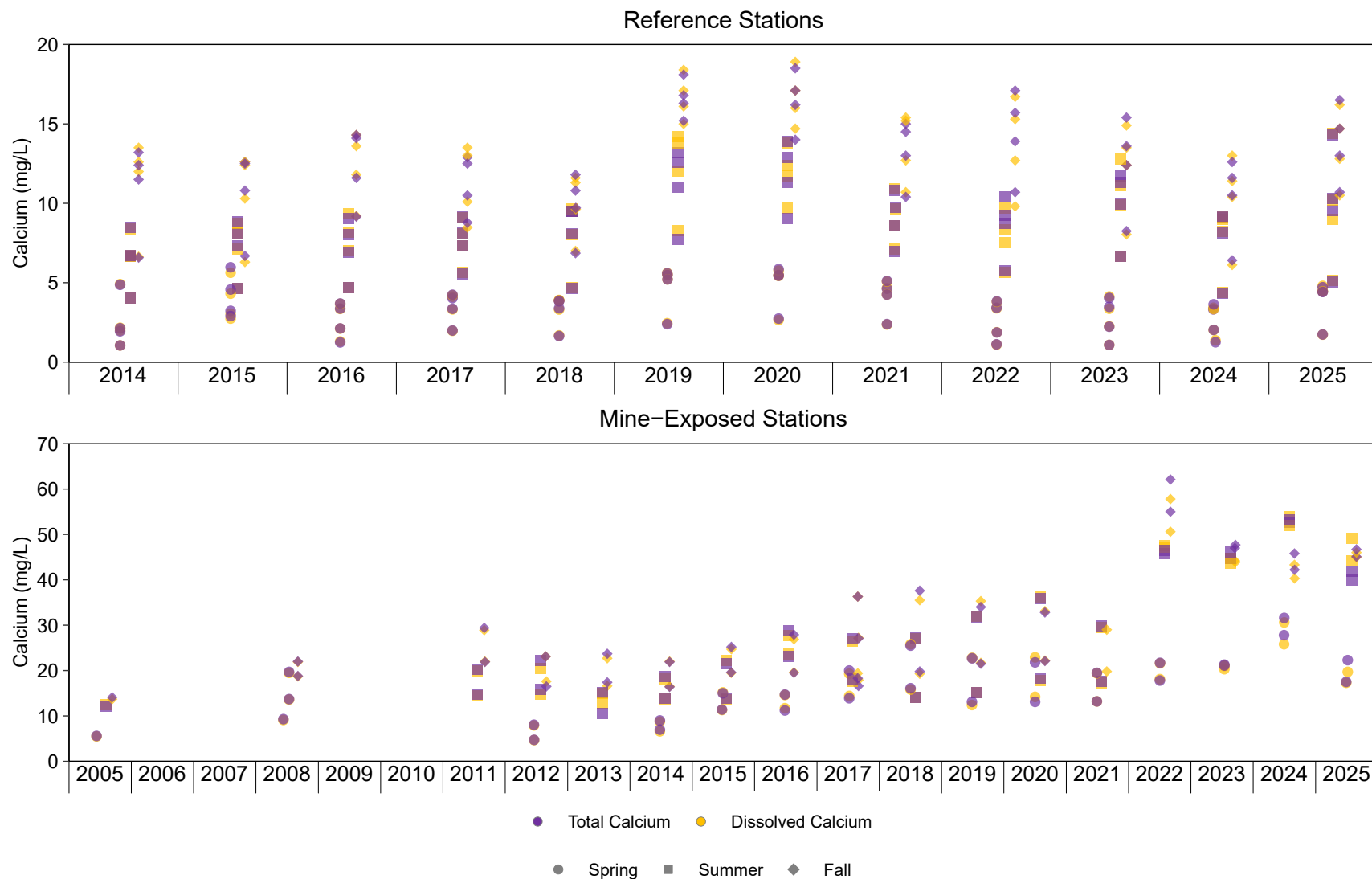


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

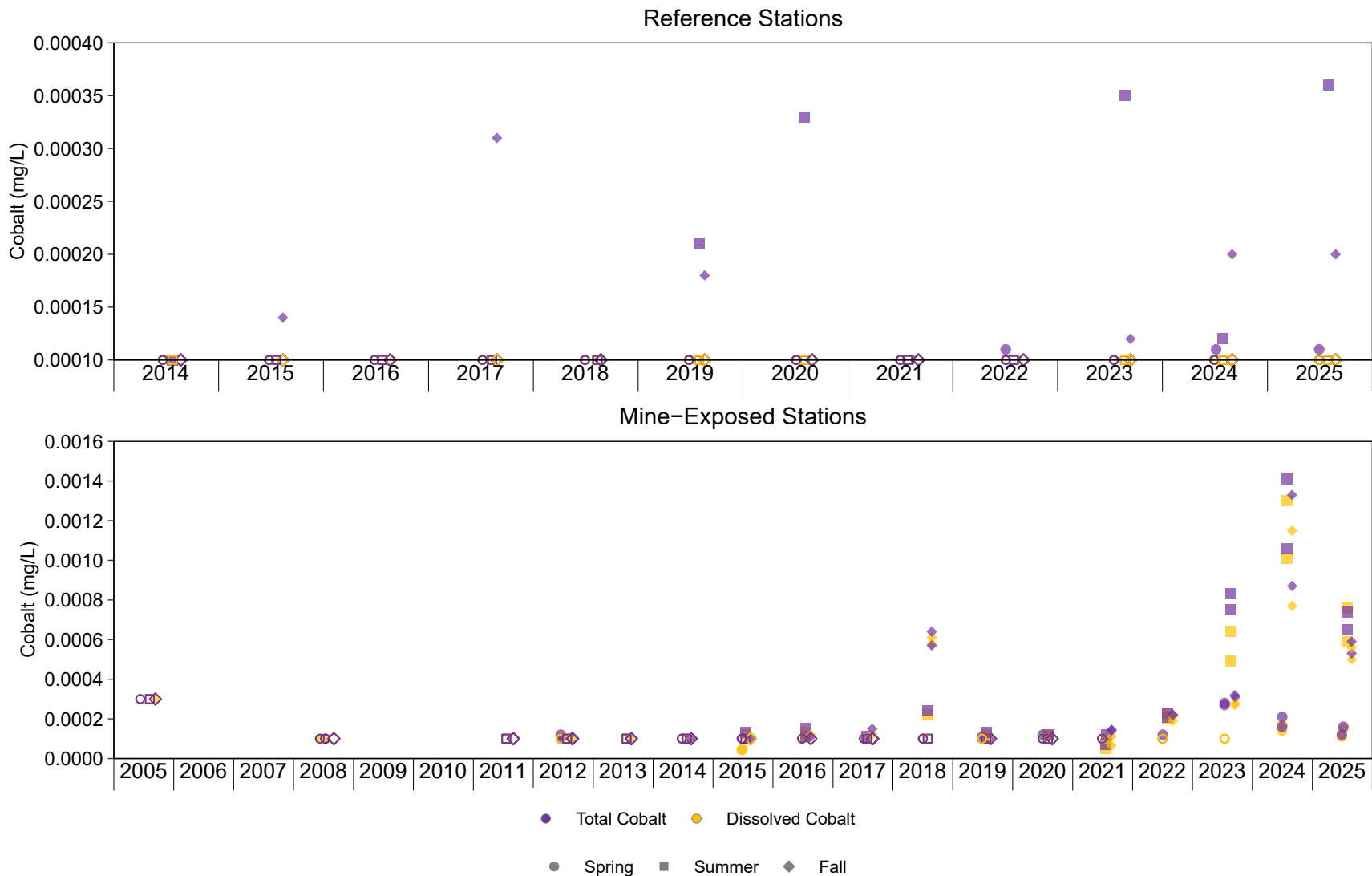


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

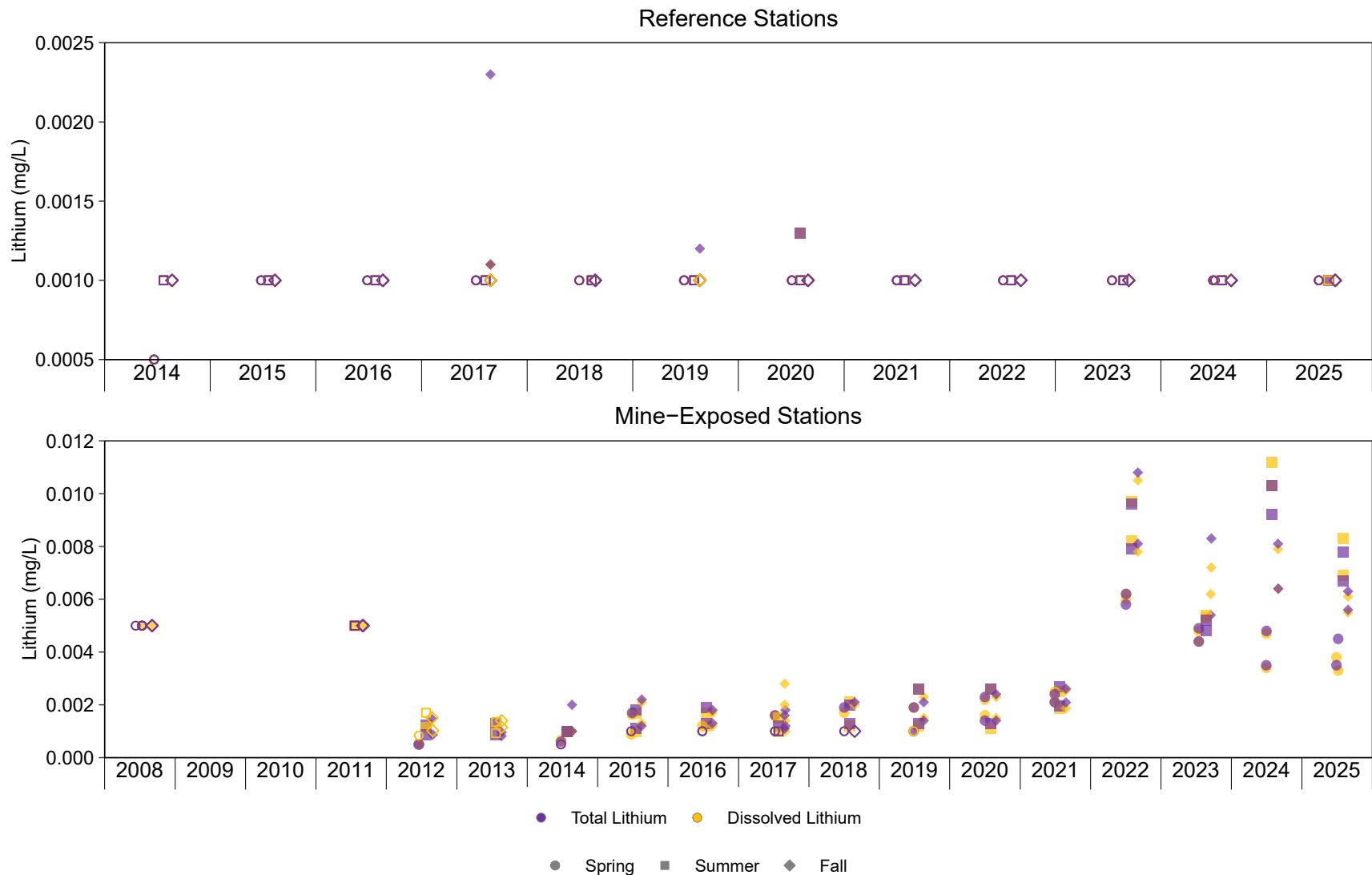


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

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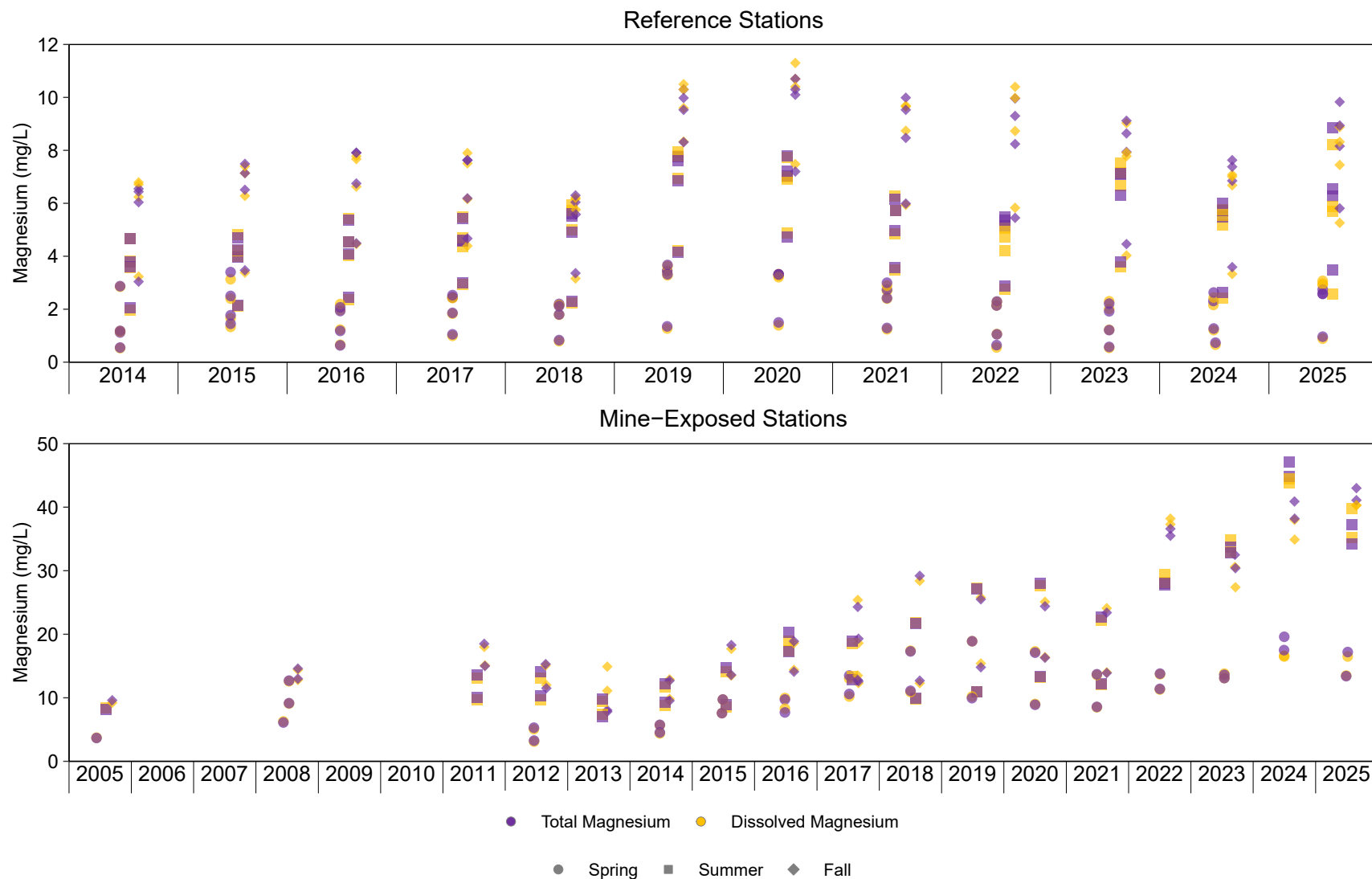


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

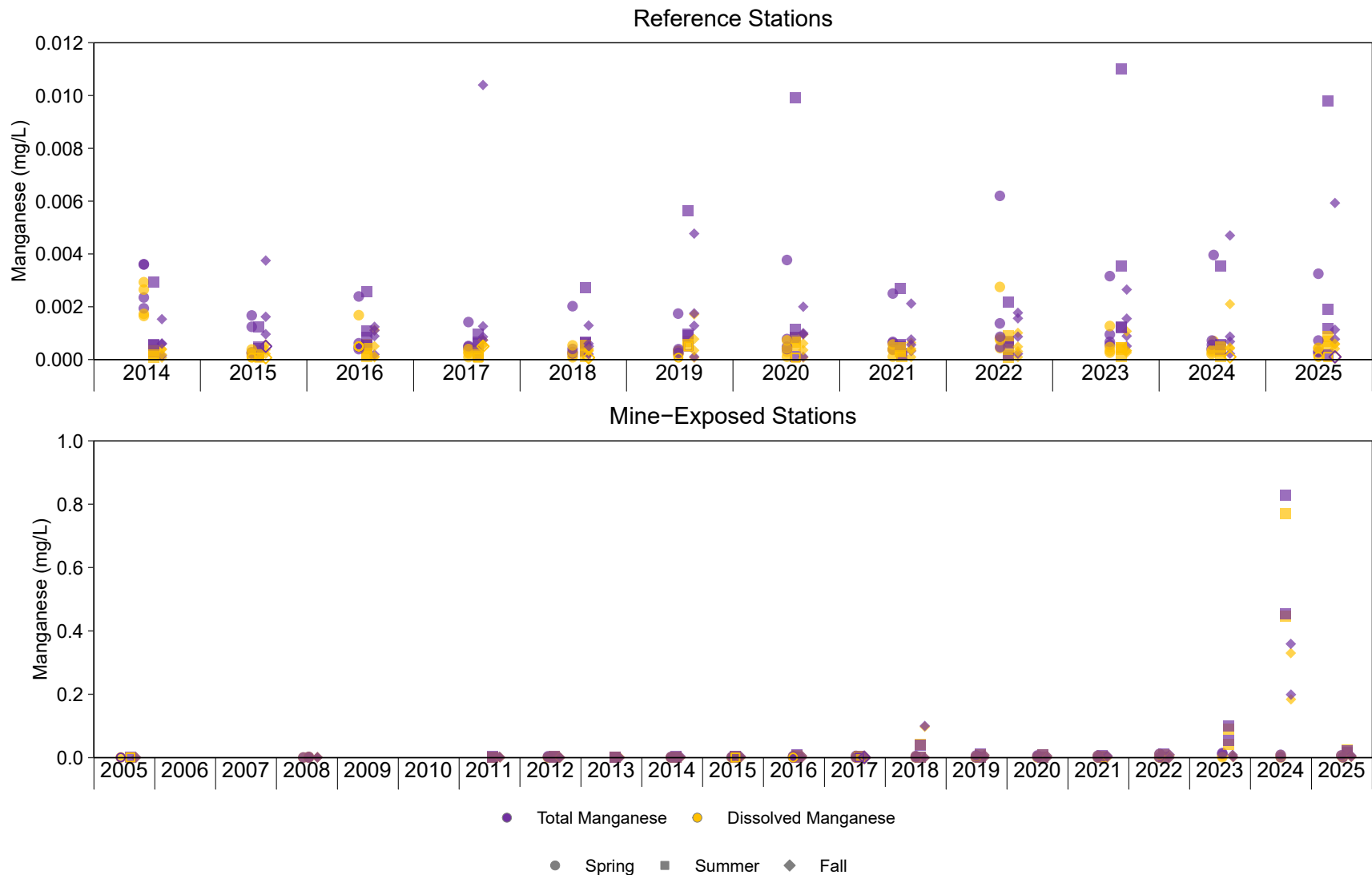


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

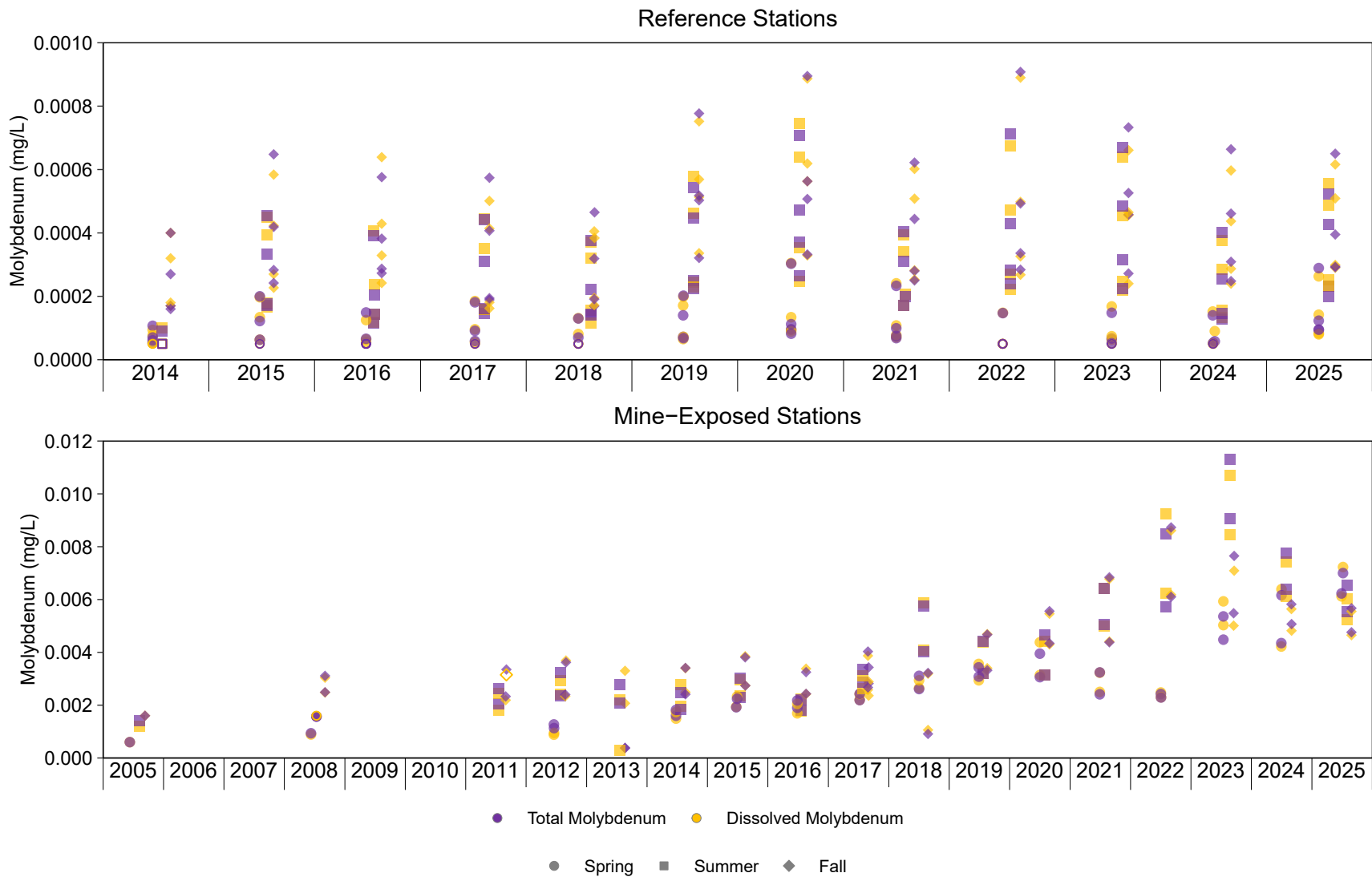


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

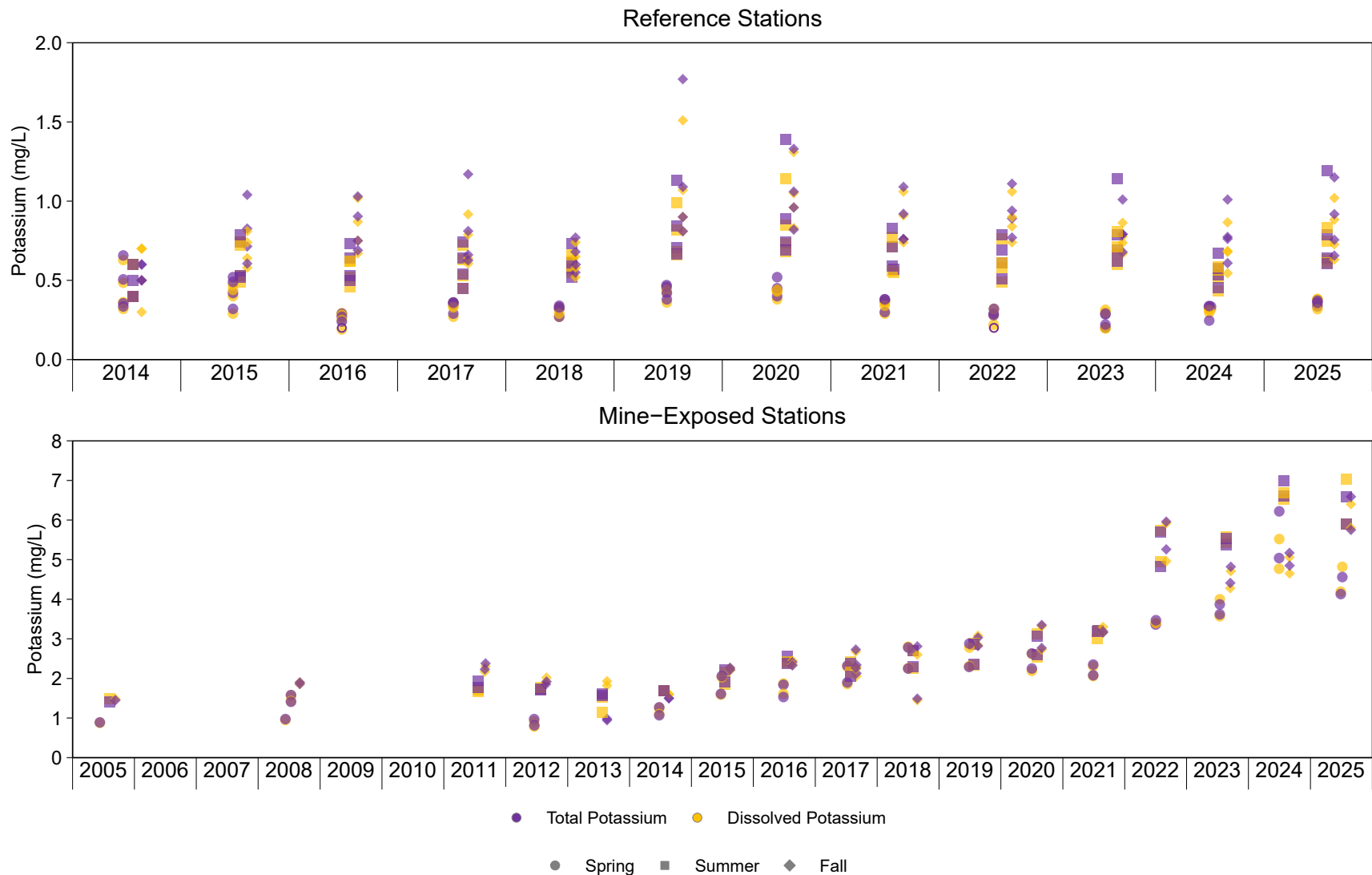


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

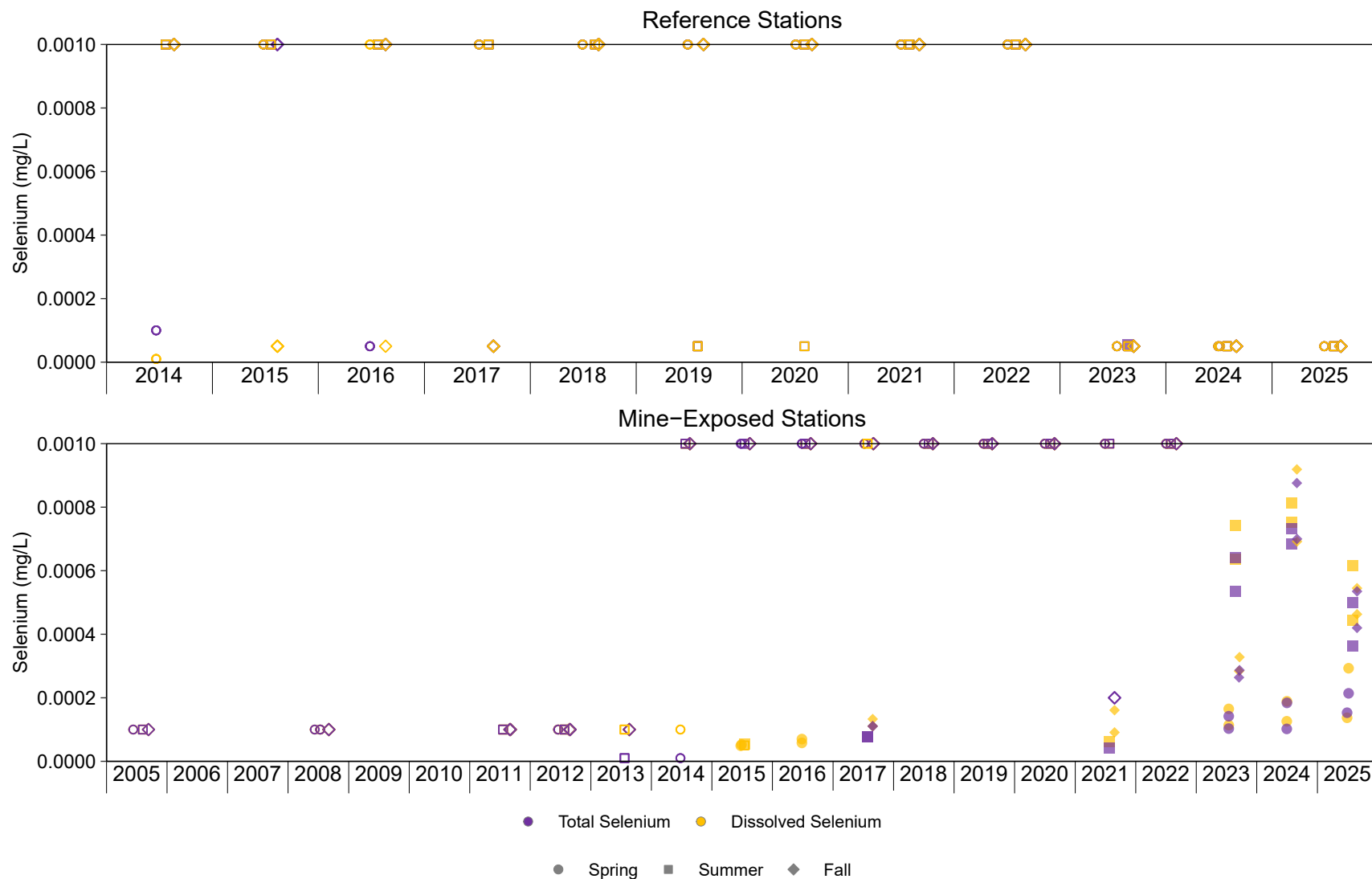


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

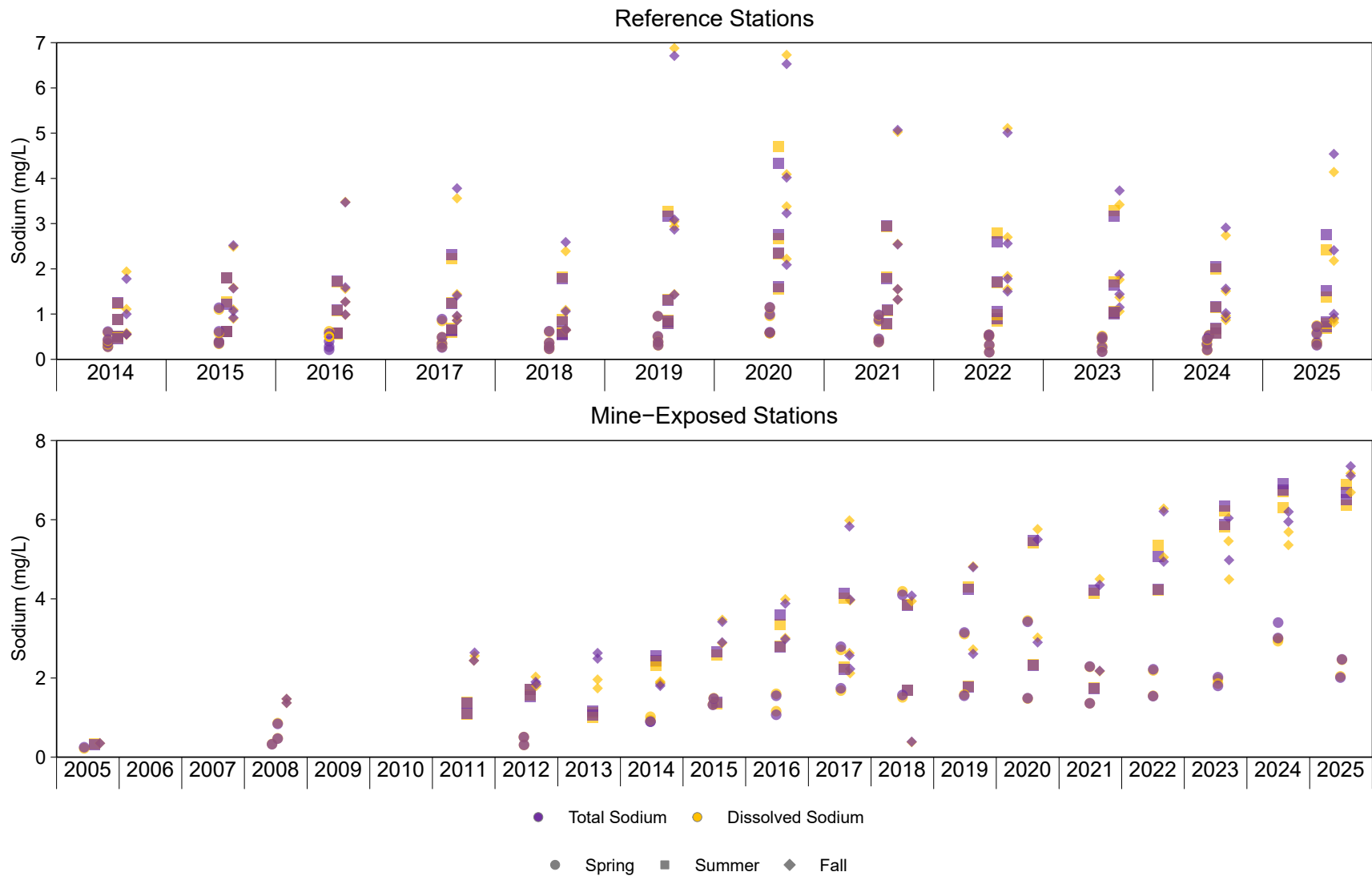


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

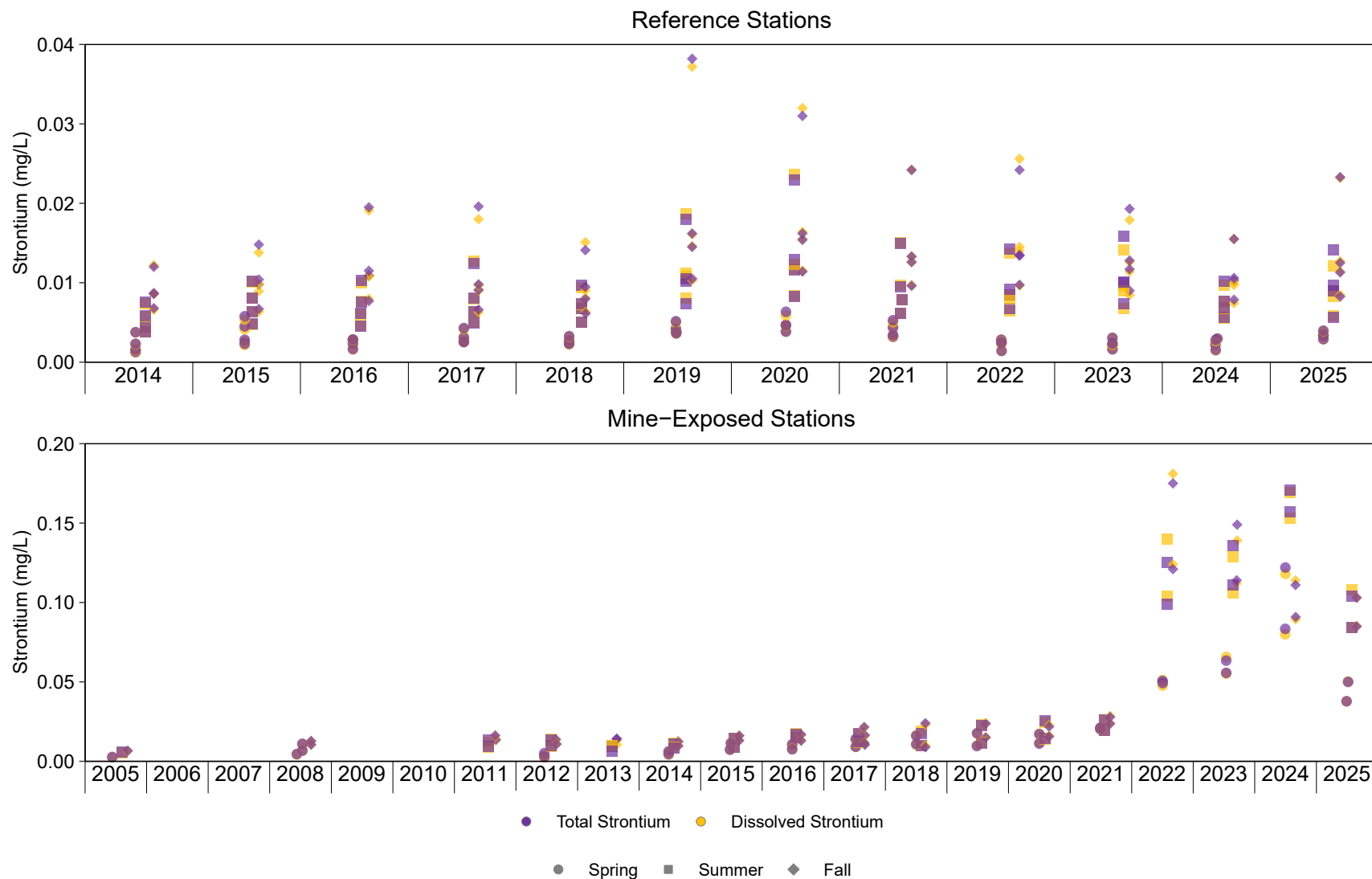


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

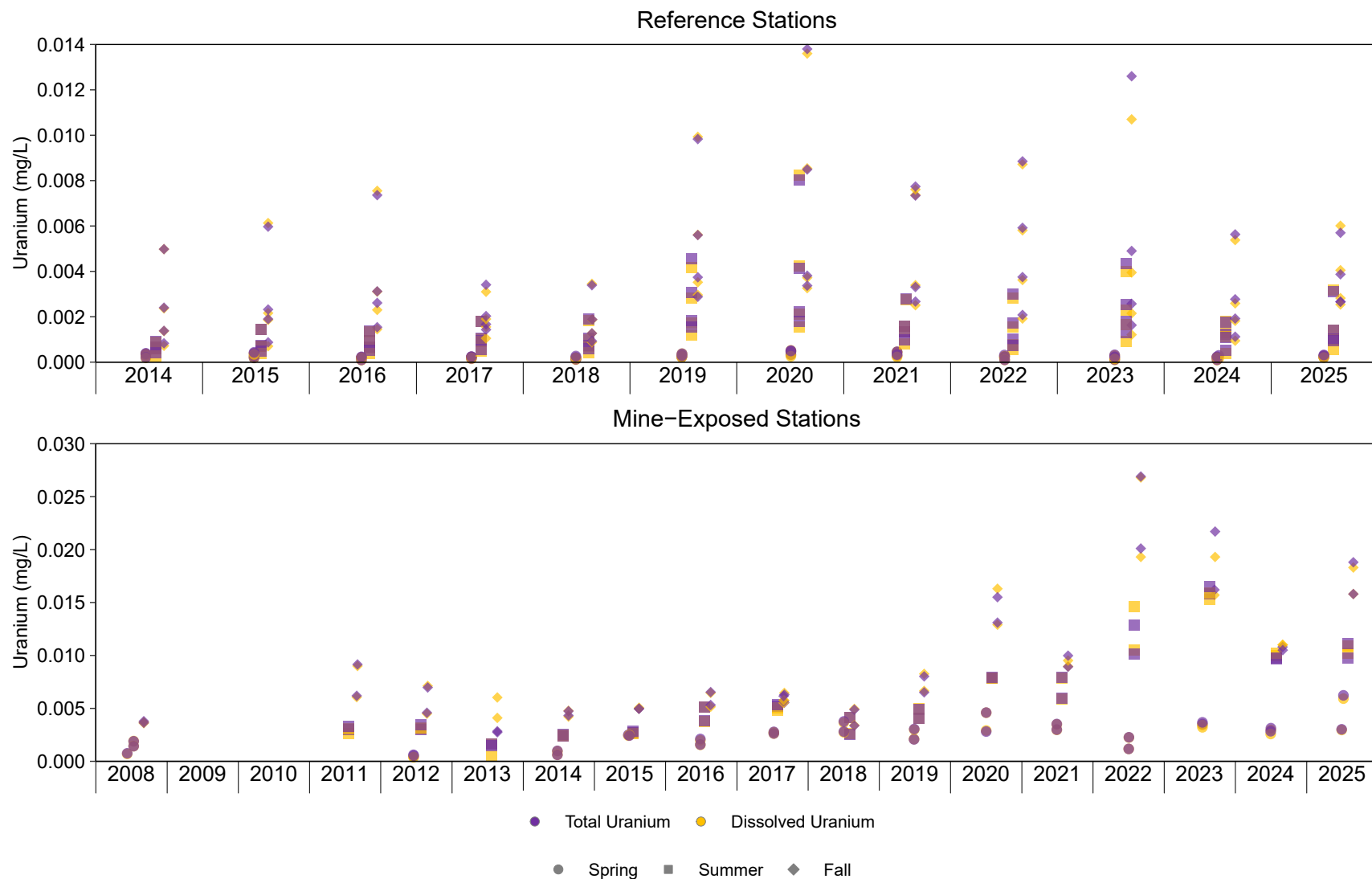


Figure G.3: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 1 (SDLT1) Over the Mine Baseline (2005 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D1-05 and D1-00 and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

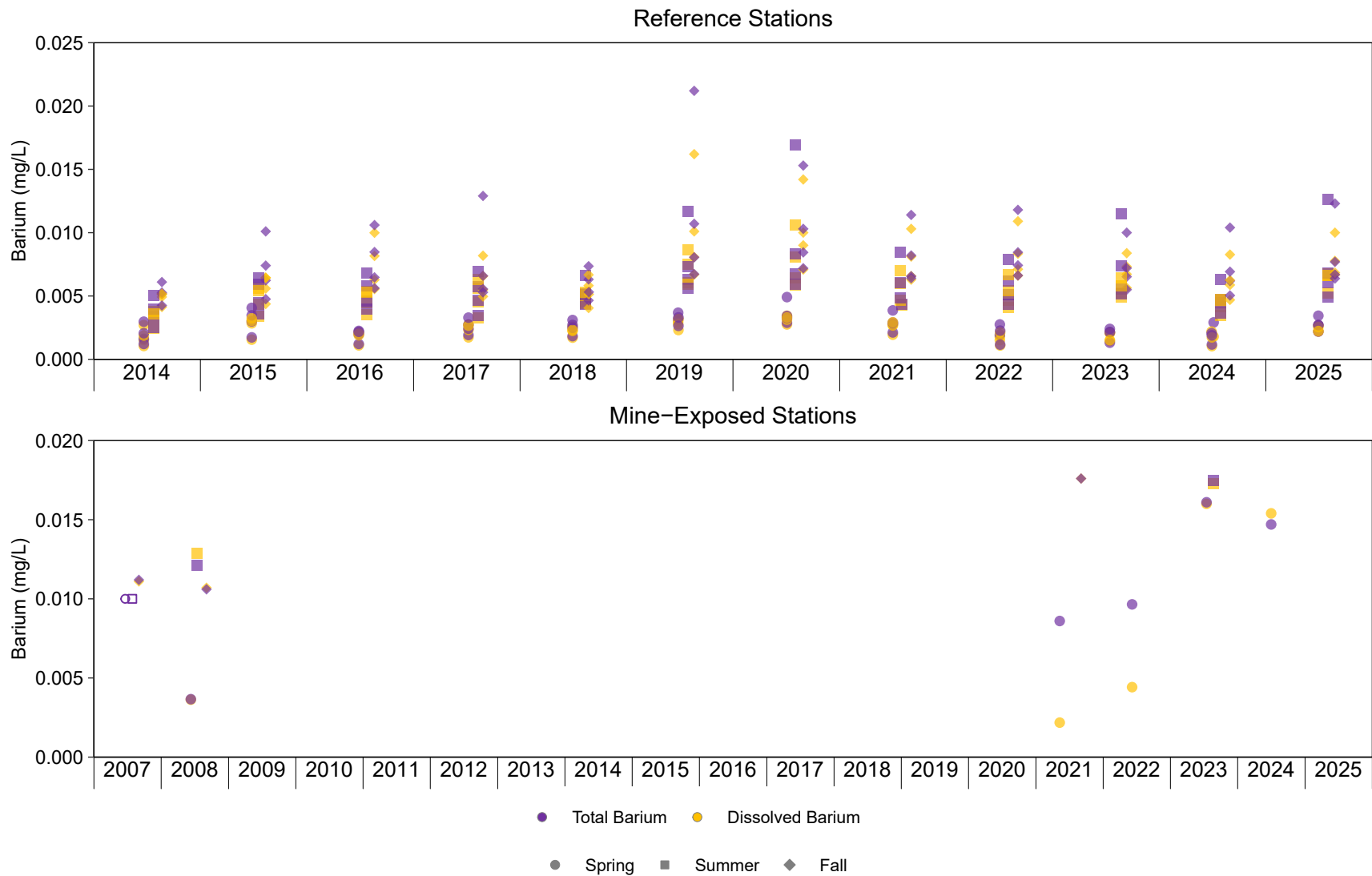


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

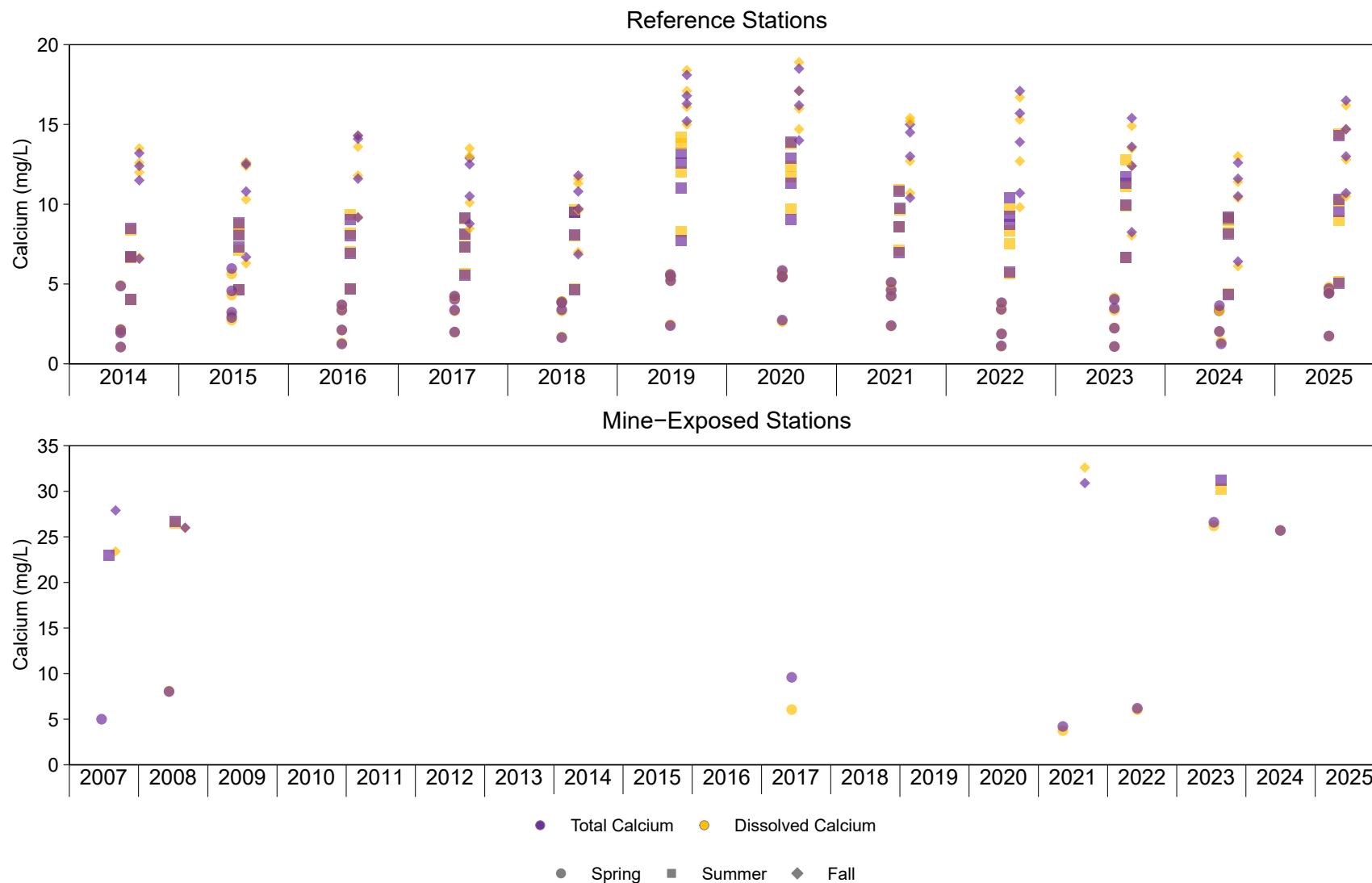


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

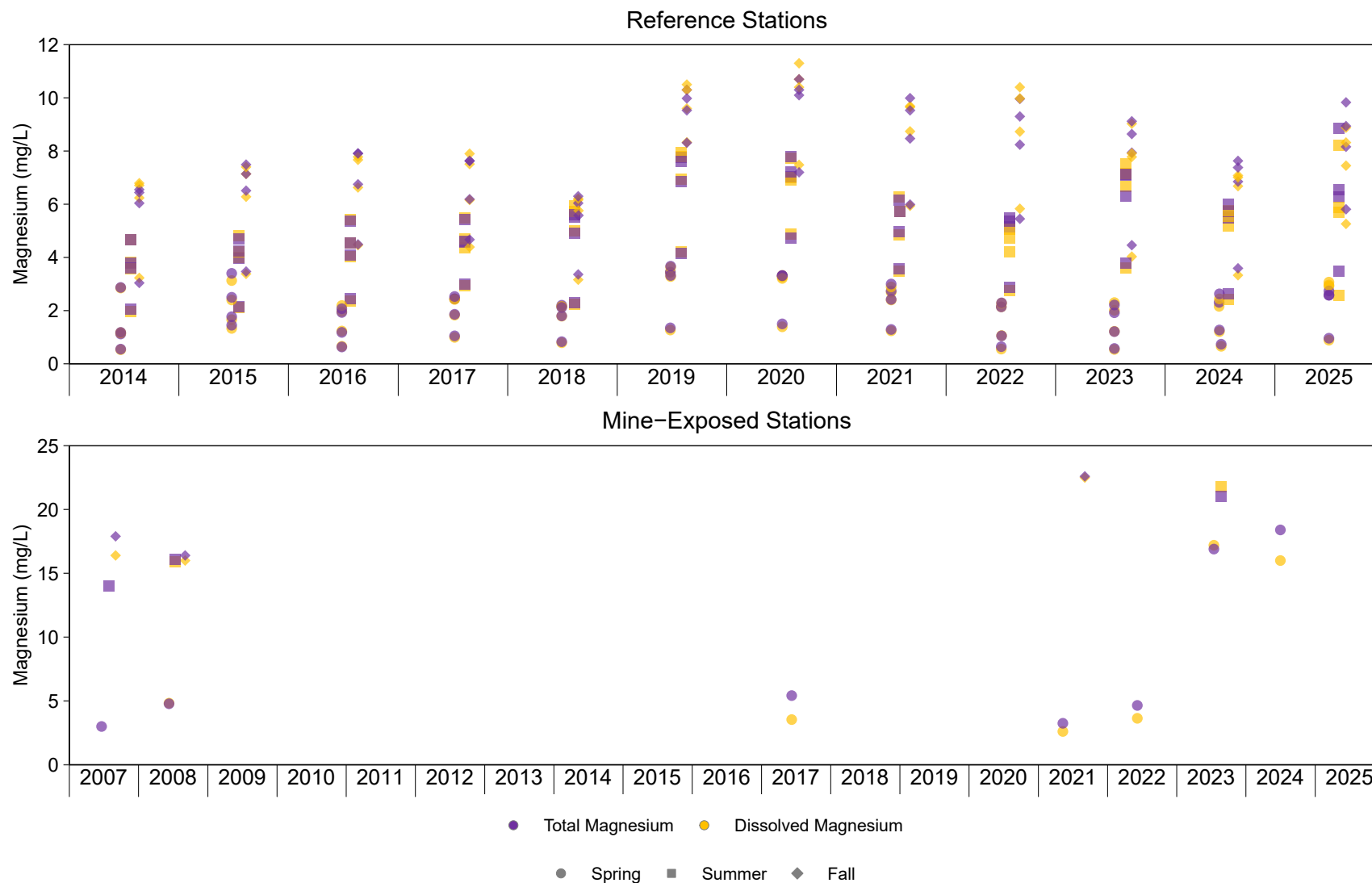


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

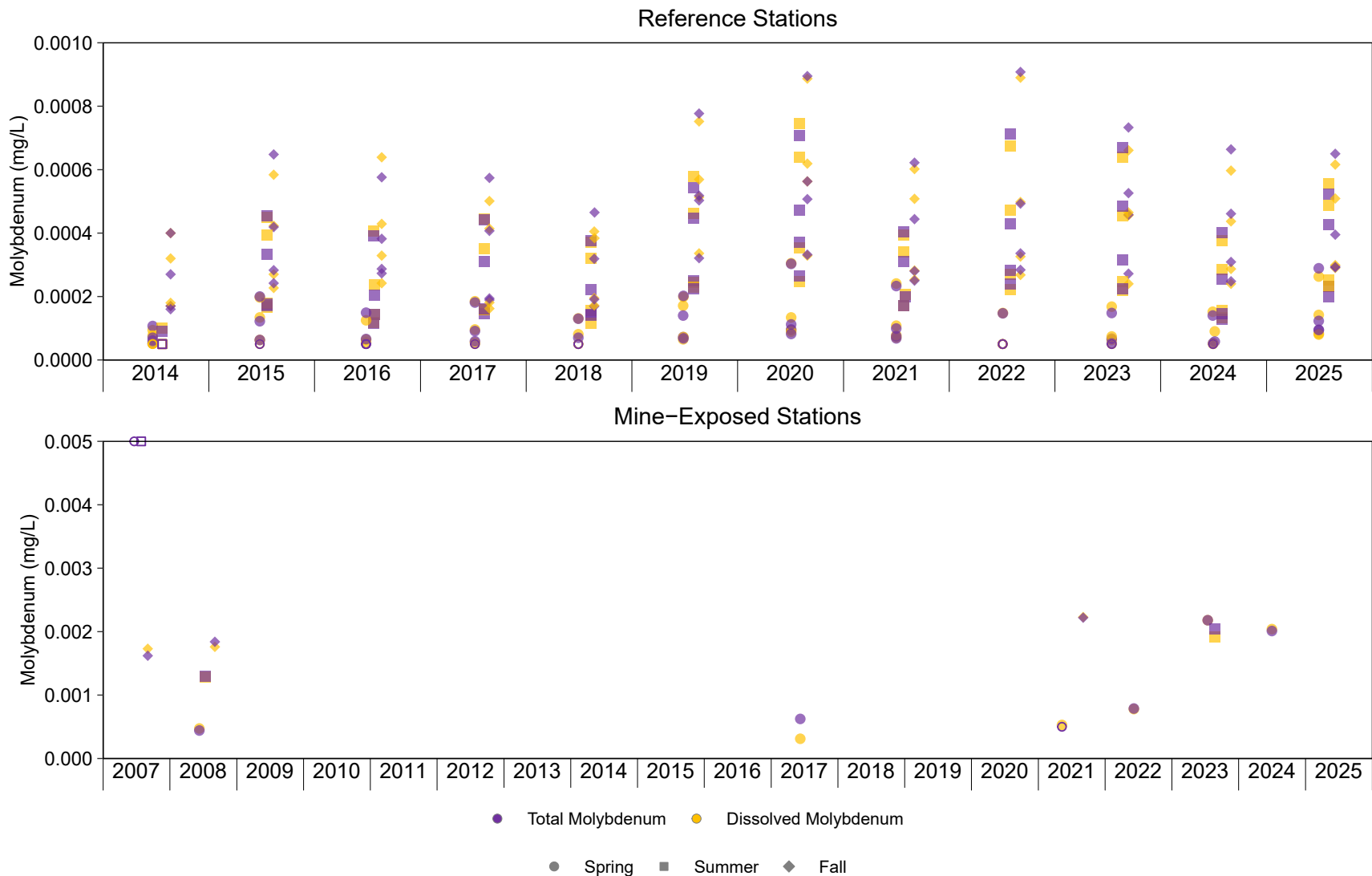


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

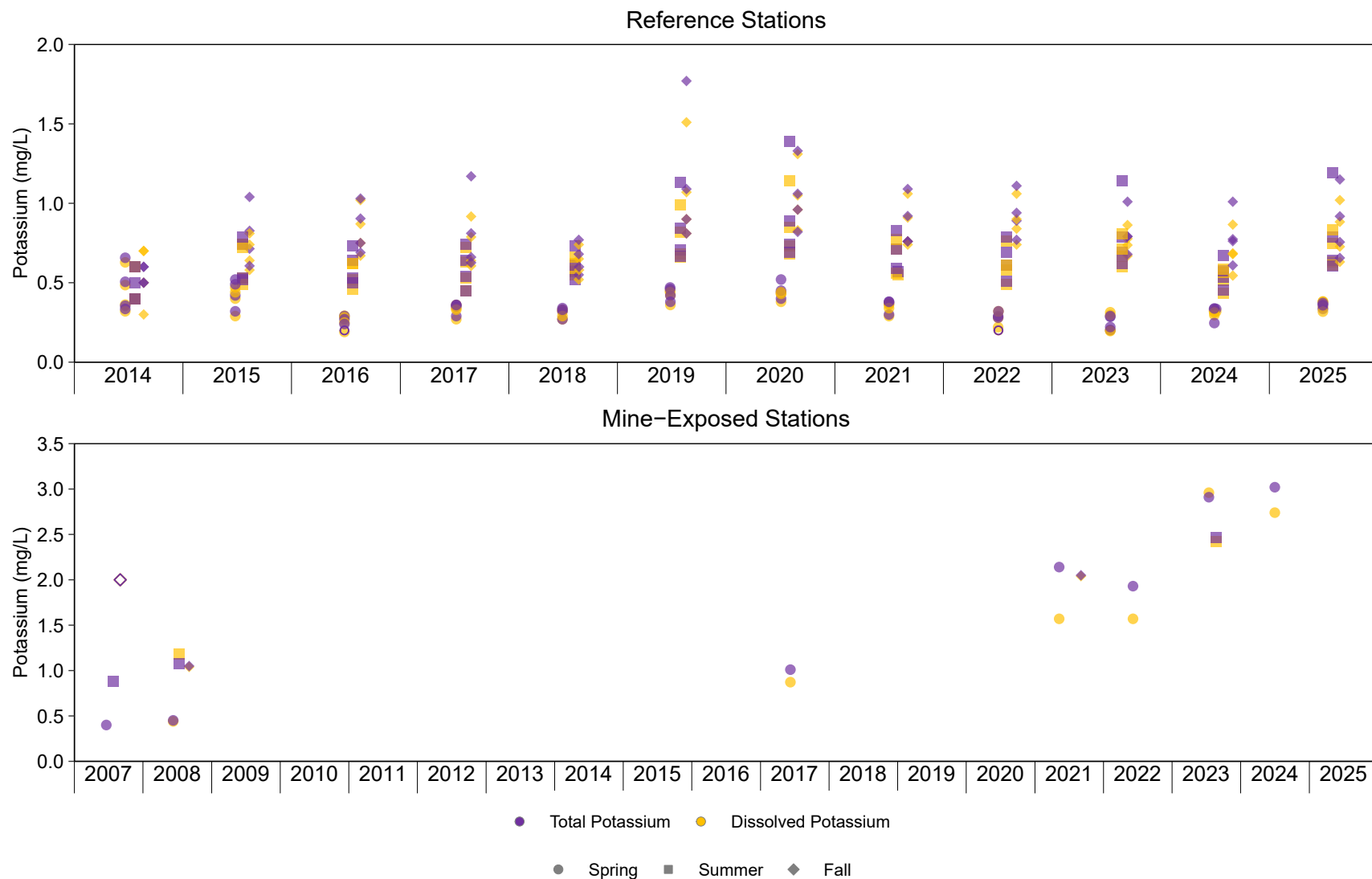


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

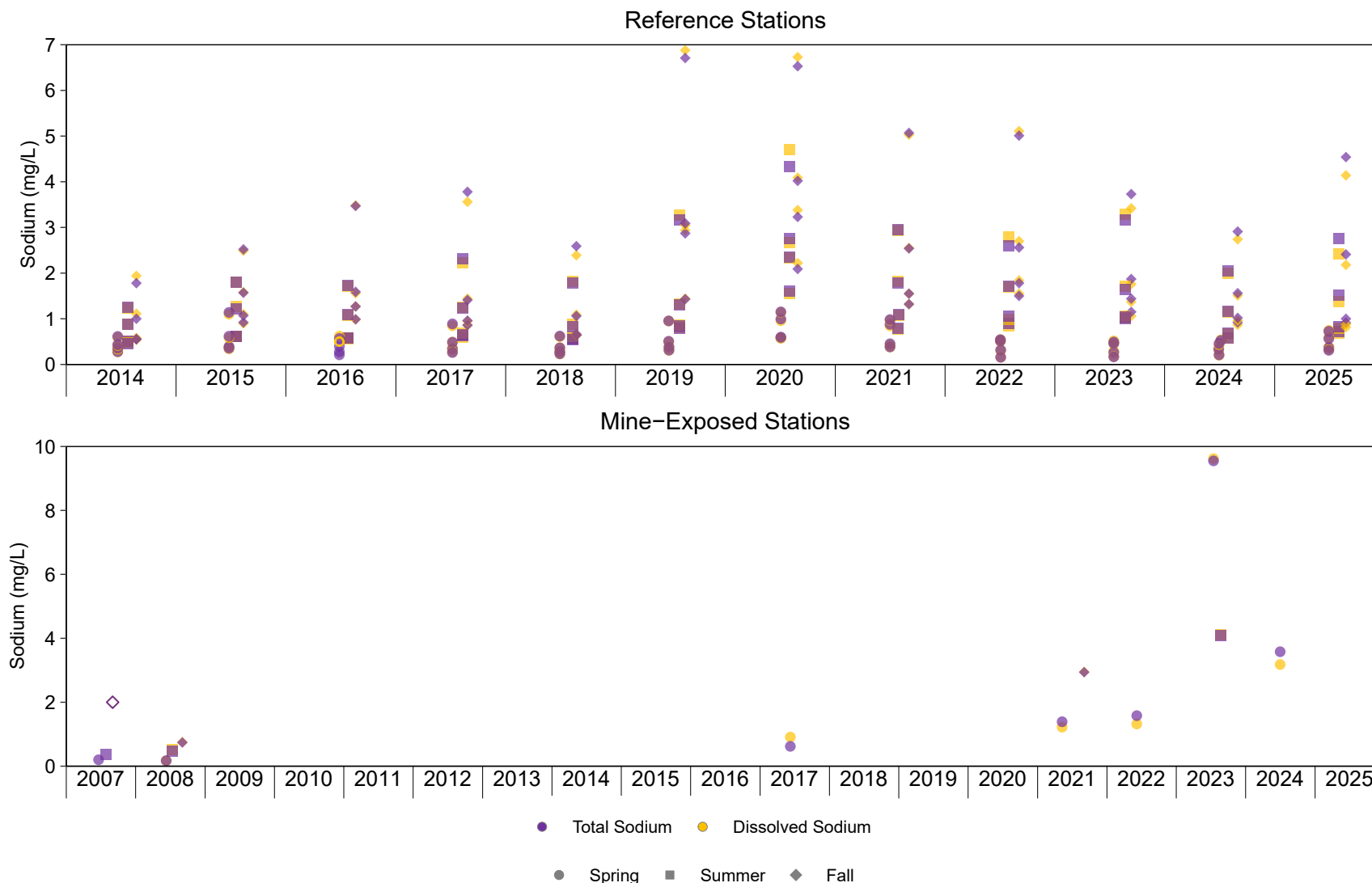


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

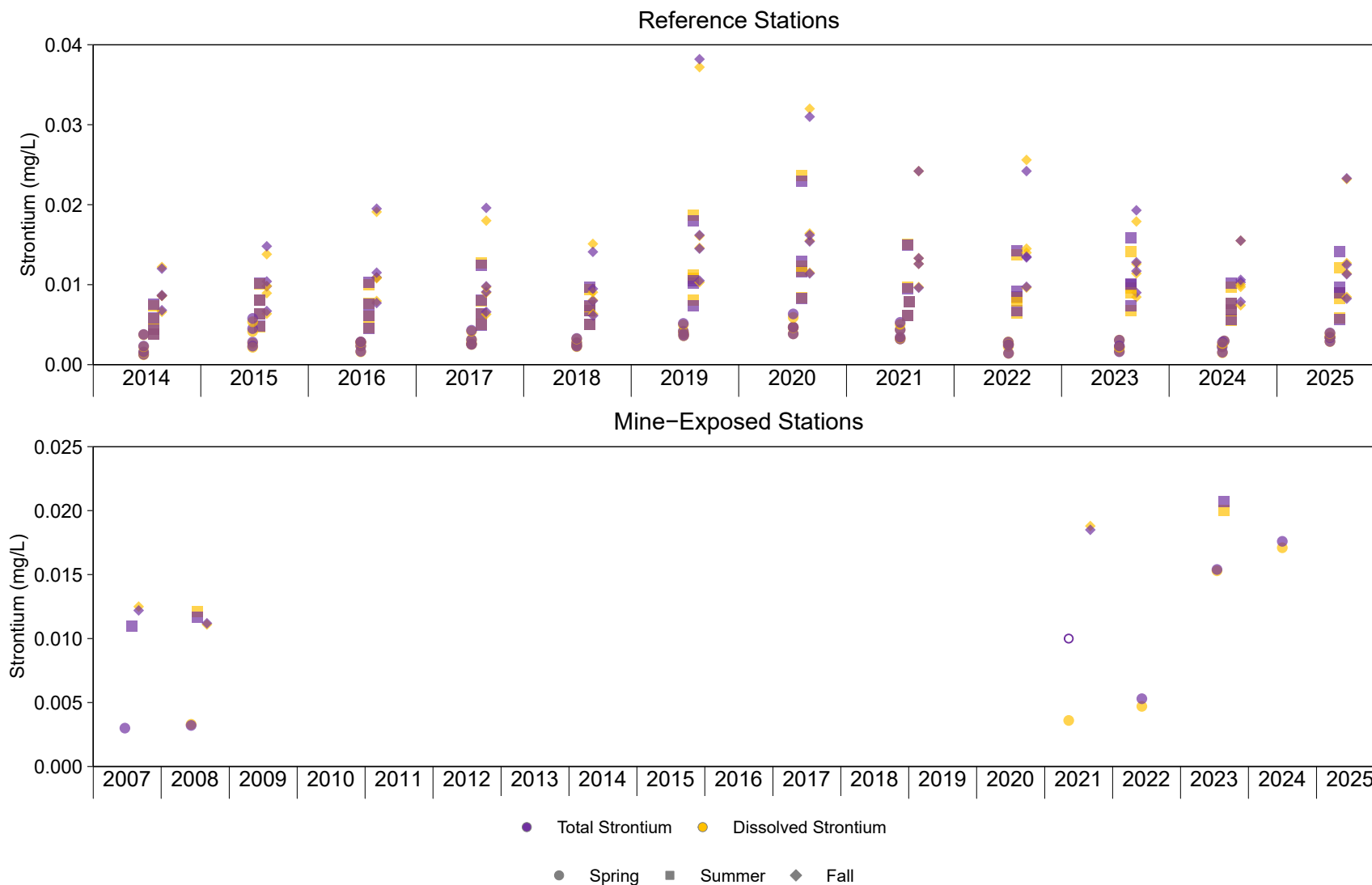


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

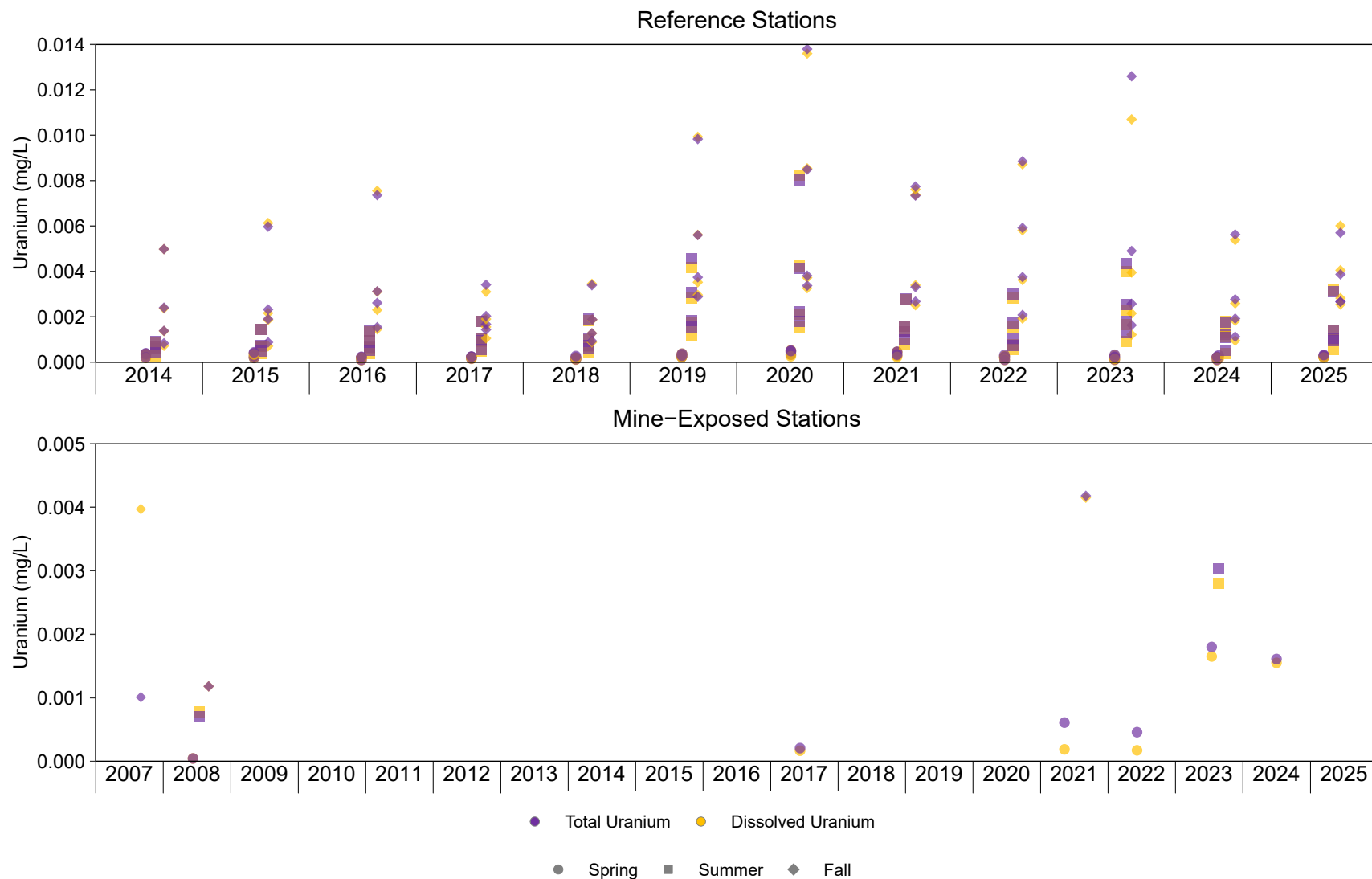


Figure G.4: Temporal Comparison of Total and Dissolved Metal Concentrations at Sheardown Lake Tributary 12 (SDLT12) Over the Mine Baseline (2007 to 2013), Construction (2014), and Operations (2015 to 2025) Periods, Mary River Project Core Receiving Environment Monitoring Program (CREMP)

Notes: Mean concentrations for each season were plotted. Censored means were plotted as open symbols. Mine-exposed stations included D12-1 (previously LDFG-OUT) and reference stations included CLT-REF3, CLT-REF4, MRY-REF2, MRY-REF3. X- and Y-axes may differ between mine-exposed and reference plots. This was done to optimize visualization of data spread at a given area.

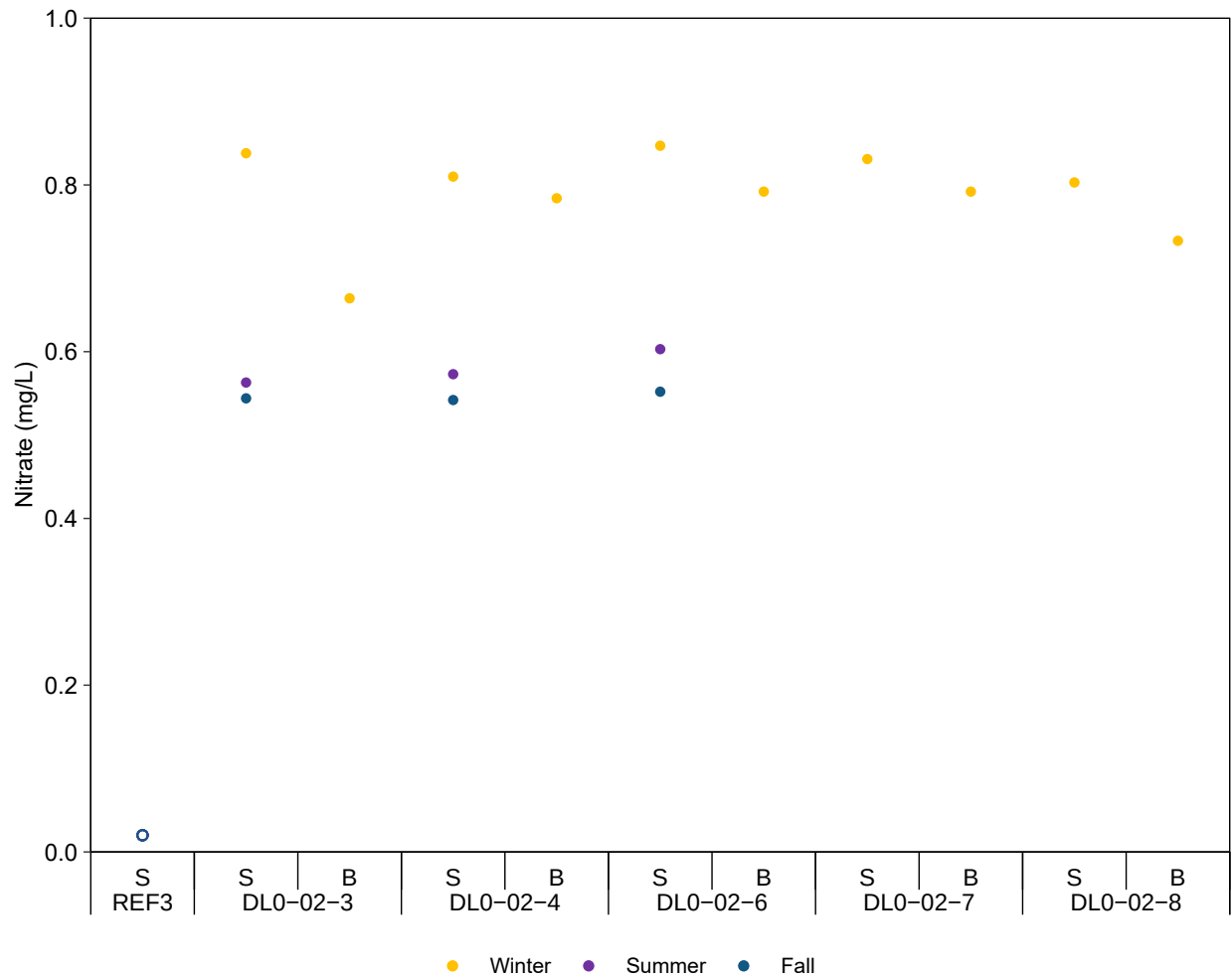


Figure G.5: Spatial Comparison of Nitrate Concentrations (mg/L) at Water Quality Monitoring Stations in Sheardown Lake Southeast, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2025

Notes: Censored data were plotted as open symbols at Laboratory Reporting Limit (LRL). S = Surface; B = Bottom.

TABLES

Table G.1: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Camp Lake Tributary 1 Upper Main Stem (CLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Sulphate		Total Aluminum		Total Iron		Total Molybdenum		Total Sodium		Total Uranium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.262	NS	0.052	NS	0.727	2.94	0.024	2.61	0.039	NS	0.123
		(2014 - 2025)	Spring	NS	0.831	NS	0.064	NS	0.259	NS	0.451	NS	0.631	NS	0.732
		(2014 - 2025)	Summer	5.21	0.024	NS	0.451	NS	0.261	NS	0.150	4.85	0.039	9.64	0.047
		(2014 - 2025)	Fall	NS	1.000	-8.26	0.024	NS	0.424	NS	0.115	NS	0.373	NS	0.304
	CLT-REF4	(2014 - 2025)	Combined	NS	0.967	NS	0.123	NS	1.000	4.40	0.030	NS	0.501	NS	0.143
		(2014 - 2025)	Spring	NS	1.000	NS	0.631	NS	0.340	NS	0.591	NS	0.373	NS	0.631
		(2014 - 2025)	Summer	NS	0.945	NS	0.631	NS	0.632	NS	0.086	NS	0.150	9.72	0.034
		(2014 - 2025)	Fall	NS	1.000	NS	0.115	NS	0.796	NS	0.193	NS	0.537	NS	0.373
	MRY-REF2	(2014 - 2025)	Combined	NS	0.317	NS	0.937	NS	0.424	2.30	0.035	NS	0.123	NS	0.089
		(2014 - 2025)	Spring	NS	0.480	NS	0.945	NS	0.873	NS	0.487	NS	1.000	NS	0.945
		(2014 - 2025)	Summer	NS	0.537	NS	0.891	NS	0.325	NS	0.169	NS	0.150	NS	0.086
		(2014 - 2025)	Fall	NS	0.783	NS	0.837	NS	0.944	NS	0.150	NS	0.244	NS	0.193
	MRY-REF3	(2014 - 2025)	Combined	NS	0.691	6.33	0.011	9.96	<0.001	NS	0.089	NS	0.105	3.33	0.016
		(2014 - 2025)	Spring	NS	0.581	9.56	0.006	14.2	<0.001	NS	0.945	NS	0.945	NS	0.373
		(2014 - 2025)	Summer	NS	0.732	NS	0.193	NS	0.086	NS	0.115	NS	0.086	NS	0.064
		(2014 - 2025)	Fall	NS	0.837	NS	0.837	NS	0.244	NS	0.150	NS	0.244	NS	0.193
Mine-exposed	L2-03	(2005 - 2025)	Combined	6.01	0.001	12.4	<0.001	4.59	<0.001	10.9	<0.001	4.68	0.017	12.8	<0.001
		(2005 - 2025)	Spring	NS	0.082	7.08	0.023	5.97	0.023	10.8	<0.001	NS	0.092	13.5	0.004
		(2005 - 2025)	Summer	NS	0.125	13.3	0.001	4.92	0.043	9.17	<0.001	NS	0.149	10.2	<0.001
		(2005 - 2025)	Fall	6.24	0.026	11.7	0.008	4.73	0.048	6.51	0.022	NS	0.373	9.93	0.009

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.1: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Camp Lake Tributary 1 Upper Main Stem (CLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend									
				Dissolved Aluminum		Dissolved Iron		Dissolved Molybdenum		Dissolved Sodium		Dissolved Uranium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.968	NS	0.877	3.03	0.024	NS	0.079	NS	0.143
		(2014 - 2025)	Spring	NS	0.244	NS	1.000	NS	0.150	NS	0.673	NS	0.732
		(2014 - 2025)	Summer	NS	0.582	NS	0.788	NS	0.304	NS	0.064	NS	0.086
		(2014 - 2025)	Fall	NS	0.492	NS	1.000	NS	0.193	NS	0.537	NS	0.244
	CLT-REF4	(2014 - 2025)	Combined	NS	0.781	<LRL	<LRL	5.31	0.011	NS	0.402	NS	0.143
		(2014 - 2025)	Spring	NS	0.271	<LRL	<LRL	NS	0.299	NS	0.527	NS	0.537
		(2014 - 2025)	Summer	NS	0.537	<LRL	<LRL	NS	0.064	NS	0.115	9.32	0.034
		(2014 - 2025)	Fall	NS	1.000	<LRL	<LRL	NS	0.193	NS	0.631	NS	0.304
	MRY-REF2	(2014 - 2025)	Combined	NS	0.220	<LRL	<LRL	NS	0.087	NS	0.122	NS	0.166
		(2014 - 2025)	Spring	NS	0.244	<LRL	<LRL	NS	1.000	NS	0.945	NS	0.732
		(2014 - 2025)	Summer	NS	0.631	<LRL	<LRL	NS	0.115	NS	0.115	NS	0.115
		(2014 - 2025)	Fall	NS	0.732	<LRL	<LRL	NS	0.216	NS	0.373	NS	0.244
	MRY-REF3	(2014 - 2025)	Combined	4.72	0.019	5.73	0.030	2.46	0.027	NS	0.123	NS	0.322
		(2014 - 2025)	Spring	NS	0.631	NS	0.871	NS	0.582	NS	0.837	NS	0.301
		(2014 - 2025)	Summer	7.59	0.034	7.24	0.016	NS	0.115	NS	0.064	NS	0.115
		(2014 - 2025)	Fall	NS	0.193	NS	0.378	NS	0.115	NS	0.304	NS	0.244
Mine-exposed	L2-03	(2005 - 2025)	Combined	8.72	<0.001	NS	0.783	8.86	<0.001	NS	0.259	13.6	<0.001
		(2005 - 2025)	Spring	10.3	0.016	NS	1.000	13.0	0.001	NS	0.324	13.6	0.006
		(2005 - 2025)	Summer	6.12	0.025	NS	0.298	8.69	0.006	NS	0.519	10.4	0.001
		(2005 - 2025)	Fall	9.20	0.037	NS	0.583	NS	0.125	NS	0.827	10.3	0.012

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.2: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Camp Lake Tributary 1 Upper Main Stem (CLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Sulphate		Total Aluminum		Total Iron		Total Molybdenum		Total Sodium		Total Uranium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.470	NS	0.106	NS	0.685	NS	0.281	NS	0.301	NS	0.150
		(2015 - 2025)	Spring	NS	0.814	NS	0.213	NS	0.828	NS	1.000	NS	1.000	NS	1.000
		(2015 - 2025)	Summer	NS	0.062	NS	0.533	NS	0.378	NS	0.436	NS	0.138	NS	0.119
		(2015 - 2025)	Fall	NS	0.815	-11.3	0.029	NS	0.164	NS	0.350	NS	0.876	NS	0.436
	CLT-REF4	(2015 - 2025)	Combined	NS	0.963	NS	0.106	NS	0.777	NS	0.090	NS	0.928	NS	0.208
		(2015 - 2025)	Spring	NS	1.000	NS	1.000	NS	1.000	NS	0.365	NS	0.640	NS	1.000
		(2015 - 2025)	Summer	NS	0.755	NS	0.350	NS	0.787	NS	0.276	NS	0.436	NS	0.119
		(2015 - 2025)	Fall	NS	0.640	NS	0.087	NS	0.844	NS	0.436	NS	1.000	NS	0.640
	MRY-REF2	(2015 - 2025)	Combined	NS	0.444	NS	0.822	NS	0.499	NS	0.124	NS	0.281	NS	0.150
		(2015 - 2025)	Spring	NS	0.435	NS	0.533	NS	0.213	NS	0.303	NS	0.755	NS	0.640
		(2015 - 2025)	Summer	NS	1.000	NS	0.585	NS	0.635	NS	0.482	NS	0.350	NS	0.276
		(2015 - 2025)	Fall	NS	0.696	NS	0.640	NS	0.692	NS	0.436	NS	0.640	NS	0.436
	MRY-REF3	(2015 - 2025)	Combined	NS	0.208	5.39	0.027	10.7	<0.001	NS	0.472	NS	0.719	NS	0.208
		(2015 - 2025)	Spring	NS	0.213	8.31	0.024	13.3	0.002	NS	0.640	NS	0.350	NS	0.876
		(2015 - 2025)	Summer	NS	0.533	NS	0.213	18.7	0.043	NS	0.350	NS	0.276	NS	0.213
		(2015 - 2025)	Fall	NS	0.876	NS	0.876	NS	0.350	NS	0.436	NS	0.640	NS	0.533
Mine-exposed	L2-03	(2015 - 2025)	Combined	-5.54	0.044	NS	0.160	NS	0.925	NS	0.074	-4.42	0.009	5.37	0.019
		(2015 - 2025)	Spring	NS	0.585	NS	0.436	NS	0.640	7.37	0.043	NS	0.276	NS	0.213
		(2015 - 2025)	Summer	-9.47	0.043	NS	0.161	NS	0.876	NS	0.117	NS	0.062	8.87	0.043
		(2015 - 2025)	Fall	NS	0.474	NS	1.000	NS	1.000	NS	0.474	NS	0.152	NS	0.592

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.2: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Camp Lake Tributary 1 Upper Main Stem (CLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend									
				Dissolved Aluminum		Dissolved Iron		Dissolved Molybdenum		Dissolved Sodium		Dissolved Uranium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.528	<LRL	<LRL	NS	0.243	NS	0.586	NS	0.243
		(2015 - 2025)	Spring	NS	0.640	<LRL	<LRL	NS	0.436	NS	0.872	NS	0.876
		(2015 - 2025)	Summer	NS	0.138	<LRL	<LRL	NS	0.755	NS	0.213	NS	0.213
		(2015 - 2025)	Fall	NS	0.938	<LRL	<LRL	NS	0.436	NS	1.000	NS	0.350
	CLT-REF4	(2015 - 2025)	Combined	NS	0.470	<LRL	<LRL	NS	0.082	NS	0.892	NS	0.208
		(2015 - 2025)	Spring	NS	0.072	<LRL	<LRL	NS	0.417	NS	0.689	NS	1.000
		(2015 - 2025)	Summer	NS	1.000	<LRL	<LRL	NS	0.213	NS	0.350	NS	0.119
		(2015 - 2025)	Fall	NS	0.694	<LRL	<LRL	NS	0.436	NS	0.876	NS	0.533
	MRY-REF2	(2015 - 2025)	Combined	NS	0.150	<LRL	<LRL	NS	0.206	NS	0.279	NS	0.281
		(2015 - 2025)	Spring	NS	0.062	<LRL	<LRL	NS	0.694	NS	0.637	NS	0.876
		(2015 - 2025)	Summer	NS	0.533	<LRL	<LRL	NS	0.350	NS	0.350	NS	0.350
		(2015 - 2025)	Fall	NS	1.000	<LRL	<LRL	NS	0.482	NS	0.755	NS	0.533
	MRY-REF3	(2015 - 2025)	Combined	4.44	0.048	NS	0.061	NS	0.261	NS	0.787	NS	0.964
		(2015 - 2025)	Spring	NS	0.533	NS	1.000	NS	1.000	NS	0.276	NS	0.138
		(2015 - 2025)	Summer	NS	0.119	7.50	0.039	NS	0.350	NS	0.213	NS	0.350
		(2015 - 2025)	Fall	NS	0.276	NS	0.365	NS	0.350	NS	0.755	NS	0.533
Mine-exposed	L2-03	(2015 - 2025)	Combined	5.70	0.035	NS	0.145	NS	0.302	-4.88	0.002	5.04	0.039
		(2015 - 2025)	Spring	NS	0.276	NS	0.072	NS	0.062	NS	0.213	NS	0.276
		(2015 - 2025)	Summer	6.73	0.035	NS	0.482	NS	0.436	-4.48	0.035	NS	0.087
		(2015 - 2025)	Fall	NS	0.858	NS	0.928	NS	0.283	NS	0.074	NS	0.592

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.3: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Camp Lake (JL0) and Reference Lake 3 Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend			
				Total Uranium		Dissolved Uranium	
				Slope	P-Value	Slope	P-Value
Reference	REF3-01	(2015 - 2025)	Combined	NS	0.110	NS	0.440
		(2015 - 2025)	Summer	NS	0.119	NS	0.350
		(2015 - 2025)	Fall	NS	0.533	NS	0.938
	REF3-02	(2015 - 2025)	Combined	NS	0.204	NS	0.409
		(2015 - 2025)	Summer	NS	0.273	NS	0.436
		(2015 - 2025)	Fall	NS	0.533	NS	0.755
	REF3-03	(2015 - 2025)	Combined	NS	0.123	NS	0.349
		(2015 - 2025)	Summer	NS	0.213	NS	0.350
		(2015 - 2025)	Fall	NS	0.390	NS	0.755
Mine-exposed	JL0-02	(2007 - 2025)	Combined	8.83	<0.001	8.16	<0.001
		(2007 - 2025)	Summer	9.67	<0.001	9.84	<0.001
		(2007 - 2025)	Fall	8.86	<0.001	7.65	<0.001
		(2007 - 2025)	Winter	9.58	<0.001	8.45	<0.001
	JL0-10	(2014 - 2025)	Combined	10.2	<0.001	9.54	<0.001
		(2014 - 2025)	Summer	9.09	<0.001	8.97	0.001
		(2014 - 2025)	Fall	10.3	<0.001	9.33	<0.001
		(2014 - 2025)	Winter	9.86	<0.001	9.82	0.002
	JL0-01	(2007 - 2025)	Combined	9.08	<0.001	8.85	<0.001
		(2007 - 2025)	Summer	9.60	<0.001	9.97	<0.001
		(2007 - 2025)	Fall	10.3	<0.001	9.89	<0.001
		(2007 - 2025)	Winter	8.57	<0.001	8.23	<0.001
	JL0-07	(2014 - 2025)	Combined	9.60	<0.001	8.93	<0.001
		(2014 - 2025)	Summer	9.30	<0.001	9.55	<0.001
		(2014 - 2025)	Fall	9.00	<0.001	7.74	<0.001
		(2014 - 2025)	Winter	9.92	<0.001	9.10	0.001
	JL0-09	(2007 - 2025)	Combined	9.31	<0.001	8.33	<0.001
		(2007 - 2025)	Summer	8.68	<0.001	9.45	<0.001
		(2007 - 2025)	Fall	9.59	<0.001	8.46	<0.001
		(2007 - 2025)	Winter	10.1	<0.001	9.00	<0.001
	J0-01	(2007 - 2025)	Combined	9.38	<0.001	10.2	<0.001
		(2007 - 2025)	Spring	11.1	<0.001	11.9	<0.001
		(2007 - 2025)	Summer	10.0	<0.001	9.85	<0.001
		(2007 - 2025)	Fall	6.56	<0.001	7.84	<0.001



P-value <0.05.



Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.



Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.4: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Camp Lake (JL0) and Reference Lake 3 Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend			
				Total Uranium		Dissolved Uranium	
				Slope	P-Value	Slope	P-Value
Reference	REF3-01	(2015 - 2025)	Combined	NS	0.110	NS	0.440
		(2015 - 2025)	Summer	NS	0.119	NS	0.350
		(2015 - 2025)	Fall	NS	0.533	NS	0.938
	REF3-02	(2015 - 2025)	Combined	NS	0.204	NS	0.409
		(2015 - 2025)	Summer	NS	0.273	NS	0.436
		(2015 - 2025)	Fall	NS	0.533	NS	0.755
	REF3-03	(2015 - 2025)	Combined	NS	0.123	NS	0.349
		(2015 - 2025)	Summer	NS	0.213	NS	0.350
		(2015 - 2025)	Fall	NS	0.390	NS	0.755
Mine-exposed	JL0-02	(2015 - 2025)	Combined	8.04	<0.001	7.88	<0.001
		(2015 - 2025)	Summer	8.14	<0.001	8.23	<0.001
		(2015 - 2025)	Fall	7.12	<0.001	6.89	<0.001
		(2015 - 2025)	Winter	8.70	<0.001	8.11	0.002
	JL0-10	(2015 - 2025)	Combined	9.13	<0.001	9.84	<0.001
		(2015 - 2025)	Summer	9.09	<0.001	8.97	0.001
		(2015 - 2025)	Fall	9.82	0.002	8.95	<0.001
		(2015 - 2025)	Winter	9.04	0.001	10.0	0.008
	JL0-01	(2015 - 2025)	Combined	9.10	<0.001	10.4	<0.001
		(2015 - 2025)	Summer	9.61	<0.001	8.81	0.001
		(2015 - 2025)	Fall	9.43	<0.001	8.70	<0.001
		(2015 - 2025)	Winter	9.37	<0.001	10.9	0.029
	JL0-07	(2015 - 2025)	Combined	8.91	<0.001	8.44	<0.001
		(2015 - 2025)	Summer	9.30	<0.001	9.55	<0.001
		(2015 - 2025)	Fall	8.14	<0.001	6.96	<0.001
		(2015 - 2025)	Winter	9.49	<0.001	9.43	0.002
	JL0-09	(2015 - 2025)	Combined	7.74	<0.001	7.25	<0.001
		(2015 - 2025)	Summer	7.68	<0.001	8.25	<0.001
		(2015 - 2025)	Fall	8.10	<0.001	6.65	<0.001
		(2015 - 2025)	Winter	8.45	<0.001	7.22	0.005
	J0-01	(2015 - 2025)	Combined	8.06	<0.001	7.52	<0.001
		(2015 - 2025)	Spring	7.74	<0.001	7.32	0.001
		(2015 - 2025)	Summer	8.87	<0.001	7.61	<0.001
		(2015 - 2025)	Fall	7.24	<0.001	6.61	<0.001

 P-value <0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.5: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2008 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Chloride		Specific Conductance		Nitrate		Sulphate		Total Dissolved Solids		Total Kjeldahl Nitrogen	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.704	NS	0.100	NS	0.605	NS	0.262	2.94	0.012	NS	0.891
		(2014 - 2025)	Spring	NS	1.000	NS	0.876	NS	1.000	NS	0.831	NS	0.085	NS	0.647
		(2014 - 2025)	Summer	NS	0.680	2.83	0.034	NS	0.692	5.21	0.024	2.97	0.038	NS	0.746
		(2014 - 2025)	Fall	NS	0.883	NS	0.451	NS	0.725	NS	1.000	NS	0.680	NS	0.691
	CLT-REF4	(2014 - 2025)	Combined	NS	0.714	2.63	0.017	NS	1.000	NS	0.967	NS	0.250	NS	0.962
		(2014 - 2025)	Spring	NS	1.000	NS	1.000	NS	1.000	NS	1.000	NS	0.537	NS	0.741
		(2014 - 2025)	Summer	NS	0.636	4.60	0.007	NS	0.740	NS	0.945	NS	0.191	NS	0.869
		(2014 - 2025)	Fall	NS	0.944	NS	0.244	NS	0.774	NS	1.000	NS	1.000	NS	1.000
	MRY-REF2	(2014 - 2025)	Combined	NS	0.607	NS	0.149	<LRL	<LRL	NS	0.317	NS	0.404	NS	0.071
		(2014 - 2025)	Spring	NS	0.451	NS	0.640	<LRL	<LRL	NS	0.480	NS	0.945	NS	0.331
		(2014 - 2025)	Summer	NS	0.304	NS	0.086	<LRL	<LRL	NS	0.537	NS	0.099	NS	0.331
		(2014 - 2025)	Fall	NS	0.537	NS	0.271	<LRL	<LRL	NS	0.783	NS	1.000	NS	0.308
	MRY-REF3	(2014 - 2025)	Combined	NS	0.404	NS	0.510	NS	0.569	NS	0.691	3.48	0.031	NS	0.848
		(2014 - 2025)	Spring	NS	0.729	NS	0.350	NS	1.000	NS	0.581	NS	0.106	NS	0.679
		(2014 - 2025)	Summer	NS	0.304	NS	0.244	NS	0.207	NS	0.732	NS	0.193	NS	1.000
		(2014 - 2025)	Fall	NS	0.451	NS	0.451	NS	0.828	NS	0.837	NS	0.492	NS	1.000
Mine-exposed	D1-05	(2005 - 2025)	Combined	7.51	<0.001	6.77	<0.001	28.9	<0.001	16.7	<0.001	5.53	<0.001	6.80	<0.001
		(2005 - 2025)	Spring	11.5	0.018	7.78	<0.001	20.8	<0.001	19.4	<0.001	5.90	<0.001	NS	0.271
		(2005 - 2025)	Summer	11.1	0.027	12.2	<0.001	62.3	<0.001	27.9	<0.001	10.2	0.002	9.78	0.036
		(2005 - 2025)	Fall	NS	0.138	5.07	<0.001	29.8	<0.001	16.3	<0.001	NS	0.058	6.67	0.011
	D1-00	(2008 - 2025)	Combined	9.97	<0.001	7.98	<0.001	24.1	<0.001	17.0	<0.001	7.78	<0.001	5.06	<0.001
		(2008 - 2025)	Spring	9.86	0.014	4.34	0.021	15.7	<0.001	9.81	0.003	4.88	0.032	NS	0.824
		(2008 - 2025)	Summer	12.6	<0.001	10.3	<0.001	24.6	<0.001	20.6	<0.001	10.9	<0.001	NS	0.057
		(2008 - 2025)	Fall	9.14	0.002	5.69	<0.001	13.7	<0.001	14.3	<0.001	6.25	<0.001	6.25	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.5: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2008 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Molybdenum		Total Sodium		Total Uranium		Total Barium		Total Calcium		Total Magnesium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	2.94	0.024	2.61	0.039	NS	0.123	NS	0.235	NS	0.088	3.27	0.006
		(2014 - 2025)	Spring	NS	0.451	NS	0.631	NS	0.732	NS	0.732	NS	1.000	NS	0.537
		(2014 - 2025)	Summer	NS	0.150	4.85	0.039	9.64	0.047	NS	0.130	3.11	0.024	3.76	0.005
		(2014 - 2025)	Fall	NS	0.115	NS	0.373	NS	0.304	NS	0.373	NS	0.535	NS	0.244
	CLT-REF4	(2014 - 2025)	Combined	4.40	0.030	NS	0.501	NS	0.143	2.76	0.019	2.98	0.014	3.68	0.005
		(2014 - 2025)	Spring	NS	0.591	NS	0.373	NS	0.631	NS	0.680	NS	0.631	NS	0.449
		(2014 - 2025)	Summer	NS	0.086	NS	0.150	9.72	0.034	5.33	0.039	4.80	0.007	5.55	0.005
		(2014 - 2025)	Fall	NS	0.193	NS	0.537	NS	0.373	NS	0.150	NS	0.336	NS	0.271
	MRY-REF2	(2014 - 2025)	Combined	2.30	0.035	NS	0.123	NS	0.089	NS	0.782	NS	0.342	NS	0.123
		(2014 - 2025)	Spring	NS	0.487	NS	1.000	NS	0.945	NS	0.244	NS	0.304	NS	0.837
		(2014 - 2025)	Summer	NS	0.169	NS	0.150	NS	0.086	NS	0.193	2.03	0.047	2.79	0.047
		(2014 - 2025)	Fall	NS	0.150	NS	0.244	NS	0.193	NS	0.732	NS	0.492	NS	0.373
	MRY-REF3	(2014 - 2025)	Combined	NS	0.089	NS	0.105	3.33	0.016	NS	0.063	NS	0.322	NS	0.105
		(2014 - 2025)	Spring	NS	0.945	NS	0.945	NS	0.373	NS	0.732	NS	0.891	NS	1.000
		(2014 - 2025)	Summer	NS	0.115	NS	0.086	NS	0.064	NS	0.064	NS	0.304	NS	0.086
		(2014 - 2025)	Fall	NS	0.150	NS	0.244	NS	0.193	NS	0.373	NS	0.409	NS	0.304
Mine-exposed	D1-05	(2005 - 2025)	Combined	9.25	<0.001	8.98	<0.001	11.7	<0.001	6.49	<0.001	6.29	<0.001	7.24	<0.001
		(2005 - 2025)	Spring	11.8	<0.001	7.25	<0.001	7.17	<0.001	6.26	<0.001	7.38	<0.001	6.85	<0.001
		(2005 - 2025)	Summer	9.74	<0.001	13.7	<0.001	14.1	<0.001	8.94	<0.001	9.85	0.001	12.5	<0.001
		(2005 - 2025)	Fall	6.70	<0.001	8.65	<0.001	11.0	0.002	5.48	<0.001	5.20	<0.001	8.19	<0.001
	D1-00	(2008 - 2025)	Combined	9.86	<0.001	9.90	<0.001	11.1	<0.001	5.63	<0.001	6.42	<0.001	8.40	<0.001
		(2008 - 2025)	Spring	10.4	<0.001	NS	0.080	5.52	0.029	4.94	0.032	NS	0.080	4.09	0.049
		(2008 - 2025)	Summer	10.7	<0.001	9.54	<0.001	14.3	<0.001	7.36	<0.001	8.19	<0.001	8.87	<0.001
		(2008 - 2025)	Fall	8.60	<0.001	8.42	<0.001	10.6	<0.001	4.31	<0.001	5.41	<0.001	7.59	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.5: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2008 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Potassium		Total Strontium		Total Cadmium		Total Cobalt		Total Lithium		Total Manganese	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.068	NS	0.052	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.553
		(2014 - 2025)	Spring	NS	0.680	NS	0.837	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.945
		(2014 - 2025)	Summer	2.30	0.028	4.74	0.034	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.193
		(2014 - 2025)	Fall	NS	0.169	NS	0.373	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.732
	CLT-REF4	(2014 - 2025)	Combined	NS	0.302	3.27	0.036	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.748
		(2014 - 2025)	Spring	NS	0.730	NS	0.945	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	1.000
		(2014 - 2025)	Summer	NS	0.216	5.60	0.024	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.889
		(2014 - 2025)	Fall	NS	0.373	NS	0.244	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.725
	MRY-REF2	(2014 - 2025)	Combined	NS	0.905	NS	0.267	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.235
		(2014 - 2025)	Spring	NS	0.216	NS	0.582	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.891
		(2014 - 2025)	Summer	NS	0.336	NS	0.216	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.150
		(2014 - 2025)	Fall	NS	0.631	NS	0.216	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.451
	MRY-REF3	(2014 - 2025)	Combined	NS	0.579	NS	0.165	<LRL	<LRL	4.50	0.002	<LRL	<LRL	8.23	0.006
		(2014 - 2025)	Spring	NS	0.244	NS	1.000	<LRL	<LRL	1.59	0.041	<LRL	<LRL	NS	0.086
		(2014 - 2025)	Summer	NS	0.113	NS	0.169	<LRL	<LRL	25.0	0.026	<LRL	<LRL	NS	0.115
		(2014 - 2025)	Fall	NS	0.582	NS	0.336	<LRL	<LRL	NS	0.335	<LRL	<LRL	NS	0.193
Mine-exposed	D1-05	(2005 - 2025)	Combined	9.45	<0.001	14.4	<0.001	2.20	0.029	42	<0.001	27.9	<0.001	8.64	0.001
		(2005 - 2025)	Spring	10.2	<0.001	21.6	<0.001	NS	0.727	NS	0.058	40.0	0.005	6.58	0.008
		(2005 - 2025)	Summer	10.1	<0.001	18.1	<0.001	NS	0.087	93.7	0.016	31.4	<0.001	NS	0.175
		(2005 - 2025)	Fall	9.24	<0.001	8.78	<0.001	NS	0.125	33.3	<0.001	17.0	<0.001	NS	0.097
	D1-00	(2008 - 2025)	Combined	9.37	<0.001	14.3	<0.001	6.58	<0.001	9.71	<0.001	13.4	<0.001	11.2	<0.001
		(2008 - 2025)	Spring	8.84	<0.001	15.9	<0.001	NS	0.248	3.69	0.021	14.3	<0.001	8.27	<0.001
		(2008 - 2025)	Summer	10.5	<0.001	16.3	<0.001	11.8	0.007	15.4	<0.001	18.8	<0.001	15.1	<0.001
		(2008 - 2025)	Fall	9.89	<0.001	10.2	<0.001	6.67	0.008	18.3	<0.001	12.2	<0.001	10.2	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

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Table G.5: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2008 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Selenium		Dissolved Molybdenum		Dissolved Sodium		Dissolved Uranium		Dissolved Barium		Dissolved Calcium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	<LRL	<LRL	3.03	0.024	NS	0.079	NS	0.143	1.43	0.043	1.59	0.043
		(2014 - 2025)	Spring	<LRL	<LRL	NS	0.150	NS	0.673	NS	0.732	NS	1.000	NS	0.680
		(2014 - 2025)	Summer	<LRL	<LRL	NS	0.304	NS	0.064	NS	0.086	1.93	0.039	2.46	0.034
		(2014 - 2025)	Fall	<LRL	<LRL	NS	0.193	NS	0.537	NS	0.244	NS	0.150	NS	0.409
	CLT-REF4	(2014 - 2025)	Combined	<LRL	<LRL	5.31	0.011	NS	0.402	NS	0.143	3.29	0.019	2.45	0.027
		(2014 - 2025)	Spring	<LRL	<LRL	NS	0.299	NS	0.527	NS	0.537	NS	0.631	NS	0.732
		(2014 - 2025)	Summer	<LRL	<LRL	NS	0.064	NS	0.115	9.32	0.034	NS	0.064	4.64	0.016
		(2014 - 2025)	Fall	<LRL	<LRL	NS	0.193	NS	0.631	NS	0.304	NS	0.115	NS	0.336
	MRY-REF2	(2014 - 2025)	Combined	<LRL	<LRL	NS	0.087	NS	0.122	NS	0.166	NS	0.843	NS	0.781
		(2014 - 2025)	Spring	<LRL	<LRL	NS	1.000	NS	0.945	NS	0.732	NS	0.244	NS	0.244
		(2014 - 2025)	Summer	<LRL	<LRL	NS	0.115	NS	0.115	NS	0.115	NS	0.373	NS	0.244
		(2014 - 2025)	Fall	<LRL	<LRL	NS	0.216	NS	0.373	NS	0.244	NS	0.537	NS	0.630
	MRY-REF3	(2014 - 2025)	Combined	<LRL	<LRL	2.46	0.027	NS	0.123	NS	0.322	NS	0.303	NS	0.452
		(2014 - 2025)	Spring	<LRL	<LRL	NS	0.582	NS	0.837	NS	0.301	NS	0.582	NS	0.837
		(2014 - 2025)	Summer	<LRL	<LRL	NS	0.115	NS	0.064	NS	0.115	NS	0.304	NS	0.304
		(2014 - 2025)	Fall	<LRL	<LRL	NS	0.115	NS	0.304	NS	0.244	NS	0.193	NS	0.631
Mine-exposed	D1-05	(2005 - 2025)	Combined	<LRL	<LRL	8.94	<0.001	8.79	<0.001	9.10	<0.001	6.02	<0.001	5.38	<0.001
		(2005 - 2025)	Spring	<LRL	<LRL	12.4	<0.001	7.30	<0.001	7.11	<0.001	6.44	<0.001	6.63	<0.001
		(2005 - 2025)	Summer	<LRL	<LRL	10.9	<0.001	14.4	<0.001	14.7	<0.001	6.91	<0.001	7.90	<0.001
		(2005 - 2025)	Fall	<LRL	<LRL	5.64	<0.001	8.08	<0.001	9.33	0.005	5.42	<0.001	4.22	<0.001
	D1-00	(2008 - 2025)	Combined	<LRL	<LRL	9.68	<0.001	9.82	<0.001	11.4	<0.001	6.85	<0.001	6.22	<0.001
		(2008 - 2025)	Spring	<LRL	<LRL	11.2	<0.001	NS	0.063	4.89	0.037	NS	0.054	NS	0.070
		(2008 - 2025)	Summer	<LRL	<LRL	10.6	<0.001	9.90	<0.001	15.3	<0.001	7.32	<0.001	8.75	<0.001
		(2008 - 2025)	Fall	<LRL	<LRL	7.85	<0.001	8.10	<0.001	10.8	<0.001	6.20	<0.001	5.13	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.5: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2008 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Dissolved Magnesium		Dissolved Potassium		Dissolved Strontium		Dissolved Cadmium		Dissolved Cobalt		Dissolved Lithium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	2.34	0.017	NS	0.177	2.18	0.029	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.409	NS	0.680	NS	0.537	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Summer	3.37	0.024	NS	0.113	4.35	0.034	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.373	NS	0.244	NS	0.373	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
	CLT-REF4	(2014 - 2025)	Combined	3.10	0.029	NS	0.176	3.37	0.014	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.732	NS	0.836	NS	0.631	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Summer	5.65	0.016	NS	0.191	4.48	0.016	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.373	NS	0.492	NS	0.216	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
	MRY-REF2	(2014 - 2025)	Combined	NS	0.105	NS	0.751	NS	0.285	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.945	NS	0.193	NS	0.631	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Summer	NS	0.086	NS	0.680	NS	0.304	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.244	NS	0.837	NS	0.193	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
	MRY-REF3	(2014 - 2025)	Combined	NS	0.303	NS	0.720	NS	0.285	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.891	NS	0.111	NS	0.945	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Summer	NS	0.150	NS	0.193	NS	0.373	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.631	NS	0.370	NS	0.304	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
Mine-exposed	D1-05	(2005 - 2025)	Combined	6.36	<0.001	8.89	<0.001	14.1	<0.001	4.52	<0.001	25.8	<0.001	17.0	<0.001
		(2005 - 2025)	Spring	7.05	<0.001	11.0	<0.001	21.6	<0.001	NS	0.610	NS	0.199	33.4	0.037
		(2005 - 2025)	Summer	12.9	<0.001	10.8	<0.001	14.0	<0.001	19.9	0.003	118	0.012	18.1	0.007
		(2005 - 2025)	Fall	6.73	<0.001	7.15	<0.001	10.4	<0.001	4.41	0.017	NS	0.063	12.1	0.023
	D1-00	(2008 - 2025)	Combined	8.49	<0.001	9.05	<0.001	13.9	<0.001	7.14	<0.001	30.5	<0.001	14.3	<0.001
		(2008 - 2025)	Spring	3.80	0.029	9.53	<0.001	15.7	<0.001	3.85	0.049	NS	0.131	14.1	<0.001
		(2008 - 2025)	Summer	10.0	<0.001	10.6	<0.001	13.2	<0.001	19.0	<0.001	18.3	0.002	19.4	<0.001
		(2008 - 2025)	Fall	6.56	<0.001	8.81	<0.001	10.6	<0.001	9.20	<0.001	19.5	<0.001	13.0	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.5: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2008 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend			
				Dissolved Manganese		Dissolved Selenium	
				Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.968	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.944	<LRL	<LRL
		(2014 - 2025)	Summer	NS	0.945	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.945	<LRL	<LRL
	CLT-REF4	(2014 - 2025)	Combined	NS	0.111	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.619	<LRL	<LRL
		(2014 - 2025)	Summer	NS	0.717	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.075	<LRL	<LRL
	MRY-REF2	(2014 - 2025)	Combined	NS	0.100	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.889	<LRL	<LRL
		(2014 - 2025)	Summer	NS	0.207	<LRL	<LRL
		(2014 - 2025)	Fall	NS	0.193	<LRL	<LRL
	MRY-REF3	(2014 - 2025)	Combined	6.94	0.010	<LRL	<LRL
		(2014 - 2025)	Spring	NS	0.945	<LRL	<LRL
		(2014 - 2025)	Summer	10.7	0.024	<LRL	<LRL
		(2014 - 2025)	Fall	6.07	0.047	<LRL	<LRL
Mine-exposed	D1-05	(2005 - 2025)	Combined	5.67	<0.001	41	0.039
		(2005 - 2025)	Spring	NS	0.080	NS	0.159
		(2005 - 2025)	Summer	NS	0.066	NS	0.376
		(2005 - 2025)	Fall	8.58	0.020	NS	0.228
	D1-00	(2008 - 2025)	Combined	10.6	<0.001	NS	0.055
		(2008 - 2025)	Spring	8.68	<0.001	NS	0.249
		(2008 - 2025)	Summer	15.6	0.001	NS	0.555
		(2008 - 2025)	Fall	9.39	<0.001	NS	0.151

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.6: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Chloride		Specific Conductance		Nitrate		Sulphate		Total Dissolved Solids		Total Kjeldahl Nitrogen	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.869	NS	0.281	NS	0.626	NS	0.470	2.43	0.038	NS	0.915
		(2015 - 2025)	Spring	NS	1.000	NS	0.876	NS	1.000	NS	0.814	NS	0.273	NS	0.725
		(2015 - 2025)	Summer	NS	0.702	NS	0.119	NS	0.652	NS	0.062	NS	0.099	NS	1.000
		(2015 - 2025)	Fall	NS	1.000	NS	0.640	NS	0.814	NS	0.815	NS	0.482	NS	0.523
	CLT-REF4	(2015 - 2025)	Combined	NS	0.875	NS	0.088	NS	1.000	NS	0.963	NS	0.368	NS	0.821
		(2015 - 2025)	Spring	NS	1.000	NS	1.000	NS	1.000	NS	1.000	NS	0.755	NS	0.922
		(2015 - 2025)	Summer	NS	0.652	3.10	0.029	NS	0.702	NS	0.755	NS	0.347	NS	0.495
		(2015 - 2025)	Fall	NS	0.938	NS	0.533	NS	0.750	NS	0.640	NS	0.876	NS	1.000
	MRY-REF2	(2015 - 2025)	Combined	NS	0.653	NS	0.500	<LRL	<LRL	NS	0.444	NS	0.299	NS	0.474
		(2015 - 2025)	Spring	NS	0.755	NS	0.640	<LRL	<LRL	NS	0.435	NS	0.937	NS	0.922
		(2015 - 2025)	Summer	NS	0.640	NS	0.276	<LRL	<LRL	NS	1.000	NS	0.101	NS	0.922
		(2015 - 2025)	Fall	NS	0.533	NS	0.585	<LRL	<LRL	NS	0.696	NS	1.000	NS	0.411
	MRY-REF3	(2015 - 2025)	Combined	NS	0.928	NS	0.857	NS	0.583	NS	0.208	NS	0.277	NS	1.000
		(2015 - 2025)	Spring	NS	0.350	NS	0.350	NS	1.000	NS	0.213	NS	0.264	NS	0.922
		(2015 - 2025)	Summer	NS	0.640	NS	0.640	NS	0.176	NS	0.533	NS	0.533	NS	0.922
		(2015 - 2025)	Fall	NS	0.876	NS	1.000	NS	0.746	NS	0.876	NS	1.000	NS	1.000
Mine-Exposed	D1-05	(2015 - 2025)	Combined	19.2	0.002	11.3	<0.001	57.6	<0.001	29.2	<0.001	10.3	<0.001	10.3	0.009
		(2015 - 2025)	Spring	NS	0.213	8.26	0.004	33.6	0.006	18.0	0.020	6.29	0.001	NS	0.736
		(2015 - 2025)	Summer	25.0	0.043	20.0	0.013	170	0.020	47.9	0.008	27.1	0.008	15.6	0.022
		(2015 - 2025)	Fall	NS	0.062	15.9	0.003	54.7	0.043	37.4	0.013	20.9	0.003	NS	0.087
	D1-00	(2015 - 2025)	Combined	9.95	<0.001	7.68	<0.001	15.3	<0.001	14.0	<0.001	8.57	<0.001	6.19	0.001
		(2015 - 2025)	Spring	NS	0.062	NS	0.276	23.6	0.003	NS	0.087	NS	0.241	NS	1.000
		(2015 - 2025)	Summer	12.3	0.008	9.68	0.001	25.0	<0.001	18.0	0.003	11.9	0.005	8.35	0.006
		(2015 - 2025)	Fall	9.26	0.013	7.29	0.001	13.6	<0.001	12.5	0.001	8.15	0.001	7.84	0.006

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.6: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Molybdenum		Total Sodium		Total Uranium		Total Barium		Total Calcium		Total Magnesium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.281	NS	0.301	NS	0.150	NS	0.964	NS	0.418	NS	0.088
		(2015 - 2025)	Spring	NS	1.000	NS	1.000	NS	1.000	NS	0.213	NS	0.436	NS	1.000
		(2015 - 2025)	Summer	NS	0.436	NS	0.138	NS	0.119	NS	0.390	NS	0.087	3.50	0.020
		(2015 - 2025)	Fall	NS	0.350	NS	0.876	NS	0.436	NS	0.876	NS	0.638	NS	0.533
	CLT-REF4	(2015 - 2025)	Combined	NS	0.090	NS	0.928	NS	0.208	NS	0.163	NS	0.053	NS	0.059
		(2015 - 2025)	Spring	NS	0.365	NS	0.640	NS	1.000	NS	1.000	NS	0.876	NS	0.815
		(2015 - 2025)	Summer	NS	0.276	NS	0.436	NS	0.119	NS	0.138	4.53	0.029	4.37	0.020
		(2015 - 2025)	Fall	NS	0.436	NS	1.000	NS	0.640	NS	0.436	NS	0.390	NS	0.585
	MRY-REF2	(2015 - 2025)	Combined	NS	0.124	NS	0.281	NS	0.150	NS	0.719	NS	0.686	NS	0.323
		(2015 - 2025)	Spring	NS	0.303	NS	0.755	NS	0.640	NS	0.350	NS	0.350	NS	1.000
		(2015 - 2025)	Summer	NS	0.482	NS	0.350	NS	0.276	NS	0.533	NS	0.161	NS	0.161
		(2015 - 2025)	Fall	NS	0.436	NS	0.640	NS	0.436	NS	0.755	NS	0.815	NS	0.755
	MRY-REF3	(2015 - 2025)	Combined	NS	0.472	NS	0.719	NS	0.208	NS	0.529	NS	0.857	NS	0.719
		(2015 - 2025)	Spring	NS	0.640	NS	0.350	NS	0.876	NS	0.755	NS	0.310	NS	0.436
		(2015 - 2025)	Summer	NS	0.350	NS	0.276	NS	0.213	NS	0.213	NS	0.755	NS	0.276
		(2015 - 2025)	Fall	NS	0.436	NS	0.640	NS	0.533	NS	0.876	NS	0.815	NS	0.755
Mine-Exposed	D1-05	(2015 - 2025)	Combined	10.8	<0.001	11.8	<0.001	12.7	<0.001	10.6	<0.001	10.7	<0.001	12.9	<0.001
		(2015 - 2025)	Spring	14.5	0.002	NS	0.062	6.21	0.024	8.79	0.015	8.80	0.004	7.45	0.008
		(2015 - 2025)	Summer	11.0	0.003	22.8	0.013	18.9	0.008	16.1	0.029	18.0	0.029	22.5	0.008
		(2015 - 2025)	Fall	9.25	0.005	15.2	0.024	15.1	0.003	11.2	0.006	13.8	0.003	16.1	0.001
	D1-00	(2015 - 2025)	Combined	10.9	<0.001	7.09	<0.001	11.9	<0.001	4.74	<0.001	6.36	<0.001	8.10	<0.001
		(2015 - 2025)	Spring	11.1	0.013	NS	1.000	NS	0.533	NS	0.310	NS	0.533	NS	0.533
		(2015 - 2025)	Summer	11.5	0.003	9.18	<0.001	11.2	0.001	6.16	0.005	8.96	0.003	7.75	<0.001
		(2015 - 2025)	Fall	8.62	<0.001	6.67	<0.001	12.6	0.001	4.56	0.020	5.37	0.006	8.82	<0.001

 P-value <0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.6: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Potassium		Total Strontium		Total Cadmium		Total Cobalt		Total Lithium		Total Manganese	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.280	NS	0.323	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.529
		(2015 - 2025)	Spring	NS	0.585	NS	0.640	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.350
		(2015 - 2025)	Summer	NS	0.101	NS	0.119	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.276
		(2015 - 2025)	Fall	NS	0.436	NS	0.533	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.350
	CLT-REF4	(2015 - 2025)	Combined	NS	0.652	NS	0.243	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.437
		(2015 - 2025)	Spring	NS	1.000	NS	0.755	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.436
		(2015 - 2025)	Summer	NS	0.585	NS	0.087	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.750
		(2015 - 2025)	Fall	NS	0.876	NS	0.533	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.936
	MRY-REF2	(2015 - 2025)	Combined	NS	0.787	NS	0.685	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.261
		(2015 - 2025)	Spring	NS	0.585	NS	0.696	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.585
		(2015 - 2025)	Summer	NS	0.815	NS	0.585	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.350
		(2015 - 2025)	Fall	NS	0.876	NS	0.585	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL	NS	0.755
	MRY-REF3	(2015 - 2025)	Combined	NS	0.964	NS	0.928	<LRL	<LRL	4.76	0.005	<LRL	<LRL	9.37	0.002
		(2015 - 2025)	Spring	NS	0.533	NS	0.436	<LRL	<LRL	1.75	0.041	<LRL	<LRL	9.12	0.020
		(2015 - 2025)	Summer	NS	0.347	NS	0.482	<LRL	<LRL	27.3	0.031	<LRL	<LRL	NS	0.062
		(2015 - 2025)	Fall	NS	0.938	NS	0.815	<LRL	<LRL	NS	0.560	<LRL	<LRL	NS	0.350
Mine-Exposed	D1-05	(2015 - 2025)	Combined	15.0	<0.001	48.3	<0.001	2.71	0.042	71.7	<0.001	39.8	<0.001	23.5	<0.001
		(2015 - 2025)	Spring	14.7	0.001	55.2	<0.001	NS	0.638	NS	0.055	34.8	0.010	NS	0.161
		(2015 - 2025)	Summer	19.9	<0.001	77.0	0.005	NS	0.072	148	0.035	60.0	0.003	82.9	0.015
		(2015 - 2025)	Fall	14.9	0.001	52.9	0.008	NS	0.270	50.0	0.001	39.7	0.005	47.9	0.005
	D1-00	(2015 - 2025)	Combined	10.2	<0.001	25.2	<0.001	12.1	<0.001	16.0	<0.001	15.5	<0.001	10.6	<0.001
		(2015 - 2025)	Spring	7.91	0.002	18.9	<0.001	NS	0.051	5.30	0.009	12.0	0.003	9.09	0.005
		(2015 - 2025)	Summer	12.3	<0.001	38.8	<0.001	26.3	0.001	NS	0.085	23.1	<0.001	14.1	0.024
		(2015 - 2025)	Fall	10.3	<0.001	28.8	<0.001	14.6	0.010	25.9	0.012	18.4	0.001	7.10	0.043

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.6: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Selenium		Dissolved Molybdenum		Dissolved Sodium		Dissolved Uranium		Dissolved Barium		Dissolved Calcium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	<LRL	<LRL	NS	0.243	NS	0.586	NS	0.243	NS	0.418	NS	0.207
		(2015 - 2025)	Spring	<LRL	<LRL	NS	0.436	NS	0.872	NS	0.876	NS	0.390	NS	0.815
		(2015 - 2025)	Summer	<LRL	<LRL	NS	0.755	NS	0.213	NS	0.213	NS	0.138	NS	0.119
		(2015 - 2025)	Fall	<LRL	<LRL	NS	0.436	NS	1.000	NS	0.350	NS	0.436	NS	0.390
	CLT-REF4	(2015 - 2025)	Combined	<LRL	<LRL	NS	0.082	NS	0.892	NS	0.208	NS	0.178	NS	0.106
		(2015 - 2025)	Spring	<LRL	<LRL	NS	0.417	NS	0.689	NS	1.000	NS	1.000	NS	1.000
		(2015 - 2025)	Summer	<LRL	<LRL	NS	0.213	NS	0.350	NS	0.119	NS	0.213	NS	0.062
		(2015 - 2025)	Fall	<LRL	<LRL	NS	0.436	NS	0.876	NS	0.533	NS	0.276	NS	0.436
	MRY-REF2	(2015 - 2025)	Combined	<LRL	<LRL	NS	0.206	NS	0.279	NS	0.281	NS	0.653	NS	0.893
		(2015 - 2025)	Spring	<LRL	<LRL	NS	0.694	NS	0.637	NS	0.876	NS	0.350	NS	0.276
		(2015 - 2025)	Summer	<LRL	<LRL	NS	0.350	NS	0.350	NS	0.350	NS	0.876	NS	0.533
		(2015 - 2025)	Fall	<LRL	<LRL	NS	0.482	NS	0.755	NS	0.533	NS	1.000	NS	0.938
	MRY-REF3	(2015 - 2025)	Combined	<LRL	<LRL	NS	0.261	NS	0.787	NS	0.964	NS	1.000	NS	0.719
		(2015 - 2025)	Spring	<LRL	<LRL	NS	1.000	NS	0.276	NS	0.138	NS	0.310	NS	0.276
		(2015 - 2025)	Summer	<LRL	<LRL	NS	0.350	NS	0.213	NS	0.350	NS	0.755	NS	0.755
		(2015 - 2025)	Fall	<LRL	<LRL	NS	0.350	NS	0.755	NS	0.533	NS	0.533	NS	1.000
Mine-Exposed	D1-05	(2015 - 2025)	Combined	NS	0.436	11.8	<0.001	10.8	<0.001	12.3	<0.001	9.72	<0.001	9.51	<0.001
		(2015 - 2025)	Spring	NS	0.828	16.4	0.001	5.16	0.029	4.56	0.029	6.57	0.008	7.64	0.005
		(2015 - 2025)	Summer	NS	0.770	10.5	0.005	23.0	0.008	17.9	0.008	17.0	0.029	19.9	0.013
		(2015 - 2025)	Fall	NS	0.522	8.08	0.008	11.5	0.013	14.8	0.003	10.4	0.013	12.7	0.003
	D1-00	(2015 - 2025)	Combined	NS	0.582	10.6	<0.001	6.50	<0.001	13.0	<0.001	4.21	0.001	6.21	<0.001
		(2015 - 2025)	Spring	NS	1.000	11.8	0.013	NS	1.000	NS	0.640	NS	0.755	NS	0.390
		(2015 - 2025)	Summer	NS	0.918	11.5	0.005	8.97	<0.001	11.1	0.001	5.98	0.005	8.46	0.002
		(2015 - 2025)	Fall	NS	0.522	7.79	<0.001	5.06	0.008	13.8	0.002	4.24	0.020	5.08	0.005

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.6: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Dissolved Magnesium		Dissolved Potassium		Dissolved Strontium		Dissolved Cadmium		Dissolved Cobalt		Dissolved Lithium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.163	NS	0.499	NS	0.208	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.938	NS	0.815	NS	1.000	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.087	NS	0.347	NS	0.119	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.640	NS	0.640	NS	0.533	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
	CLT-REF4	(2015 - 2025)	Combined	NS	0.243	NS	0.442	NS	0.115	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.876	NS	0.530	NS	1.000	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.062	NS	0.531	NS	0.062	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.755	NS	1.000	NS	0.482	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
	MRY-REF2	(2015 - 2025)	Combined	NS	0.281	NS	0.559	NS	0.719	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Spring	NS	1.000	NS	0.533	NS	0.755	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.213	NS	0.938	NS	0.755	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.533	NS	0.876	NS	0.533	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
	MRY-REF3	(2015 - 2025)	Combined	NS	0.893	NS	1.000	NS	0.928	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.310	NS	0.344	NS	0.436	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.436	NS	0.436	NS	0.876	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
		(2015 - 2025)	Fall	NS	1.000	NS	0.876	NS	0.755	<LRL	<LRL	<LRL	<LRL	<LRL	<LRL
Mine-Exposed	D1-05	(2015 - 2025)	Combined	11.6	<0.001	16.3	<0.001	48.7	<0.001	NS	0.242	91.1	<0.001	35.5	<0.001
		(2015 - 2025)	Spring	7.72	0.005	15.1	0.001	54.3	<0.001	NS	0.696	NS	0.111	28.9	0.009
		(2015 - 2025)	Summer	23.5	0.013	20.5	<0.001	81.8	0.008	NS	0.087	182	0.022	65.7	0.005
		(2015 - 2025)	Fall	16.9	0.002	14.8	0.001	49.2	0.008	NS	0.482	93.0	0.009	31.4	0.008
	D1-00	(2015 - 2025)	Combined	8.39	<0.001	9.44	<0.001	22.5	<0.001	7.95	<0.001	21.6	<0.001	13.6	<0.001
		(2015 - 2025)	Spring	NS	0.350	8.45	0.003	17.7	<0.001	5.38	0.028	NS	0.111	12.9	0.002
		(2015 - 2025)	Summer	8.37	<0.001	13.1	<0.001	34.5	<0.001	30.1	0.011	NS	0.059	24.4	0.003
		(2015 - 2025)	Fall	7.86	<0.001	9.84	<0.001	29.3	<0.001	14.3	0.004	24.3	0.019	17.9	0.004

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.6: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 1 (SDLT1) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend			
				Dissolved Manganese		Dissolved Selenium	
				Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.928	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.520	<LRL	<LRL
		(2015 - 2025)	Summer	NS	1.000	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.436	<LRL	<LRL
	CLT-REF4	(2015 - 2025)	Combined	NS	0.054	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.142	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.868	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.124	<LRL	<LRL
	MRY-REF2	(2015 - 2025)	Combined	4.37	0.040	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.298	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.151	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.350	<LRL	<LRL
	MRY-REF3	(2015 - 2025)	Combined	7.33	0.009	<LRL	<LRL
		(2015 - 2025)	Spring	NS	0.350	<LRL	<LRL
		(2015 - 2025)	Summer	NS	0.062	<LRL	<LRL
		(2015 - 2025)	Fall	NS	0.119	<LRL	<LRL
Mine-Exposed	D1-05	(2015 - 2025)	Combined	20.3	<0.001	NS	0.225
		(2015 - 2025)	Spring	NS	0.477	NS	0.380
		(2015 - 2025)	Summer	479	0.011	NS	0.626
		(2015 - 2025)	Fall	33.2	0.001	NS	0.596
	D1-00	(2015 - 2025)	Combined	8.78	<0.001	NS	0.264
		(2015 - 2025)	Spring	7.92	<0.001	NS	0.380
		(2015 - 2025)	Summer	NS	0.062	NS	0.918
		(2015 - 2025)	Fall	NS	0.119	NS	0.458

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.7: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Alkalinity, Total		Chloride		Specific Conductance		Hardness		Total Dissolved Solids		Total Molybdenum	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.052	NS	0.704	NS	0.100	2.66	0.016	2.94	0.012	2.94	0.024
		(2014 - 2025)	Spring	NS	0.680	NS	1.000	NS	0.876	NS	0.631	NS	0.085	NS	0.451
		(2014 - 2025)	Summer	NS	0.054	NS	0.680	2.83	0.034	3.54	0.011	2.97	0.038	NS	0.150
		(2014 - 2025)	Fall	NS	0.373	NS	0.883	NS	0.451	NS	0.304	NS	0.680	NS	0.115
	CLT-REF4	(2014 - 2025)	Combined	3.59	0.008	NS	0.714	2.63	0.017	3.15	0.005	NS	0.250	4.40	0.030
		(2014 - 2025)	Spring	NS	0.402	NS	1.000	NS	1.000	NS	0.537	NS	0.537	NS	0.591
		(2014 - 2025)	Summer	6.09	0.019	NS	0.636	4.60	0.007	5.02	0.005	NS	0.191	NS	0.086
		(2014 - 2025)	Fall	NS	0.216	NS	0.944	NS	0.244	NS	0.193	NS	1.000	NS	0.193
	MRY-REF2	(2014 - 2025)	Combined	NS	0.154	NS	0.607	NS	0.149	NS	0.143	NS	0.404	2.30	0.035
		(2014 - 2025)	Spring	NS	0.732	NS	0.451	NS	0.640	NS	0.537	NS	0.945	NS	0.487
		(2014 - 2025)	Summer	NS	0.086	NS	0.304	NS	0.086	2.37	0.034	NS	0.099	NS	0.169
		(2014 - 2025)	Fall	NS	0.271	NS	0.537	NS	0.271	NS	0.304	NS	1.000	NS	0.150
	MRY-REF3	(2014 - 2025)	Combined	NS	0.186	NS	0.404	NS	0.510	NS	0.220	3.48	0.031	NS	0.089
		(2014 - 2025)	Spring	NS	0.874	NS	0.729	NS	0.350	NS	0.837	NS	0.106	NS	0.945
		(2014 - 2025)	Summer	NS	0.244	NS	0.304	NS	0.244	NS	0.115	NS	0.193	NS	0.115
		(2014 - 2025)	Fall	NS	0.244	NS	0.451	NS	0.451	NS	0.451	NS	0.492	NS	0.150
Mine-exposed	D12-1	(2007 - 2024)	Combined	NS	>0.05	10.9	<0.05	NS	>0.05	NS	>0.05	3.74	<0.05	NS	>0.05
		(2007 - 2024)	Spring	NS	>0.05	8.16	<0.05	ND	ND	NS	>0.05	11.4	<0.05	NS	>0.05
		(2007 - 2024)	Summer	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		(2007 - 2024)	Fall	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.7: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Sodium		Total Uranium		Total Barium		Total Calcium		Total Magnesium		Total Potassium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	2.61	0.039	NS	0.123	NS	0.235	NS	0.088	3.27	0.006	NS	0.068
		(2014 - 2025)	Spring	NS	0.631	NS	0.732	NS	0.732	NS	1.000	NS	0.537	NS	0.680
		(2014 - 2025)	Summer	4.85	0.039	9.64	0.047	NS	0.130	3.11	0.024	3.76	0.005	2.30	0.028
		(2014 - 2025)	Fall	NS	0.373	NS	0.304	NS	0.373	NS	0.535	NS	0.244	NS	0.169
	CLT-REF4	(2014 - 2025)	Combined	NS	0.501	NS	0.143	2.76	0.019	2.98	0.014	3.68	0.005	NS	0.302
		(2014 - 2025)	Spring	NS	0.373	NS	0.631	NS	0.680	NS	0.631	NS	0.449	NS	0.730
		(2014 - 2025)	Summer	NS	0.150	9.72	0.034	5.33	0.039	4.80	0.007	5.55	0.005	NS	0.216
		(2014 - 2025)	Fall	NS	0.537	NS	0.373	NS	0.150	NS	0.336	NS	0.271	NS	0.373
	MRY-REF2	(2014 - 2025)	Combined	NS	0.123	NS	0.089	NS	0.782	NS	0.342	NS	0.123	NS	0.905
		(2014 - 2025)	Spring	NS	1.000	NS	0.945	NS	0.244	NS	0.304	NS	0.837	NS	0.216
		(2014 - 2025)	Summer	NS	0.150	NS	0.086	NS	0.193	2.03	0.047	2.79	0.047	NS	0.336
		(2014 - 2025)	Fall	NS	0.244	NS	0.193	NS	0.732	NS	0.492	NS	0.373	NS	0.631
	MRY-REF3	(2014 - 2025)	Combined	NS	0.105	3.33	0.016	NS	0.063	NS	0.322	NS	0.105	NS	0.579
		(2014 - 2025)	Spring	NS	0.945	NS	0.373	NS	0.732	NS	0.891	NS	1.000	NS	0.244
		(2014 - 2025)	Summer	NS	0.086	NS	0.064	NS	0.064	NS	0.304	NS	0.086	NS	0.113
		(2014 - 2025)	Fall	NS	0.244	NS	0.193	NS	0.373	NS	0.409	NS	0.304	NS	0.582
Mine-exposed	D12-1	(2007 - 2024)	Combined	25.9	<0.05	15.4	<0.05	4.62	<0.05	NS	>0.05	5.02	<0.05	13.2	<0.05
		(2007 - 2024)	Spring	13.8	<0.05	NS	>0.05	NS	>0.05	NS	>0.05	NS	>0.05	8.13	<0.05
		(2007 - 2024)	Summer	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		(2007 - 2024)	Fall	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.7: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Total Strontium		Dissolved Molybdenum		Dissolved Sodium		Dissolved Uranium		Dissolved Barium		Dissolved Calcium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	NS	0.052	3.03	0.024	NS	0.079	NS	0.143	1.43	0.043	1.59	0.043
		(2014 - 2025)	Spring	NS	0.837	NS	0.150	NS	0.673	NS	0.732	NS	1.000	NS	0.680
		(2014 - 2025)	Summer	4.74	0.034	NS	0.304	NS	0.064	NS	0.086	1.93	0.039	2.46	0.034
		(2014 - 2025)	Fall	NS	0.373	NS	0.193	NS	0.537	NS	0.244	NS	0.150	NS	0.409
	CLT-REF4	(2014 - 2025)	Combined	3.27	0.036	5.31	0.011	NS	0.402	NS	0.143	3.29	0.019	2.45	0.027
		(2014 - 2025)	Spring	NS	0.945	NS	0.299	NS	0.527	NS	0.537	NS	0.631	NS	0.732
		(2014 - 2025)	Summer	5.60	0.024	NS	0.064	NS	0.115	9.32	0.034	NS	0.064	4.64	0.016
		(2014 - 2025)	Fall	NS	0.244	NS	0.193	NS	0.631	NS	0.304	NS	0.115	NS	0.336
	MRY-REF2	(2014 - 2025)	Combined	NS	0.267	NS	0.087	NS	0.122	NS	0.166	NS	0.843	NS	0.781
		(2014 - 2025)	Spring	NS	0.582	NS	1.000	NS	0.945	NS	0.732	NS	0.244	NS	0.244
		(2014 - 2025)	Summer	NS	0.216	NS	0.115	NS	0.115	NS	0.115	NS	0.373	NS	0.244
		(2014 - 2025)	Fall	NS	0.216	NS	0.216	NS	0.373	NS	0.244	NS	0.537	NS	0.630
	MRY-REF3	(2014 - 2025)	Combined	NS	0.165	2.46	0.027	NS	0.123	NS	0.322	NS	0.303	NS	0.452
		(2014 - 2025)	Spring	NS	1.000	NS	0.582	NS	0.837	NS	0.301	NS	0.582	NS	0.837
		(2014 - 2025)	Summer	NS	0.169	NS	0.115	NS	0.064	NS	0.115	NS	0.304	NS	0.304
		(2014 - 2025)	Fall	NS	0.336	NS	0.115	NS	0.304	NS	0.244	NS	0.193	NS	0.631
Mine-exposed	D12-1	(2007 - 2024)	Combined	6.44	<0.05	5.41	<0.05	14.6	<0.05	7.97	<0.05	NS	>0.05	NS	>0.05
		(2007 - 2024)	Spring	16.6	<0.05	NS	>0.05	14.8	<0.05	NS	>0.05	NS	>0.05	NS	>0.05
		(2007 - 2024)	Summer	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		(2007 - 2024)	Fall	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.7: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend					
				Dissolved Magnesium		Dissolved Potassium		Dissolved Strontium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2014 - 2025)	Combined	2.34	0.017	NS	0.177	2.18	0.029
		(2014 - 2025)	Spring	NS	0.409	NS	0.680	NS	0.537
		(2014 - 2025)	Summer	3.37	0.024	NS	0.113	4.35	0.034
		(2014 - 2025)	Fall	NS	0.373	NS	0.244	NS	0.373
	CLT-REF4	(2014 - 2025)	Combined	3.10	0.029	NS	0.176	3.37	0.014
		(2014 - 2025)	Spring	NS	0.732	NS	0.836	NS	0.631
		(2014 - 2025)	Summer	5.65	0.016	NS	0.191	4.48	0.016
		(2014 - 2025)	Fall	NS	0.373	NS	0.492	NS	0.216
	MRY-REF2	(2014 - 2025)	Combined	NS	0.105	NS	0.751	NS	0.285
		(2014 - 2025)	Spring	NS	0.945	NS	0.193	NS	0.631
		(2014 - 2025)	Summer	NS	0.086	NS	0.680	NS	0.304
		(2014 - 2025)	Fall	NS	0.244	NS	0.837	NS	0.193
	MRY-REF3	(2014 - 2025)	Combined	NS	0.303	NS	0.720	NS	0.285
		(2014 - 2025)	Spring	NS	0.891	NS	0.111	NS	0.945
		(2014 - 2025)	Summer	NS	0.150	NS	0.193	NS	0.373
		(2014 - 2025)	Fall	NS	0.631	NS	0.370	NS	0.304
Mine-exposed	D12-1	(2007 - 2024)	Combined	NS	>0.05	9.16	<0.05	6.76	<0.05
		(2007 - 2024)	Spring	NS	>0.05	10.9	<0.05	30.9	<0.05
		(2007 - 2024)	Summer	ND	ND	ND	ND	ND	ND
		(2007 - 2024)	Fall	ND	ND	ND	ND	ND	ND

- P-value <0.05.
- Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.
- Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.8: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend													
				Alkalinity, Total		Chloride		Specific Conductance		Hardness		Total Dissolved Solids		Total Molybdenum		Total Sodium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.322	NS	0.869	NS	0.281	NS	0.150	2.43	0.038	NS	0.281	NS	0.301
		(2015 - 2025)	Spring	NS	0.815	NS	1.000	NS	0.876	NS	0.876	NS	0.273	NS	1.000	NS	1.000
		(2015 - 2025)	Summer	2	0.184	NS	0.702	NS	0.119	3.09	0.043	NS	0.099	NS	0.436	NS	0.138
		(2015 - 2025)	Fall	NS	0.533	NS	1.000	NS	0.640	NS	0.533	NS	0.482	NS	0.350	NS	0.876
	CLT-REF4	(2015 - 2025)	Combined	NS	0.085	NS	0.875	NS	0.088	2.30	0.048	NS	0.368	NS	0.090	NS	0.928
		(2015 - 2025)	Spring	NS	0.812	NS	1.000	NS	1.000	NS	0.876	NS	0.755	NS	0.365	NS	0.640
		(2015 - 2025)	Summer	NS	0.072	NS	0.652	3.10	0.029	3.86	0.020	NS	0.347	NS	0.276	NS	0.436
		(2015 - 2025)	Fall	NS	0.436	NS	0.938	NS	0.533	NS	0.436	NS	0.876	NS	0.436	NS	1.000
	MRY-REF2	(2015 - 2025)	Combined	NS	0.393	NS	0.653	NS	0.500	NS	0.369	NS	0.299	NS	0.124	NS	0.281
		(2015 - 2025)	Spring	NS	0.876	NS	0.755	NS	0.640	NS	0.640	NS	0.937	NS	0.303	NS	0.755
		(2015 - 2025)	Summer	NS	0.276	NS	0.640	NS	0.276	NS	0.119	NS	0.101	NS	0.482	NS	0.350
		(2015 - 2025)	Fall	NS	0.585	NS	0.533	NS	0.585	NS	0.640	NS	1.000	NS	0.436	NS	0.640
	MRY-REF3	(2015 - 2025)	Combined	NS	0.741	NS	0.928	NS	0.857	NS	1.000	NS	0.277	NS	0.472	NS	0.719
		(2015 - 2025)	Spring	NS	0.648	NS	0.350	NS	0.350	NS	0.276	NS	0.264	NS	0.640	NS	0.350
		(2015 - 2025)	Summer	NS	0.640	NS	0.640	NS	0.640	NS	0.350	NS	0.533	NS	0.350	NS	0.276
		(2015 - 2025)	Fall	NS	0.640	NS	0.876	NS	1.000	NS	1.000	NS	1.000	NS	0.436	NS	0.640
Mine-exposed	D12-1	(2017 - 2024)	Combined	NS	>0.05	NS	>0.05	ND	ND	NS	>0.05	NS	>0.05	NS	>0.05	NS	>0.05
		(2017 - 2024)	Spring	NS	>0.05	NS	>0.05	ND	ND	NS	>0.05	NS	>0.05	NS	>0.05	NS	>0.05

- P-value <0.05.
- Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.
- Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.8: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend													
				Total Uranium		Total Barium		Total Calcium		Total Magnesium		Total Potassium		Total Strontium		Dissolved Molybdenum	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.150	NS	0.964	NS	0.418	NS	0.088	NS	0.280	NS	0.323	NS	0.243
		(2015 - 2025)	Spring	NS	1.000	NS	0.213	NS	0.436	NS	1.000	NS	0.585	NS	0.640	NS	0.436
		(2015 - 2025)	Summer	NS	0.119	NS	0.390	NS	0.087	3.50	0.020	NS	0.101	NS	0.119	NS	0.755
		(2015 - 2025)	Fall	NS	0.436	NS	0.876	NS	0.638	NS	0.533	NS	0.436	NS	0.533	NS	0.436
	CLT-REF4	(2015 - 2025)	Combined	NS	0.208	NS	0.163	NS	0.053	NS	0.059	NS	0.652	NS	0.243	NS	0.082
		(2015 - 2025)	Spring	NS	1.000	NS	1.000	NS	0.876	NS	0.815	NS	1.000	NS	0.755	NS	0.417
		(2015 - 2025)	Summer	NS	0.119	NS	0.138	4.53	0.029	4.37	0.020	NS	0.585	NS	0.087	NS	0.213
		(2015 - 2025)	Fall	NS	0.640	NS	0.436	NS	0.390	NS	0.585	NS	0.876	NS	0.533	NS	0.436
	MRY-REF2	(2015 - 2025)	Combined	NS	0.150	NS	0.719	NS	0.686	NS	0.323	NS	0.787	NS	0.685	NS	0.206
		(2015 - 2025)	Spring	NS	0.640	NS	0.350	NS	0.350	NS	1.000	NS	0.585	NS	0.696	NS	0.694
		(2015 - 2025)	Summer	NS	0.276	NS	0.533	NS	0.161	NS	0.161	NS	0.815	NS	0.585	NS	0.350
		(2015 - 2025)	Fall	NS	0.436	NS	0.755	NS	0.815	NS	0.755	NS	0.876	NS	0.585	NS	0.482
	MRY-REF3	(2015 - 2025)	Combined	NS	0.208	NS	0.529	NS	0.857	NS	0.719	NS	0.964	NS	0.928	NS	0.261
		(2015 - 2025)	Spring	NS	0.876	NS	0.755	NS	0.310	NS	0.436	NS	0.533	NS	0.436	NS	1.000
		(2015 - 2025)	Summer	NS	0.213	NS	0.213	NS	0.755	NS	0.276	NS	0.347	NS	0.482	NS	0.350
		(2015 - 2025)	Fall	NS	0.533	NS	0.876	NS	0.815	NS	0.755	NS	0.938	NS	0.815	NS	0.350
Mine-exposed	D12-1	(2017 - 2024)	Combined	NS	>0.05	ND	ND	NS	>0.05	NS	>0.05	NS	>0.05	ND	ND	NS	>0.05
		(2017 - 2024)	Spring	NS	>0.05	ND	ND	NS	>0.05	NS	>0.05	NS	>0.05	ND	ND	NS	>0.05

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.8: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Tributary 12 (SDLT12) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend													
				Dissolved Sodium		Dissolved Uranium		Dissolved Barium		Dissolved Calcium		Dissolved Magnesium		Dissolved Potassium		Dissolved Strontium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	CLT-REF3	(2015 - 2025)	Combined	NS	0.586	NS	0.243	NS	0.418	NS	0.207	NS	0.163	NS	0.499	NS	0.208
		(2015 - 2025)	Spring	NS	0.872	NS	0.876	NS	0.390	NS	0.815	NS	0.938	NS	0.815	NS	1.000
		(2015 - 2025)	Summer	NS	0.213	NS	0.213	NS	0.138	NS	0.119	NS	0.087	NS	0.347	NS	0.119
		(2015 - 2025)	Fall	NS	1.000	NS	0.350	NS	0.436	NS	0.390	NS	0.640	NS	0.640	NS	0.533
	CLT-REF4	(2015 - 2025)	Combined	NS	0.892	NS	0.208	NS	0.178	NS	0.106	NS	0.243	NS	0.442	NS	0.115
		(2015 - 2025)	Spring	NS	0.689	NS	1.000	NS	1.000	NS	1.000	NS	0.876	NS	0.530	NS	1.000
		(2015 - 2025)	Summer	NS	0.350	NS	0.119	NS	0.213	NS	0.062	NS	0.062	NS	0.531	NS	0.062
		(2015 - 2025)	Fall	NS	0.876	NS	0.533	NS	0.276	NS	0.436	NS	0.755	NS	1.000	NS	0.482
	MRY-REF2	(2015 - 2025)	Combined	NS	0.279	NS	0.281	NS	0.653	NS	0.893	NS	0.281	NS	0.559	NS	0.719
		(2015 - 2025)	Spring	NS	0.637	NS	0.876	NS	0.350	NS	0.276	NS	1.000	NS	0.533	NS	0.755
		(2015 - 2025)	Summer	NS	0.350	NS	0.350	NS	0.876	NS	0.533	NS	0.213	NS	0.938	NS	0.755
		(2015 - 2025)	Fall	NS	0.755	NS	0.533	NS	1.000	NS	0.938	NS	0.533	NS	0.876	NS	0.533
	MRY-REF3	(2015 - 2025)	Combined	NS	0.787	NS	0.964	NS	1.000	NS	0.719	NS	0.893	NS	1.000	NS	0.928
		(2015 - 2025)	Spring	NS	0.276	NS	0.138	NS	0.310	NS	0.276	NS	0.310	NS	0.344	NS	0.436
		(2015 - 2025)	Summer	NS	0.213	NS	0.350	NS	0.755	NS	0.755	NS	0.436	NS	0.436	NS	0.876
		(2015 - 2025)	Fall	NS	0.755	NS	0.533	NS	0.533	NS	1.000	NS	1.000	NS	0.876	NS	0.755
Mine-exposed	D12-1	(2017 - 2024)	Combined	NS	>0.05	NS	>0.05	ND	ND	NS	>0.05	NS	>0.05	NS	>0.05	ND	ND
		(2017 - 2024)	Spring	NS	>0.05	NS	>0.05	ND	ND	NS	>0.05	NS	>0.05	NS	>0.05	ND	ND

- P-value <0.05.
- Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.
- Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). ND = no/insufficient data. <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

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Table G.9: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Northwest (DL0-01) and Reference Lake 3 Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend																	
				Chloride		Nitrate		Sulphate		Total Molybdenum		Total Uranium		Total Strontium		Dissolved Molybdenum		Dissolved Uranium		Dissolved Strontium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	REF3-01	(2015 - 2025)	Combined	NS	0.320	<LRL	<LRL	-4.03	<0.001	2.12	0.004	NS	0.110	NS	0.321	NS	0.137	NS	0.440	NS	0.186
		(2015 - 2025)	Summer	NS	1.000	<LRL	<LRL	-3.36	<0.001	NS	0.087	NS	0.119	NS	0.640	NS	0.119	NS	0.350	NS	0.482
		(2015 - 2025)	Fall	NS	0.184	<LRL	<LRL	-4.38	<0.001	2.25	0.020	NS	0.533	NS	0.390	NS	0.640	NS	0.938	NS	0.276
	REF3-02	(2015 - 2025)	Combined	NS	0.270	<LRL	<LRL	-4.22	<0.001	NS	0.098	NS	0.204	NS	0.581	NS	0.321	NS	0.409	NS	1.000
		(2015 - 2025)	Summer	NS	0.184	<LRL	<LRL	-4.35	<0.001	NS	0.241	NS	0.273	NS	0.876	NS	0.350	NS	0.436	NS	0.533
		(2015 - 2025)	Fall	NS	0.876	<LRL	<LRL	-4.11	<0.001	NS	0.276	NS	0.533	NS	0.585	NS	0.696	NS	0.755	NS	0.533
	REF3-03	(2015 - 2025)	Combined	NS	0.108	<LRL	<LRL	-4.62	<0.001	1.55	0.006	NS	0.123	NS	1.000	1.38	0.032	NS	0.349	NS	0.378
		(2015 - 2025)	Summer	NS	0.531	<LRL	<LRL	-4.72	<0.001	NS	0.390	NS	0.213	NS	1.000	NS	0.119	NS	0.350	NS	0.640
		(2015 - 2025)	Fall	NS	0.117	<LRL	<LRL	-4.46	<0.001	1.88	0.003	NS	0.390	NS	1.000	NS	0.161	NS	0.755	NS	0.482
Mine-exposed	DL0-01-1	(2006 - 2025)	Combined	8.20	<0.001	36.6	<0.001	25.4	<0.001	7.11	<0.001	8.96	<0.001	6.36	<0.001	6.93	<0.001	8.77	<0.001	6.25	<0.001
		(2006 - 2025)	Summer	8.50	<0.001	41.6	<0.001	24.1	<0.001	7.27	<0.001	8.74	<0.001	6.64	<0.001	7.81	<0.001	8.56	<0.001	5.69	<0.001
		(2006 - 2025)	Fall	8.33	<0.001	35.6	<0.001	31.1	<0.001	7.73	<0.001	9.67	<0.001	5.24	<0.001	7.19	<0.001	9.88	<0.001	6.25	<0.001
		(2006 - 2025)	Winter	8.93	<0.001	29.2	<0.001	20.0	<0.001	7.53	<0.001	11.7	<0.001	8.38	<0.001	6.72	<0.001	10.0	<0.001	7.32	<0.001
	DL0-01-2	(2007 - 2025)	Combined	8.78	<0.001	42.1	<0.001	18.3	<0.001	9.17	<0.001	11.2	<0.001	9.79	<0.001	8.41	<0.001	10.9	<0.001	9.68	<0.001
		(2007 - 2025)	Summer	8.86	<0.001	77.1	<0.001	23.5	<0.001	10.2	<0.001	10.5	<0.001	8.72	<0.001	10.2	<0.001	10.8	<0.001	9.66	<0.001
		(2007 - 2025)	Fall	9.43	<0.001	59.3	<0.001	18.7	<0.001	9.53	<0.001	12.8	<0.001	11.3	<0.001	7.03	0.001	12.3	<0.001	11.0	<0.001
		(2007 - 2025)	Winter	9.57	<0.001	23.2	<0.001	17.4	<0.001	9.08	<0.001	15.0	<0.001	11.8	<0.001	8.73	<0.001	13.7	<0.001	11.5	<0.001
	DL0-01-4	(2007 - 2025)	Combined	8.43	<0.001	45.1	<0.001	19.4	<0.001	7.91	<0.001	9.94	<0.001	7.96	<0.001	7.93	<0.001	10.2	<0.001	8.32	<0.001
		(2007 - 2025)	Summer	8.85	<0.001	61.5	<0.001	23.3	<0.001	8.43	<0.001	9.78	<0.001	7.94	<0.001	9.32	<0.001	9.48	<0.001	7.54	<0.001
		(2007 - 2025)	Fall	8.76	<0.001	48.5	<0.001	18.7	<0.001	7.64	<0.001	10.9	<0.001	8.22	<0.001	7.32	<0.001	10.2	<0.001	8.63	<0.001
		(2007 - 2025)	Winter	9.20	<0.001	23.7	<0.001	16.1	<0.001	8.71	<0.001	14.9	<0.001	10.6	<0.001	8.22	<0.001	14.2	<0.001	11.6	<0.001
	DL0-01-5	(2007 - 2025)	Combined	8.15	<0.001	39.5	<0.001	30.1	<0.001	6.55	<0.001	8.80	<0.001	6.59	<0.001	7.03	<0.001	8.80	<0.001	6.72	<0.001
		(2007 - 2025)	Summer	8.03	<0.001	56.4	<0.001	27.0	<0.001	7.13	<0.001	8.05	<0.001	7.15	<0.001	8.29	<0.001	9.14	<0.001	7.52	<0.001
		(2007 - 2025)	Fall	9.30	<0.001	36.2	0.001	31.0	<0.001	7.76	<0.001	9.59	<0.001	6.84	<0.001	6.87	<0.001	9.84	<0.001	7.02	<0.001
		(2007 - 2025)	Winter	8.32	<0.001	24.6	<0.001	20.8	<0.001	6.85	<0.001	11.2	<0.001	7.46	<0.001	6.98	<0.001	11.4	<0.001	8.10	<0.001
	DL0-01-7	(2007 - 2025)	Combined	8.14	<0.001	48	<0.001	23.4	<0.001	8.05	<0.001	10.5	<0.001	7.59	<0.001	8.19	<0.001	10.3	<0.001	7.98	<0.001
		(2007 - 2025)	Summer	8.75	<0.001	73.2	<0.001	26.6	<0.001	8.63	<0.001	10.2	<0.001	7.65	<0.001	8.36	<0.001	10.0	<0.001	7.84	<0.001
		(2007 - 2025)	Fall	7.85	<0.001	57.7	<0.001	30.0	<0.001	7.73	<0.001	11.5	<0.001	8.24	<0.001	8.68	<0.001	10.9	<0.001	8.51	<0.001
		(2007 - 2025)	Winter	9.03	<0.001	22.9	<0.001	16.7	<0.001	9.07	<0.001	14.8	<0.001	11.7	<0.001	8.81	<0.001	13.3	<0.001	12.4	<0.001
	DD-Hab9-Stn1	(2011 - 2025)	Combined	8.82	<0.001	27.5	<0.001	15.4	<0.001	9.41	<0.001	13.1	<0.001	10.9	<0.001	9.01	<0.001	12.1	<0.001	10.6	<0.001
		(2011 - 2025)	Summer	7.38	0.005	19.1	<0.001	12.1	<0.001	9.68	<0.001	11.9	<0.001	11.4	<0.001	8.02	<0.001	10.6	<0.001	9.83	<0.001
		(2011 - 2025)	Fall	9.77	<0.001	39.9	<0.001	17.3	<0.001	10.1	<0.001	14.2	<0.001	10.7	<0.001	9.65	<0.001	13.1	<0.001	11.7	<0.001
		(2011 - 2025)	Winter	8.76	<0.001	24.1	<0.001	17.6	<0.001	8.72	<0.001	14.4	<0.001	9.98	<0.001	8.70	<0.001	14.4	<0.001	9.57	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.10: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Northwest (DL0-01) and Reference Lake 3 Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend																	
				Chloride		Nitrate		Sulphate		Total Molybdenum		Total Uranium		Total Strontium		Dissolved Molybdenum		Dissolved Uranium		Dissolved Strontium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	REF3-01	(2015 - 2025)	Combined	NS	0.320	<LRL	<LRL	-4.03	<0.001	2.12	0.004	NS	0.110	NS	0.321	NS	0.137	NS	0.440	NS	0.186
		(2015 - 2025)	Summer	NS	1.000	<LRL	<LRL	-3.36	<0.001	NS	0.087	NS	0.119	NS	0.640	NS	0.119	NS	0.350	NS	0.482
		(2015 - 2025)	Fall	NS	0.184	<LRL	<LRL	-4.38	<0.001	2.25	0.020	NS	0.533	NS	0.390	NS	0.640	NS	0.938	NS	0.276
	REF3-02	(2015 - 2025)	Combined	NS	0.270	<LRL	<LRL	-4.22	<0.001	NS	0.098	NS	0.204	NS	0.581	NS	0.321	NS	0.409	NS	1.000
		(2015 - 2025)	Summer	NS	0.184	<LRL	<LRL	-4.35	<0.001	NS	0.241	NS	0.273	NS	0.876	NS	0.350	NS	0.436	NS	0.533
		(2015 - 2025)	Fall	NS	0.876	<LRL	<LRL	-4.11	<0.001	NS	0.276	NS	0.533	NS	0.585	NS	0.696	NS	0.755	NS	0.533
	REF3-03	(2015 - 2025)	Combined	NS	0.108	<LRL	<LRL	-4.62	<0.001	1.55	0.006	NS	0.123	NS	1.000	1.38	0.032	NS	0.349	NS	0.378
		(2015 - 2025)	Summer	NS	0.531	<LRL	<LRL	-4.72	<0.001	NS	0.390	NS	0.213	NS	1.000	NS	0.119	NS	0.350	NS	0.640
		(2015 - 2025)	Fall	NS	0.117	<LRL	<LRL	-4.46	<0.001	1.88	0.003	NS	0.390	NS	1.000	NS	0.161	NS	0.755	NS	0.482
Mine-exposed	DL0-01-1	(2015 - 2025)	Combined	11.9	<0.001	22.4	<0.001	16.8	<0.001	10.8	<0.001	15.0	<0.001	13.0	<0.001	10.1	<0.001	14.1	<0.001	13.4	<0.001
		(2015 - 2025)	Summer	10.8	<0.001	23.2	<0.001	17.0	<0.001	10.7	<0.001	14.2	<0.001	12.8	<0.001	10.3	<0.001	13.7	<0.001	12.8	<0.001
		(2015 - 2025)	Fall	12.6	<0.001	29.3	<0.001	17.1	<0.001	14.0	<0.001	17.3	<0.001	13.4	<0.001	11.7	<0.001	17.1	<0.001	12.8	<0.001
		(2015 - 2025)	Winter	10.2	<0.001	22.2	<0.001	16.2	<0.001	9.53	<0.001	15.3	<0.001	12.7	<0.001	8.48	<0.001	14.2	<0.001	13.0	<0.001
	DL0-01-2	(2015 - 2025)	Combined	10.1	<0.001	24.3	<0.001	17.4	<0.001	11.9	<0.001	14.4	<0.001	16.2	<0.001	11.1	<0.001	13.6	<0.001	15.1	<0.001
		(2015 - 2025)	Summer	10.2	<0.001	21.7	<0.001	16.1	<0.001	12.5	<0.001	12.9	<0.001	14.8	<0.001	11.4	<0.001	12.8	<0.001	14.7	<0.001
		(2015 - 2025)	Fall	10.5	<0.001	27.7	<0.001	17.3	<0.001	12.9	<0.001	14.4	<0.001	18.0	<0.001	12.0	<0.001	13.2	<0.001	16.9	<0.001
		(2015 - 2025)	Winter	10.4	<0.001	22.5	<0.001	16.2	<0.001	10.2	<0.001	15.6	<0.001	12.0	<0.001	9.67	<0.001	14.5	<0.001	12.0	<0.001
	DL0-01-4	(2015 - 2025)	Combined	10.6	<0.001	22.8	<0.001	15.6	<0.001	9.96	<0.001	13.6	<0.001	12.7	<0.001	9.48	<0.001	13.6	<0.001	13.0	<0.001
		(2015 - 2025)	Summer	11.2	<0.001	23.6	<0.001	14.6	<0.001	10.3	<0.001	13.6	<0.001	11.8	<0.001	9.62	<0.001	12.7	<0.001	11.0	<0.001
		(2015 - 2025)	Fall	10.3	<0.001	26.7	<0.001	14.2	<0.001	9.39	<0.001	13.5	<0.001	12.9	<0.001	9.06	<0.001	13.2	<0.001	13.4	<0.001
		(2015 - 2025)	Winter	10.1	<0.001	23.4	<0.001	14.7	<0.001	9.18	<0.001	15.2	<0.001	14.4	<0.001	9.54	<0.001	14.1	<0.001	14.2	<0.001
	DL0-01-5	(2015 - 2025)	Combined	11.9	<0.001	23.6	<0.001	16.9	<0.001	10.3	<0.001	15.4	<0.001	12.9	<0.001	10.4	<0.001	14.9	<0.001	13.3	<0.001
		(2015 - 2025)	Summer	11.0	<0.001	23.4	<0.001	17.1	<0.001	9.56	<0.001	14.9	<0.001	12.4	<0.001	10.7	<0.001	14.2	<0.001	12.5	<0.001
		(2015 - 2025)	Fall	12.5	<0.001	32.9	<0.001	16.6	<0.001	11.6	<0.001	17.7	<0.001	12.8	<0.001	11.7	<0.001	15.7	<0.001	13.1	<0.001
		(2015 - 2025)	Winter	10.0	<0.001	20.0	<0.001	16.1	<0.001	9.12	<0.001	15.7	0.001	13.0	<0.001	8.79	<0.001	15.4	<0.001	12.5	<0.001
	DL0-01-7	(2015 - 2025)	Combined	9.89	<0.001	22.0	<0.001	16.6	<0.001	10.5	<0.001	14.5	<0.001	16.5	<0.001	11.2	<0.001	13.8	<0.001	16.7	<0.001
		(2015 - 2025)	Summer	9.95	<0.001	22.1	<0.001	16.4	<0.001	11.6	<0.001	12.5	<0.001	15.6	<0.001	11.7	<0.001	13.2	<0.001	15.2	<0.001
		(2015 - 2025)	Fall	10.5	<0.001	22.5	0.001	16.8	<0.001	11.1	<0.001	13.8	<0.001	17.2	<0.001	11.9	<0.001	12.8	<0.001	18.2	<0.001
		(2015 - 2025)	Winter	10.3	<0.001	20.9	<0.001	15.5	<0.001	9.47	<0.001	14.7	<0.001	13.9	<0.001	9.80	<0.001	14.2	<0.001	14.1	<0.001
	DD-Hab9-Stn1	(2015 - 2025)	Combined	9.91	<0.001	22.2	<0.001	16.4	<0.001	11.3	<0.001	13.3	<0.001	15.9	<0.001	11.4	<0.001	13.2	<0.001	16.0	<0.001
		(2015 - 2025)	Summer	9.17	0.005	19.7	0.005	14.6	<0.001	10.9	<0.001	12.3	<0.001	15.8	<0.001	10.6	<0.001	11.8	<0.001	16.0	<0.001
		(2015 - 2025)	Fall	10.4	<0.001	27.4	<0.001	17.0	<0.001	12.7	<0.001	13.6	<0.001	16.8	<0.001	11.7	<0.001	11.2	<0.001	17.7	<0.001
		(2015 - 2025)	Winter	9.32	<0.001	23.4	<0.001	15.6	<0.001	11.1	<0.001	15.2	<0.001	14.2	<0.001	10.4	<0.001	15.0	<0.001	13.2	<0.001

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.11: Seasonal Kendall Trend Analysis Results for Iron Concentrations in Sediments from Littoral and Profundal Habitats in Sheardown Lake Northwest (NW) and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Type	Status	Station	Range of Years	Seasonal Kendall Trend	
				Iron	
				Slope	P-Value
Littoral	Reference	Reference Lake 3	(2015 - 2025)	NS	0.554
	Mine-Exposed	Sheardown Lake Northwest (NW)	(2007 - 2025)	8.20	<0.001
Profundal	Reference	Reference Lake 3	(2015 - 2025)	NS	0.345
	Mine-Exposed	Sheardown Lake Northwest (NW)	(2007 - 2025)	2.61	0.002

 P-value <0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). < = less than. DL0-01-10 (littoral station) was removed from the analysis due to not enough data ($n < 5$) for a robust analysis. Stations without 2025 data were also removed from the analysis.

Table G.12: Seasonal Kendall Trend Analysis Results for Iron Concentrations in Sediments from Littoral and Profundal Habitats in Sheardown Lake Northwest (NW) and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Type	Status	Station	Range of Years	Seasonal Kendall Trend	
				Iron	
				Slope	P-Value
Littoral	Reference	Reference Lake 3	(2015 - 2025)	NS	0.554
	Mine-Exposed	Sheardown Lake Northwest (NW)	(2015 - 2025)	7.67	0.002
Profundal	Reference	Reference Lake 3	(2015 - 2025)	NS	0.345
	Mine-Exposed	Sheardown Lake Northwest (NW)	(2015 - 2025)	3.87	0.003



P-value <0.05.



Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.



Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). < = less than. DL0-01-3 and DL0-01-10 (littoral stations) were removed from the analysis due to not enough data ($n < 5$) for a robust analysis. Stations without 2025 data were also removed from the analysis.

Table G.13: Seasonal Kendall Trend Analysis Results for Iron Concentrations at Sediment Quality Monitoring Stations, Sheardown Lake Northwest (NW) and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2007 to 2025

Type	Status	Station	Range of Years	Seasonal Kendall Trend	
				Iron	
				Slope	P-Value
Littoral	Reference	REF-03-1	(2015 - 2025)	NS	0.350
		REF-03-2	(2015 - 2025)	NS	0.755
		REF-03-3	(2015 - 2025)	NS	0.815
		REF-03-4	(2015 - 2025)	NS	0.213
		REF-03-5	(2015 - 2025)	NS	0.350
	Mine-Exposed	DD-Hab9-Stn2	(2008 - 2025)	8.45	<0.001
		DL0-01-3	(2007 - 2025)	NS	>0.05
		DL0-01-8	(2014 - 2025)	NS	0.244
		DL0-01-9	(2014 - 2025)	9.35	0.034
		DL0-01-10	(2023 - 2025)	ND	ND
Profundal	Reference	REF-03-7	(2015 - 2025)	NS	1.000
		REF-03-9	(2015 - 2025)	NS	0.138
		REF-03-10	(2015 - 2025)	NS	1.000
	Mine-Exposed	DL0-01	(2014 - 2025)	NS	0.115
		DL0-01-2	(2007 - 2025)	NS	0.297
		DL0-01-5	(2007 - 2025)	4.90	0.013

 P-value 0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). < = less than. ND = not enough data ($n < 5$) for a robust analysis. Stations without 2025 data were removed from the analysis.

Table G.14: Seasonal Kendall Trend Analysis Results for Iron Concentrations at Sediment Quality Monitoring Stations, Sheardown Lake Northwest (NW) and Reference Lake 3, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Type	Status	Station	Range of Years	Seasonal Kendall Trend	
				Iron	
				Slope	P-Value
Littoral	Reference	REF-03-1	(2015 - 2025)	NS	0.350
		REF-03-2	(2015 - 2025)	NS	0.755
		REF-03-3	(2015 - 2025)	NS	0.815
		REF-03-4	(2015 - 2025)	NS	0.213
		REF-03-5	(2015 - 2025)	NS	0.350
	Mine-Exposed	DD-Hab9-Stn2	(2015 - 2025)	9.11	0.008
		DL0-01-3	(2016 - 2025)	ND	ND
		DL0-01-8	(2015 - 2025)	NS	0.533
		DL0-01-9	(2015 - 2025)	NS	0.087
		DL0-01-10	(2023 - 2025)	ND	ND
Profundal	Reference	REF-03-7	(2015 - 2025)	NS	1.000
		REF-03-9	(2015 - 2025)	NS	0.138
		REF-03-10	(2015 - 2025)	NS	1.000
	Mine-Exposed	DL0-01	(2015 - 2025)	NS	0.213
		DL0-01-2	(2015 - 2025)	NS	0.099
		DL0-01-5	(2015 - 2025)	5.61	0.043

 P-value < 0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). "ND" = not enough data ($n < 5$) for a robust analysis. Stations without 2025 data removed from the analysis.

Table G.15: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Southeast (DL0-02) and Reference Lake 3 Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2006 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Nitrate		Sulphate		Total Molybdenum		Total Uranium		Dissolved Molybdenum		Dissolved Uranium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	REF3-01	(2015 - 2025)	Combined	<LRL	<LRL	-4.03	<0.001	2.12	0.004	NS	0.110	NS	0.137	NS	0.440
		(2015 - 2025)	Summer	<LRL	<LRL	-3.36	<0.001	NS	0.087	NS	0.119	NS	0.119	NS	0.350
		(2015 - 2025)	Fall	<LRL	<LRL	-4.38	<0.001	2.25	0.020	NS	0.533	NS	0.640	NS	0.938
	REF3-02	(2015 - 2025)	Combined	<LRL	<LRL	-4.22	<0.001	NS	0.098	NS	0.204	NS	0.321	NS	0.409
		(2015 - 2025)	Summer	<LRL	<LRL	-4.35	<0.001	NS	0.241	NS	0.273	NS	0.350	NS	0.436
		(2015 - 2025)	Fall	<LRL	<LRL	-4.11	<0.001	NS	0.276	NS	0.533	NS	0.696	NS	0.755
	REF3-03	(2015 - 2025)	Combined	<LRL	<LRL	-4.62	<0.001	1.55	0.006	NS	0.123	1.38	0.032	NS	0.349
		(2015 - 2025)	Summer	<LRL	<LRL	-4.72	<0.001	NS	0.390	NS	0.213	NS	0.119	NS	0.350
		(2015 - 2025)	Fall	<LRL	<LRL	-4.46	<0.001	1.88	0.003	NS	0.390	NS	0.161	NS	0.755
Mine-exposed	DL0-02-1	(2006 - 2011)	Combined	<LRL	<LRL	NS	>0.05	ND	ND	ND	ND	ND	ND	ND	ND
		(2006 - 2011)	Summer	<LRL	<LRL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		(2006 - 2011)	Fall	<LRL	<LRL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	DL0-02-3	(2007 - 2025)	Combined	39.0	<0.001	19.1	<0.001	7.55	<0.001	6.94	<0.001	7.18	<0.001	7.11	<0.001
		(2007 - 2025)	Summer	28.4	<0.001	19.3	<0.001	10.8	<0.001	8.42	<0.001	10.5	<0.001	8.30	<0.001
		(2007 - 2025)	Fall	28.9	<0.001	17.2	<0.001	8.11	<0.001	7.03	0.001	8.34	<0.001	7.54	<0.001
		(2007 - 2025)	Winter	38.0	<0.001	23.6	<0.001	6.19	<0.001	7.13	0.004	6.43	<0.001	7.68	0.001
	DL0-02-4	(2007 - 2025)	Combined	34.5	<0.001	15.2	<0.001	7.57	<0.001	8.77	<0.001	7.37	<0.001	8.40	<0.001
		(2007 - 2025)	Summer	30.4	<0.001	19.2	<0.001	11.0	<0.001	9.07	<0.001	6.42	<0.001	9.99	<0.001
		(2007 - 2025)	Fall	38.7	<0.001	17.2	<0.001	7.68	<0.001	9.56	<0.001	8.87	<0.001	9.18	<0.001
		(2007 - 2025)	Winter	28.5	<0.001	15.9	<0.001	6.98	<0.001	10.7	0.007	7.06	<0.001	10.6	0.004
	DL0-02-6	(2007 - 2025)	Combined	35.7	<0.001	16.4	<0.001	10.7	<0.001	10.8	<0.001	9.62	<0.001	10.4	<0.001
		(2007 - 2025)	Summer	26.4	<0.001	18.2	<0.001	14.6	<0.001	12.8	<0.001	12.4	<0.001	12.3	<0.001
		(2007 - 2025)	Fall	33.7	<0.001	14.2	<0.001	10.9	<0.001	9.97	<0.001	9.68	<0.001	9.74	<0.001
		(2007 - 2025)	Winter	31.6	<0.001	17.6	<0.001	6.70	<0.001	10.2	<0.001	6.80	<0.001	9.58	<0.001
	DL0-02-7	(2014 - 2025)	Combined	36.0	<0.001	16.2	<0.001	9.60	<0.001	11.0	<0.001	9.24	<0.001	10.7	<0.001
		(2014 - 2025)	Summer	29.1	<0.001	15.0	0.002	12.4	<0.001	11.0	0.001	10.9	<0.001	10.9	0.003
		(2014 - 2025)	Fall	36.0	<0.001	14.3	<0.001	10.1	0.001	11.9	<0.001	9.11	0.001	11.5	<0.001
		(2014 - 2025)	Winter	26.2	<0.001	16.3	<0.001	6.82	<0.001	11.1	0.002	6.96	<0.001	10.3	<0.001
	DL0-02-8	(2014 - 2025)	Combined	31.0	<0.001	15.4	<0.001	9.83	<0.001	10.0	<0.001	8.57	<0.001	10.2	<0.001
		(2014 - 2025)	Summer	24.6	<0.001	14.6	0.001	12.4	<0.001	9.45	<0.001	10.4	<0.001	11.4	<0.001
		(2014 - 2025)	Fall	29.5	<0.001	14.6	<0.001	10.7	<0.001	11.0	0.003	8.76	<0.001	11.4	<0.001
		(2014 - 2025)	Winter	27.2	<0.001	16.1	<0.001	6.16	<0.001	10.1	0.005	6.43	<0.001	9.86	0.006

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.16: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Sheardown Lake Southeast (DL0-02) and Reference Lake 3 Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend											
				Nitrate		Sulphate		Total Molybdenum		Total Uranium		Dissolved Molybdenum		Dissolved Uranium	
				Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value	Slope	P-Value
Reference	REF3-01	(2015 - 2025)	Combined	<LRL	<LRL	-4.03	<0.001	2.12	0.004	NS	0.110	NS	0.137	NS	0.440
		(2015 - 2025)	Summer	<LRL	<LRL	-3.36	<0.001	NS	0.087	NS	0.119	NS	0.119	NS	0.350
		(2015 - 2025)	Fall	<LRL	<LRL	-4.38	<0.001	2.25	0.020	NS	0.533	NS	0.640	NS	0.938
	REF3-02	(2015 - 2025)	Combined	<LRL	<LRL	-4.22	<0.001	NS	0.098	NS	0.204	NS	0.321	NS	0.409
		(2015 - 2025)	Summer	<LRL	<LRL	-4.35	<0.001	NS	0.241	NS	0.273	NS	0.350	NS	0.436
		(2015 - 2025)	Fall	<LRL	<LRL	-4.11	<0.001	NS	0.276	NS	0.533	NS	0.696	NS	0.755
	REF3-03	(2015 - 2025)	Combined	<LRL	<LRL	-4.62	<0.001	1.55	0.006	NS	0.123	1.38	0.032	NS	0.349
		(2015 - 2025)	Summer	<LRL	<LRL	-4.72	<0.001	NS	0.390	NS	0.213	NS	0.119	NS	0.350
		(2015 - 2025)	Fall	<LRL	<LRL	-4.46	<0.001	1.88	0.003	NS	0.390	NS	0.161	NS	0.755
Mine-exposed	DL0-02-3	(2015 - 2025)	Combined	33.1	<0.001	16.4	<0.001	11.6	<0.001	11.0	<0.001	10.3	<0.001	10.9	<0.001
		(2015 - 2025)	Summer	23.2	<0.001	15.5	<0.001	14.0	<0.001	11.7	<0.001	11.9	<0.001	11.3	<0.001
		(2015 - 2025)	Fall	37.1	<0.001	14.7	<0.001	11.7	<0.001	9.08	<0.001	10.9	<0.001	8.65	0.001
		(2015 - 2025)	Winter	18.5	<0.001	15.1	<0.001	9.51	<0.001	12.3	0.003	8.92	<0.001	10.9	0.002
	DL0-02-4	(2015 - 2025)	Combined	32.2	<0.001	16.4	<0.001	10.4	<0.001	12.1	<0.001	10.0	<0.001	11.8	<0.001
		(2015 - 2025)	Summer	21.0	<0.001	14.3	0.001	11.7	<0.001	11.9	<0.001	11.2	0.001	11.7	<0.001
		(2015 - 2025)	Fall	39.6	<0.001	15.7	<0.001	11.3	<0.001	10.6	<0.001	10.3	<0.001	9.74	<0.001
		(2015 - 2025)	Winter	21.5	<0.001	14.5	<0.001	7.56	<0.001	10.4	0.005	8.16	<0.001	10.2	0.004
	DL0-02-6	(2015 - 2025)	Combined	30.9	<0.001	17.8	<0.001	11.0	<0.001	11.9	<0.001	10.0	<0.001	11.0	<0.001
		(2015 - 2025)	Summer	27.5	<0.001	18.7	<0.001	14.7	<0.001	15.1	<0.001	11.8	<0.001	14.3	<0.001
		(2015 - 2025)	Fall	33.5	<0.001	14.3	<0.001	11.6	<0.001	8.68	<0.001	10.1	<0.001	8.95	<0.001
		(2015 - 2025)	Winter	17.2	<0.001	13.4	<0.001	8.10	<0.001	10.2	0.005	8.16	<0.001	9.99	0.002
	DL0-02-7	(2015 - 2025)	Combined	38.2	<0.001	16.6	<0.001	9.58	<0.001	12.5	<0.001	9.37	<0.001	12.7	<0.001
		(2015 - 2025)	Summer	27.8	<0.001	16.4	0.002	11.2	0.001	11.6	<0.001	11.1	0.002	11.4	0.001
		(2015 - 2025)	Fall	33.4	<0.001	14.3	<0.001	9.91	0.004	12.2	<0.001	9.52	0.004	11.8	<0.001
		(2015 - 2025)	Winter	19.5	<0.001	14.1	<0.001	7.76	<0.001	11.0	0.002	7.48	<0.001	10.0	0.001
	DL0-02-8	(2015 - 2025)	Combined	30.0	<0.001	16.1	<0.001	10.2	<0.001	11.6	<0.001	9.01	<0.001	11.7	<0.001
		(2015 - 2025)	Summer	22.5	<0.001	14.8	0.002	11.8	0.001	9.64	<0.001	10.9	<0.001	11.2	<0.001
		(2015 - 2025)	Fall	31.1	<0.001	14.6	<0.001	10.9	<0.001	11.3	0.002	8.88	<0.001	11.8	<0.001
		(2015 - 2025)	Winter	19.4	<0.001	15.4	<0.001	6.38	0.001	9.64	0.005	7.01	<0.001	9.78	0.006

P-value <0.05.

Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as percentage of the median concentration or value.

Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at α = 0.05). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.17: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Mary River Tributary-F (MRTF) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2005 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend			
				Nitrate		Sulphate	
				Slope	P-Value	Slope	P-Value
Reference	G0-09-A	(2014 - 2025)	Combined	NS	0.925	NS	0.772
		(2014 - 2025)	Spring	NS	0.508	NS	0.304
		(2014 - 2025)	Summer	NS	0.563	NS	0.115
		(2014 - 2025)	Fall	NS	0.885	NS	0.945
	G0-09	(2014 - 2025)	Combined	<LRL	<LRL	NS	0.581
		(2014 - 2025)	Spring	<LRL	<LRL	NS	1.000
		(2014 - 2025)	Summer	<LRL	<LRL	NS	0.451
		(2014 - 2025)	Fall	<LRL	<LRL	NS	1.000
	G0-09-B	(2006 - 2025)	Combined	<LRL	<LRL	NS	0.052
		(2006 - 2025)	Spring	<LRL	<LRL	-28.5	<0.001
		(2006 - 2025)	Summer	<LRL	<LRL	NS	0.479
		(2006 - 2025)	Fall	<LRL	<LRL	NS	1.000
Mine-exposed	F0-01	(2005 - 2025)	Combined	15.1	<0.001	33.3	<0.001
		(2005 - 2025)	Spring	7.02	<0.001	7.16	<0.001
		(2005 - 2025)	Summer	26.9	<0.001	60.0	<0.001
		(2005 - 2025)	Fall	53.6	<0.001	44.4	<0.001

 P-value <0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.

Table G.18: Seasonal Kendall Trend Analysis Results for Surface Water Quality Monitoring Data, Mary River Tributary-F (MRTF) and Reference Creek Stations, Mary River Project Core Receiving Environment Monitoring Program (CREMP), 2015 to 2025

Status	Station	Range of Years ^a	Season	Seasonal Kendall Trend			
				Nitrate		Sulphate	
				Slope	P-Value	Slope	P-Value
Reference	G0-09-A	(2015 - 2025)	Combined	NS	0.957	NS	0.742
		(2015 - 2025)	Spring	NS	0.419	NS	0.241
		(2015 - 2025)	Summer	NS	0.565	NS	0.213
		(2015 - 2025)	Fall	NS	0.872	NS	0.436
	G0-09	(2015 - 2025)	Combined	<LRL	<LRL	NS	0.733
		(2015 - 2025)	Spring	<LRL	<LRL	NS	1.000
		(2015 - 2025)	Summer	<LRL	<LRL	NS	0.213
		(2015 - 2025)	Fall	<LRL	<LRL	NS	0.482
	G0-09-B	(2015 - 2025)	Combined	<LRL	<LRL	NS	0.851
		(2015 - 2025)	Spring	<LRL	<LRL	NS	0.277
		(2015 - 2025)	Summer	<LRL	<LRL	NS	0.276
		(2015 - 2025)	Fall	<LRL	<LRL	NS	0.640
Mine-exposed	F0-01	(2015 - 2025)	Combined	20.2	<0.001	NS	0.059
		(2015 - 2025)	Spring	19.2	0.032	NS	0.213
		(2015 - 2025)	Summer	27.9	0.043	NS	0.350
		(2015 - 2025)	Fall	16.8	0.029	NS	0.350

 P-value <0.05.

 Significant decreasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as percentage of the median concentration or value.

 Significant increasing temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). Value reported is the Sen's slope reported as a percentage of the median concentration or value.

Notes: NS = no significant temporal trend (Seasonal Kendall test for monotonic trend at $\alpha = 0.05$). <LRL = analyses not conducted because >75% of data were <LRL. < = less than. > = greater than. % = percent.

^a Range of years represents the maximum data range for all parameters in the table. The actual range for individual parameters may vary, depending on when data were collected.