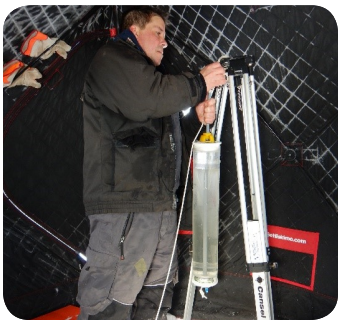
Keeyask Generation Project

Aquatic Effects Monitoring Plan

Water Quality Monitoring Report

AEMP-2024-11



KEEYASK

Manitoba Environment and Climate Change Client File 5550.00
Manitoba Environment Act Licence No. 3107

2023 -2024

KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2024-11

RESULTS OF WATER QUALITY MONITORING IN THE NELSON RIVER, 2023: YEAR 2 OPERATION

Prepared for

Manitoba Hydro

By

M.B. Dowd and C.L. Hrenchuk

June 2024

North/South Consultants Inc.
Aquatic Environment Specialists

83 Scurfield Blvd.
Winnipeg, Manitoba, R3Y 1G4
Website: www.nscons.ca

Tel.: (204) 284-3366
Fax: (204) 477-4173
E-mail: nscons@nscons.ca

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SUMMARY

Background

The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the Keeyask Generating Station (GS) on the environment. Monitoring results provide information to assess the accuracy of predictions, information to determine the actual effects of construction and operation of the GS on the environment, and whether more needs to be done to reduce harmful effects.

Construction of the Keeyask GS began in mid-July 2014 and instream work was completed in 2020. The reservoir was impounded with water levels being raised to full supply level between August 31 and September 5, 2020. Commissioning of the powerhouse turbines was initiated after impoundment. They were brought into service one at a time with the final of seven turbines completed on March 9, 2022.

Water quality is a key part of the monitoring program because it determines whether water is suitable to support aquatic life, including fish. The partner First Nations have expressed concern about changes to water quality on the Nelson River from historical hydroelectric developments, so tracking water quality during the Keeyask Project is important because human activities, including operation of the GS, can negatively affect it.

This report describes the results of water quality monitoring conducted in the third year after the reservoir was fully flooded and the second year with the GS fully operational.

Why is the study being done?

Water quality monitoring will show whether impoundment and operation of the Keeyask GS is causing changes to water quality that could harm aquatic life and to determine if additional measures are required to reduce these effects.

Monitoring during operation of the Keeyask GS is being done to answer five questions:

- *Does Project operation cause or contribute to changes in water quality to the point that fish and other aquatic life may be harmed?*
- *How large are the changes to water quality and how far do these changes extend?*
- *Are changes in water quality consistent with predictions?*
- *Are there seasonal differences in changes to water quality?*
- *How does water quality change over time*?

The EIS describes how the Project could affect water quality based on what occurred at other locations, such as after construction of the Kettle GS, which flooded what is now Stephens Lake. The greatest changes to water quality were expected in the first years after flooding when

vegetation on flooded land would decompose. Flooded backbays in the reservoir would experience the greatest effects because there was a large amount of flooded vegetation and the water doesn't consistently mix with the rest of the reservoir. Changes to some aspects of water quality, such as oxygen, are greater during the winter because ice cover prevents contact between the water and air.

Predicted changes in water quality that may occur in the first years after impoundment include:

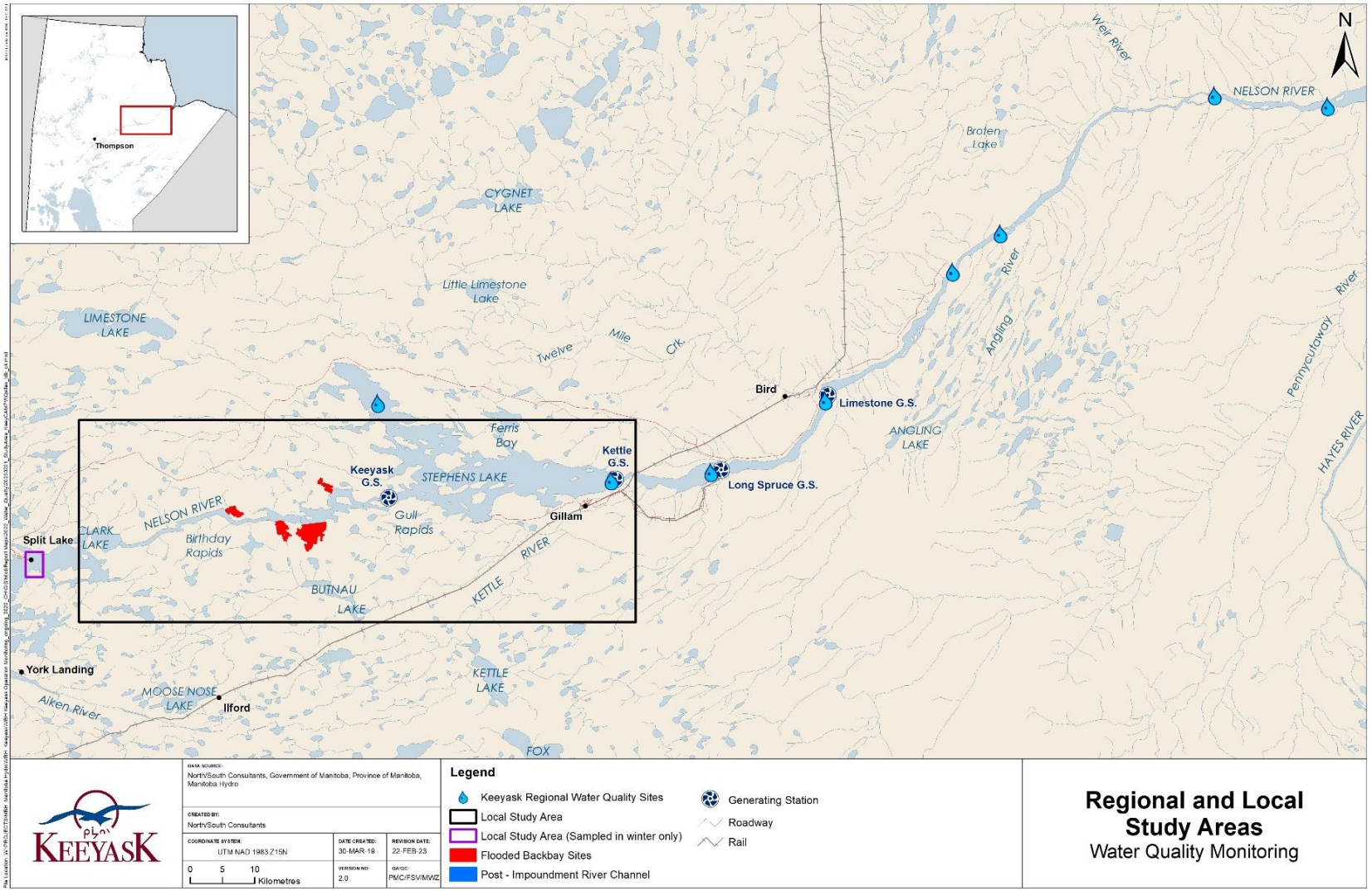
- Increases in nutrients, which can lead to increased plant growth and algal blooms;
- Decreases in water clarity and darker water colour, which can impact the amount of light that allows plant growth, and the ability of predators to see their prey;
- Increases in suspended solids in the water, which can directly impact fish and aquatic bugs;
- Increases in metals, some of which can be toxic to aquatic life;
- Decreases in pH, which makes the water more acidic; and,
- Decreases in the amount of dissolved oxygen (DO), which is essential for aquatic life but is used up by decomposing vegetation.

What was done?

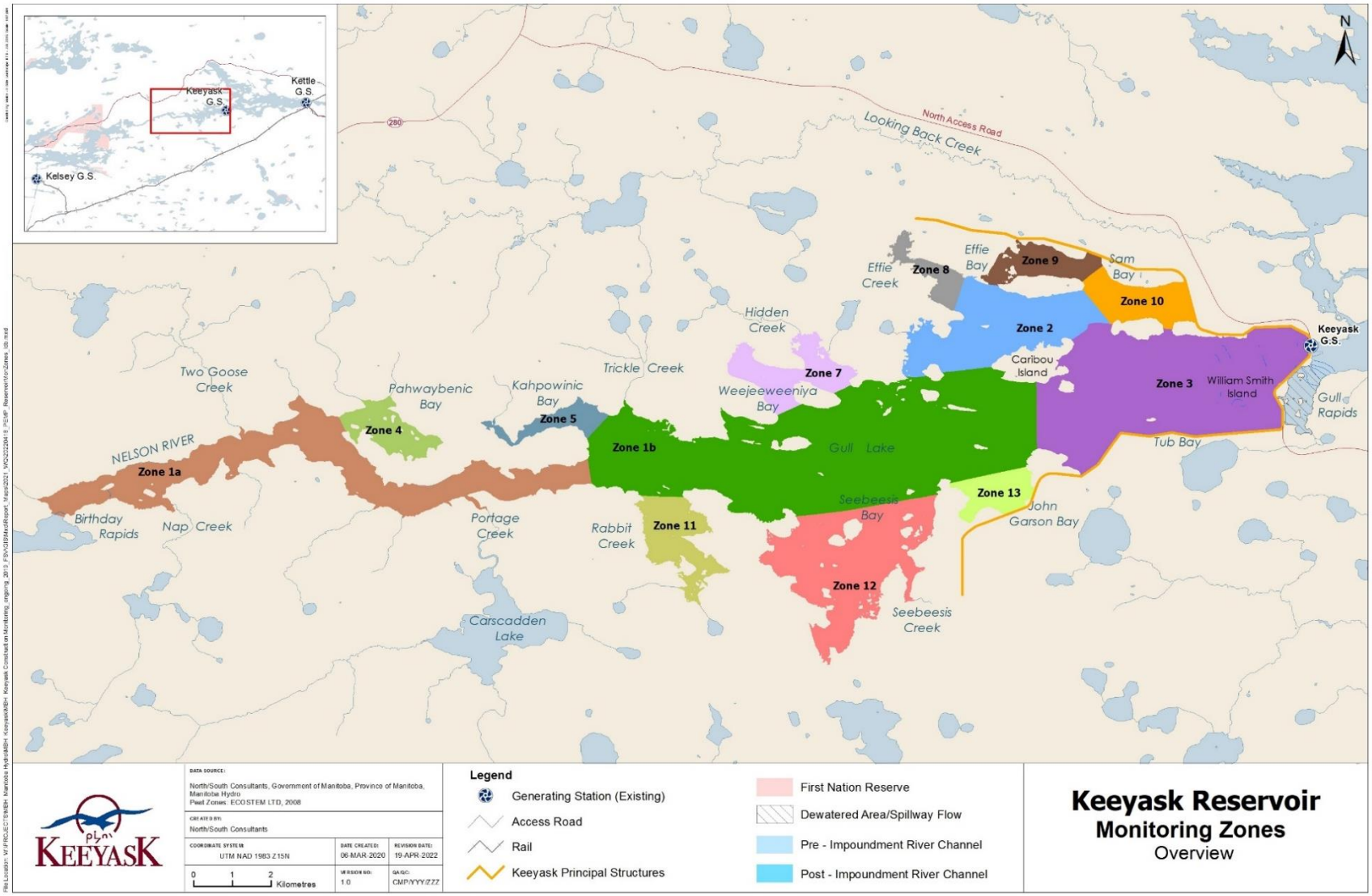
Water quality monitoring was conducted in Clark Lake (Split Lake in the winter), upstream of the effects of flooding; in the Keeyask reservoir; and at two sites in the southern portion of Stephens Lake, where most of the flow of water from upstream passes through, to see if the water quality has changed because of the Project. This area is known as the "local study area". Water quality was also measured in four backbays within the Keeyask reservoir, which were flooded during impoundment, where changes in water quality are expected to be the greatest. Monitoring also included the "regional study area", which consists of sites in the northern portion of Stephens Lake; in the forebays of Kettle, Long Spruce and Limestone generating stations; and farther downstream (as far as the Nelson River estuary) to confirm that changes to water quality caused by the Project did not occur farther downstream than predicted. Monitoring in 2023 was carried out once during the ice-cover period (late March) and four times in the open-water period (late June, July, August, and September).

Samples were collected to measure many water quality parameters, including:

- total suspended solids and turbidity (the "muddiness" of water);
- pH;
- oxygen;
- nutrients (compounds that may increase the amount of algae present);
- chlorophyll *a* (representing the amount of algae); and

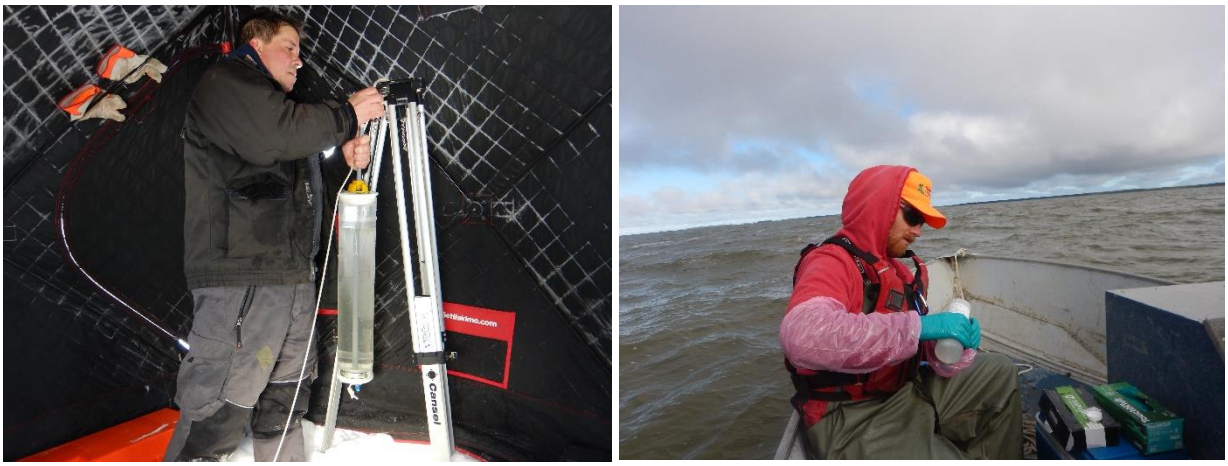


Map showing water quality monitoring areas within the local study area, regional study area, and reservoir backbays during 2023.



Overview of water quality monitoring areas in the Keeyask reservoir backbays. A subset (zones 1b, 4, 8, 11, and 12) were sampled for water quality in 2023.

- metals and major ions (some of which are essential to aquatic life, but others that are harmful to aquatic life).



Sampling water through the ice during winter using a Kemmerer water sampler used to collect water at specific depth for laboratory analysis (left) and collecting water samples from a boat during summer (right).

What was found?

As was predicted in the EIS, changes in water quality parameters were observed and were generally greater in the flooded backbays than in the mainstem of the Keeyask reservoir. Major findings from the flooded backbays are:

- The concentration of total phosphorus (TP), which is a nutrient that can contribute to algal blooms, was high at some sites in each backbay during all sampling events.
- Chlorophyll *a* concentrations, which are a measure of the amount of algae present, were high in the flooded backbays during most open-water sampling periods, which may be related to increases in TP.
- Dissolved organic carbon and true colour were higher in three backbays compared to the mainstem during every sampling period.
    - Iron was elevated and oxygen was low at the same three backbays, which was predicted in the EIS as these parameters often increase when peatlands are flooded.
- Higher concentrations of copper and cadmium were observed in some locations. Elevated copper was also observed in Split Lake in March, which is upstream of the effects to water from the Project. Copper and cadmium are naturally occurring elements and some areas naturally contain elevated concentrations in underlying rock.
- Dissolved oxygen levels were low in the parts of the reservoir backbays located farthest away from the main river channel (*i.e.*, at the back of the bays, closest to shore, over

flooded areas) during most sampling periods. The lowest oxygen levels were observed at the bottom in March, where the flooded vegetation uses it up as it decomposes, and ice cover prevents oxygen from entering the water from the air. The lowest DO concentrations were seen in March, while low DO was seen at the largest number of sites in June, shortly after ice-off.

As was predicted in the EIS, few changes in water quality were observed along the main flow of the Nelson River, both in the Keeyask reservoir mainstem and downstream of the GS. Major findings are:

- Total phosphorous was elevated in the area immediately upstream of the Keeyask GS in March. It was also elevated in Split Lake; and upstream of the Kettle GS, the Long Spruce GS, and the Limestone GS during the same sampling period. Statistically similar levels found in Split Lake relative to downstream show that this was not related to the Project. By June, the concentrations had decreased and stayed low throughout the remainder of sampling in 2023.
- During the March sampling period, true colour was very high at one site in Stephens Lake. This value is believed to be an error from sampling or analysis and not related to the Project as no other measurement recorded to date has come close to the high value measured.

What does it mean?

Since sampling in 2021, a year after flooding the reservoir, effects to water quality have been observed and continue to be greatest in the reservoir backbays under the ice, where water does not mix well with the main part of the river and the ice layer prevents introduction of oxygen from the atmosphere. Elevated organic carbon, phosphorus, algae, low oxygen and darker colour are likely to persist for some time in the reservoir backbays as bacteria continue to breakdown the flooded vegetation/peat. The changes to water quality in 2023 were greatest in Zone 8, Zone 11, and Zone 12.

What will be done next?

Water quality monitoring will continue in 2024 at the same local study area and backbay locations in March, June, July, August, and September. As no large-scale changes to water quality have been observed within the regional study area in the first three years following impoundment of the Keeyask reservoir, sampling will not be conducted in this area in 2024, as outlined in the AEMP.

ACKNOWLEDGEMENTS

We would like to thank Manitoba Hydro for the opportunity and resources to conduct this study.

Grant Connell and Patrick Connell Jr. of Tataskweyak Cree Nation (TCN) are thanked for their local expertise and assistance in conducting the field work. We would also like to thank Douglas Kitchekeesik and Gordon Cook of TCN and Ray Mayham of Fox Lake Cree Nation (FLCN) for transporting samples and arranging logistic support and personnel needed to conduct the fieldwork.

The collection and transport of water samples was authorized by Natural Resources and Northern Development, Fish and Wildlife Branch, under terms of the Aquatic Invasive Species Permit #20-2023.

STUDY TEAM

Data Collection

Ayla Vince

Grant Connell

Jon Peake

Morgan Dowd

Patrick Connell Jr.

Reid Minary

Tyler Kor

Data Analysis, Report Preparation, and Report Review

Chris Kullman

Claire Hrenchuk

Morgan Dowd

Stacy Hnatiuk Stewart

Tyler Kor

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1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt (MW) hydroelectric generating station on the lower Nelson River in northern Manitoba. The GS is approximately 725 kilometres (km) northeast of Winnipeg, 35 km upstream of the existing Kettle Generating Station, 60 km east of the community of Split Lake, 180 km east-northeast of Thompson, and 30 km west of Gillam. Construction of the GS began in July 2014 and the seven generating units were all in-service in by March 2022.

The *Keeyask Generation Project: Response to EIS Guidelines*, completed in June 2012, provides a summary of the predicted effects and planned mitigation for the Project. Technical supporting information for the aquatic environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement: Aquatic Environment Supporting Volume* (AE SV). As part of the licensing process for the Project, an Aquatic Effects Monitoring Plan (AEMP) was developed detailing the monitoring activities of various components of the aquatic environment, including the focus of this report, water quality, for the operation phase of the Project.

During the construction phase, the primary effect of the Project on water quality was predicted to be related to increases in total suspended solids (TSS), notably in relation to river management and cofferdam placement/removal. The primary mechanism for ongoing monitoring of the effects of Project activities on TSS/turbidity in the Nelson River is the *Keeyask Generation Project Physical Environment Monitoring Plan* (PEMP), which includes monitoring of TSS and turbidity in the Nelson River. TSS data collected under the PEMP are reported in the annual reports associated with those plans. Other pathways of effect (*i.e.*, discharge of point sources) were expected to result in highly localized and negligible to small effects on water quality, including TSS (*e.g.*, discharge of concrete batch plant effluent). The water quality monitoring program implemented during construction was intended to monitor effects on a broader array of water quality parameters in addition to TSS.

Impoundment of the Keeyask reservoir was completed on September 5, 2020, with the final powerhouse turbine brought online on March 9, 2022. Key questions that will be addressed through water quality monitoring during operation are:

- *Does Project operation cause or contribute to exceedances of water quality objectives or guidelines for the protection of aquatic life?*
- *What are the magnitude and spatial extent of effects of operation on water quality?*
- *Are changes in water quality consistent with predictions in the EIS?*
- *Are there seasonal differences in effects on water quality?*
- *How does water quality vary over time?*

The study area for the water quality component of the AEMP during 2023 was composed of: i) the local study area (LSA), which included Split Lake (ice-cover season) or Clark Lake (open-water season)[1], the reach of the Nelson River upstream of the Keeyask GS, and the southern area of Stephens Lake; ii) the regional study area (RSA) which included the lower Nelson River downstream of Stephens Lake; and iii) select flooded backbays within the Keeyask reservoir (Map 1).

The AEMP identified key indicators and benchmarks for the water quality monitoring program to focus the program and provide an adaptive management framework (AMF). Key indicators were identified as those most likely to be affected by the Project, for which there is the greatest risk for direct effects on aquatic life, and for which there are objectives or guidelines for the protection of aquatic life (PAL). Benchmarks were identified based on baseline water quality conditions, Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOGs) for PAL (MWS 2011), and the Canadian Council of Ministers of the Environment (CCME) phosphorus guidance framework for freshwater systems (CCME 1999; updated to 2014[2]). Monitoring was also designed to include measurement of additional parameters for which no benchmarks were developed.

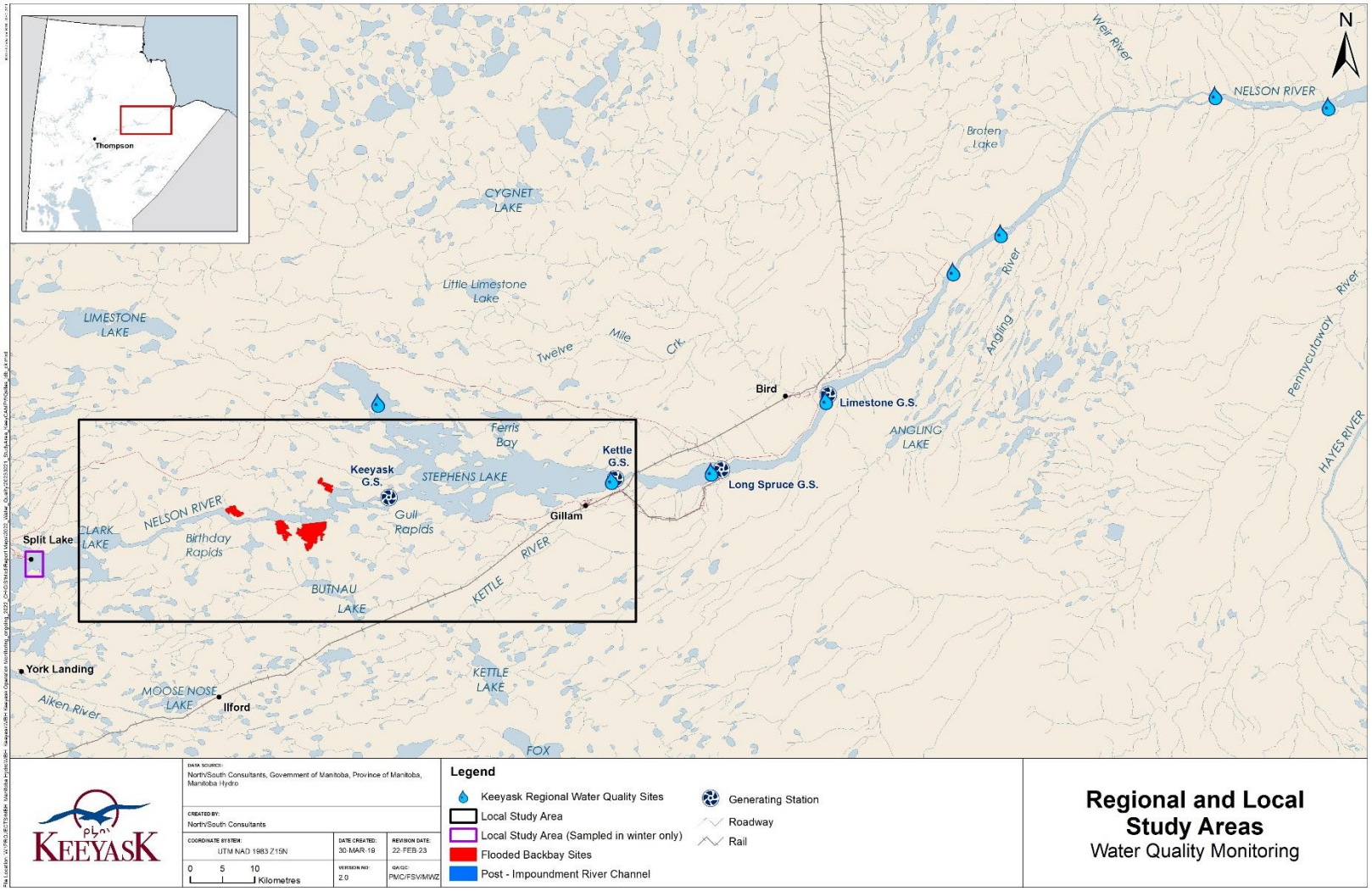
The water quality monitoring program was designed to facilitate comparisons of water quality spatially (*i.e.*, upstream versus downstream of construction activities) to delineate Project-related effects. Specifically, the program was designed to facilitate statistical comparisons of water quality in an upstream reference area to water quality monitored downstream of construction activities. The reference area is an area located upstream of Project activities in the lower Nelson River. The Nelson River upstream of the Keeyask GS (previously Gull Rapids) served as the reference during years 1 and 2 of the program; however, sites further upstream (*i.e.,* Clark Lake/Split Lake) were added after high water levels in 2014 caused backwater effects within the Nelson River upstream of the Keeyask GS.

An AMF was developed for the water quality monitoring program, as presented in the AEMP. In brief, the framework entails initially comparing monitoring results to pre-established benchmarks (Step 1). If a benchmark is not exceeded, the assessment proceeds to Response Level 1 – trend analysis. If a benchmark is exceeded, the assessment proceeds to Step 2 – determination of whether there is a statistical difference between upstream and downstream areas (*i.e.*, control-impact). If a statistical difference is not observed, the assessment proceeds to Response Level 1. Where statistical differences are identified for key indicators, the assessment proceeds to Step 3, in which a determination of cause (*i.e.*, is the difference Project-related) would be undertaken (Figure 1).

The following report presents results of water quality monitoring completed in 2023 during the second full year of operation of the Keeyask GS. Results are assessed using the AMF as summarized above and detailed in the AEMP.

[1] Clark Lake is the preferred reference area but does not become ice-covered in winter so Split Lake was included as the alternate winter sampling location.

[2] All guidelines were those current at that time of AEMP development.



Map 1: Map of the Nelson River showing water quality monitoring areas, 2023.

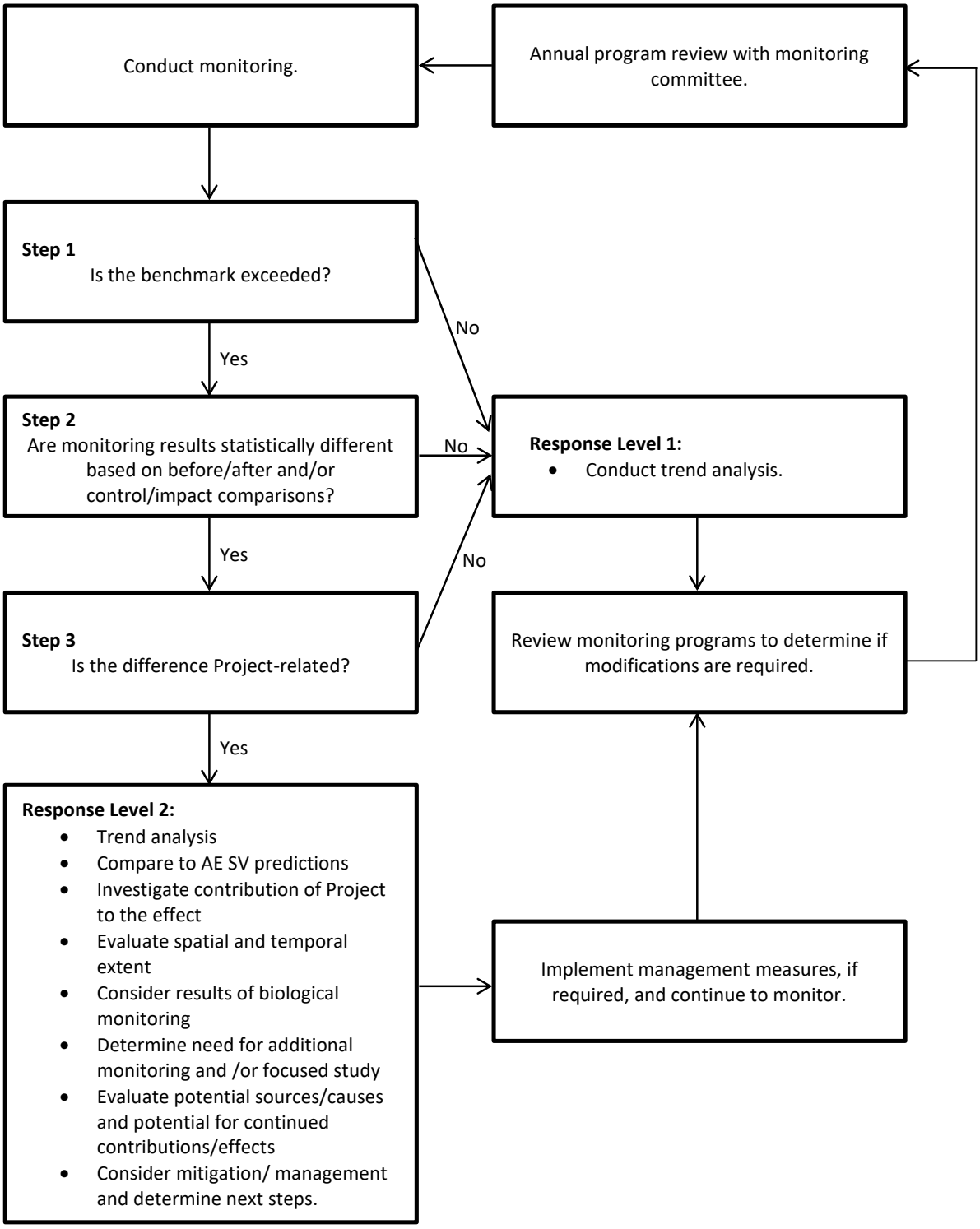


Figure 1: Water quality assessment management framework (AMF).

2.0 STUDY SETTING

The study area encompasses an approximately 110 km long reach of the Nelson River from Clark Lake to the Nelson River estuary (Map 1). This section of river offers a diversity of physical habitat conditions, including a variety of substrate types, and variable water depths (range: 0–30 m) and velocities. Clark Lake is located immediately downstream of Split Lake, and approximately 42 km upstream of the Keeyask GS. Current is restricted to the main section of the lake, with off-current bays outside the main channel. The Assean River is the only major tributary to Clark Lake and flows into the north side. Downstream from the outlet of Clark Lake, the Nelson River narrows and water velocity increases for a 3 km stretch, known as Long Rapids. For the next 7 km, the river widens, and water velocity decreases. The area between Clark Lake and Birthday Rapids is referred to herein as the upper Keeyask reservoir.

Birthday Rapids is located approximately 10 km downstream of Clark Lake and 30 km upstream of the Keeyask GS and marks the upstream end of major water level changes because of impoundment by the Keeyask GS. The drop in elevation from the upstream to downstream side of Birthday Rapids was approximately 2 m prior to impoundment but is now nearly level, albeit a fast-flowing section of river. The 14 km reach of the Nelson River between Birthday Rapids and Gull Lake was characterized as a large and somewhat uniform channel with medium to high water velocities and a few large bays. This area is now within the Keeyask reservoir, though flooding was limited to mainly shoreline areas, and is referred to herein as the middle Keeyask reservoir.

Prior to impoundment, Gull Lake was a widening of the Nelson River, with moderate to low water velocity beginning approximately 20 km upstream the Keeyask GS. Water levels on Gull Lake increased by several metres following impoundment and flooding along the shoreline and small tributaries entering this reach was extensive. Although this area is larger than prior to impoundment, the portion of the Keeyask reservoir is referred to herein as Gull Lake.

Just below the Keeyask GS, the Nelson River enters Stephens Lake. Stephens Lake was formed in 1971 by construction of the Kettle GS. Construction of the Keeyask GS has altered the flow distribution immediately downstream of the station.

Construction of the Kettle GS flooded Moose Nose Lake (north arm) and several other small lakes that previously drained into the Nelson River, as well as the old channels of the Nelson River that now lie within the southern portion of the lake. Major tributaries of Stephens Lake include the North and South Moswakot rivers that enter the north arm of the lake. Looking Back Creek is a second order stream that drains into the north arm of Stephens Lake. Kettle GS is located approximately 40 km downstream of the Keeyask GS.

The Long Spruce reservoir was formed in 1979 by the construction of the Long Spruce GS. It is a 16 km reach of the Nelson River extending from Long Spruce GS upstream to Kettle GS (Manitoba Hydro Public Affairs 1999). Kettle River and Boots Creek are the only major tributaries flowing into Long Spruce reservoir, with both tributaries entering the reservoir on the south shore.

The Limestone reservoir was formed in 1990 by the construction of the Limestone GS. It is a 23 km reach of the Nelson River extending from Limestone GS upstream to Long Spruce GS. Four tributaries of the Nelson River enter the reservoir; Wilson Creek and Brooks Creek enter from the south, and Sky Pilot Creek and Leslie Creek enter from the north. Aquatic habitat within the reservoir ranges from a riverine environment in the upper reach, to more lacustrine conditions just upstream of the Limestone GS.

3.0 METHODS

3.1 STUDY DESIGN

The monitoring program is designed to facilitate comparisons of water quality spatially (*i.e.*, areas within and outside of the hydraulic zone of influence of the Keeyask GS) to delineate Project-related effects. Specifically, the program is designed to facilitate statistical comparisons of water quality in an upstream reference area to water quality monitored upstream and downstream of the GS (*i.e.*, areas that are predicted to be most affected by the Project); this area is defined as the local study area (LSA). Sampling in the LSA includes monitoring at replicate sites upstream and downstream of the Keeyask GS and is to be conducted annually during the operation period. The objective of monitoring during the operation period is to determine if the Project caused or contributed to exceedances of benchmarks and to confirm predictions in the EIS.

The AEMP also indicates that water quality will be periodically monitored at single stations downstream of the Keeyask GS from Stephens Lake to the Nelson River estuary (*i.e.*, in the regional study area, or RSA) in the years immediately following GS impoundment. Sampling was conducted within the RSA during all five sampling periods in 2023.

It was predicted in the EIS that impacts to water quality would be greatest in flooded, isolated backbays in the Keeyask reservoir, with small changes expected along the main flow of the Nelson River. In 2023, monitoring was conducted within a subset of flooded reservoir backbays for a third consecutive year. Zones 4, 8, 11, and 12 were sampled and parameters were compared to those collected in the reservoir mainstem (Zone 1b) (Map 2).

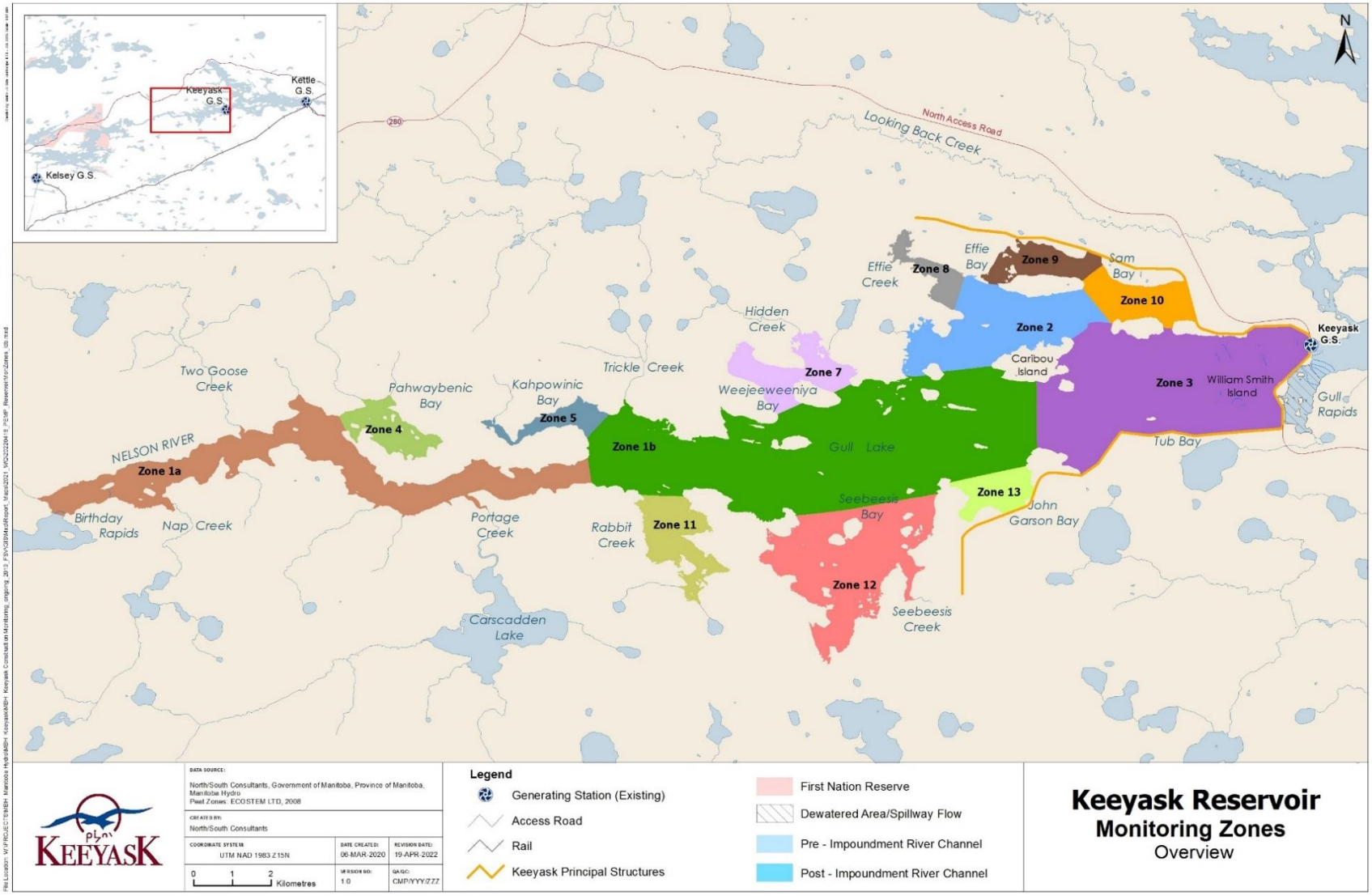
3.2 SAMPLING SITES

The water quality monitoring program incorporated sites upstream and downstream of the Keeyask GS within the LSA (Map 3) as follows:

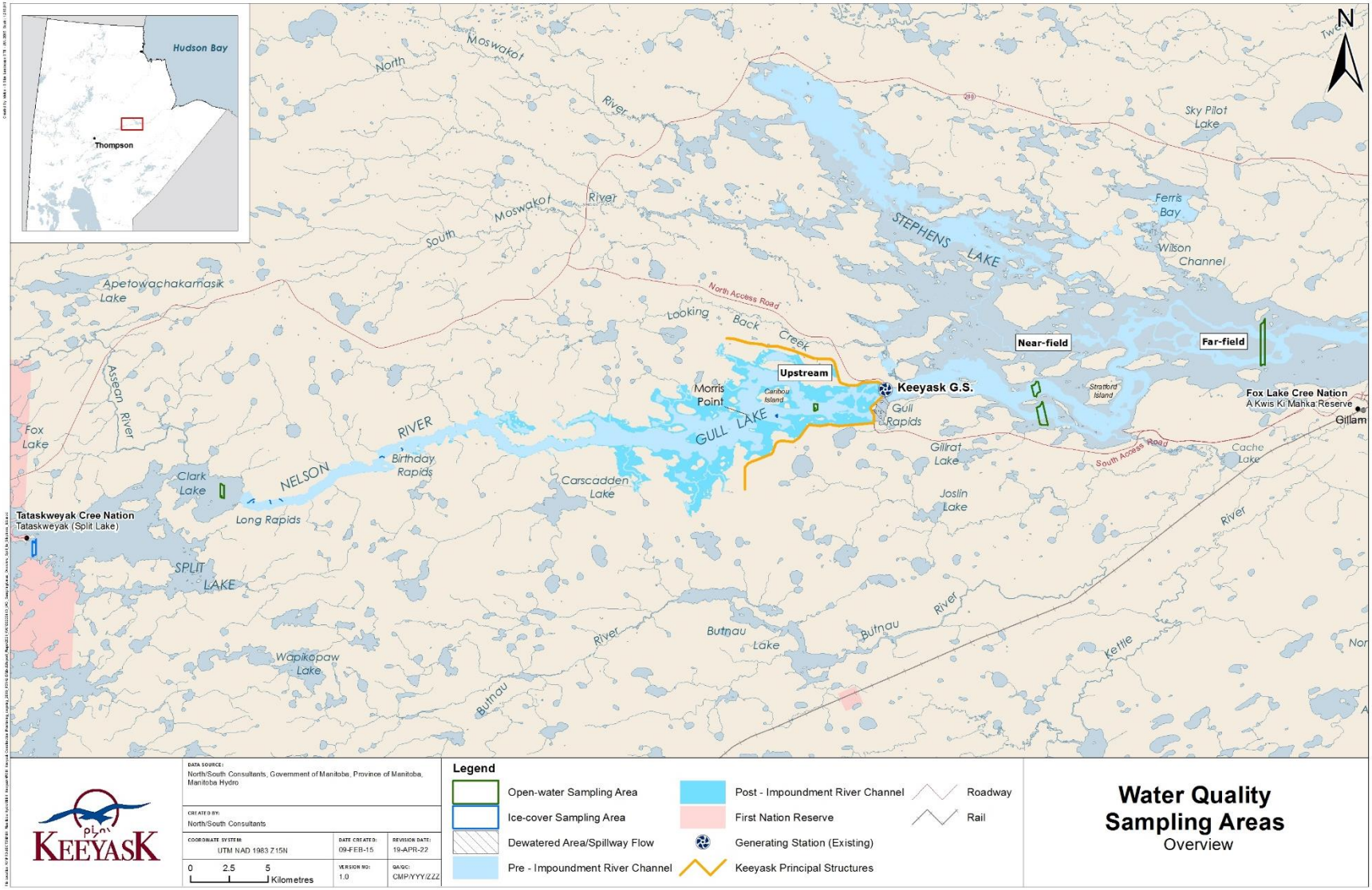
- Split Lake/Clark Lake (Maps 4 and 5): Split and Clark lakes are situated upstream of the hydraulic zone of influence and are not affected by water level increases related to the Project. Clark Lake is the preferred reference area but does not become ice-covered during the winter, so Split Lake was included as the alternate winter sampling location;
- Nelson River Upstream Area (Map 6): the Nelson River upstream of the Keeyask GS;
- Near-Field Area (Map 7): this area is located approximately 9 km downstream the Keeyask GS in Stephens Lake; and
- Far-Field Area (Map 8): this area is located approximately 25 km downstream the Keeyask GS in Stephens Lake.

Five replicate sites were sampled in each of the sampling areas (*i.e.*, sampling polygons) during the open-water and ice-cover seasons. During the ice-cover season, sites were relocated to areas with sufficient ice formation to facilitate safe access. Universal Transverse Mercator (UTM) coordinates for the water quality sites are provided in Table 1.

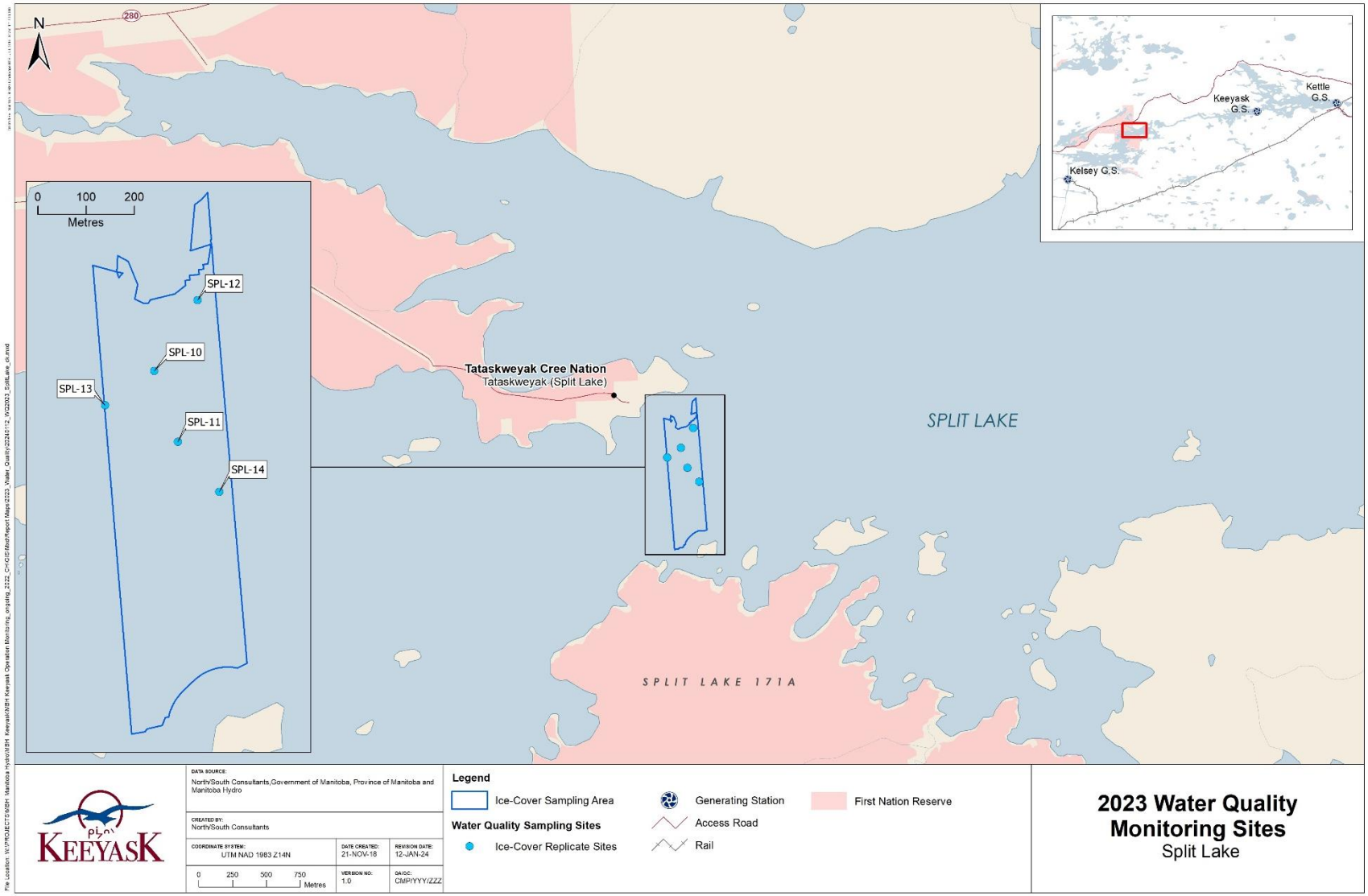
The locations of the sampling sites were defined differently for the upstream areas (*i.e.*, Nelson River upstream of the Keeyask GS and Split and Clark lakes) and the downstream near-field and far-field areas of Stephens Lake. As there are detailed bathymetry data for the areas upstream of the Keeyask GS up to and including Split Lake, the polygon boundary was defined based on open-water depths (> 5 m in depth at the 50th percentile water level), distance from shore (*i.e.*, > 100 m from shore), and length (*i.e.*, 250 m in length). Due to a lack of detailed bathymetry for the two downstream sampling areas in Stephens Lake, these polygons were defined based on distance from shorelines. Specifically, the polygons were located 250 m from shorelines (including islands) and were 250 m in length. These boundaries were identified to ensure sites were in relatively deep areas even under low water levels and to avoid nearshore areas where localized differences in water quality may occur (*e.g.*, localized shoreline erosion), while also being large enough to accommodate five sampling sites with sufficient separation (*i.e.*, minimum of 20 m separation between sites). The same polygons have been used since 2014 to facilitate pre- and post-Project comparisons.



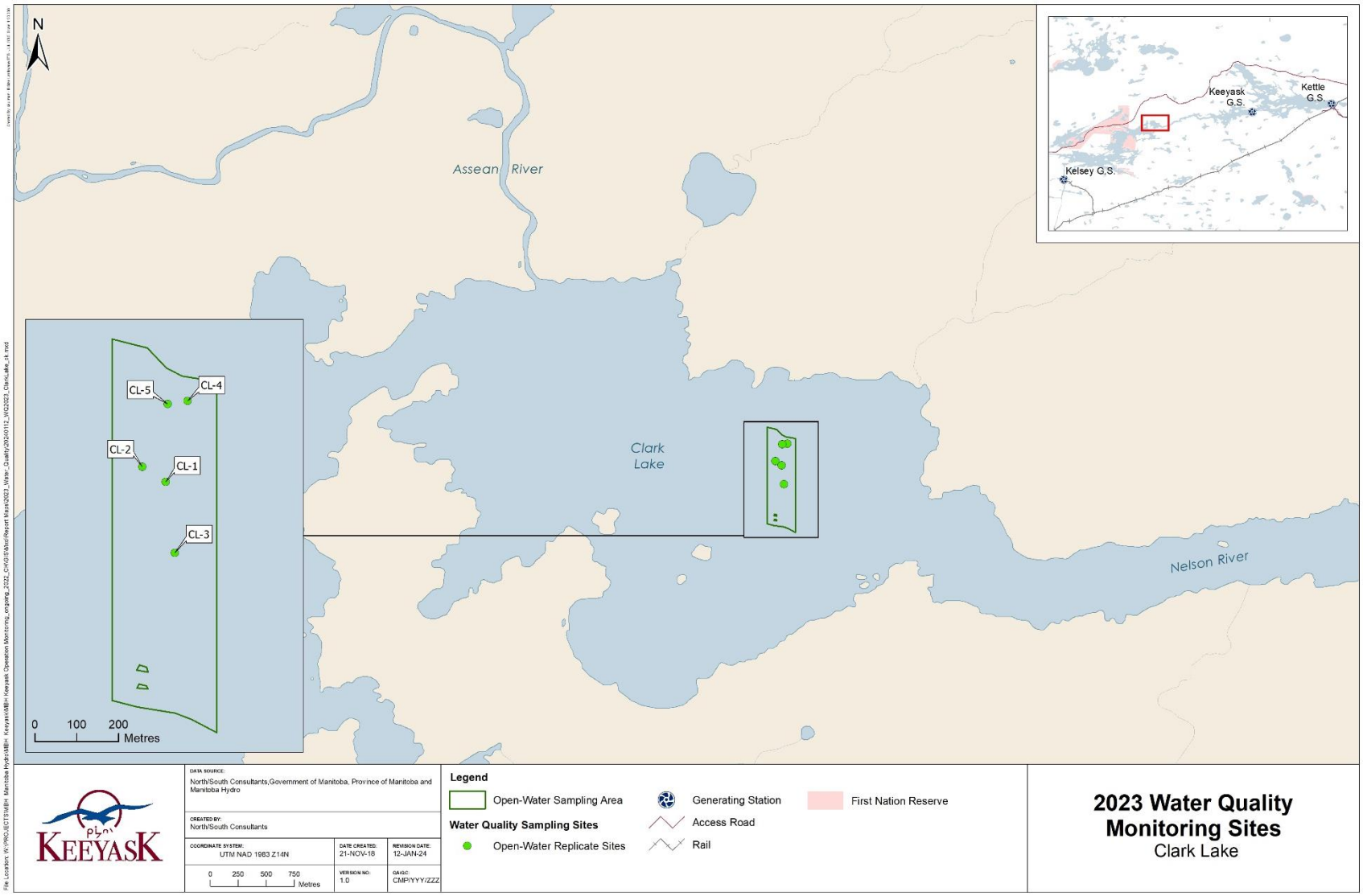
Map 2: Overview of water quality monitoring areas in the Keeyask reservoir backbays. A subset (zones 4, 8, 11, and 12) were sampled for water quality in 2023, as outlined in the AEMP.



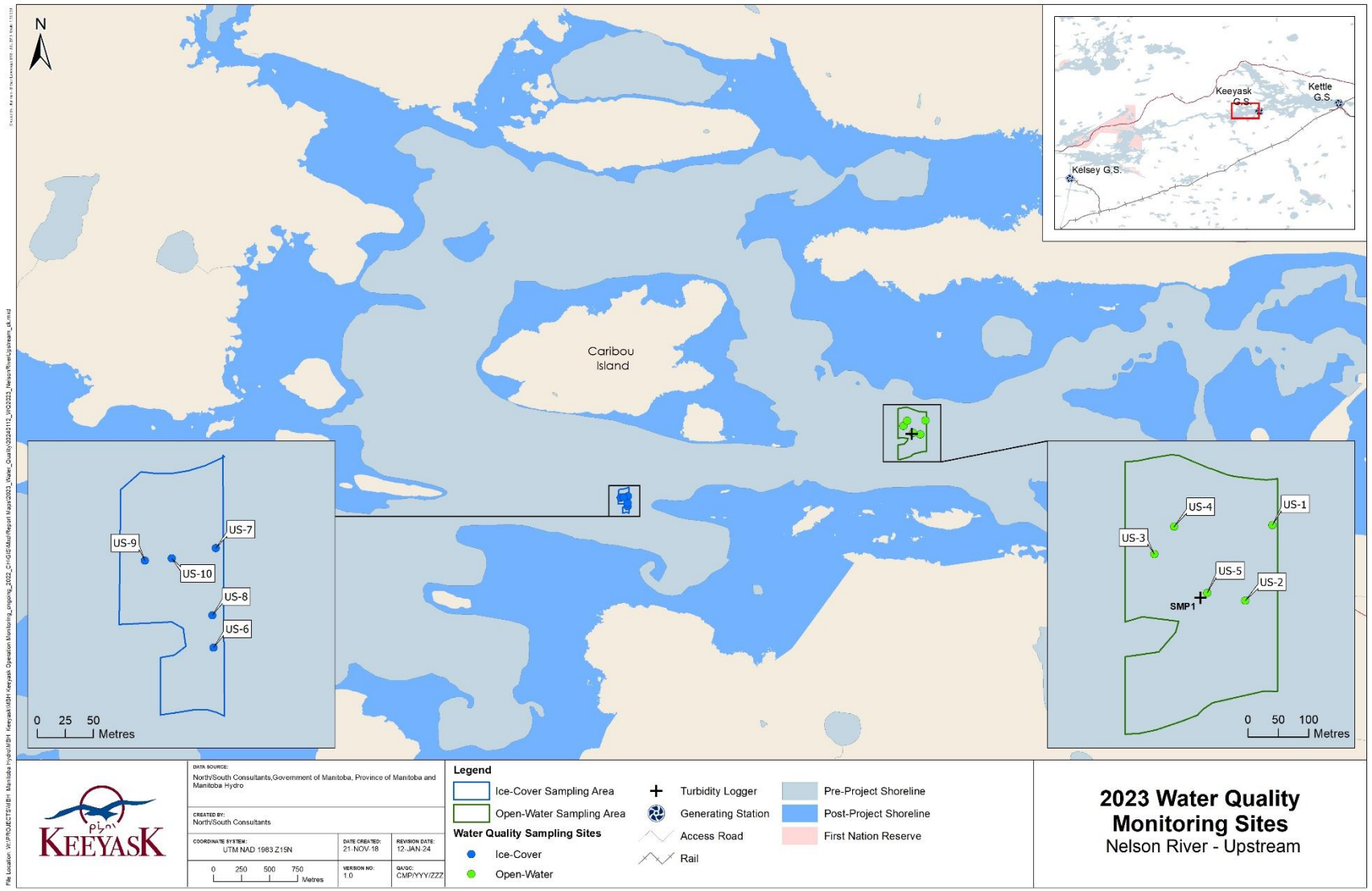
Map 3: Overview of water quality monitoring areas in the Keeyask local study area, 2023.



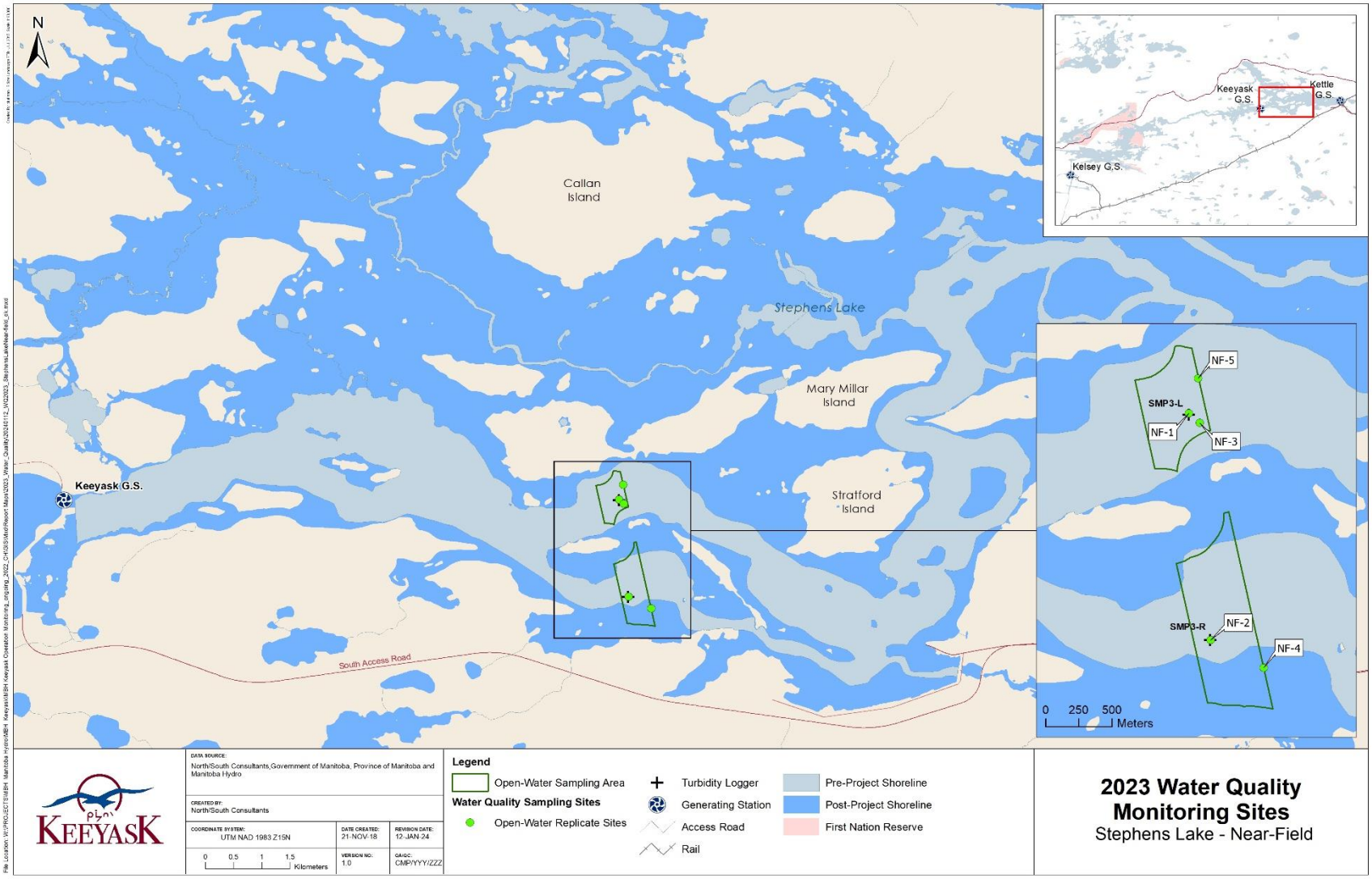
Map 4: Water quality sampling locations in Split Lake sampled as part of the local study area during winter 2023.



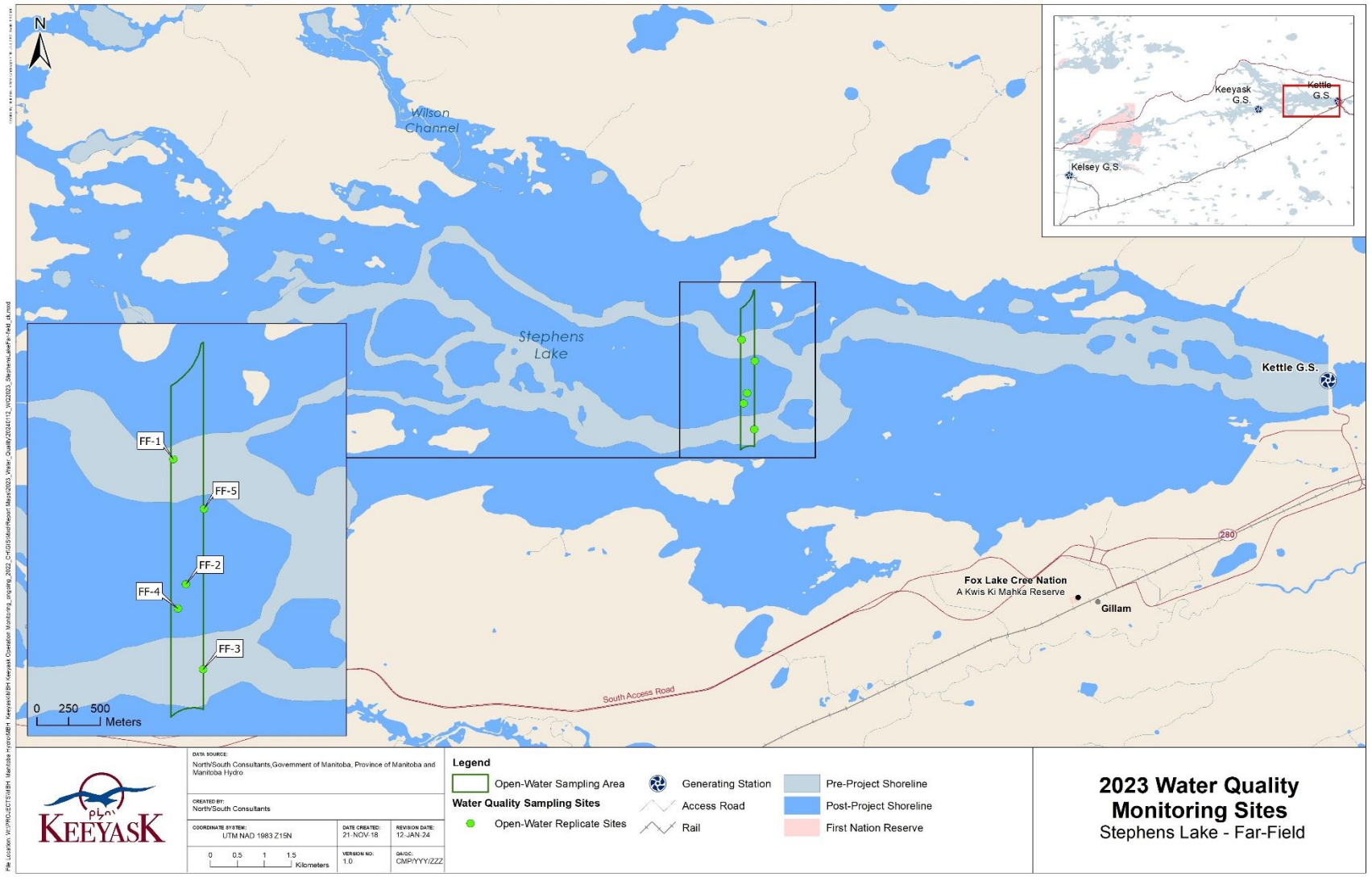
Map 5: Water quality sampling locations in Clark Lake sampled as part of the local study area during open-water 2023.



Map 6: Water quality sampling locations in the Nelson River upstream of the Keeyask GS sampled as part of the local study area during 2023.



Map 7: Water quality sampling locations in the near-field sampling area of Stephens Lake sampled as part of the local study area during 2023.



Map 8: Water quality sampling locations in the far-field sampling area of Stephens Lake sampled as part of the local study area during 2023.

Table 1: Coordinates of water quality monitoring sites sampled in the local study area in 2023.

Region	Site ID	Zone	Easting	Northing
Split Lake	SPL-10	14V	680835	6236757
	SPL-11	14V	680884	6236610
	SPL-12	14V	680925	6236904
	SPL-13	14V	680733	6236686
	SPL-14	14V	680970	6236506
Clark Lake	CL-1	15V	321182	6240793
	CL-2	15V	321126	6240829
	CL-3	15V	321204	6240624
	CL-4	15V	321234	6240986
	CL-5	15V	321187	6240979
Nelson River upstream of the Keeyask GS	US-1	15V	359563	6246185
	US-2	15V	359518	6246059
	US-3	15V	359367	6246137
	US-4	15V	359400	6246183
	US-5	15V	359455	6246072
	US-6	15V	356917	6245416
	US-7	15V	356919	6245505
	US-8	15V	356916	6245445
	US-9	15V	356856	6245494
	US-10	15V	356880	6245496
Stephens Lake near-field	NF-1	15V	373753	6247210
	NF-2	15V	373920	6245451
	NF-3	15V	373837	6247135
	NF-4	15V	374322	6245236
	NF-5	15V	373823	6247481
Stephens Lake far-field	FF-1	15V	388149	6250825
	FF-2	15V	388249	6249814
	FF-3	15V	388385	6249127
	FF-4	15V	388186	6249618
	FF-5	15V	388392	6250423

3.2.1 RESERVOIR BACKBAYS

The AEMP identified flooded backbays in the reservoir as areas where effects of the Project on water quality were predicted to be the greatest, with most effects occurring during the initial years following impoundment. Four backbays (including zones 4, 8, 11, and 12) and a single site in the centre of the reservoir (Zone 1b) were sampled. The number of sites sampled within each backbay varied by study period and fewer samples were collected during the ice-cover season than the open-water season. Sites extended from the closest nearshore location reachable by boat to near the confluence with the mainstem. UTM coordinates for the backbay sites are provided in Table 2.

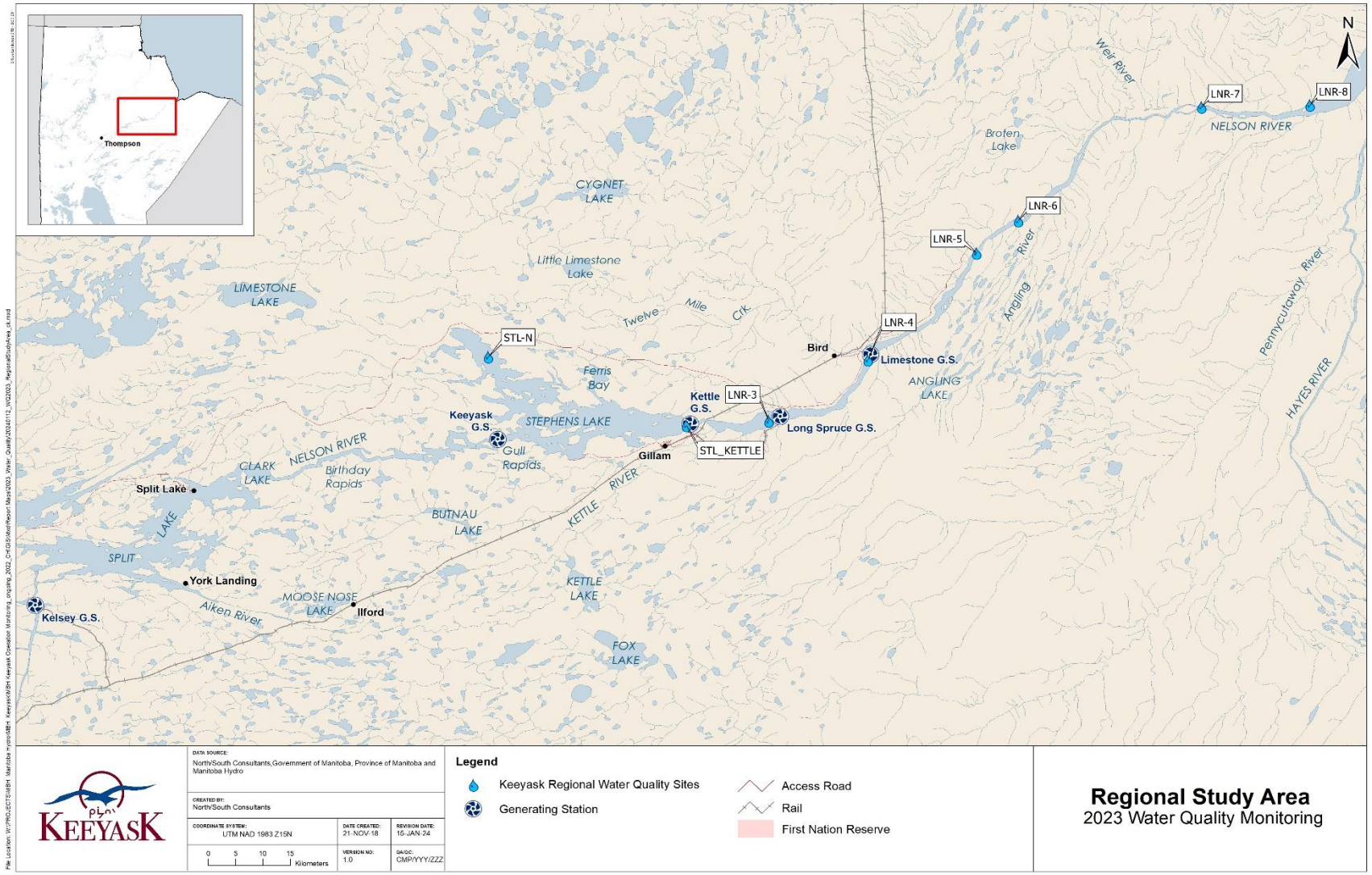
Table 2: Coordinates of water quality monitoring sites sampled in the Keeyask reservoir mainstem (Zone 1b) and backbays (Zones 4, 8, 11, and 12) in 2023.

Region	Site ID	Zone	Easting	Northing
Zone 1b	Z1-5	15V	353293	6244392
	Z1-6	15V	353368	6245597
	Z1-7	15V	353407	6244194
	Z1-8	15V	353315	6245388
	Z1-9	15V	353282	6244899
Zone 4	Z4-1	15V	340448	6244607
	Z4-2	15V	339750	6245041
	Z4-3	15V	339310	6245379
	Z4-4	15V	338683	6245160
	Z4-5	15V	340985	6244678
	Z4-6	15V	340060	6244745
	Z4-7	15V	339907	6245716
Zone 8	Z8-1	15V	353477	6249415
	Z8-2	15V	353789	6249365
	Z8-4	15V	355008	6248559
	Z8-5	15V	354167	6249186
	Z8-6	15V	354313	6248484
	Z8-7	15V	354571	6248721
	Z8-8	15V	354794	6248891
Zone 11	Z11-1	15V	347566	6241969
	Z11-2	15V	348139	6241561
	Z11-3	15V	346947	6241922
	Z11-4	15V	347232	6242450
	Z11-5	15V	347984	6242695
	Z11-6	15V	347441	6243338
	Z11-8	15V	347417	6242908
	Z11-9	15V	346795	6243082
	Z11-10	15V	348050	6241373
	Z11-11	15V	347949	6241687
Zone 12	Z12-1	15V	352345	6241191
	Z12-2	15V	353163	6241678
	Z12-3	15V	351461	6241007
	Z12-6	15V	352705	6242686
	Z12-7	15V	351177	6239539
	Z12-8	15V	351549	6239846
	Z12-9	15V	351895	6240729
	Z12-10	15V	349962	6241684
	Z12-11	15V	350681	6241821
	Z12-12	15V	351629	6241807
	Z12-13	15V	352486	6241897
	Z12-14	15V	353541	6241444
	Z12-15	15V	340828	6242507
	Z12-16	15V	351276	6242351
	Z12-17	15V	352966	6242254

3.2.2 LOCAL STUDY AREA

3.2.3 REGIONAL STUDY AREA

Eight sites within the RSA were identified in the AEMP based on sampling conducted during baseline monitoring in 2001–2004 and 2009 (Map 9). Monitoring sites included Stephens Lake North; one site immediately upstream of each of the Kettle, Long Spruce, and Limestone GS's; and four additional sites downstream of the Limestone GS along the Nelson River. The four sites downstream of the Limestone GS are not sampled during the ice-cover period due to insufficient ice. UTM coordinates for the RSA sites are provided in Table 3.



Map 9: Water quality sampling locations monitored in the regional study area in 2023.

Table 3: Coordinates of water quality monitoring sites sampled in the regional study area in 2023.

Sample Location	Site ID	Zone	Easting	Northing
Stephens Lake North Arm	STL-N	15V	362229	6262606
Stephens Lake upstream of the Kettle GS	STL-KETTLE	15V	398312	6249819
Long Spruce GS Forebay	LNR-3	15V	413430	6250636
Limestone GS Forebay	LNR-4	15V	431390	6262031
Nelson River downstream of Limestone Rapids	LNR-5	15V	451192	6282025
Nelson River upstream of the Angling River	LNR-6	15V	458791	6288040
Nelson River downstream of Deer Island	LNR-7	15V	492168	6309274
Nelson River upstream of Gillam Island	LNR-8	15V	511892	6309665

3.3 SAMPLING METHODS

Sampling was conducted five times within the Keeyask reservoir backbays, LSA, and RSA during 2023. Sampling was conducted once during the 2023 ice-cover season in March and four times during the 2023 open-water season in June, July, August, and September. Sites within the reservoir backbays and the LSA were accessed by helicopter during the ice-cover season and by boat during the open-water season. Sites within the RSA were accessed by helicopter during the ice-cover season and by float plane during the open-water season.

UTMs were recorded at each site using a hand-held Global Positioning System (GPS) unit and total water depth was measured using a HawkEye H22PX handheld depth sounder. General information recorded at each site included:

- Date and time of sample collection;
- Cloud cover, wind speed and direction, air temperature, and precipitation, including the occurrence of precipitation prior to sampling, where possible;
- Sampling equipment used;
- Site conditions and/or observations relevant to the sampling program; and
- Any deviations from field sampling protocols.

Sampling consisted of collection of *in situ* water quality measurements and collection of grab samples for laboratory analysis, as described below.

3.3.1 *IN SITU* MEASUREMENTS

Secchi disk depth was measured during the open-water season at each site, excluding the four sites located downstream of the Limestone GS as high water velocities at these sites do not allow

for accurate measurements. Secchi disk depth was measured from the shady side of the boat (backbays and LSA) or plane (RSA) by lowering the disk until it was no longer visible; the disk was then lowered approximately 1 m deeper than the previous reading and raised until it was visible again. The Secchi disk depth was recorded as the average of the two readings.

In situ measurements of dissolved oxygen (DO), turbidity, pH, specific conductance, and temperature were collected at each sampling site using a YSI EXO2 water quality multi-meter. At each site, *in situ* parameters were measured at 0.5 m, 1.0 m, or 2.0 m increments (for sites < 5.0 m, 5.0 m – 20.0 m, and > 20.0 m, respectively) beginning with a near surface measurement at 0.3 m.

3.3.2 SAMPLING FOR LABORATORY ANALYSES

At each site, grab samples of surface water were collected for laboratory analysis. Laboratory parameters included “routine” parameters (*e.g.*, nutrients, TSS, and pH), chlorophyll *a*, total metals, total mercury, and methylmercury.

Sampling during the open-water season was conducted by wearing elbow-length gloves and submerging each sample bottle (provided by the analytical laboratory) to elbow depth (*i.e.*, approximately 0.3 m depth) followed by uncapping, filling, recapping, and retrieving the bottle to the surface, then adding preservatives as required. Sample collection during the ice-cover season consisted of wearing gloves and submerging a Kemmerer water sampler 0.3 m below the bottom of the ice and filling each bottle directly from the sampler. For sample bottles pre-charged with preservative by the analytical laboratory, extra care was taken to ensure preservative was not lost during sampling.

All sample bottles were filled with minimal headspace, except where instructed, to prevent chemical alteration and loss of compounds. Samples were subsequently kept cool, but not frozen, and in the dark until submission to a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory (ALS Laboratories, Winnipeg, MB).

3.4 QUALITY ASSURANCE/QUALITY CONTROL

The quality assurance/quality control (QA/QC) program included application of standard procedures to limit sample contamination in the field, submission of QA/QC samples to the analytical laboratory, and QA/QC verifications of the water quality meter.

3.4.1 GENERAL QA/QC

Standard procedures for the control of sample contamination were adhered to throughout the sampling program, including:

- Use of gloves during sampling;
- Collecting samples facing in an upstream direction to minimize sample contamination. Where possible, sites were also approached moving in an upstream direction to avoid site disturbance and contamination;
- Avoiding contact with the insides of sample bottles, including lids;
- Limiting exposure of the insides of sample bottles to the atmosphere;
- Regular cleaning, calibration, inspection, and accuracy verification of field meters and equipment; and
- Adherence to sampling protocols wherever possible.

3.4.2 TRIPLICATE SAMPLES

The sampling program incorporated the collection of triplicate samples at two randomly selected sampling sites during each sample collection period. The triplicates were collected at the same location and as close in time as practically feasible. Triplicate samples were identified with the Site ID followed by “A”, “B”, or “C”.

3.4.3 FIELD BLANKS

Two field blanks were submitted to the analytical laboratory (ALS Laboratories) during each sampling period. Field blanks were prepared by filling one set of sample bottles (provided by the analytical laboratory) with deionized water (also provided by the analytical laboratory) in the field and treating the blanks in the same manner as environmental samples.

Bottles were blindly labeled, stored, and transported according to sampling and handling protocols, and submitted along with environmental samples.

3.4.4 TRIP BLANKS

Two trip blanks were also submitted to the analytical laboratory (ALS Laboratories) during each sampling period. Trip blanks were prepared by the analytical laboratory by filling one set of sample bottles with deionized water and adding preservatives where appropriate.

The trip blank samples were transported to the field site, using the same handling and transport protocols as for environmental samples, and submitted along with environmental samples to the analytical laboratory for analysis. Trip blanks were treated similarly to field blanks, but the bottles were not opened at any point in the field and thus, were not exposed to the environment. Trip blanks were also blindly labelled.

3.4.5 WATER QUALITY METER QA/QC

The water quality meter was calibrated and inspected prior to departure for the field prior to each sampling trip. In the field, the functioning and accuracy of the meter was assessed at the end of each sampling day by verifying meter measurements in standards of known values for turbidity, pH, and specific conductance. Any discrepancies from the standard values were documented in the field notes.

3.5 DATA ANALYSIS

Prior to analysis, all environmental data were evaluated qualitatively for potential outliers and transcription or analytical errors. Suspect results were noted, and requests were made to the analytical laboratory to verify the values.

QA/QC samples were assessed according to standard criteria to evaluate precision and identify potential sample contamination issues (BCMELP 1998). Field and trip blank results were evaluated for evidence of sample contamination. Blank results that exceeded five times the analytical detection limit (DL) were considered indicative of sample contamination and/or laboratory error. Percent relative standard deviation (PRSD) was calculated for triplicate samples as follows:

PRSD = Standard deviation of the triplicate values/Mean of the triplicate values x 100.

Precision of the QA/QC samples was evaluated using the “rule of thumb” for precision criteria of 18% for triplicate samples (BCMELP 1998). Where one or more of the measurements being compared was less than five times the analytical DL, an analysis of precision was not undertaken, in accordance with guidance provided in BCMELP (1998).

Mean and standard error (SE) were also calculated for all sampling sites within each sampling area during each sampling period. Results that were reported below the analytical DL were assigned a value of one half the DL for all statistical and graphical analyses.

As summarized in Section 1.0, and detailed in the AEMP, results of the water quality monitoring program are subject to the steps identified within the AMF (Figure 1). This framework prescribes data analysis methods and other tasks to be undertaken based on results of the monitoring program. Step 1 of the AMF entails comparison of the mean values of replicate samples for key indicators measured during a single sampling period to the benchmarks identified in the AEMP. If a benchmark is not exceeded, the assessment proceeds to Response Level 1 – trend analysis. If a benchmark is exceeded, the assessment proceeds to Step 2 – determination of whether there is a statistical difference between upstream and downstream areas (*i.e.*, control-impact) and/or relative to baseline conditions (before-after). If a statistical difference is not observed, the assessment proceeds to Response Level 1. Where statistical differences are identified for key

indicators, the assessment proceeds to Step 3, in which a determination of cause (*i.e.*, is the difference Project-related) would be undertaken.

For data collected in 2023, means for key indicators were first compared to benchmarks (Appendix 1). For each key indicator that exceeded a benchmark, a statistical comparison between upstream and downstream sampling areas, or between backbay zones, was undertaken during the respective sampling period. Data subject to statistical analyses, as per the AMF, were analysed in XLStat 2014, version 3.01 by a non-parametric Kruskal-Wallis test ($\alpha = 0.05$). If a significant difference was found, a Dunn's test was conducted to determine which sample differed.

In addition to the key water quality indicators, monitoring results for other water quality parameters (*e.g.,* parameters for which there are no PAL objectives or guidelines but that may be indicative of general changes in water quality, such as conductivity) were also summarized to provide supporting information regarding potential effects of the Project and to assist with monitoring potential trends over the long-term.

4.0 RESULTS

Results of the water quality monitoring program for the 2023 ice-cover and open-water seasons are summarized below. Summary tables are presented in Appendix 1 and summary figures in appendices 2 and 3. Raw data are provided in Appendix 4 and results of the QA/QC samples are presented in Appendix 5.

4.1 KEEYASK RESERVOIR

4.1.1 KEY INDICATORS

4.1.1.1 NUTRIENTS

Mean ammonia and nitrate/nitrite concentrations measured in the reservoir mainstem (Zone 1b) and select flooded backbays (zones 4, 8, 11, and 12) were within the benchmark values during each sampling event in March, June, July, August, and September (Table A1-1; Figures A2-1, and A2-2).

Mean TP concentrations measured during July and September were below the benchmark at all five sampling locations. Total phosphorus (TP) approached or exceeded the benchmark value of 0.058 mg/L in several locations in several of the sampling periods (Table A1-1; Figure A2-3).

- In March 2023, mean TP concentrations approached the benchmark in Zone 4 (0.0522 mg/L) and exceeded the benchmark in Zone 1b (0.0585 mg/L), Zone 8 (0.117 mg/L), Zone 11 (0.0912 mg/L), and Zone 12 (0.0933 mg/L). Mean TP in Zone 12 was significantly higher than in Zone 4, but no other statistically significant differences were found. The mean TP in Zone 8 was largely driven by an elevated value at a single site (Z8-1: 0.279 mg/L).
- In June, mean TP concentrations exceeded the benchmark in two of the backbays (Zone 8: 0.0599 mg/L and Zone 11: 0.0597 mg/L), and was significantly higher at both of these areas than in the reservoir mainstem (Zone 1b).
- In August, mean TP concentrations approached the benchmark in Zone 4 (0.0578 mg/L) and Zone 12 (0.0541 mg/L) and were significantly higher than the mean concentration measured in Zone 8.

4.1.1.2 CHLOROPHYLL *a*

Chlorophyll *a* was measured in the reservoir mainstem (Zone 1b) and select backbays (Zone 4, 8, 11, and 12) during all five sampling periods in 2023 (Table A1-1; Figure A2-4). In March and

June, mean chlorophyll *a* concentrations were below the benchmark of 10.00 µg/L at all sampling locations.

Mean chlorophyll *a* concentrations in July exceeded the benchmark in Zone 4 (13.7 µg/L) and Zone 12 (11.9 µg/L), however only Zone 4 was significantly higher than the reservoir mainstem.

Although it was not exceeded, mean chlorophyll *a* concentrations approached the benchmark at several locations, and mean concentrations were significantly higher than the reservoir mainstem (Zone 1b) in Zone 4 and Zone 12 in August and in Zone 11 and Zone 12 in September.

4.1.1.3 TOTAL SUSPENDED SOLIDS

Mean TSS concentrations measured in the reservoir mainstem (Zone 1b) and select backbays (Zone 4, 8, 11, and 12) were below both the chronic and short-term benchmark values in all sampling periods in 2023 (Table A1-1; Figure A2-5). The chronic and short-term benchmarks are defined as a 5.0 and 25.0 mg/L increase above background, calculated from measurements at Split Lake (ice-cover) or Clark Lake (open-water) during each sampling period.

4.1.1.4 DISSOLVED OXYGEN

DO was measured throughout the water column within each backbay and the mainstem during each sampling period in 2023 (Table A1-1; Figures 2–6 and A2-6; Maps 10–14).

DO sampled within the mainstem (Zone 1b) was above the benchmark (>9.5 mg/L during ice-cover (March) and >6.5 mg/L in the open-water period) during all sampling events and at all depths (Table A1-1; Figures 2 and A2-6; Maps 10–14).

Dissolved oxygen depletion was observed in the each of the backbays, though the frequency, magnitude, and spatial extent varied between areas. With one exception, mean DO concentrations exceeded the benchmark in all backbays in each of the open-water season sampling periods; the exception occurred in Zone 11 in June. In addition, mean DO concentrations in Zones 8 and 12 were below the benchmark in March.

The mean DO concentration in Zone 4 (all sites combined; both surface and bottom measurements) was above the benchmark in all sampling periods. In addition, DO concentrations within Zone 4 were generally above the benchmark at all sites and throughout the water column (Table A1-1; Figures 3 and A2-6; Maps 10–14). Two occurrences of DO concentrations below the benchmark occurred at the bottom of the water column: at one site in March (8.25 mg/L); and one site in August (6.33 mg/L).

The mean concentration of DO was above the benchmark in Zone 8 in each of the open-water season sampling periods but was below the benchmark in March (Table A1-1). DO concentrations were below the benchmark throughout the water column at a minimum of two sites during all sampling periods except for September, when the benchmark was exceeded at all sites (Table A1-1; Figures 4 and A2-6; Maps 10–14). DO concentrations were below the benchmark

throughout the water column at two sites each in March (0.03–5.95 mg/L), July (3.85–4.70 mg/L), and August (3.65–4.67 mg/L), and at three sites in June (0.18–6.38 mg/L). DO measured below the benchmark at the bottom of the water column at one additional site in July (4.32 mg/L). DO concentrations were below the level reported to be acutely lethal to Northern Pike (0.75 mg/L; CCME 1999) throughout the water column at one site in March (0.03–0.17 mg/L) and at the bottom of the water column at one site in June (0.18 mg/L). Both sites are located near the shore and farthest from the reservoir mainstem.

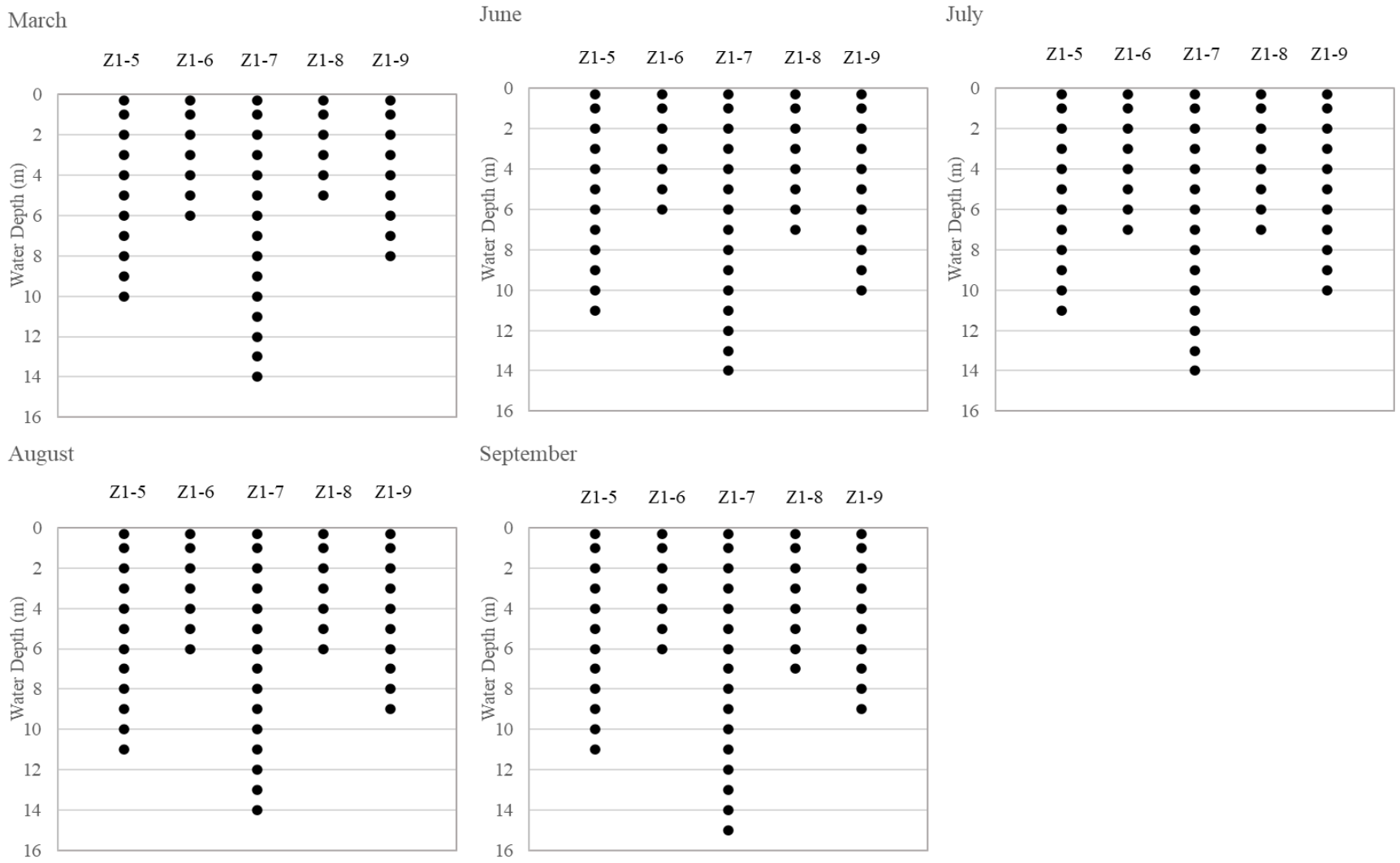


Figure 2: **Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir mainstem (Zone 1b) during the ice-cover (March) and open-water (June, July, August, and September) seasons, 2023. No dissolved oxygen readings were below the benchmark.**

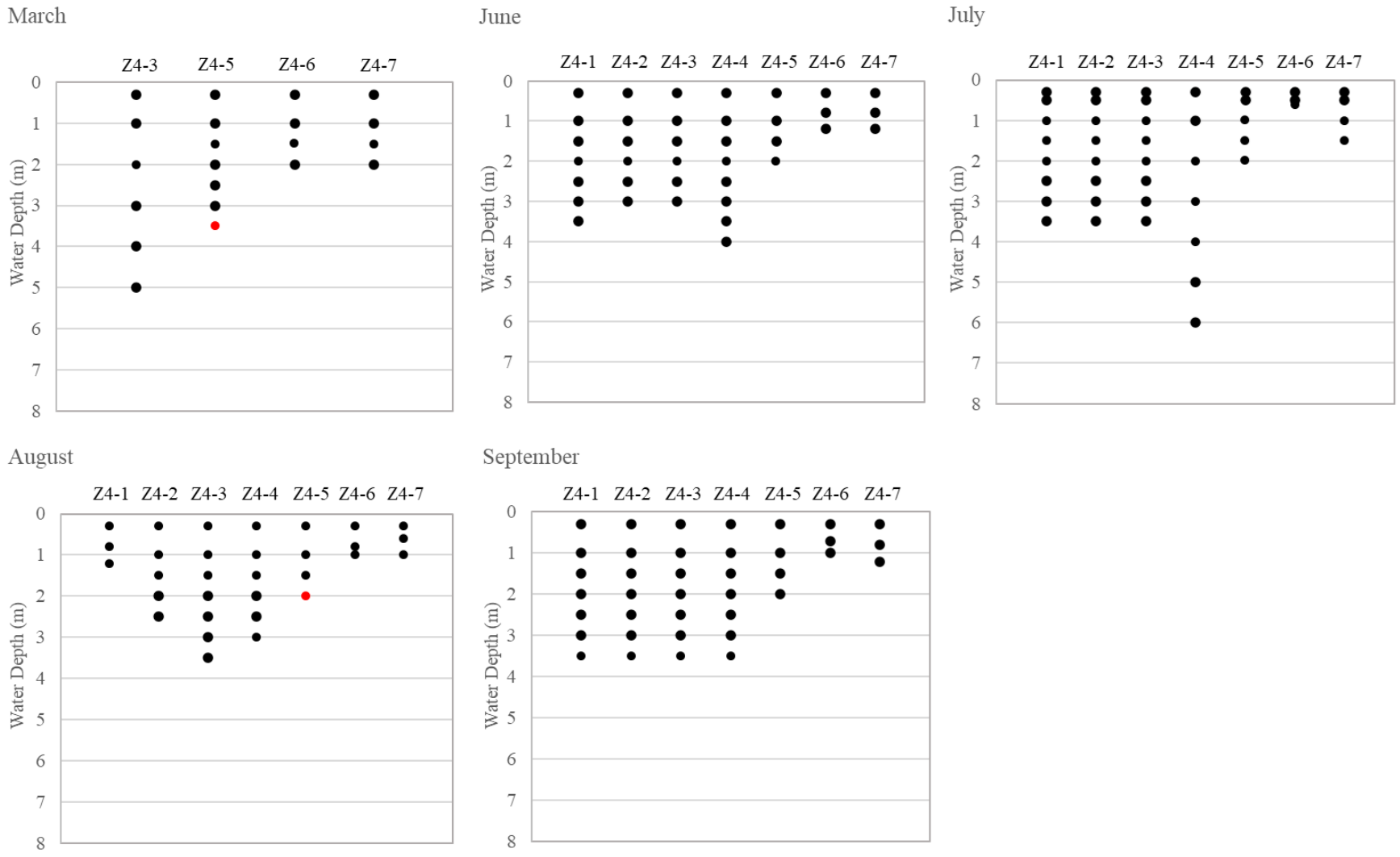


Figure 3: **Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 4 during the ice-cover (March) and open-water (June, July, August, and September) seasons, 2023. Red dots indicate readings below the benchmark.**

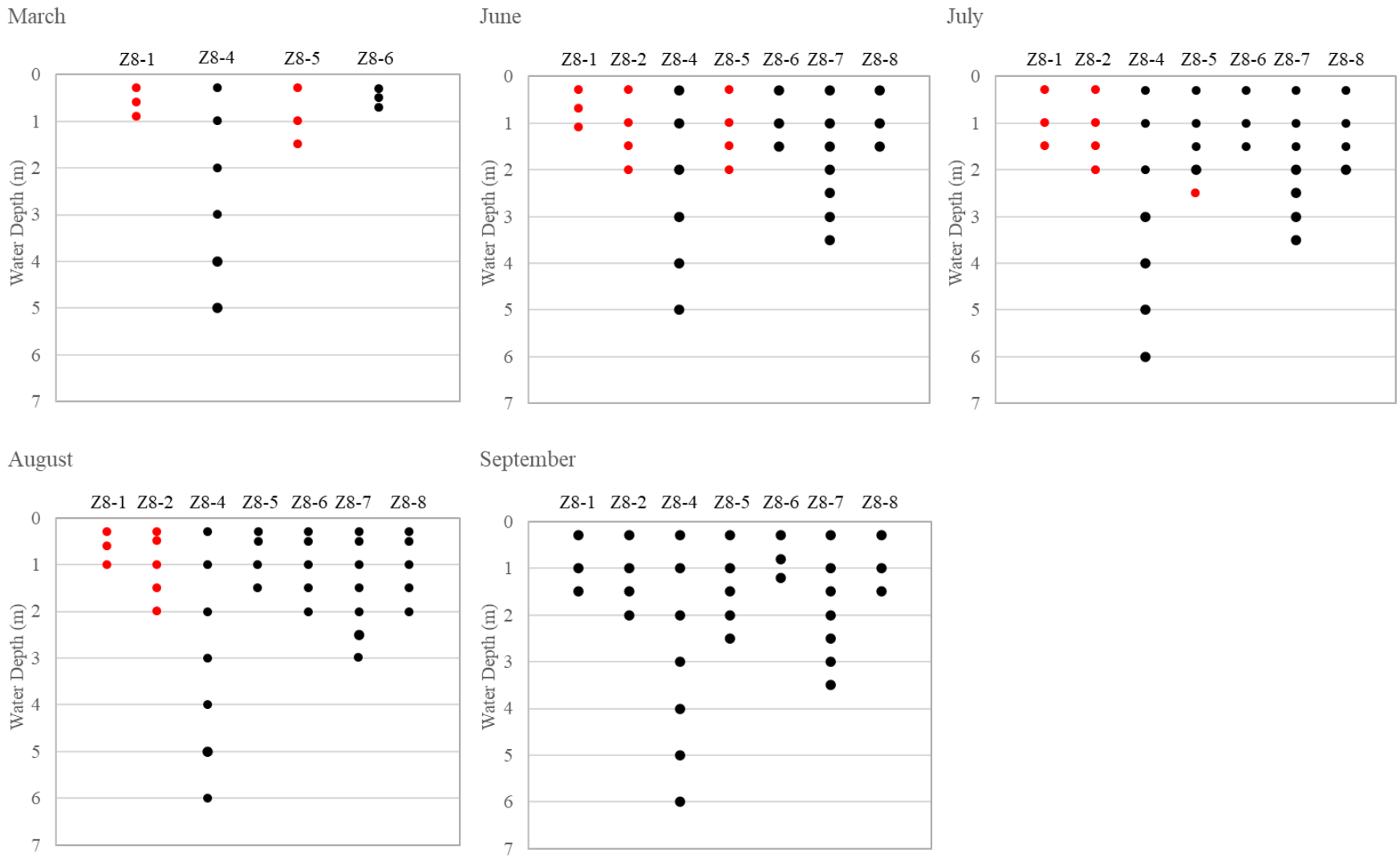


Figure 4: **Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 8 during the ice-cover (March) and open-water (June, July, August, and September) seasons, 2023. Red dots indicate readings below the benchmark.**

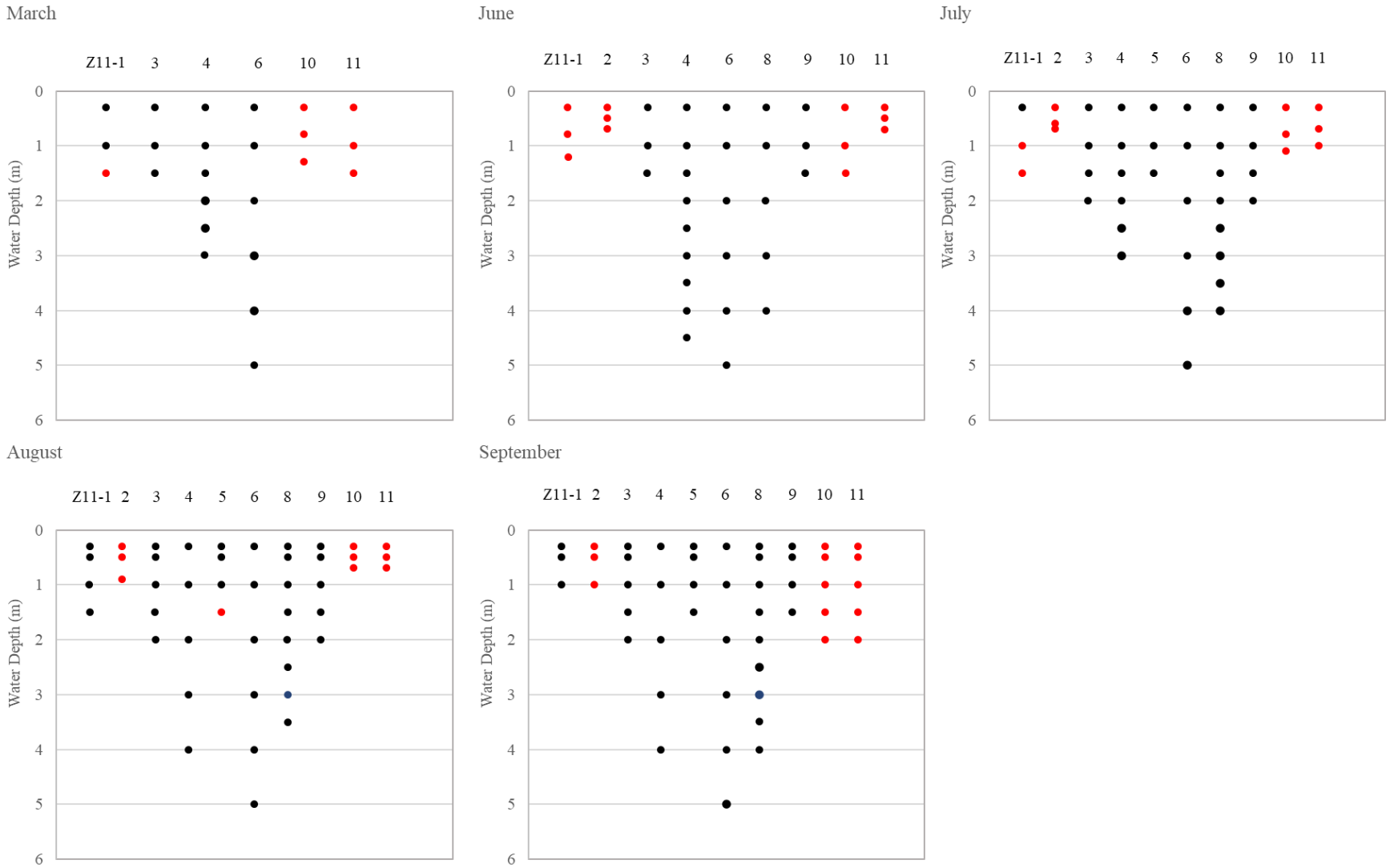


Figure 5: **Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 11 during the ice-cover (March) and open-water (June, July, August, and September) seasons, 2023. Red dots indicate readings below the benchmark.**

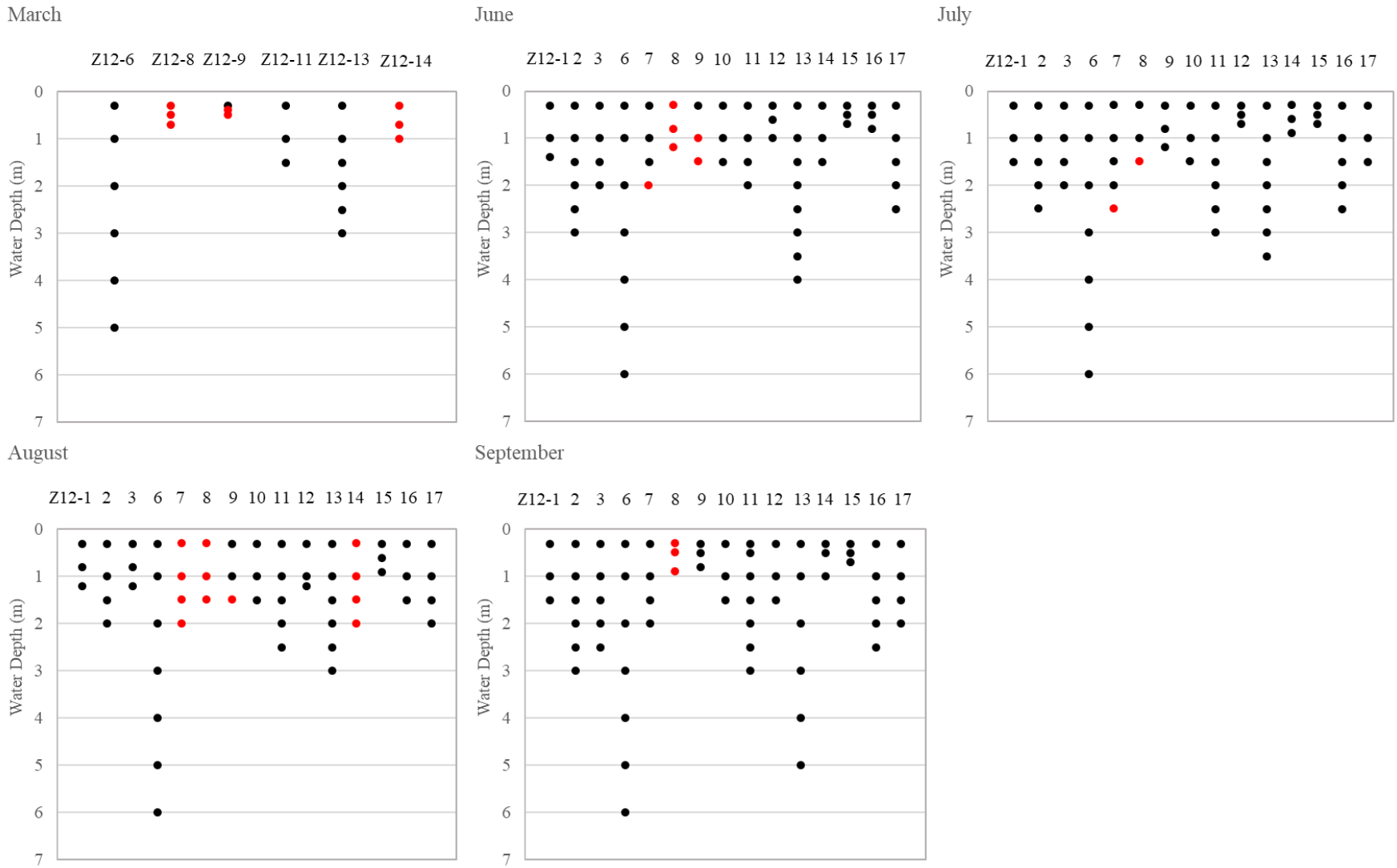
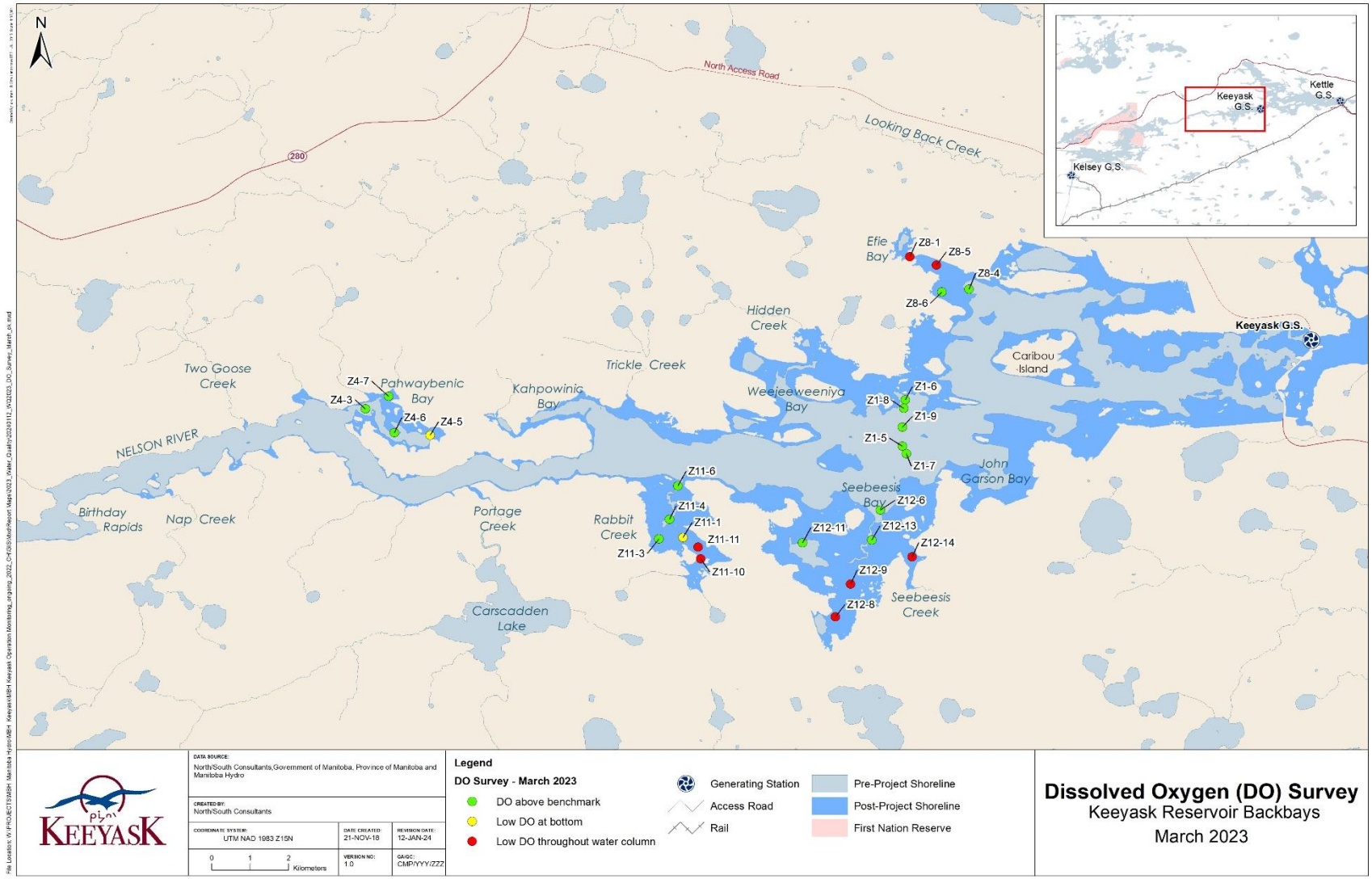
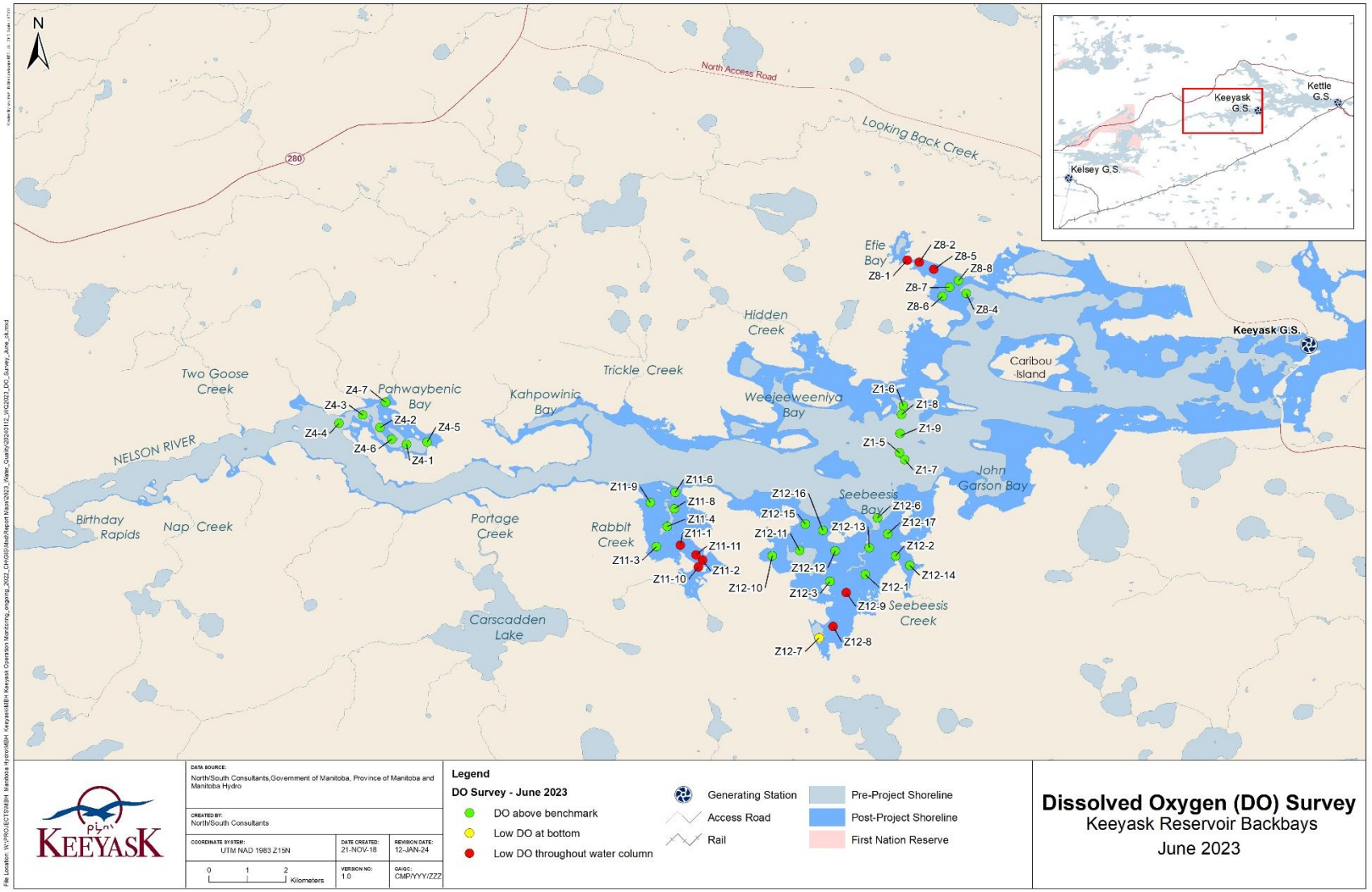


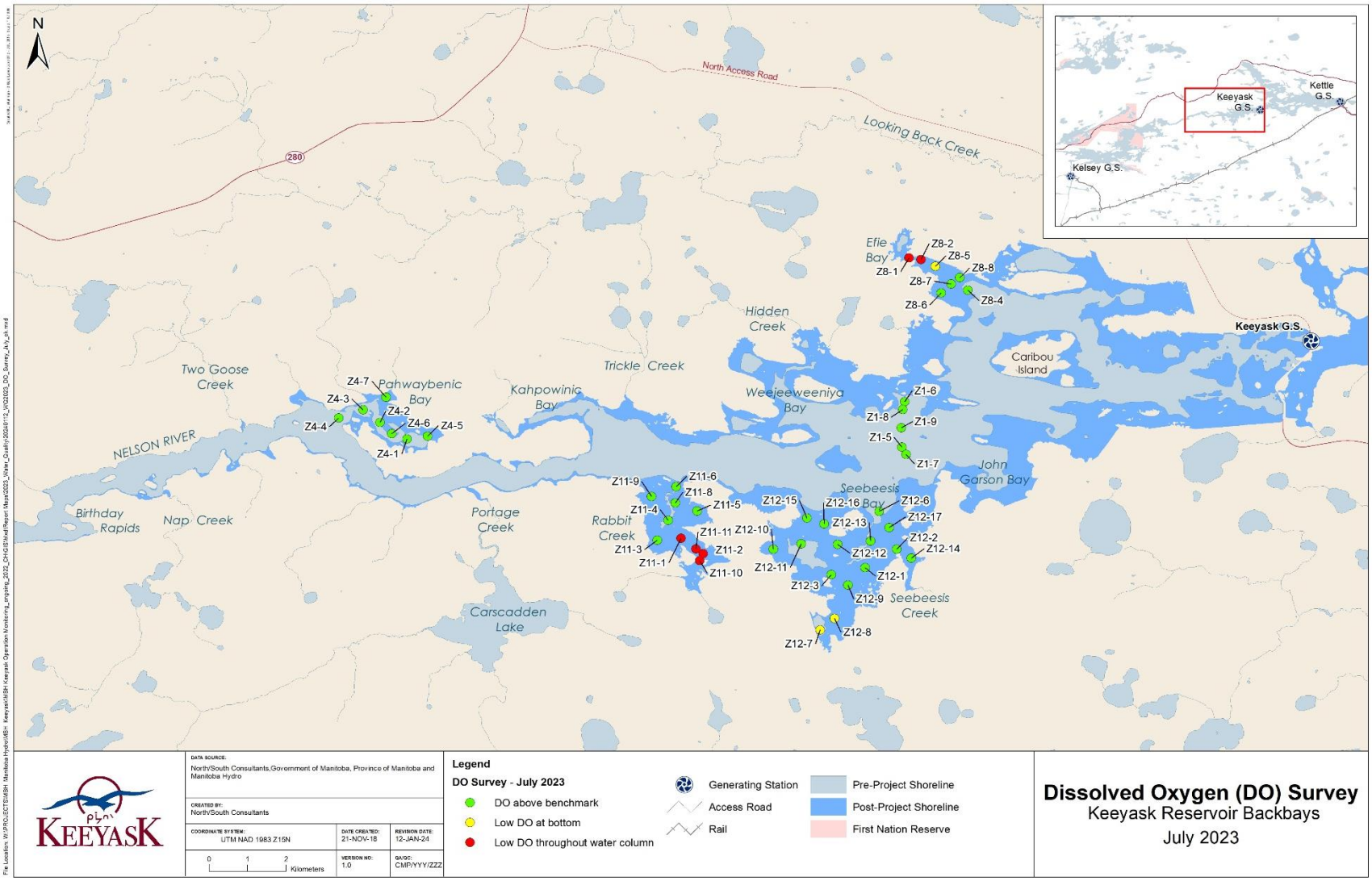
Figure 6: **Water depths of *in situ* dissolved oxygen measurements taken in the Keeyask reservoir backbay Zone 12 during the ice-cover (March) and open-water (June, July, August, and September) seasons, 2023. Red dots indicate readings below the benchmark.**



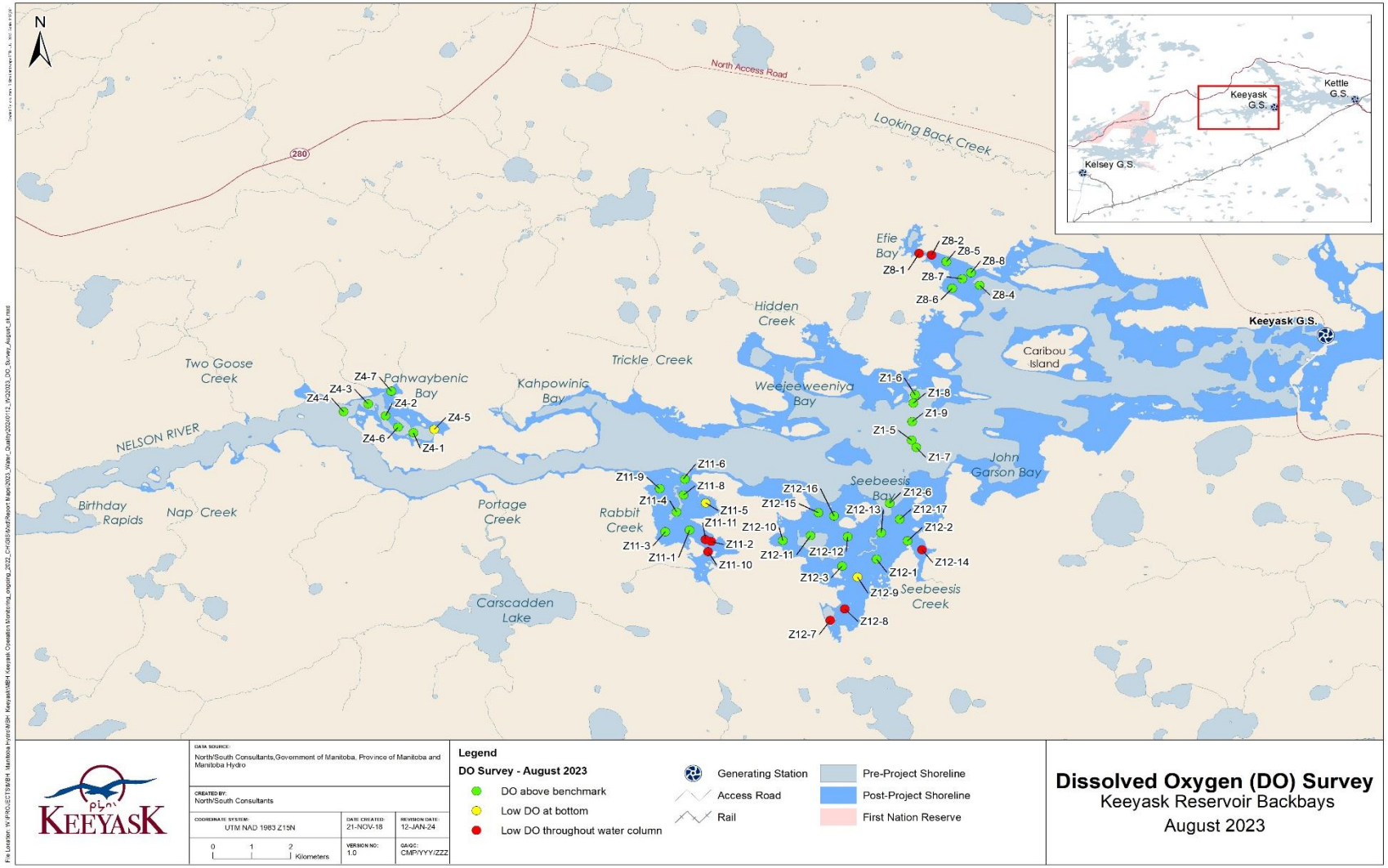
Map 10: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, March 2023.



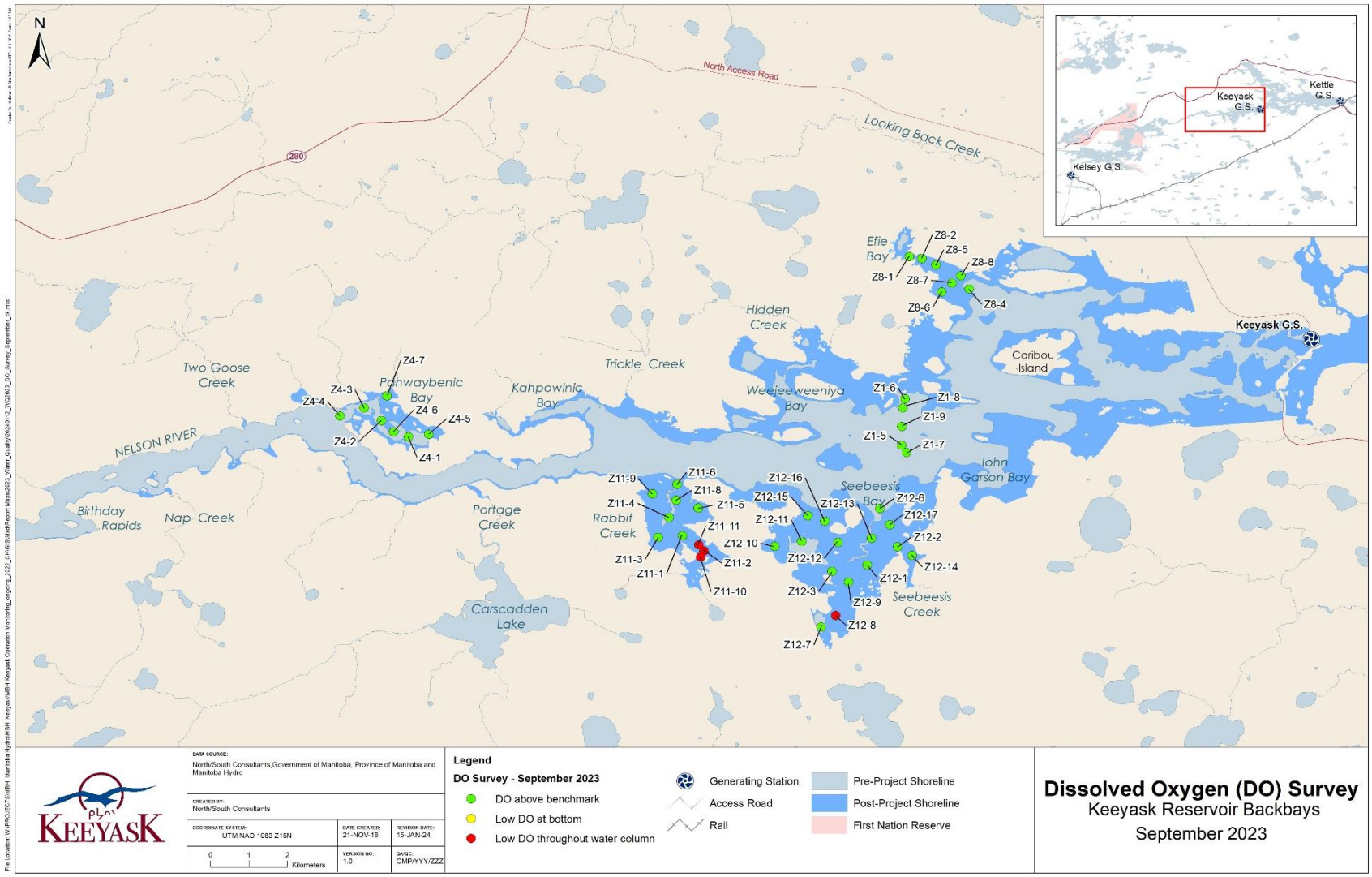
Map 11: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, June 2023.



Map 12: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, July 2023.



Map 13: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, August 2023.



Map 14: Locations sampled in the Keeyask reservoir mainstem and backbays showing the results of dissolved oxygen monitoring, September 2023.

Mean DO concentrations were above the benchmark in Zone 11 during all sampling periods except for June. Concentrations below the benchmark were observed at some sites during all sampling periods (Table A1-1; Figures 5 and A2-6; Maps 10–14). DO concentrations were below the benchmark throughout the water column at two sites in March (0.0–1.22 mg/L), four sites in June (2.96–6.02 mg/L), three sites in July (4.42–5.82 mg/L), three sites in August (3.88–5.46 mg/L), and three sites in September (3.12–4.19 mg/L). In addition, DO concentrations dropped below the benchmark part way down the water column at one additional site in March (3.15 mg/L), July (5.94–6.18 mg/L), and August (5.77 mg/L). DO concentrations were below the level reported to be acutely lethal to Northern Pike (0.75 mg/L; CCME 1999) throughout the water column at one site in March (0.0–0.13 mg/L). As observed in Zone 8, this site was located close to shore and farthest from the reservoir mainstem.

Mean DO concentrations were above the benchmark in Zone 12 during all sampling periods except for March. In Zone 12, DO concentrations were below the benchmark throughout the water column at a minimum of one site in all sampling periods except July (Table A1-1; Figures 6 and A2-6; Maps 10–14). DO was below the benchmark throughout the water column at two sites in March (0.0–0.25 mg/L), one site in June (5.69–6.44 mg/L), three sites in August (5.59–6.06 mg/L), and one site in September (6.18–6.24 mg/L). DO concentrations dropped below the benchmark part way down the water column at one additional site in March (6.47–6.50 mg/L), two sites in June (5.50–6.36 mg/L), two sites in July (3.19–3.95 mg/L), and one site in August (6.32 mg/L). DO concentrations were below the level reported to be acutely lethal to Northern Pike (0.75 mg/L; CCME 1999) throughout the water column at two sites in March (0.0–0.25 mg/L). As observed in Zones 8 and 11, these sites were located near the shore in areas of flooded terrestrial vegetation.

4.1.1.5 pH

Mean laboratory pH measurements collected in the reservoir mainstem (Zone 1b) and select backbays (zones 4, 8, 11, and 12) were within the benchmark value range of 6.5 to 9.0 pH units during all sampling periods (Table A1-1; Figure A2-7).

4.1.1.6 Metals

Mean concentrations of total aluminum, arsenic, boron, cadmium, chromium, copper, iron, lead, mercury, methylmercury, molybdenum, nickel, selenium, silver, thallium, uranium, and zinc measured in the reservoir mainstem (Zone 1b) and select backbays (zones 4, 8, 11, and 12) were within benchmark values during all five sampling events in 2023 (Table A1-1; Figures A2-8–A2-24). Exceedances of benchmarks occurred for three metals (cadmium, copper, and iron) in individual samples collected in the backbays and/or the reservoir mainstem.

In March, the concentration of cadmium exceeded the benchmark of 0.000294 mg/L at the bottom of the water column at one individual site (Z11-1: 0.00134 mg/L) in Zone 11 (Figure A2-11). One

exceedance of the benchmark was also observed at a single station in Zone 11 (Z11-11) in 2022 (Dowd and Hrenchuk 2023).

Mean concentrations of copper were below the benchmark of 0.0094 mg/L in all zones during all sampling periods, however, the site-specific benchmark (0.0132 mg/L) was exceeded at one site in the mainstem (Z1-6: 0.0124 mg/L) (Figure A2-13). As per the discussion about cadmium, this is reflective of the underlying geology and its effect on water quality.

The benchmark for iron (1.45 mg/L) was exceeded at two individual sites in March; one in Zone 8 (Z8-1: 2.11 mg/L), and one in Zone 12 (Z12-14: 1.93 mg/L) (Figure A2-14). Further, although below the benchmark, mean concentrations of iron in March were significantly higher in Zone 8, Zone 11, and Zone 12 than in Zone 4 or the reservoir mainstem.

4.1.2 ADDITIONAL PARAMETERS

Results for parameters measured in the Keeyask reservoir mainstem and backbays that are not key indicators (Table A1-2) are presented as follows: dissolved phosphorus (Figure A2-25), total nitrogen (Figure A2-26), dissolved organic carbon (DOC; Figure A2-27), true colour (Figure A2-28), *in situ* and laboratory turbidity (Figure A2-29), *in situ* and laboratory specific conductance (Figure A2-30), total dissolved solids (Figure A2-31), hardness (Figure A2-32), and major ions (chloride, sulfate, calcium, magnesium, potassium, and sodium; Figures A2-33–38).

Dissolved organic carbon and true colour were higher in Zone 8, Zone 11, and Zone 12 than in Zone 4 or the mainstem (Zone 1b) in all sampling periods in 2023 except June, when true colour in Zone 4 was marginally higher than in Zone 12 (Table A1-2; Figures A2-27 and A2-28). During each sampling event, means for each of the sampling zones were largely driven by elevated values at individual sites; one in Zone 8 (Z8-1), two in Zone 11 (Z11-10 and Z11-11), and two in Zone 12 (Z12-8 and Z12-14), all of which are located farthest from the Nelson River mainstem and nearshore.

In all open-water sampling periods (June, July, August, and September), turbidity was lower in Zone 4, Zone 8, and Zone 11 than in the mainstem (Zone 1b) or Zone 12, though only marginally in August and September (Figure A2-29). In all flooded backbays, turbidity was consistently lower at individual sites located farthest from the Nelson River mainstem.

4.2 LOCAL AND REGIONAL STUDY AREAS

4.2.1 KEY INDICATORS

4.2.1.1 NUTRIENTS

Mean ammonia and nitrate/nitrite concentrations measured in Split Lake (ice-cover), Clark Lake (open-water), the upstream, near-field, and far-field areas of the LSA and individual measurements from sites in the RSA were within the benchmark values during each of the sampling events in March, June, July, August, and September (Tables A1-3 and A1-4; Figures A3-1–A3-4).

Mean total phosphorus (TP) was above the benchmark of 0.058 mg/L in the area upstream of the Keeyask GS in March (0.0601 mg/L) (Table A1-3; Figure A3-5), but did not differ significantly from areas upstream (Split Lake) or downstream (near-field, or far-field areas in Stephens Lake) of the Keeyask reservoir (means exceeded 0.0537 mg/L in each of these areas). Individual measurements of TP at the Kettle GS approached the benchmark (0.0571 mg/L), measurements at the Long Spruce GS (LNR-3) were at benchmark (0.0580 mg/L), and measurements at the Limestone GS (LNR-4) were slightly above benchmark (0.0593 m/L) in March. Mean TP concentrations for all other LSA sampling areas as well as for individual measurements from sites in the RSA were below the benchmark during all other sampling events in 2023 (Table A1-4; Figure A3-6).

4.2.1.2 CHLOROPHYLL *a*

Mean chlorophyll *a* concentrations measured in all sampling areas of the LSA and individual measurements from sites in the RSA were below the benchmark of 10.00 µg/L in all sampling periods (Tables A1-3 and A1-4; Figures A3-7 and A3-8).

4.2.1.3 TOTAL SUSPENDED SOLIDS

Mean TSS concentrations measured in all sampling areas of the LSA and individual measurements from sites in the RSA were below both the chronic and short-term benchmark values (defined as a 5 and 25 mg/L increase above background, calculated from measurements at Clark Lake during open-water sampling and Split Lake during ice-cover sampling) in all sampling periods (Tables A1-3 and A1-4; Figures A3-9 and A3-10).

4.2.1.4 DISSOLVED OXYGEN

Mean DO concentrations measured in all sampling areas in the LSA and individual measurements from sites in the RSA were higher than the benchmark values (>9.5 mg/L during ice cover (March) and >6.5 mg/L in the open water period) during all five sampling events (Tables A1-3 and A1-4; Figures A3-11 and A3-12). Although slight variations in DO concentrations were observed across water depth during some sampling periods, all sites in both study areas were well-oxygenated, with DO saturation generally exceeding 90%. All measurements collected across the water column at every site and sampling period exceeded the DO benchmarks.

4.2.1.5 PH

Mean laboratory pH measurements collected in all sampling areas of the LSA and individual measurements from sites in the RSA were within the benchmark value range (6.5 to 9.0 pH units) during all sampling periods (Tables A1-3 and A1-4; Figures A3-13 and A3-14).

4.2.1.6 METALS

Mean concentrations of total aluminum, arsenic, boron, cadmium, chromium, iron, lead, mercury, methylmercury, molybdenum, nickel, selenium, silver, thallium, uranium, and zinc measured in each of the LSA and RSA sampling areas were within benchmark values during each sampling event in 2023 (Tables A1-3 and A1-4; Figures A3-15–A3-48).

Mean concentration of copper measured above the benchmark of 0.0094 mg/L in Split Lake in March 2023 (0.0106 mg/L; Table A1-3; Figure A3-26) and was significantly higher than the mean values measured in the area upstream of the Keeyask GS, the near-field area, and the far-field area. The exceedance was a result of two individual samples (SPL-10: 0.0155 mg/L and SPL-11: 0.0199 mg/L) in which total copper concentrations were above the site-specific benchmarks. As Split Lake is only sampled during the winter, comparisons of these values to subsequent sampling periods were not possible. However, all other concentrations of copper in the LSA and individual concentrations in the RSA were below site-specific benchmarks in 2023.

4.2.2 ADDITIONAL PARAMETERS

Results for additional parameters measured in the LSA and RSA (Tables A1-5 and A1-6) are presented as follows: dissolved phosphorus (Figures A3-49 and A3-50), total nitrogen (Figures A3-51 and A3-52), dissolved organic carbon (Figures A3-53 and A3-54), true colour (Figures A3-55 and A3-56), *in situ* and laboratory turbidity (Figures A3-57 and A3-58), *in situ* and laboratory specific conductance (Figures A3-59 and A3-60), total dissolved solids (Figures A3-61 and A3-62), hardness (Figures A3-63 and A3-64), and major ions (chloride, sulfate, calcium, magnesium, potassium, and sodium; Figures A3-65–A3-76).

In March, a true colour measurement of 235 TCU in the near-field area in Stephens Lake (site NF-4) was identified as an outlier. During this sampling period, no other true colour value at any LSA site exceeded 17.4 TCU, and true colour at this site did not exceed 17.2 TCU during any other sampling period. The second highest true colour value measured at any site during any sampling period in 2023 was 88.7 TCU (in backbay Zone 8 in March). For these reasons, this result is considered suspect and was excluded from figures and mean calculations.

5.0 DISCUSSION

Water quality monitoring was conducted in 2023 to determine if the Project contributed to exceedances of water quality benchmarks, to determine the magnitude and spatial extent of these effects, to confirm predictions made in the EIS, to determine if there are seasonal differences in water quality, and to examine changes in water quality over time.

Water quality monitoring was conducted within three general areas: i) in four flooded backbays and one mainstem site within the Keeyask reservoir; ii) the local study area (Split Lake or Clark Lake, the area of the Nelson River upstream of the Keeyask GS, and near-field and far-field areas of Stephens Lake); and iii) the regional study area (from Stephens Lake to the Nelson River estuary). The discussion below highlights key results of water quality monitoring conducted during the 2023 sampling period.

5.1 RESERVOIR BACKBAYS

It was predicted in the EIS that impacts to water quality would be greatest in flooded backbays in the Keeyask reservoir, with small changes expected along the main flow of the Nelson River (in the reservoir and downstream from the GS). Flooded backbays were expected to experience reduced DO concentrations (notably in winter under ice cover), lower pH, reduced water clarity, and increased concentrations of nutrients, colour, TSS/turbidity, total dissolved solids (TDS)/conductivity, organic carbon, and metals. These effects were expected to be greatest during the initial years after impoundment and decline notably thereafter, stabilizing within ten to fifteen years. The results of the 2023 monitoring program were generally consistent with the EIS predictions.

It was predicted that reservoir impoundment would lead to elevated levels of TP in the flooded backbays. Increased levels of nutrients can result from flooding of terrestrial habitat and subsequent decomposition of organic matter. Typically, the largest increases in nutrients are seen in shallow areas over flooded terrestrial habitat where long water residence times allow certain parameters, including nutrients, to accumulate. As predicted, in March 2023, concentrations of TP approached or exceeded the benchmark of 0.058 mg/Lin each of the four flooded backbays and at the mainstem site. TP remained above the benchmark at two of the backbays in June. Although the benchmark was not exceeded in July, August, or September in any of the sampling zones, TP was higher in backbays relative to the mainstem and upstream areas and in general, TP concentrations were higher at shallow, more isolated nearshore sites within the backbays. Because these sites undergo less mixing than sites closer to the mainstem and are located close to shore over flooded terrestrial vegetation, higher levels of TP at these sites was consistent with EIS predictions.

Phytoplankton abundance is primarily affected by concentrations of key nutrients (nitrogen and phosphorus), water temperature, and light, and increases in TP may lead to increased algal

abundance. Chlorophyll *a* concentrations were higher in the four backbays than the mainstem of the reservoir or upstream in Split/Clark lakes during each monitoring period in 2023. Chlorophyll *a* concentrations were higher in the open-water than the ice-cover season and exceedances of the benchmark occurred in two zones (zones 4 and 12) in July. Higher concentrations of chlorophyll *a* in backbays relative to the mainstem of the reservoir and upstream reference area may have been a result of elevated nutrient concentrations (notably phosphorus) and/or changes in light conditions (*e.g.*, lower turbidity).

In all sampling periods, dissolved organic carbon (DOC) and true colour were higher in Zone 8, Zone 11, and Zone 12 than in the reservoir mainstem (Zone 1b). True colour increases with the content of humic and fulvic acids, which are typically high in peatland drainages, such as those found within the flooded backbays. DOC increases as organic (such as peat) matter breaks down and is typically positively correlated with true colour (it increases as true colour increases). It was predicted in the EIS that both true colour and DOC would increase in backbays where peatlands were flooded.

Reduced dissolved oxygen (DO) concentrations within flooded reservoir backbays was predicted in the EIS. Reductions in DO were predicted to relate to the breakdown of flooded organic matter combined with poor mixing and long water residence times. Effects were predicted to be greatest in winter due the presence of ice cover which prevents atmospheric reaeration and limits mixing. Project effects on DO were predicted to be greatest during the initial years after impoundment when the amount of newly flooded terrestrial material is at a maximum. The results of the 2023 water quality monitoring program were consistent with the EIS predictions; lower DO concentrations were observed in the reservoir backbays than the mainstem of the lower Nelson River, including the mainstem of the reservoir and effects were greatest in winter.

In March, DO concentrations below the benchmark (9.5 mg/L) were observed at individual sites in all four backbays, but to a lesser extent in Zone 4 than the others. Zone 4 is the farthest upstream of the four backbays and contains the least amount of flooded terrestrial habitat. In March 2023, anoxic or near-zero concentrations were observed throughout the entire water column at one site in Zone 8, two sites in Zone 11, and two sites in Zone 12. In winter 2021, anoxic conditions were observed at two sites in Zone 8 (Hrenchuk 2022), while no anoxic conditions were observed in winter 2022 (Dowd and Hrenchuk 2023).

The benchmark for DO for the ice-cover period is the most stringent Manitoba water quality objective (9.5 mg/L) for the protection of early life stages (*i.e.*, incubating larvae or eggs) of cold-water species. The benchmark is conservative as no overwintering eggs (*i.e.*, Lake Whitefish or Cisco) are expected to be present within the reservoir backbays (Morrison and Hrenchuk 2024). However, in several backbays during the winter, DO measured below concentrations found to be acutely lethal to Northern Pike (0.75 mg/L; CCME 1999), a low DO tolerant species, as was seen in 2021 and 2022. In all zones, concentrations of DO were lowest at the sites located closest to shore and farthest from the reservoir mainstem, and anoxic conditions were observed at some sites.

During the open-water season (June–September), DO concentrations were below the benchmark of 6.5 mg/L at several sites in each of the flooded backbays. In general, the lowest concentrations were observed near the bottom of the water column where oxygen consumption is greatest. DO concentrations below the benchmark were observed near the bottom at a single site in Zone 4 in August and near the bottom or throughout the water column in at least two sites in zones 8, 11, and 12 between June and August. Near anoxic conditions (0.17 mg/L) were observed at the bottom of the water column at one site in Zone 8 in June. Anoxic conditions were also observed at the same site in Zone 8 August 2022 (Dowd and Hrenchuk 2023). By September, the majority of sites had DO concentrations above benchmark, with only three sites in Zone 11 and one site in Zone 12 measuring below benchmark throughout the water column.

It was predicted in the EIS that areas of the Keeyask reservoir that displayed low oxygen levels in winter may exhibit higher concentrations of manganese and iron as these metals become soluble and are released from sediments under low oxygen conditions. Although mean iron concentrations remained below the benchmark of 1.45 mg/L in March, concentrations at one site in Zone 8 and one site in Zone 12 exceeded the benchmark; these occurrences coincided with near-anoxic conditions. Additionally, iron concentrations in zones 8, 11, and 12, although below the benchmark, were higher than concentrations measured in the mainstem of the reservoir or upstream in March. Levels of manganese measured well below benchmark in all backbays in all sampling period.

Generally, higher concentrations of metals in backbays were only observed for manganese, methylmercury, and total mercury. Increases in total mercury concentrations and, notably, increased fractions of methylmercury as a result of flooding of terrestrial habitat were predicted in the EIS. Mean mercury concentrations remained below the benchmark of 26 ng/L at all backbay sites during all sampling periods, as predicted. Methylmercury concentrations were lower than the benchmark of 4 ng/L at all individual sampling sites in each flooded backbay during all sampling periods. This differs from 2022 when methylmercury concentrations exceeded the benchmark at several sites in March and August. These sites were located farthest from the Nelson River mainstem in poorly mixed areas over flooded terrestrial habitat with low dissolved oxygen levels. Though both mean total and methylmercury concentrations were within the benchmarks in all the backbays and each monitoring period in 2023, both were higher in the backbays than the mainstem of lower Nelson River upstream, within, and downstream of the Keeyask GS.

Although mean concentrations of copper were below the benchmark in all zones and sampling periods, two individual sites in March, one in the mainstem and one in Zone 4, had concentrations above the benchmark of 0.0094 mg/L. Similarly, elevated concentrations of cadmium were observed in 2022 and 2023 in a single backbay (Zone 11) (Hrenchuk and Dowd 2023). Further, copper measured above the benchmark in the upstream reference area (*i.e.,* Split Lake) in March. Copper and cadmium are naturally occurring elements and some areas contain elevated concentrations in underlying rock. Pre-project studies completed for the EIS identified several trace elements, including copper and cadmium, that occasionally exceeded the water quality benchmarks, so the results found so far are not surprising. Elevated copper or cadmium concentrations were not found at any other site or during any other sampling period.

5.2 LOCAL AND REGIONAL STUDY AREAS

It was predicted in the EIS that few and small-scale changes in water quality would occur along the main flow of the Nelson River, either upstream of the GS in the Keeyask reservoir or downstream of the GS in Stephens Lake. The primary effect on water quality along the main flow of the river was predicted to be reductions in TSS concentrations in the reservoir and for several kilometres downstream in Stephens Lake in the long-term. Variables that are correlated to TSS, such as total phosphorus (TP) and some metals, were predicted to slightly decrease in these areas in association with the deposition of suspended solids.

With the exception of TP in March, the mean and individual concentrations of all key indicators measured along the mainstem of the lower Nelson River in the LSA and RSA were within the benchmarks during the ice-cover and open-water sampling periods in 2023.

During the March sampling period, mean TP marginally exceeded the benchmark in the LSA upstream of the Keeyask GS, and was elevated, albeit below benchmark, in Split Lake, and both the near-field and far-field areas of Stephens Lake. However, statistical comparisons indicated that there was no significant differences between the concentrations measured at the upstream area compared to the other three sampling locations within the LSA. Within the RSA, TP approached benchmark at the Kettle and Long Spruce GSs and exceeded the benchmark at the Limestone GS during the same sampling period. Similar results were seen in the LSA in March 2021 (Hrenchuk 2022). As in 2021, by June, TP measured well below the benchmark in all sampling areas throughout the LSA and RSA and no further exceedances were observed. Because high TP was also observed in Split Lake it is unlikely that the observed exceedances are Project-related. Overall, there was no prolonged increase in TP in the LSA or RSA in 2023.

6.0 SUMMARY AND CONCLUSIONS

Key questions addressed through water quality monitoring during Keeyask GS operation are:

- *Does Project operation cause or contribute to exceedances of water quality objectives or guidelines for the protection of aquatic life?*
- *What are the magnitude and spatial extent of effects of operation on water quality?*
- *Are changes in water quality consistent with predictions in the AE SV?*
- *Are there seasonal differences in effects on water quality?*
- *How does water quality vary over time?*

It was predicted in the EIS that impacts to water quality would be greatest in flooded backbays in the Keeyask reservoir, with small changes expected along the main flow of the Nelson River (in the Keeyask reservoir and downstream from the GS). Flooded backbays were expected to experience reduced DO concentrations (notably in winter under ice cover), lower pH, reduced water clarity, and increased concentrations of nutrients, colour, TSS/turbidity, total dissolved solids (TDS)/conductivity, organic carbon, and metals. These effects were expected to be greatest during the initial years after impoundment of the reservoir to the full supply level (FSL) and decline notably thereafter, stabilizing within ten to fifteen years.

Monitoring in 2023 indicated that, as predicted in the EIS, changes in water quality parameters were generally greater in the flooded backbays than in the mainstem of the Keeyask reservoir. The changes to water quality were greatest in Zone 8, Zone 11, and Zone 12 where flooding of terrestrial vegetation was most extensive. Zone 4 is the farthest upstream site, located in the middle Keeyask reservoir, and contains less flooded terrestrial habitat than the remaining three backbays. Within the Keeyask reservoir backbays:

- Elevated levels of TP that approached or exceeded the benchmark of 0.058 mg/L were observed in each of the four backbays and in the mainstem site in March. This is expected as water is poorly mixed under the ice surface. TP remained above benchmark at two backbay sites in June. Although no sites exceeded the benchmark in July, August, or September, high TP at the individual sites located farthest from the mainstem contributed to elevated concentrations across all backbays that remained relatively consistent through each sampling period. Elevated levels of TP in the backbays following reservoir impoundment was predicted in the EIS. Flooding of terrestrial habitat and the resulting decomposition of flooded organic materials can increase levels of nutrients including phosphorus.
- Mean chlorophyll *a* concentrations were above the benchmark of 10.00 µg/L in two backbays during sampling in July only, however, statistically significant differences were seen between the reservoir mainstem and two backbays each during August and September. Increases in chlorophyll *a* concentrations in the backbays may be related to increases in nutrients (*i.e.*, phosphorus) leading to increased algal production.

- Concentrations of dissolved organic carbon (DOC) and true colour were higher in Zone 8, Zone 11, and Zone 12 than in the mainstem (Zone 1b) during all sampling periods. Both true colour and DOC were expected to increase in backbays where peatlands were flooded as the vegetation breaks down and releases its organic components.
- Mean concentrations of copper were below the benchmark in all zones and sampling periods, however, two individual sites in March had concentrations above the benchmark of 0.0094 mg/L. Elevated copper concentrations were also observed in the upstream reference site (*i.e.*, Split Lake) in March. Elevated copper concentrations were not measured at any other site or during any other sampling period. Copper enters the water through the weathering of rocks and soils and the benchmark was exceeded on occasion prior to the project, so exceedances are attributed to the geology in the area more than the Project.
- Elevated concentrations of cadmium were observed in both 2022 and 2023 in a single backbay (Zone 11). Similar to copper, cadmium naturally occurs in the underlying rock in the area and also exceeded the water quality benchmark on occasion, prior to the project. Therefore, it is likely the elevated concentrations are due to existing substrates rather than the Project. Cadmium concentrations did not approach or exceed benchmark at any site in any other sampling period.
- Reduced dissolved oxygen (DO) concentrations within flooded reservoir backbays were predicted in the EIS caused by breakdown of organic matter combined with poor mixing, long residence times for water, and being cut off from the atmosphere by overlying ice during the winter months. Dissolved oxygen levels were low at several sites in each reservoir backbay during most sampling periods, and measured or approached zero at several sites during March. Most measurements showing low DO were observed at the bottom of the water column. In June 2023, ten sites showed DO levels below benchmark throughout or at the bottom of the water column. By September, this number decreased to four sites.
- It was predicted in the EIS that areas of the Keeyask reservoir that displayed low oxygen levels in winter may exhibit higher concentrations of manganese and iron relative to the open-water season as these metals become soluble and are released from sediments under low oxygen conditions. Mean iron concentrations remained below benchmark at all sites, but approached benchmark at several backbay sites in March. No elevated levels of manganese were observed.
- Mean mercury and methylmercury concentrations were lower than the benchmarks at all individual sampling sites in each flooded backbay during all sampling periods. Mercury and methylmercury concentrations were expected to increase post-impoundment as flooding typically increases the fraction of methylmercury in water.

It was predicted in the EIS that small and few changes in water quality would occur along the main flow of the Nelson River, either upstream of the GS in the Keeyask reservoir or downstream of the GS. The primary effect on water quality along the main flow of the river was predicted to be

reductions in TSS concentrations in the reservoir and for several kilometres downstream in Stephens Lake in the long-term. Some variables that are correlated to TSS, such as total phosphorus (TP) and some metals, were predicted to slightly decrease in these areas in association with the deposition of suspended solids. Within the local and regional study areas in 2023:

- In March, total phosphorous (TP) exceeded the benchmark in the area immediately upstream of the Keeyask GS and was elevated, but below benchmark, in Split Lake, and the near-field and far-field areas of Stephens Lake. Within the RSA, TP approached benchmark at the Kettle and Long Spruce GSs and exceeded the benchmark at the Limestone GS during the same sampling period. By June, these values were all well below the benchmark. High TP in Split Lake suggests that the observed exceedances are not Project-related. Overall, there was no prolonged increase in TP in the LSA or RSA in 2023.
- During the March sampling period, true colour was measured to be 235 CU in Stephens Lake at a single site in the near-field sampling area. No other true colour value came close to this number, either in the near-field area during subsequent sampling periods or at any other sampling area throughout the entire 2023 program. Elevated true colour values are typical of peatland drainages and were expected to occur in the flooded backbays, not the mainstem of the river. As a result, this value was considered suspect.

Water quality monitoring will continue in 2024 using the same parameters and at the same LSA and backbay locations in March, June, July, August, and September. As no large-scale changes to water quality have been observed within the RSA in the first three years following impoundment of the Keeyask reservoir, sampling will not be conducted in this area in 2024, as per the AEMP.

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APPENDICES

APPENDIX 1:
TABLES OF WATER QUALITY PARAMETERS MEASURED IN THE KEEYASK RESERVOIR BACKBAYS, THE LOCAL STUDY AREA, AND THE REGIONAL STUDY AREA, 2023

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2023. Values in bold exceeded benchmark.

Indicator	Unit	Benchmark[1]	March				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	2.98	0.006	0.008	0.086	0.054	0.268
Nitrate/ Nitrite	(mg N/L)	2.93	0.171	0.169	0.126	0.129	0.118
Total Phosphorous	(mg/L)	0.058	**0.0585**	0.0522	**0.117**	**0.0912**	**0.0933**
Chlorophyll *a*	(µg/L)	10.0	0.29	0.37	0.87	0.38	0.48
Total Suspended Solids	(mg/L)	8.1/28.1[2]	1.8	<1.0	3.8	1.9	2.4
Laboratory pH	-	6.5-9.0	7.79	7.85	7.54	7.61	7.57
Dissolved Oxygen	(mg/L)	9.5[3]	14.51	14.46	**8.58**	9.81	**8.28**
Aluminum	(mg/L)	1.98	0.469	0.454	0.308	0.341	0.254
Arsenic	(mg/L)	0.150	0.00128	0.00128	0.00135	0.00132	0.00128
Boron	(mg/L)	1.5	0.022	0.020	0.019	0.021	0.019
Cadmium	(mg/L)	0.000294	0.0000077	<0.0000050	0.0000068	0.000107	0.0000117
Chromium	(mg/L)	0.095	0.00098	0.00085	0.00109	0.00055	0.00050
Copper	(mg/L)	0.0132	0.00557	0.00459	0.00459	0.00316	0.00315
Iron	(mg/L)	1.45	0.433	0.421	0.832	0.474	0.643
Lead	(mg/L)	0.0037	0.000192	0.000168	0.000150	0.000153	0.000162
Mercury	(ng/L)	26	0.86	0.64	1.05	2.77	6.10
Methylmercury	(ng/L)	4	0.022	0.032	0.21	0.17	0.47
Molybdenum	(mg/L)	0.073	0.000544	0.00056	0.000445	0.000508	0.000456
Nickel	(mg/L)	0.0608	0.00132	0.00136	0.00123	0.00125	0.00101
Selenium	(mg/L)	0.0010	0.000136	0.000148	0.000102	0.000144	0.000164
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000698	0.00062	0.00050	0.000576	0.000503
Zinc	(mg/L)	0.132	<0.0030	<0.0030	<0.0030	<0.0030	0.0031

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (i.e., background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2023 (continued).

Indicator	Unit	Benchmark[1]	June				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	1.94	0.031	0.018	0.019	0.018	0.012
Nitrate/ Nitrite	(mg N/L)	2.93	0.0193	<0.0051	0.0068	0.0082	0.0056
Total Phosphorous	(mg/L)	0.058	0.0382	0.0418	**0.0599**	**0.0597**	0.0486
Chlorophyll *a*	(µg/L)	10.0	1.47	5.33	5.50	6.96	6.42
Total Suspended Solids	(mg/L)	7.7/27.7[2]	2.1	3.8	4.6	2.7	3.3
Laboratory pH	-	6.5-9.0	8.05	8.00	7.88	7.97	7.99
Dissolved Oxygen	(mg/L)	6.5[3]	8.32	8.30	6.93	**6.43**	8.20
Aluminum	(mg/L)	1.98	0.556	0.290	0.334	0.220	0.328
Arsenic	(mg/L)	0.150	0.00114	0.00105	0.00116	0.00110	0.00108
Boron	(mg/L)	1.5	0.017	0.022	0.013	0.015	0.016
Cadmium	(mg/L)	0.00026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.079	0.00099	0.00047	0.00062	0.00045	0.00076
Copper	(mg/L)	0.0109	0.00167	0.00125	0.00107	0.00088	0.00129
Iron	(mg/L)	1.45	0.499	0.278	0.409	0.311	0.343
Lead	(mg/L)	0.0028	0.000235	0.000122	0.000147	0.000091	0.000151
Mercury	(ng/L)	26	0.831	1.17	1.99	1.57	1.44
Methylmercury	(ng/L)	4	0.047	0.215	0.558	0.762	0.470
Molybdenum	(mg/L)	0.073	0.000472	0.000439	0.000372	0.000361	0.000426
Nickel	(mg/L)	0.048	0.00149	0.00105	0.00111	0.00092	0.00136
Selenium	(mg/L)	0.0010	0.000103	0.000098	0.000099	0.000101	0.000113
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000535	0.000373	0.000307	0.000248	0.000397
Zinc	(mg/L)	0.110	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark *(i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2023. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark[1]	July				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	1.54	0.028	0.011	0.015	0.011	0.012
Nitrate/ Nitrite	(mg N/L)	2.93	0.0331	0.0052	0.0145	0.0064	0.0078
Total Phosphorous	(mg/L)	0.058	0.0446	0.0532	0.0498	0.0502	0.0503
Chlorophyll *a*	(µg/L)	10.0	1.77	**13.7**	5.89	5.71	**11.9**
Total Suspended Solids	(mg/L)	6.7/26.7[2]	1.8	3.5	2.4	2.5	3.5
Laboratory pH	-	6.5-9.0	8.10	8.08	8.05	7.82	7.98
Dissolved Oxygen	(mg/L)	6.5[3]	8.32	9.00	6.99	7.55	8.63
Aluminum	(mg/L)	1.98	0.555	0.251	0.349	0.261	0.337
Arsenic	(mg/L)	0.150	0.00132	0.00116	0.00121	0.00112	0.00119
Boron	(mg/L)	1.5	0.018	0.016	0.017	0.014	0.015
Cadmium	(mg/L)	0.00025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.075	0.00083	0.00042	0.00052	0.00047	0.00055
Copper	(mg/L)	0.0108	0.00171	0.00123	0.00124	0.00096	0.00122
Iron	(mg/L)	1.45	0.465	0.214	0.326	0.295	0.313
Lead	(mg/L)	0.0027	0.000230	0.000089	0.000132	0.000110	0.000140
Mercury	(ng/L)	26	0.82	1.30	0.94	1.67	1.34
Methylmercury	(ng/L)	4	0.082	0.299	0.517	0.534	0.196
Molybdenum	(mg/L)	0.073	0.000435	0.000433	0.000405	0.000358	0.000403
Nickel	(mg/L)	0.047	0.00127	0.00093	0.00097	0.00086	0.00102
Selenium	(mg/L)	0.0010	0.000102	0.000109	0.000091	0.000092	0.000115
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	0.000032
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000442	0.000334	0.000314	0.000256	0.000329
Zinc	(mg/L)	0.109	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2023. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark[1]	August				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	1.54	0.022	0.029	0.025	0.016	0.021
Nitrate/ Nitrite	(mg N/L)	2.93	0.0392	0.0104	0.0467	0.0334	0.0173
Total Phosphorous	(mg/L)	0.058	0.0485	0.0578	0.0463	0.0516	0.0541
Chlorophyll *a*	(µg/L)	10.0	1.62	8.05	3.80	7.62	8.56
Total Suspended Solids	(mg/L)	6.9/26.9[2]	1.4	2.9	1.6	2.3	2.8
Laboratory pH	-	6.5-9.0	8.13	8.01	7.98	7.95	8.05
Dissolved Oxygen	(mg/L)	6.5[3]	8.51	7.95	6.96	6.94	7.67
Aluminum	(mg/L)	1.98	0.447	0.307	0.351	0.224	0.305
Arsenic	(mg/L)	0.150	0.00148	0.00133	0.00131	0.00119	0.00126
Boron	(mg/L)	1.5	0.016	0.018	0.018	0.013	0.011
Cadmium	(mg/L)	0.00024	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.077	0.00070	0.00046	0.00054	0.00034	0.00048
Copper	(mg/L)	0.0106	0.00168	0.00128	0.00119	0.00099	0.00117
Iron	(mg/L)	1.45	0.373	0.271	0.313	0.225	0.316
Lead	(mg/L)	0.0027	0.000189	0.000119	0.000129	0.000105	0.000133
Mercury	(ng/L)	26	0.59	0.96	1.10	1.10	1.23
Methylmercury	(ng/L)	4	0.039	0.262	0.215	0.437	0.416
Molybdenum	(mg/L)	0.073	0.000717	0.000400	0.000599	0.000437	0.000636
Nickel	(mg/L)	0.046	0.00127	0.00096	0.00098	0.00085	0.00094
Selenium	(mg/L)	0.0010	0.000111	0.000101	0.000093	0.000100	0.000119
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000503	0.000333	0.000357	0.000280	0.000313
Zinc	(mg/L)	0.106	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled. 2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-1: Benchmark and mean values of key water quality parameters measured in the Keeyask reservoir and backbays during the water quality monitoring program, 2023. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark[1]	September				
			Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Ammonia	(mg N/L)	3.31	0.012	0.010	0.016	0.028	0.014
Nitrate/ Nitrite	(mg N/L)	2.93	0.0410	0.0123	0.0339	0.0253	0.0246
Total Phosphorous	(mg/L)	0.058	0.0499	0.0517	0.0481	0.0497	0.0538
Chlorophyll *a*	(µg/L)	10.0	1.72	7.07	4.49	7.39	8.74
Total Suspended Solids	(mg/L)	6.4/26.4[2]	0.5	2.1	1.5	1.6	2.6
Laboratory pH	-	6.5-9.0	7.58	7.59	8.09	7.83	7.96
Dissolved Oxygen	(mg/L)	6.5[3]	9.19	9.28	8.41	7.16	8.54
Aluminum	(mg/L)	1.98	0.360	0.266	0.294	0.169	0.288
Arsenic	(mg/L)	0.150	0.00200	0.00137	0.00143	0.00119	0.00138
Boron	(mg/L)	1.5	0.020	0.021	0.016	0.016	0.016
Cadmium	(mg/L)	0.00026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.082	0.00060	0.00039	0.00043	0.00025	0.00048
Copper	(mg/L)	0.0113	0.00150	0.00132	0.00123	0.00090	0.00114
Iron	(mg/L)	1.45	0.291	0.213	0.239	0.178	0.245
Lead	(mg/L)	0.0029	0.000163	0.000102	0.000126	0.000077	0.000112
Mercury	(ng/L)	26	0.59	0.60	0.73	1.09	1.13
Methylmercury	(ng/L)	4	0.035	0.118	0.161	0.424	0.341
Molybdenum	(mg/L)	0.073	0.000538	0.000521	0.000674	0.000460	0.000531
Nickel	(mg/L)	0.049	0.00114	0.00095	0.00090	0.00066	0.00086
Selenium	(mg/L)	0.0010	0.000105	0.000106	0.000097	0.000093	0.000103
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000500	0.000412	0.000427	0.000276	0.000376
Zinc	(mg/L)	0.114	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Values indicated for calculated benchmarks (*i.e.*, ammonia and hardness dependent metals) are specific to sampling period and are calculated based on mean values for Split Lake (winter) and Clark Lake (open water) to ensure benchmark is derived from the area least affected by the Project.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2023.

Indicator	Unit	March					June				
		Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12	Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Dissolved Phosphorous	(mg/L)	0.0440	0.0448	0.0839	0.0688	0.0625	0.0223	0.0208	0.0490	0.0430	0.0333
Total Nitrogen	(mg/L)	0.61	0.62	0.80	0.66	0.90	0.43	0.47	0.59	0.66	0.54
Dissolved Organic Carbon	(mg/L)	8.65	8.64	11.3	10.2	11.4	10.2	9.91	12.7	14.1	11.0
In situ Turbidity	(NTU)	9.89	8.90	7.36	7.21	7.18	10.5	6.06	4.19	4.57	7.83
Laboratory Turbidity	(NTU)	10.2	8.93	8.98	8.00	7.79	11.1	6.11	6.82	4.61	8.08
In situ Specific Conductance	(µS/cm)	265	268	278	284	278	222	212	198	207	217
Laboratory Specific Conductance	(µS/cm)	268	268	288	291	279	223	211	198	207	222
Total Dissolved Solids	(mg/L)	169	161	175	169	162	145	123	125	127	132
True Color	(TCU)	16.0	14.3	34.1	20.8	25.6	15.2	26.0	34.9	39.5	25.9
In situ pH	-	7.77	7.73	7.24	7.41	7.24	7.94	7.82	7.52	7.51	7.81
Hardness as $CaCO_3$	(mg/L)	112	115	119	122	120	99	97	90	95	95
Chloride	(mg/L)	10.5	10.6	10.3	10.9	9.81	7.95	7.06	6.31	6.77	7.60
Sulfate	(mg/L)	27.6	27.8	24.0	26.8	23.5	20.9	17.5	14.5	14.9	18.5
Calcium	(mg/L)	25.7	26.2	27.5	27.8	27.9	23.0	23.3	21.2	22.8	22.1
Magnesium	(mg/L)	11.6	12.2	12.2	12.9	12.2	10.1	9.45	9.03	9.18	9.57
Potassium	(mg/L)	2.54	2.55	2.55	2.67	2.41	2.25	1.90	1.91	1.94	2.10
Sodium	(mg/L)	12.2	12.9	12.2	13.4	12.0	10.1	9.23	8.71	8.80	9.74

Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2023 (continued).

Indicator	Unit	July					August				
		Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12	Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Dissolved Phosphorous	(mg/L)	0.0289	0.0301	0.0298	0.0381	0.0266	0.0377	0.0382	0.0369	0.0379	0.0345
Total Nitrogen	(mg/L)	0.45	0.56	0.52	0.60	0.67	0.49	0.56	0.59	0.64	0.63
Dissolved Organic Carbon	(mg/L)	9.72	10.9	11.3	12.6	11.8	9.54	10.7	12.1	12.7	12.1
In situ Turbidity	(NTU)	9.85	5.79	5.87	5.64	7.68	8.00	5.44	5.75	4.97	6.51
Laboratory Turbidity	(NTU)	10.0	5.79	5.58	5.46	7.40	9.00	5.77	6.40	4.88	6.61
In situ Specific Conductance	(µS/cm)	201	207	201	203	203	208	211	202	203	202
Laboratory Specific Conductance	(µS/cm)	211	217	208	212	210	225	209	202	212	213
Total Dissolved Solids	(mg/L)	145	132	143	135	145	142	133	164	127	131
True Color	(TCU)	14.7	23.0	28.9	38.6	29.9	13.3	30.2	37.9	36.6	34.0
In situ pH	-	7.95	8.09	7.57	7.72	7.93	8.02	7.75	7.59	7.57	7.68
Hardness as $CaCO_3$	(mg/L)	89	91	90	89	97	92	93	91	90	87
Chloride	(mg/L)	7.47	7.42	7.28	7.07	7.41	7.88	7.04	6.70	6.97	7.03
Sulfate	(mg/L)	20.0	18.6	17.7	16.4	18.3	21.4	17.8	17.6	17.0	17.6
Calcium	(mg/L)	20.1	21.1	21.0	21.0	22.4	21.3	21.1	21.6	21.4	20.2
Magnesium	(mg/L)	9.54	9.37	9.20	8.92	9.90	9.47	9.87	8.97	8.80	8.86
Potassium	(mg/L)	2.08	1.96	1.96	1.87	2.00	2.11	2.22	1.87	1.96	1.98
Sodium	(mg/L)	8.86	8.50	8.65	8.09	9.11	9.09	9.39	8.00	8.34	8.49

Table A1-2: Mean values of additional parameters measured in the Keeyask reservoir mainstem and backbays during the water quality monitoring program, 2023 (continued).

Indicator	Unit	September				
		Zone 1b	Zone 4	Zone 8	Zone 11	Zone 12
Dissolved Phosphorous	(mg/L)	0.0430	0.0401	0.0355	0.0359	0.0374
Total Nitrogen	(mg/L)	0.45	0.55	0.34	0.61	0.55
Dissolved Organic Carbon	(mg/L)	9.10	9.66	10.3	12.4	11.2
In situ Turbidity	(NTU)	6.34	4.50	4.71	3.55	5.26
Laboratory Turbidity	(NTU)	6.95	5.06	5.28	3.76	5.72
In situ Specific Conductance	(µS/cm)	236	229	225	220	231
Laboratory Specific Conductance	(µS/cm)	238	230	228	205	210
Total Dissolved Solids	(mg/L)	160	155	131	133	145
True Color	(TCU)	12.8	17.3	22.7	33.6	25.2
In situ pH	-	7.99	7.91	7.69	7.50	7.73
Hardness as $CaCO_3$	(mg/L)	103	99	94	96	97
Chloride	(mg/L)	10.1	9.30	8.74	8.05	8.76
Sulfate	(mg/L)	25.2	22.5	21.6	18.8	21.5
Calcium	(mg/L)	23.3	23.0	21.8	21.9	21.9
Magnesium	(mg/L)	10.9	10.1	9.58	9.94	10.4
Potassium	(mg/L)	2.37	2.14	2.05	2.11	2.26
Sodium	(mg/L)	10.9	9.64	9.34	9.44	10.1

Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2023.

Indicator	Unit	Benchmark[1]	March				Benchmark[1]	June			
			Split Lake	Upstream	Near-field	Far-field		Clark Lake	Upstream	Near-field	Far-field
Ammonia	(mg N/L)	2.63	0.021	<0.010	<0.010	0.026	1.64	0.063	0.019	0.026	0.042
Nitrate/ Nitrite	(mg N/L)	2.93	0.157	0.172	0.181	0.178	2.93	<0.0051	0.0194	0.0196	0.0188
Total Phosphorous	(mg/L)	0.058	0.0537	**0.0601**	0.0568	0.0578	0.058	0.0363	0.0386	0.0397	0.0347
Chlorophyll *a*	(µg/L)	10.0	0.25	0.26	0.37	0.25	10.0	1.40	1.27	2.12	1.10
Total Suspended Solids	(mg/L)	8.1/28.1[2]	3.1	2.1	3.2	2.6	7.7/27.7[2]	2.7	2.1	2.0	2.3
Laboratory pH	-	6.5-9.0	7.84	7.91	7.87	7.95	6.5-9.0	8.09	8.06	8.07	8.14
Dissolved Oxygen	(mg/L)	9.5[3]	14.86	14.47	14.44	14.52	6.5[3]	8.31	8.30	9.66	9.18
Aluminum	(mg/L)	1.98	0.485	0.415	0.419	0.350	1.98	0.508	0.522	0.516	0.522
Arsenic	(mg/L)	0.150	0.00117	0.00133	0.00132	0.00127	0.150	0.00111	0.00112	0.00115	0.00107
Boron	(mg/L)	1.5	0.020	0.020	0.021	0.019	1.5	0.023	0.017	0.017	0.018
Cadmium	(mg/L)	0.00027	0.0000124	0.0000343	0.0000073	<0.0000050	0.00026	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.095	0.00095	0.00081	0.00083	0.00063	0.084	0.00089	0.00096	0.00106	0.00083
Copper	(mg/L)	0.0094	**0.0106**	0.00324	0.00516	0.00194	0.0090	0.00170	0.00167	0.00166	0.00159
Iron	(mg/L)	1.45	0.491	0.396	0.414	0.356	1.45	0.493	0.489	0.485	0.490
Lead	(mg/L)	0.0032	0.000234	0.000218	0.000190	0.000163	0.0030	0.000234	0.000226	0.000226	0.000225
Mercury	(ng/L)	26	0.78	4.09	0.62	0.38	26	0.84	0.98	1.04	0.96
Methylmercury	(ng/L)	4	<0.020	0.028	0.024	<0.020	4	0.029	0.026	0.046	0.039
Molybdenum	(mg/L)	0.073	0.000488	0.000583	0.000555	0.000533	0.073	0.000456	0.000481	0.000536	0.000429
Nickel	(mg/L)	0.053	0.00146	0.00137	0.00138	0.00132	0.051	0.00143	0.00147	0.00149	0.00137
Selenium	(mg/L)	0.0010	0.000124	0.000142	0.000134	0.000116	0.0010	0.000114	0.000122	0.000118	0.000105
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000554	0.000681	0.000686	0.000668	0.033	0.000525	0.000540	0.000541	0.000504
Zinc	(mg/L)	0.121	<0.0030	<0.0030	<0.0030	<0.0030	0.116	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled. 2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	Benchmark[1]	July				Benchmark[1]	August			
			Clark Lake	Upstream	Near-Field	Far-Field		Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.64	0.019	0.011	0.018	0.021	1.72	0.044	0.026	0.019	0.019
Nitrate/ Nitrite	(mg N/L)	2.93	0.0290	0.0316	0.0275	0.0261	2.93	0.0330	0.0487	0.0351	0.0375
Total Phosphorous	(mg/L)	0.058	0.0446	0.0459	0.0442	0.0432	0.058	0.0472	0.0466	0.0497	0.0477
Chlorophyll *a*	(µg/L)	10.0	1.53	1.39	2.56	1.65	10.0	1.25	1.79	3.40	3.46
Total Suspended Solids	(mg/L)	6.7/26.7[2]	1.7	1.6	2.4	1.6	6.9/26.9[2]	1.9	1.6	1.8	1.1
Laboratory pH	-	6.5-9.0	8.11	8.07	8.07	8.07	6.5-9.0	8.07	8.09	8.19	8.18
Dissolved Oxygen	(mg/L)	6.5[3]	8.49	8.42	8.75	8.61	6.5[3]	8.42	8.44	8.60	8.68
Aluminum	(mg/L)	1.98	0.598	0.536	0.578	0.524	1.98	0.513	0.492	0.316	0.500
Arsenic	(mg/L)	0.150	0.00134	0.00129	0.00136	0.00134	0.150	0.00151	0.00146	0.00142	0.00146
Boron	(mg/L)	1.5	0.016	0.017	0.016	0.017	1.5	0.020	0.018	0.013	0.017
Cadmium	(mg/L)	0.00025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00025	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.078	0.00099	0.00083	0.00092	0.00083	0.079	0.00073	0.00075	0.00050	0.00069
Copper	(mg/L)	0.0084	0.00176	0.00179	0.00180	0.00177	0.0085	0.00166	0.00168	0.00158	0.00171
Iron	(mg/L)	1.45	0.511	0.429	0.495	0.438	1.45	0.394	0.391	0.271	0.386
Lead	(mg/L)	0.0027	0.000243	0.000222	0.000231	0.000220	0.0028	0.000199	0.000197	0.000169	0.000205
Mercury	(ng/L)	26	1.19	0.70	0.70	0.89	26	0.64	0.69	0.61	0.62
Methylmercury	(ng/L)	4	0.028	0.029	0.044	0.041	4	0.026	0.037	0.041	0.044
Molybdenum	(mg/L)	0.073	0.000458	0.000454	0.000453	0.000460	0.073	0.000650	0.000546	0.000753	0.000493
Nickel	(mg/L)	0.047	0.00141	0.00139	0.00140	0.00134	0.048	0.00124	0.00123	0.00113	0.00122
Selenium	(mg/L)	0.0010	0.000125	0.000100	0.000115	0.000117	0.0010	0.000105	0.000136	0.000117	0.000126
Silver	(mg/L)	0.0001	<0.000010	0.000021	<0.000010	<0.000010	0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000475	0.000489	0.000473	0.000499	0.033	0.000474	0.000494	0.000509	0.000519
Zinc	(mg/L)	0.107	0.0032	<0.0030	0.0088	<0.0030	0.109	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled. 2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-3: Benchmark and mean values of key water quality parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	Benchmark[1]	September			
			Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	3.13	0.023	0.013	0.012	0.013
Nitrate/ Nitrite	(mg N/L)	2.93	0.0329	0.0372	0.0353	0.0414
Total Phosphorous	(mg/L)	0.058	0.0506	0.0514	0.0507	0.0494
Chlorophyll *a*	(µg/L)	10.0	1.43	1.51	1.43	1.30
Total Suspended Solids	(mg/L)	6.4/26.4[2]	1.4	<1.0	1.3	1.2
Laboratory pH	-	6.5-9.0	7.62	7.58	8.15	8.12
Dissolved Oxygen	(mg/L)	6.5[3]	9.16	9.15	9.20	9.24
Aluminum	(mg/L)	1.98	0.412	0.377	0.363	0.338
Arsenic	(mg/L)	0.150	0.00155	0.00171	0.00160	0.00157
Boron	(mg/L)	1.5	0.021	0.021	0.018	0.018
Cadmium	(mg/L)	0.00027	<0.0000050	<0.0000050	0.0000050	<0.0000050
Chromium	(mg/L)	0.084	0.00064	0.00061	0.00055	0.00056
Copper	(mg/L)	0.0091	0.00171	0.00158	0.00160	0.00158
Iron	(mg/L)	1.45	0.323	0.278	0.289	0.273
Lead	(mg/L)	0.0031	0.000165	0.000148	0.000164	0.000170
Mercury	(ng/L)	26	<0.50	<0.50	<0.50	<0.50
Methylmercury	(ng/L)	4	0.022	0.020	0.030	0.030
Molybdenum	(mg/L)	0.073	0.000663	0.000544	0.000534	0.000527
Nickel	(mg/L)	0.051	0.00117	0.00112	0.00108	0.00110
Selenium	(mg/L)	0.0010	0.000109	0.000104	0.000127	0.000096
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000494	0.000535	0.000608	0.000605
Zinc	(mg/L)	0.117	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled. 2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023.

Indicator	Unit	Benchmark[1]	March				
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4
Ammonia	(mg N/L)	2.10	0.022	0.014	0.017	0.032	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	0.0400	0.0457	0.177	0.178	0.179
Total Phosphorous	(mg/L)	0.058	0.0184	0.0162	0.0571	0.0580	**0.0593**
Chlorophyll *a*	(µg/L)	10.0	2.78	0.830	0.245	0.244	1.46
Total Suspended Solids	(mg/L)	8.1/28.1[2]	<1.0	<1.0	2.1	1.2	2.1
Laboratory pH	-	6.5-9.0	8.10	8.08	7.95	7.97	7.98
Dissolved Oxygen	(mg/L)	9.5[3]	14.26	13.36	14.57	14.58	14.52
Aluminum	(mg/L)	1.98	0.113	0.127	0.408	0.361	0.350
Arsenic	(mg/L)	0.150	0.00101	0.00098	0.00131	0.00123	0.00128
Boron	(mg/L)	1.5	0.016	0.018	0.020	0.020	0.019
Cadmium	(mg/L)	0.00030	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.096	0.00021	0.00023	0.00070	0.00061	0.00064
Copper	(mg/L)	0.010	0.00164	0.00160	0.00171	0.00165	0.00169
Iron	(mg/L)	1.45	0.067	0.076	0.403	0.356	0.348
Lead	(mg/L)	0.0038	0.000084	<0.000050	0.000168	0.000162	0.000162
Mercury	(ng/L)	26	0.68	<0.50	<0.50	<0.50	0.70
Methylmercury	(ng/L)	4	<0.020	<0.020	<0.020	<0.020	<0.020
Molybdenum	(mg/L)	0.073	0.000491	0.000491	0.000559	0.000562	0.000535
Nickel	(mg/L)	0.058	0.00078	0.00080	0.00138	0.00133	0.00130
Selenium	(mg/L)	0.0010	0.000065	0.000070	0.000106	0.000120	0.000120
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000536	0.000546	0.000663	0.000672	0.000687
Zinc	(mg/L)	0.13	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	Benchmark[1]	June								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.28	0.010	0.014	0.022	0.074	0.026	0.029	0.044	0.027	0.054
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0183	0.0197	0.0235	0.0236	0.0257	0.0272	<0.0051
Total Phosphorous	(mg/L)	0.058	0.0104	0.0098	0.0367	0.0334	0.0315	0.0326	0.0335	0.0304	0.0302
Chlorophyll *a*	(µg/L)	10.0	0.989	0.740	1.76	0.834	1.14	1.54	2.20	1.40	1.99
Total Suspended Solids	(mg/L)	7.7/27.7[2]	2.5	2.9	2.7	2.3	1.3	2.3	4.0	4.0	4.8
Laboratory pH	-	6.5-9.0	8.29	8.28	8.15	8.12	8.15	8.17	8.16	8.17	8.20
Dissolved Oxygen	(mg/L)	6.5[3]	9.16	8.89	9.15	9.03	9.05	9.20	9.22	8.96	9.22
Aluminum	(mg/L)	1.98	0.182	0.190	0.498	0.504	0.383	0.463	0.452	0.454	0.462
Arsenic	(mg/L)	0.150	0.00075	0.00075	0.00104	0.00104	0.00100	0.00098	0.00102	0.00102	0.00102
Boron	(mg/L)	1.5	0.017	0.017	0.020	0.019	0.019	0.019	0.019	0.018	0.018
Cadmium	(mg/L)	0.00026	<0.0000050	<0.0000050	<0.0000050	0.0000100	<0.0000050	0.0000057	<0.0000050	<0.0000050	0.0000050
Chromium	(mg/L)	0.083	0.00025	0.00071	0.00080	0.00280	0.00053	0.00072	0.00067	0.00066	0.00062
Copper	(mg/L)	0.0089	0.00117	0.00131	0.00148	0.00156	0.00142	0.00148	0.00150	0.00146	0.00145
Iron	(mg/L)	1.45	0.155	0.159	0.442	0.480	0.348	0.413	0.430	0.413	0.410
Lead	(mg/L)	0.0030	0.000083	0.000093	0.000208	0.000212	0.000169	0.000200	0.000200	0.000186	0.000197
Mercury	(ng/L)	26	0.56	0.97	0.95	0.89	0.75	0.86	0.91	0.95	0.84
Methylmercury	(ng/L)	4	<0.020	0.022	<0.020	0.028	0.041	<0.020	0.029	0.032	0.025
Molybdenum	(mg/L)	0.073	0.000382	0.000372	0.000435	0.000391	0.000401	0.000417	0.000425	0.000400	0.000419
Nickel	(mg/L)	0.050	0.00065	0.00079	0.00126	0.00211	0.00108	0.00122	0.00199	0.00119	0.00118
Selenium	(mg/L)	0.0010	0.000083	0.000072	0.000100	0.000123	0.000087	0.000106	0.000103	0.000116	0.000084
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000423	0.000432	0.000493	0.000484	0.000487	0.000484	0.000481	0.000476	0.000487
Zinc	(mg/L)	0.115	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	Benchmark[1]	July								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.41	<0.010	<0.010	0.017	0.024	0.022	0.014	0.015	0.013	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0301	0.0319	0.0337	0.0356	0.0370	0.0366	0.0296
Total Phosphorous	(mg/L)	0.058	0.0160	0.0156	0.0391	0.0390	0.0375	0.0379	0.0363	0.0372	0.0365
Chlorophyll *a*	(µg/L)	10.0	3.13	2.02	2.32	0.877	1.38	1.72	1.32	1.59	2.26
Total Suspended Solids	(mg/L)	6.7/26.7[2]	1.8	1.9	1.0	<1.0	<1.0	<1.0	1.7	1.5	3.3
Laboratory pH	-	6.5-9.0	0.325	0.324	0.445	0.449	0.441	0.424	0.425	0.457	0.342
Dissolved Oxygen	(mg/L)	6.5[3]	8.75	8.50	8.74	8.60	8.67	8.97	8.93	8.67	8.86
Aluminum	(mg/L)	1.98	0.325	0.324	0.445	0.449	0.441	0.424	0.425	0.457	0.342
Arsenic	(mg/L)	0.150	0.00099	0.00107	0.00154	0.00131	0.00131	0.00129	0.00132	0.00133	0.00127
Boron	(mg/L)	1.5	0.020	0.019	0.023	0.018	0.020	0.019	0.020	0.019	0.019
Cadmium	(mg/L)	0.00026	0.0000125	0.0000050	0.0000056	0.0000071	0.0000069	0.0000091	0.0000053	<0.0000050	<0.0000050
Chromium	(mg/L)	0.082	0.00053	0.00057	0.00070	0.00066	0.00070	0.00067	0.00095	0.00070	0.00053
Copper	(mg/L)	0.0089	0.00151	0.00465	0.00178	0.00174	0.00172	0.00166	0.00170	0.00169	0.00163
Iron	(mg/L)	1.45	0.241	0.246	0.343	0.323	0.322	0.320	0.304	0.338	0.273
Lead	(mg/L)	0.0030	0.000156	0.000223	0.000219	0.000188	0.000206	0.000198	0.000198	0.000251	0.000173
Mercury	(ng/L)	26	0.90	1.03	0.91	0.71	0.89	0.73	0.70	0.67	0.70
Methylmercury	(ng/L)	4	0.027	0.025	0.047	0.043	0.034	0.037	0.038	0.039	0.040
Molybdenum	(mg/L)	0.073	0.000411	0.000380	0.000520	0.000515	0.000508	0.000492	0.000473	0.000474	0.000464
Nickel	(mg/L)	0.050	0.00087	0.00099	0.00123	0.00126	0.00123	0.00121	0.00137	0.00120	0.00113
Selenium	(mg/L)	0.0010	0.000070	<0.000050	0.000086	0.000122	0.000113	0.000110	0.000120	0.000096	0.000108
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000445	0.000441	0.000529	0.000487	0.000520	0.000504	0.000516	0.000502	0.000494
Zinc	(mg/L)	0.114	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	Benchmark[1]	August								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.49	0.012	<0.010	0.024	0.024	0.024	0.012	0.013	0.010	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	0.0412	0.0403	0.0428	0.0521	0.0582	0.0626	0.0416
Total Phosphorous	(mg/L)	0.058	0.0160	0.0201	0.0442	0.0435	0.0433	0.0424	0.0428	0.0422	0.0422
Chlorophyll *a*	(µg/L)	10.0	3.89	4.44	2.50	0.645	1.15	1.59	1.18	1.61	2.28
Total Suspended Solids	(mg/L)	6.4/26.4[2]	2.2	2.2	2.4	1.1	1.6	1.6	2.0	2.6	3.0
Laboratory pH	-	6.5-9.0	8.16	8.22	8.06	8.06	8.14	8.09	8.11	8.10	8.13
Dissolved Oxygen	(mg/L)	6.5[3]	8.83	8.60	8.51	8.38	8.45	9.03	8.84	8.69	9.00
Aluminum	(mg/L)	1.98	0.275	0.317	0.441	0.441	0.420	0.418	0.310	0.408	0.425
Arsenic	(mg/L)	0.150	0.00090	0.00094	0.00147	0.00142	0.00144	0.00138	0.00144	0.00136	0.00139
Boron	(mg/L)	1.5	0.014	0.014	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Cadmium	(mg/L)	0.00024	<0.0000050	<0.0000050	0.0000064	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Chromium	(mg/L)	0.077	0.00038	0.00053	0.00070	0.00073	0.00066	0.00063	0.00046	0.00055	0.00062
Copper	(mg/L)	0.0082	0.00136	0.00320	0.00174	0.00168	0.00167	0.00164	0.00156	0.00158	0.00156
Iron	(mg/L)	1.45	0.186	0.225	0.328	0.323	0.314	0.302	0.242	0.311	0.324
Lead	(mg/L)	0.00265	0.000112	0.000194	0.000210	0.000178	0.000176	0.000190	0.000164	0.000187	0.000183
Mercury	(ng/L)	26	0.57	0.58	0.64	0.64	0.66	0.64	0.62	0.66	0.73
Methylmercury	(ng/L)	4	<0.020	<0.020	0.038	0.034	0.034	0.034	0.033	<0.020	0.035
Molybdenum	(mg/L)	0.073	0.000409	0.000388	0.001550	0.000462	0.000499	0.000466	0.001250	0.000430	0.000428
Nickel	(mg/L)	0.0462	0.00079	0.00091	0.00120	0.00118	0.00115	0.00116	0.00103	0.00113	0.00113
Selenium	(mg/L)	0.0010	0.000066	0.000070	0.000122	0.000110	0.000104	0.000109	0.000118	0.000124	0.000123
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000431	0.000434	0.000490	0.000474	0.000475	0.000510	0.000480	0.000460	0.000468
Zinc	(mg/L)	0.106	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled. 2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-4: Benchmark and mean values of key water quality parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023. Values in bold exceeded benchmark (continued).

Indicator	Unit	Benchmark[1]	September								
			STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Ammonia	(mg N/L)	1.6	<0.0050	<0.0050	0.0105	0.0108	0.0105	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate/ Nitrite	(mg N/L)	2.93	0.0381	<0.0051	0.0570	0.0603	0.0822	0.0442	0.0405	0.0398	0.0176
Total Phosphorous	(mg/L)	0.058	0.0170	0.0235	0.0488	0.0482	0.0459	0.0460	0.0442	0.0450	0.0440
Chlorophyll *a*	(µg/L)	10.0	1.47	1.77	1.58	0.601	0.604	3.32	1.92	2.41	5.08
Total Suspended Solids	(mg/L)	6.4/26.4[2]	2.4	2.5	1.4	1.3	<1.0	2.0	1.3	<1.0	2.8
Laboratory pH	-	6.5-9.0	9.51	9.39	9.26	9.15	9.2	9.52	9.21	9.6	9.92
Dissolved Oxygen	(mg/L)	6.5[3]	10.1	10.0	9.89	11.4	11.4	11.0	11.1	10.8	10.6
Aluminum	(mg/L)	1.98	0.248	0.275	0.318	0.344	0.294	0.292	0.311	0.297	0.306
Arsenic	(mg/L)	0.150	0.00092	0.00092	0.00154	0.00158	0.00146	0.00144	0.00147	0.00147	0.00142
Boron	(mg/L)	1.5	0.019	0.016	0.020	0.021	0.021	0.021	0.020	0.020	0.020
Cadmium	(mg/L)	0.000262	0.0000096	<0.0000050	0.0000056	0.0000180	<0.0000050	0.0000070	0.0000052	0.0000063	0.0000070
Chromium	(mg/L)	0.083	0.00049	0.00045	0.00042	0.00047	0.00041	0.00043	0.00063	0.00043	0.00042
Copper	(mg/L)	0.0090	0.00142	0.00162	0.00148	0.00152	0.00147	0.00143	0.00150	0.00146	0.00143
Iron	(mg/L)	1.45	0.187	0.204	0.234	0.234	0.214	0.216	0.223	0.225	0.233
Lead	(mg/L)	0.00300	0.000192	0.000136	0.000145	0.000180	0.000137	0.000136	0.000223	0.000141	0.000138
Mercury	(ng/L)	26	<0.50	<0.50	<0.50	1.26	0.51	<0.50	0.85	0.50	<0.50
Methylmercury	(ng/L)	4	0.035	0.090	0.044	0.052	0.045	0.039	0.041	0.072	0.037
Molybdenum	(mg/L)	0.073	0.000465	0.000398	0.000536	0.000536	0.000522	0.000514	0.000527	0.000578	0.000506
Nickel	(mg/L)	0.0502	0.00080	0.00075	0.00096	0.00103	0.00095	0.00095	0.00094	0.00087	0.00093
Selenium	(mg/L)	0.0010	0.000065	0.000061	0.000102	0.000132	0.000090	0.000110	0.000116	0.000104	0.000128
Silver	(mg/L)	0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000016	<0.000010
Thallium	(mg/L)	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium	(mg/L)	0.033	0.000419	0.000416	0.000501	0.000507	0.000510	0.000468	0.000504	0.000471	0.000481
Zinc	(mg/L)	0.115	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

1. Comparisons to benchmarks were done on a site-specific level within each area and sampling period. Benchmark values presented here are for general illustrative purposes and represent the overall means for the entire dataset pooled.

2. Lower value represents chronic benchmark (*i.e.*, background plus 5 mg/L); higher value represents short-term benchmark (*i.e.*, background plus 25 mg/L). Values are based on the mean TSS measured at Split/Clark Lake during the sampling period.

3. Benchmark indicated is specific to the sampling period; *i.e.*, 9.5 mg/L for ice-cover season, and 6.5 mg/L for the open-water season.

Table A1-5: Mean values of additional parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2023.

Indicator	Unit	March				June				July			
		Split Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field
Dissolved Phosphorous	(mg/L)	0.0406	0.0496	0.0477	0.0444	0.0242	0.0267	0.0263	0.0274	0.0349	0.0291	0.0329	0.0337
Total Nitrogen	(mg/L)	0.58	0.61	0.61	0.63	0.47	0.39	0.41	0.41	0.42	0.51	0.46	0.50
Dissolved Organic Carbon	(mg/L)	9.43	8.67	8.45	8.39	10.2	9.19	8.99	9.75	9.76	10.1	10.4	9.86
In situ Turbidity	(NTU)	11.5	9.62	10.4	10.4	11.2	10.1	10.2	10.9	11.1	10.3	11.0	9.76
Laboratory Turbidity	(NTU)	12.1	9.86	10.0	10.1	12.9	11.6	11.1	12.1	12.2	11.2	12.2	10.8
In situ Specific Conductance	(µS/cm)	237	272	267	266	220	225	224	215	203	201	206	218
Laboratory Specific Conductance	(µS/cm)	243	280	278	273	221	233	234	220	212	209	219	227
Total Dissolved Solids	(mg/L)	154	158	164	155	140	133	129	124	137	137	133	123
True Colour	(TCU)	15.0	11.3	14.9[1]	16.3	16.9	15.7	14.5	17.2	14.0	16.1	18.7	20.3
In situ pH	-	7.61	7.76	7.86	7.86	7.91	7.92	7.95	7.90	8.01	7.98	8.02	8.02
Hardness as $CaCO_3$	(mg/L)	101	112	112	114	100	99	99	96	88	95	93	93
Chloride	(mg/L)	8.81	10.6	10.6	10.7	7.81	8.20	8.07	7.43	7.50	7.35	7.83	8.02
Sulfate	(mg/L)	23.1	28.0	28.2	28.0	20.7	21.4	21.2	19.5	20.8	20.2	21.3	21.7
Calcium	(mg/L)	22.8	25.0	25.0	25.4	23.7	22.8	23.0	19.0	19.9	21.5	20.9	20.8
Magnesium	(mg/L)	10.7	12.2	12.0	12.2	10.0	10.1	10.2	9.61	9.27	10.1	9.84	9.89
Potassium	(mg/L)	2.34	2.59	2.53	2.52	2.10	2.22	2.25	2.03	2.13	2.15	2.17	2.15
Sodium	(mg/L)	10.9	12.8	12.4	12.9	10.2	10.2	10.2	9.38	8.58	9.12	8.92	9.22

Table A1-5: Mean values of additional parameters measured in the Local Study Area (LSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	August				September			
		Clark Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field
Dissolved Phosphorous	(mg/L)	0.0355	0.0363	0.0386	0.0355	0.0422	0.0453	0.0436	0.0435
Total Nitrogen	(mg/L)	0.48	0.50	0.49	0.49	0.44	0.44	0.66	0.56
Dissolved Organic Carbon	(mg/L)	8.66	9.66	9.40	9.64	8.55	9.03	8.9	9.20
In situ Turbidity	(NTU)	8.45	8.07	8.16	7.57	7.22	5.88	5.96	5.72
Laboratory Turbidity	(NTU)	9.51	9.30	9.36	8.50	8.38	6.80	6.50	6.15
In situ Specific Conductance	(µS/cm)	216	215	207	205	230	241	241	236
Laboratory Specific Conductance	(µS/cm)	217	216	225	223	233	243	232	232
Total Dissolved Solids	(mg/L)	129	131	145	129	142	160	153	154
True Colour	(TCU)	12.6	15.7	14.3	13.4	11.0	13.2	13.3	15.0
In situ pH	-	8.02	7.99	8.05	8.05	8.01	8.03	8.02	8.02
Hardness as $CaCO_3$	(mg/L)	93	98	90	92	99	104	99	98
Chloride	(mg/L)	8.04	7.71	7.83	7.54	9.65	10.5	9.82	9.21
Sulphate	(mg/L)	21.9	21.3	21.3	20.6	24.0	26.3	25.2	24.1
Calcium	(mg/L)	20.6	23.0	20.3	21.3	22.3	23.2	22.1	22.1
Magnesium	(mg/L)	10.1	9.76	9.43	9.43	10.6	11.2	10.6	10.3
Potassium	(mg/L)	2.40	2.20	2.08	2.19	2.21	2.34	2.36	2.30
Sodium	(mg/L)	10.0	8.84	9.03	9.14	10.2	11.1	11.4	11.0

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023.

Indicator	Unit	March				
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4
Dissolved Phosphorous	(mg/L)	0.0135	0.0125	0.0459	0.0464	0.0436
Total Nitrogen	(mg/L)	0.42	0.42	0.58	0.66	0.61
Dissolved Organic Carbon	(mg/L)	9.25	9.09	8.47	8.17	8.13
In situ Turbidity	(NTU)	1.86	1.88	12.44	11.14	11.68
Laboratory Turbidity	(NTU)	2.36	2.44	9.84	10.0	10.0
In situ Specific Conductance	(µS/cm)	305	302	267	270	269
Laboratory Specific Conductance	(µS/cm)	316	312	272	274	276
Total Dissolved Solids	(mg/L)	180	179	158	161	144
True Colour	(TCU)	15.9	15.4	16.3	15.7	15.7
In situ pH	-	8.05	7.97	7.87	7.87	7.89
Hardness as $CaCO_3$	(mg/L)	147	147	114	114	115
Chloride	(mg/L)	8.99	8.88	10.6	10.8	10.8
Sulfate	(mg/L)	18.9	18.8	28.1	28.4	28.6
Calcium	(mg/L)	38.2	38.4	25.1	25.1	25.0
Magnesium	(mg/L)	12.6	12.4	12.5	12.4	12.7
Potassium	(mg/L)	1.94	1.92	2.51	2.51	2.57
Sodium	(mg/L)	10.9	11.0	13.5	13.5	13.4

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	June								
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Dissolved Phosphorous	(mg/L)	0.0053	0.0050	0.0214	0.0218	0.0226	0.0222	0.0210	0.0220	0.0202
Total Nitrogen	(mg/L)	0.34	0.30	0.41	0.47	0.39	0.42	0.46	0.36	0.38
Dissolved Organic Carbon	(mg/L)	9.48	9.54	9.76	9.90	10.2	9.89	9.89	9.96	10.3
In situ Turbidity	(NTU)	4.57	5.49	9.24	9.40	8.29	12.41	12.41	9.37	9.26
Laboratory Turbidity	(NTU)	5.82	5.47	10.9	10.7	9.02	10.2	10.4	10.4	9.19
In situ Specific Conductance	(µS/cm)	247	246	215	213	213	205	211	212	213
Laboratory Specific Conductance	(µS/cm)	252	253	219	218	218	217	218	219	219
Total Dissolved Solids	(mg/L)	148	150	125	130	126	129	114	123	127
True Color	(TCU)	14.9	16.4	17.4	18.1	18.2	18.9	18.6	19.4	24.6
In situ pH	-	8.07	8.02	7.94	7.90	7.89	7.98	7.97	7.90	8.04
Hardness as $CaCO_3$	(mg/L)	119	120	97.0	96.5	95.0	96.0	95.6	97.0	96.9
Chloride	(mg/L)	6.46	6.66	7.38	7.26	7.27	7.18	7.26	7.25	7.18
Sulphate	(mg/L)	13.0	13.2	18.9	18.8	18.5	18.3	18.4	18.3	18.2
Calcium	(mg/L)	31.1	32.0	22.9	22.9	22.7	22.8	22.9	22.9	23.5
Magnesium	(mg/L)	10.0	9.76	9.66	9.55	9.31	9.49	9.34	9.68	9.29
Potassium	(mg/L)	1.58	1.58	2.03	2.01	1.95	1.96	1.98	1.95	1.94
Sodium	(mg/L)	7.79	8.02	9.51	9.29	9.06	8.96	9.18	8.98	8.84

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	July								
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Dissolved Phosphorous	(mg/L)	0.0081	0.0092	0.0310	0.0320	0.0293	0.0291	0.0296	0.0275	0.0266
Total Nitrogen	(mg/L)	0.30	0.33	0.44	0.41	0.40	0.37	0.38	0.40	0.37
Dissolved Organic Carbon	(mg/L)	9.30	9.50	9.41	9.19	9.24	9.08	9.18	8.98	9.42
In situ Turbidity	(NTU)	7.51	7.87	8.24	7.58	7.55	7.99	7.65	8.00	7.90
Laboratory Turbidity	(NTU)	8.97	9.10	9.32	8.41	8.23	8.16	7.83	8.66	8.56
In situ Specific Conductance	(µS/cm)	235	235	213	214	215	215	216	216	216
Laboratory Specific Conductance	(µS/cm)	239	244	222	225	227	226	226	226	226
Total Dissolved Solids	(mg/L)	147	155	102	141	138	137	136	142	144
True Color	(TCU)	15.8	15.4	16.1	16.6	18.0	19.9	20.3	20.2	17.9
In situ pH	-	8.20	8.12	8.05	8.00	8.02	8.04	8.05	8.01	8.07
Hardness as $CaCO_3$	(mg/L)	116	114	94.4	96.8	100	101	105	104	105
Chloride	(mg/L)	6.52	6.60	8.08	8.06	8.14	8.06	8.06	8.18	8.11
Sulphate	(mg/L)	14.0	14.0	21.7	21.6	21.8	21.5	21.4	21.6	21.3
Calcium	(mg/L)	30.8	30.4	22.0	22.3	22.9	23.2	24.3	23.9	24.4
Magnesium	(mg/L)	9.41	9.35	9.58	9.98	10.5	10.4	10.8	10.7	10.7
Potassium	(mg/L)	1.64	1.64	2.15	2.10	2.14	2.11	2.12	2.12	2.06
Sodium	(mg/L)	7.28	7.49	9.20	9.88	10.1	9.96	10.4	10.3	10.3

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	August								
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Dissolved Phosphorous	(mg/L)	0.0085	0.0103	0.0336	0.0353	0.0340	0.0346	0.0323	0.0335	0.034
Total Nitrogen	(mg/L)	0.30	0.28	0.41	0.40	0.48	0.40	0.40	0.39	0.40
Dissolved Organic Carbon	(mg/L)	9.94	10.8	10.8	10.7	10.5	10.5	10.6	10.6	10.4
In situ Turbidity	(NTU)	5.37	5.15	7.55	6.81	6.72	9.94	6.58	7.16	7.30
Laboratory Turbidity	(NTU)	6.67	6.34	8.68	7.87	7.35	7.54	7.60	7.87	7.97
In situ Specific Conductance	(µS/cm)	243	244	210	209	208	208	209	208	208
Laboratory Specific Conductance	(µS/cm)	234	229	198	197	203	202	205	203	202
Total Dissolved Solids	(mg/L)	160	151	145	135	133	134	144	152	143
True Colour	(TCU)	16.6	15.9	18.9	18.4	13.9	14.9	16.0	15.6	16.4
In situ pH	-	8.23	8.14	8.00	7.94	7.94	8.04	8.04	7.96	8.08
Hardness as $CaCO_3$	(mg/L)	115	115	88.4	86.6	87.9	89.9	88.1	88.0	89.8
Chloride	(mg/L)	6.47	6.41	7.18	7.13	7.20	7.07	7.04	7.13	6.94
Sulphate	(mg/L)	13.2	13.1	19.4	19.3	19.2	19.1	19.0	18.9	18.3
Calcium	(mg/L)	30.7	30.7	19.9	19.2	20.1	20.7	20.6	20.3	21.0
Magnesium	(mg/L)	9.39	9.34	9.40	9.40	9.15	9.27	8.90	9.06	9.08
Potassium	(mg/L)	1.70	1.70	2.16	2.19	2.17	2.16	2.09	2.12	2.10
Sodium	(mg/L)	7.42	7.44	8.69	8.55	8.73	8.94	8.33	8.70	8.18

Table A1-6: Mean values of additional parameters measured in the Regional Study Area (RSA) during the water quality monitoring program, 2023 (continued).

Indicator	Unit	September								
		STL-N SURF	STL-N BOT	STL-KETTLE	LNR-3	LNR-4	LNR-5	LNR-6	LNR-7	LNR-8
Dissolved Phosphorous	(mg/L)	0.0112	0.0111	0.0421	0.0408	0.0401	0.0382	0.0349	0.0337	0.0329
Total Nitrogen	(mg/L)	0.34	0.33	0.45	0.45	0.45	0.43	0.42	0.41	0.46
Dissolved Organic Carbon	(mg/L)	9.14	9.32	9.14	8.89	8.93	9.05	9.56	9.15	10.2
In situ Turbidity	(NTU)	5.81	5.53	5.41	5.05	4.87	5.20	5.22	5.71	5.43
Laboratory Turbidity	(NTU)	7.04	6.67	5.92	5.51	5.40	5.15	5.45	5.62	5.44
In situ Specific Conductance	(µS/cm)	241	241	229	228	225	225	225	224	224
Laboratory Specific Conductance	(µS/cm)	247	245	233	232	231	228	228	225	224
Total Dissolved Solids	(mg/L)	164	162	153	138	158	140	154	165	158
True Colour	(TCU)	14.4	14.8	13.9	13.8	13.8	10.3	12.0	14.4	13.9
In situ pH	-	8.21	8.17	8.05	8.03	8.00	8.06	7.95	8.15	8.26
Hardness as $CaCO_3$	(mg/L)	118	118	95.9	99.4	98.4	100	95.6	97.2	98.5
Chloride	(mg/L)	6.50	6.48	9.06	8.99	8.78	8.63	8.68	8.52	8.55
Sulphate	(mg/L)	13.4	13.5	23.6	23.6	23.0	22.4	22.6	21.9	21.5
Calcium	(mg/L)	31.5	32.3	21.9	23.3	23.2	24.2	22.6	23.3	23.5
Magnesium	(mg/L)	9.67	9.07	10.0	10.0	9.82	9.75	9.50	9.47	9.67
Potassium	(mg/L)	1.66	1.60	2.21	2.21	2.14	2.14	2.06	2.07	2.07
Sodium	(mg/L)	7.21	6.96	9.64	9.72	9.21	8.89	8.92	9.03	9.13

APPENDIX 2: FIGURES OF WATER QUALITY PARAMETERS MEASURED IN THE KEEYASK RESERVOIR BACKBAYS, 2023

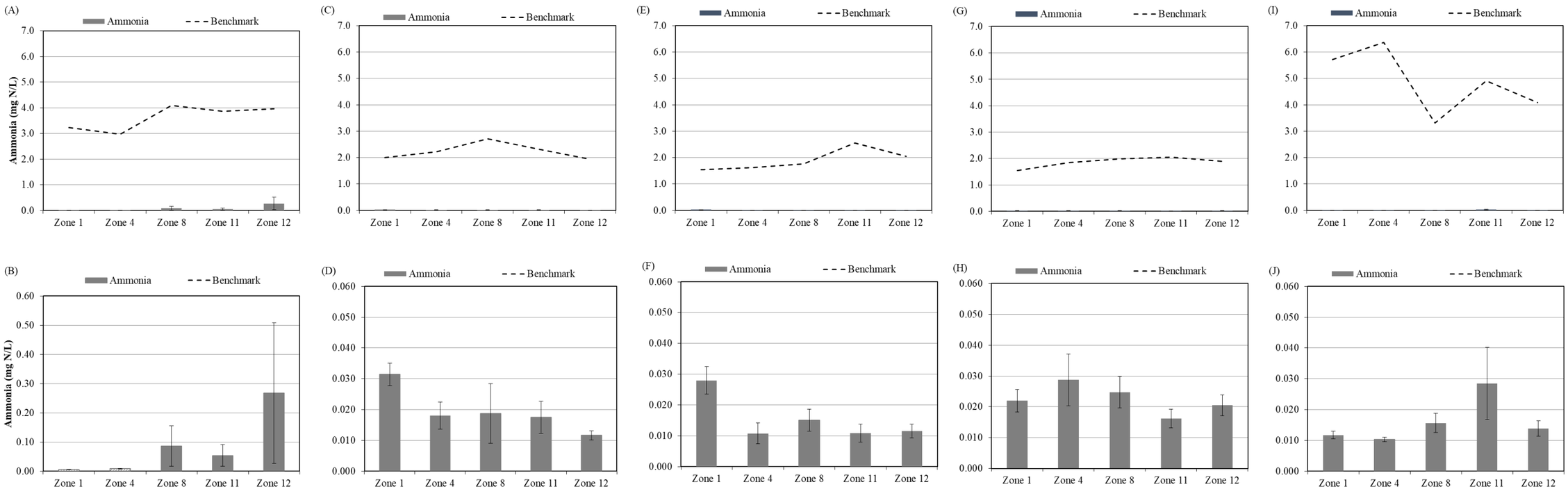

Figure A2-1: Mean (± SE) ammonia concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

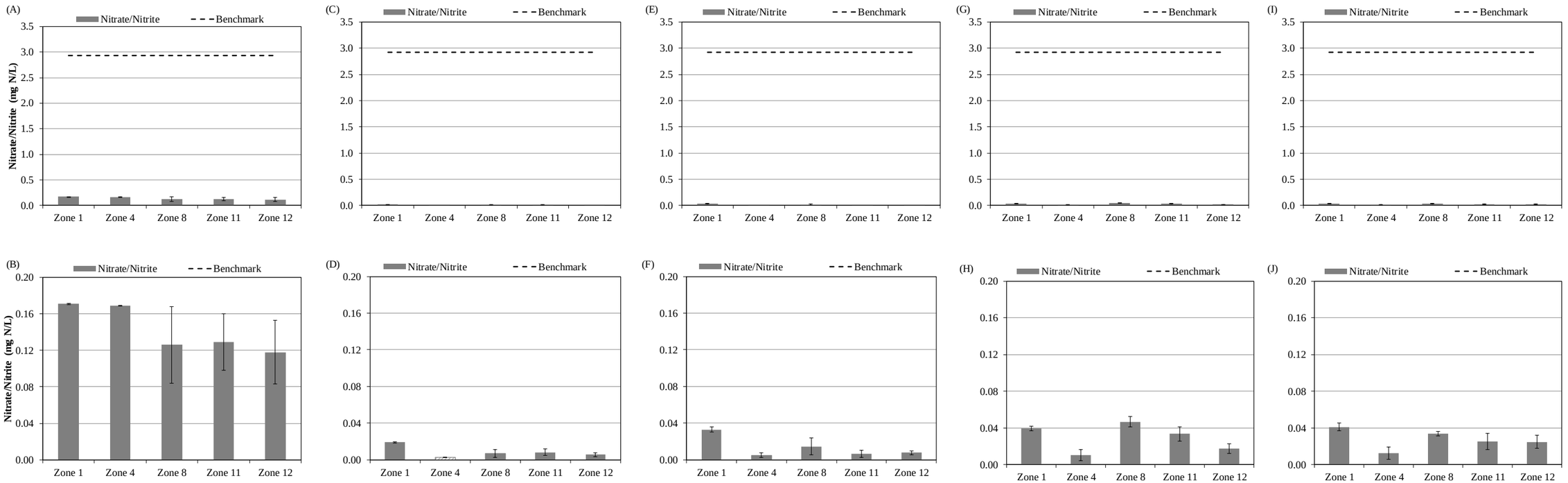

Figure A2-2: Mean (± SE) nitrate/nitrite concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

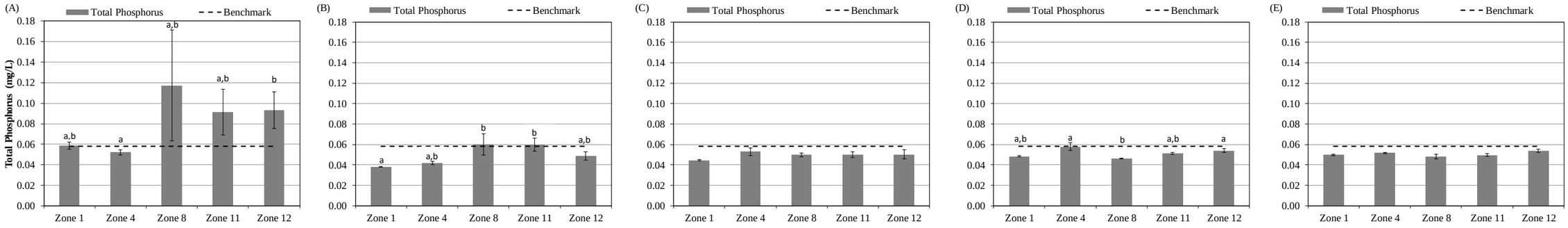

Figure A2-3: Mean (± SE) concentrations of total phosphorus measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023. Letters in (A, B, D) indicate significantly (α = 0.05) different results between sampling areas.

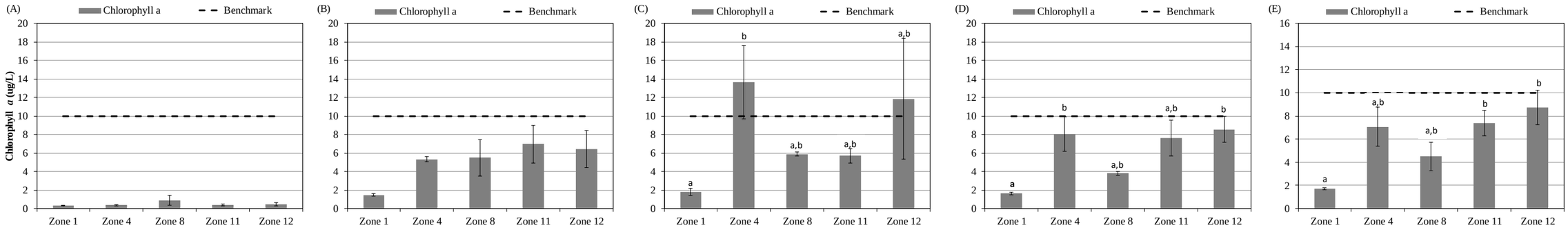

Figure A2-4: Mean (± SE) chlorophyll *a* concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023. Letters in (C, D, E) indicate significantly (α = 0.05) different results between sampling areas.

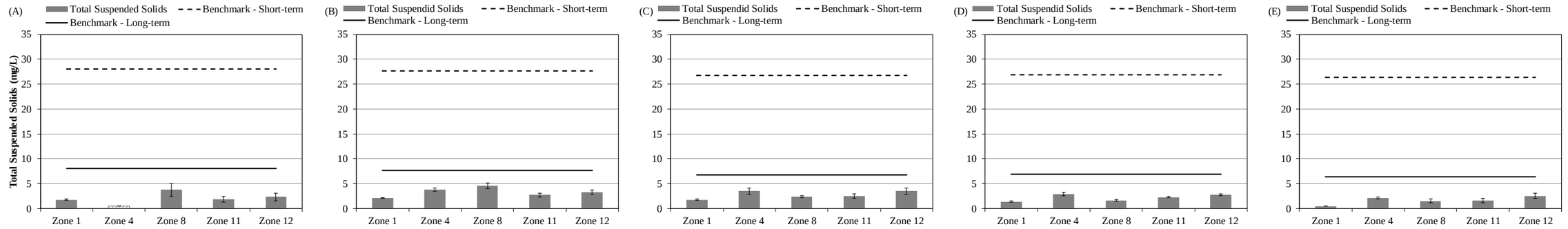

Figure A2-5: Mean (± SE) concentrations of total suspended solids measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023. Hashed bars represent results below the analytical detection limit.

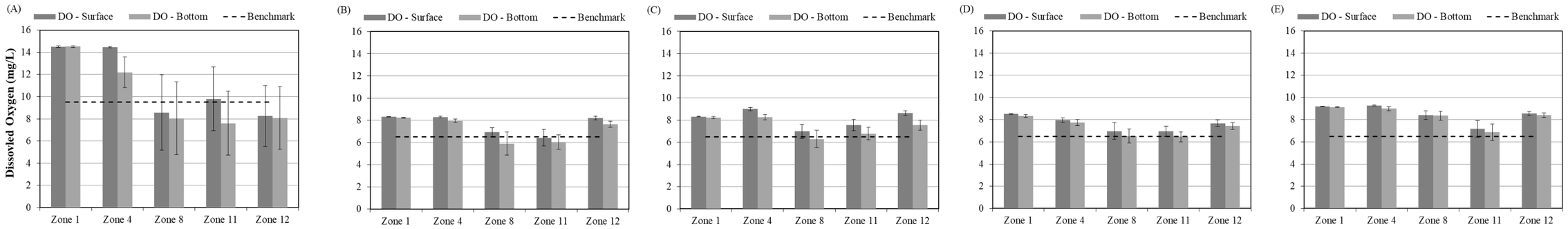

Figure A2-6: Mean (± SE) *in situ* dissolved oxygen concentrations measured at the surface and bottom in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

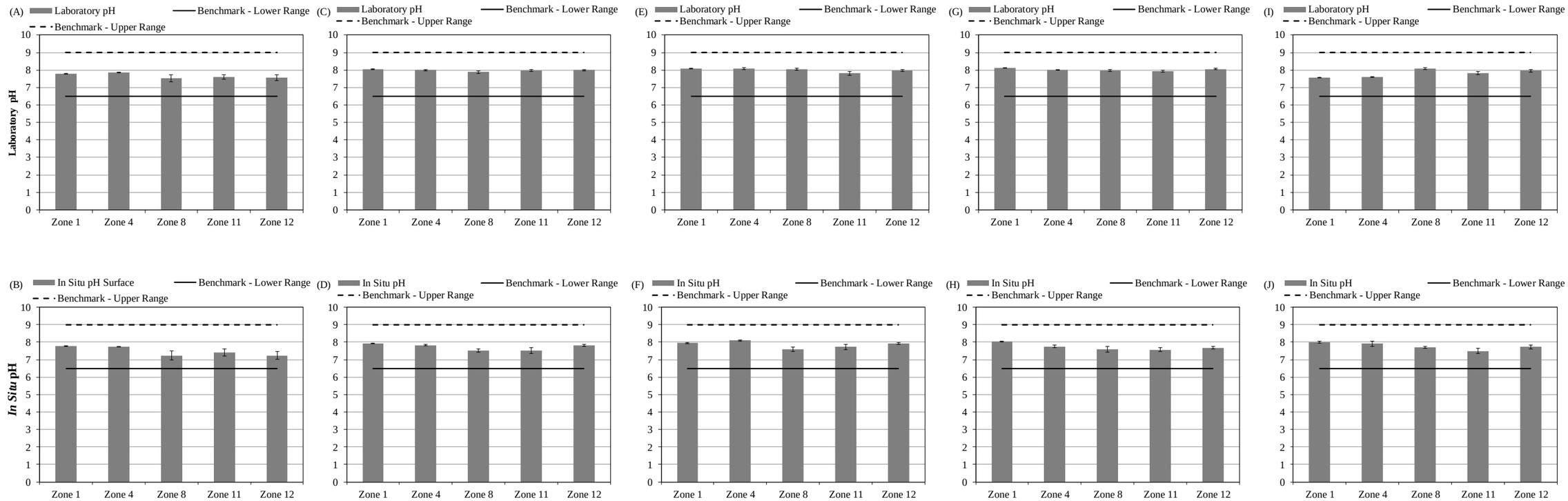

Figure A2-7: Mean (± SE) laboratory (top) and *in situ* (bottom) pH measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023.

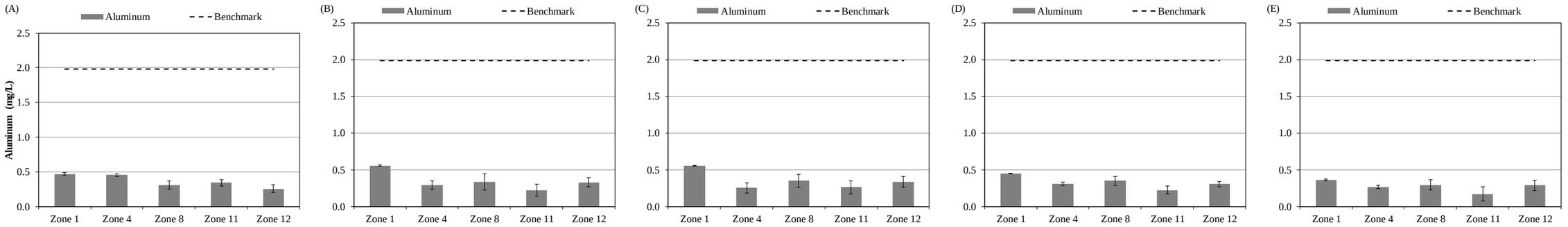

Figure A2-8: Mean (± SE) aluminum concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

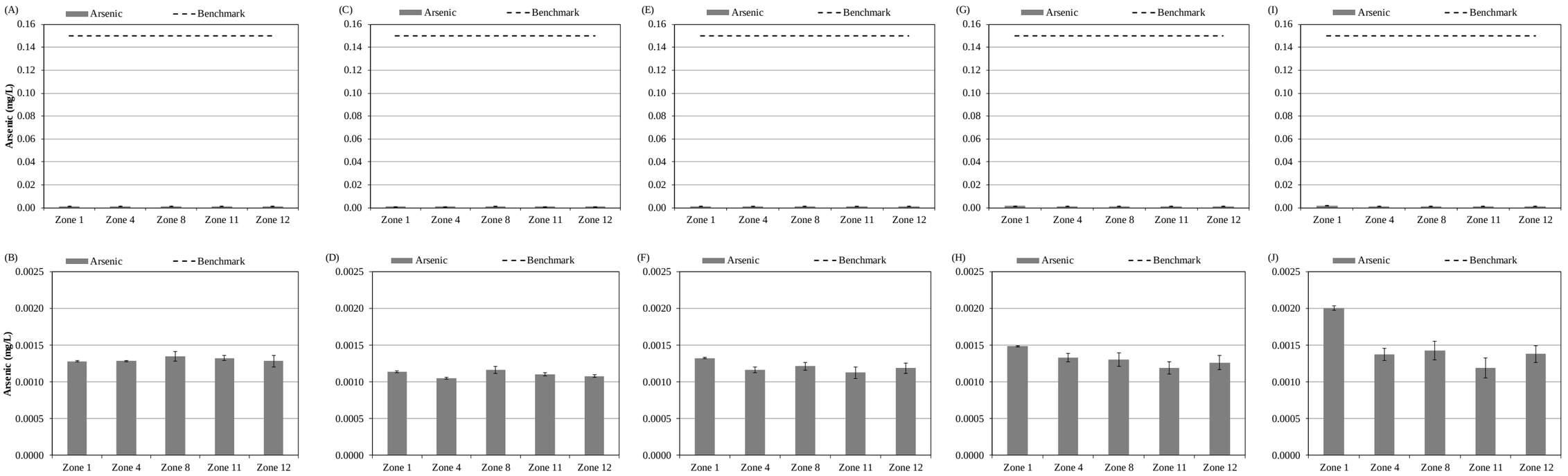

Figure A2-9: Mean (± SE) arsenic concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

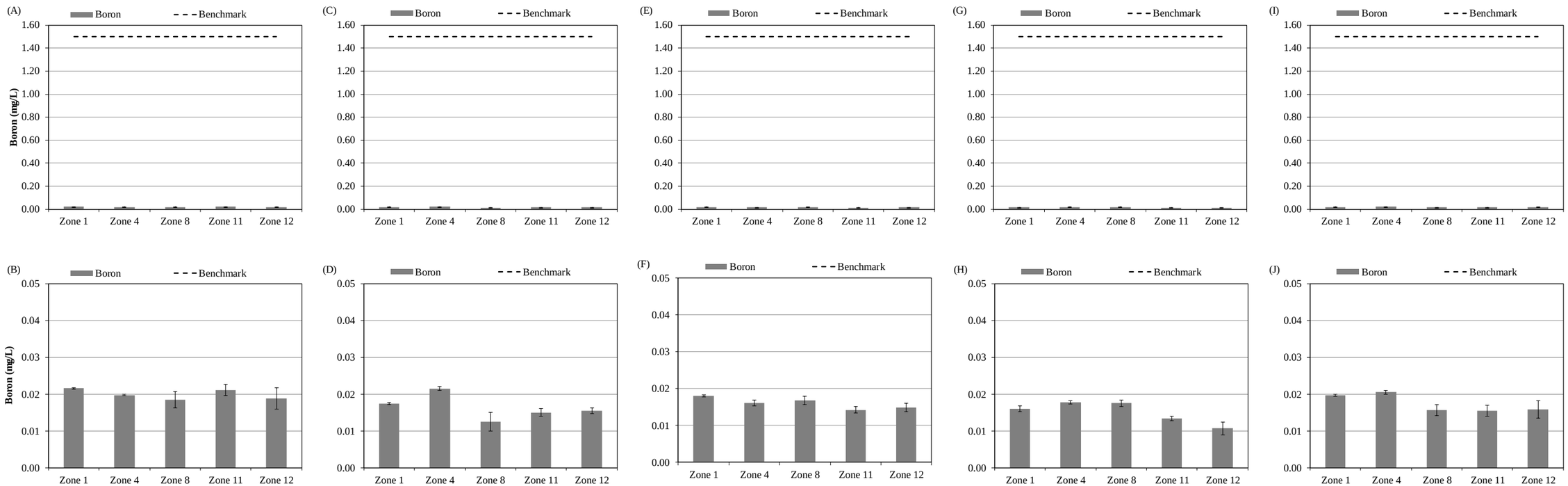

Figure A2-10: Mean (± SE) boron concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

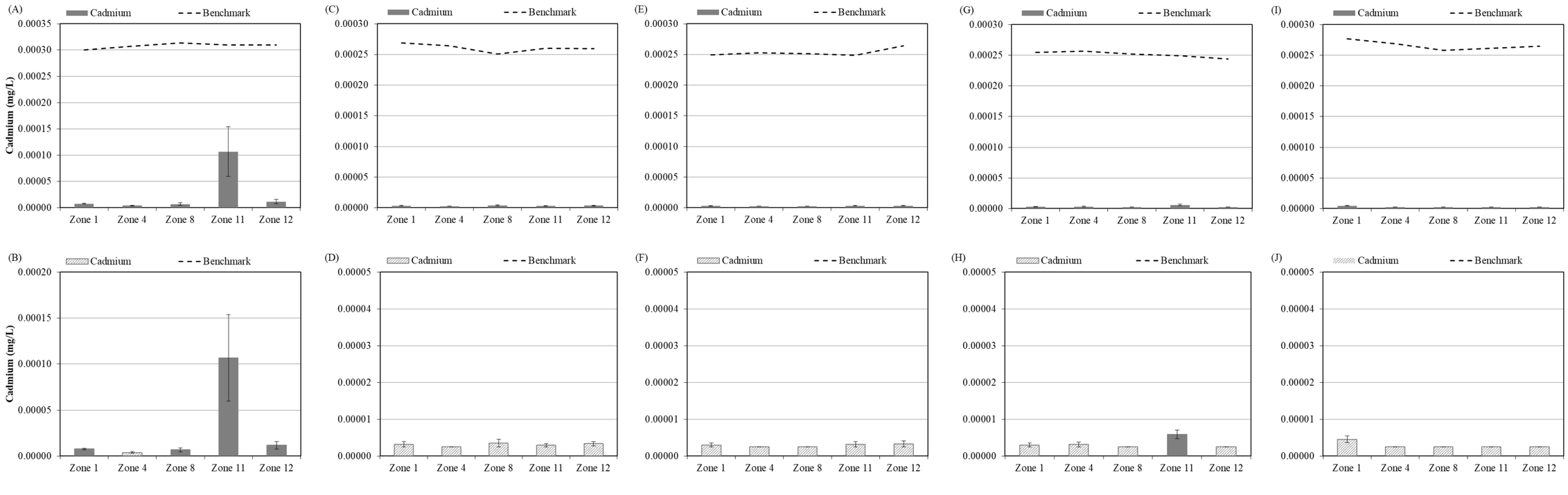

Figure A2-11: Mean (± SE) cadmium concentrations measured the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

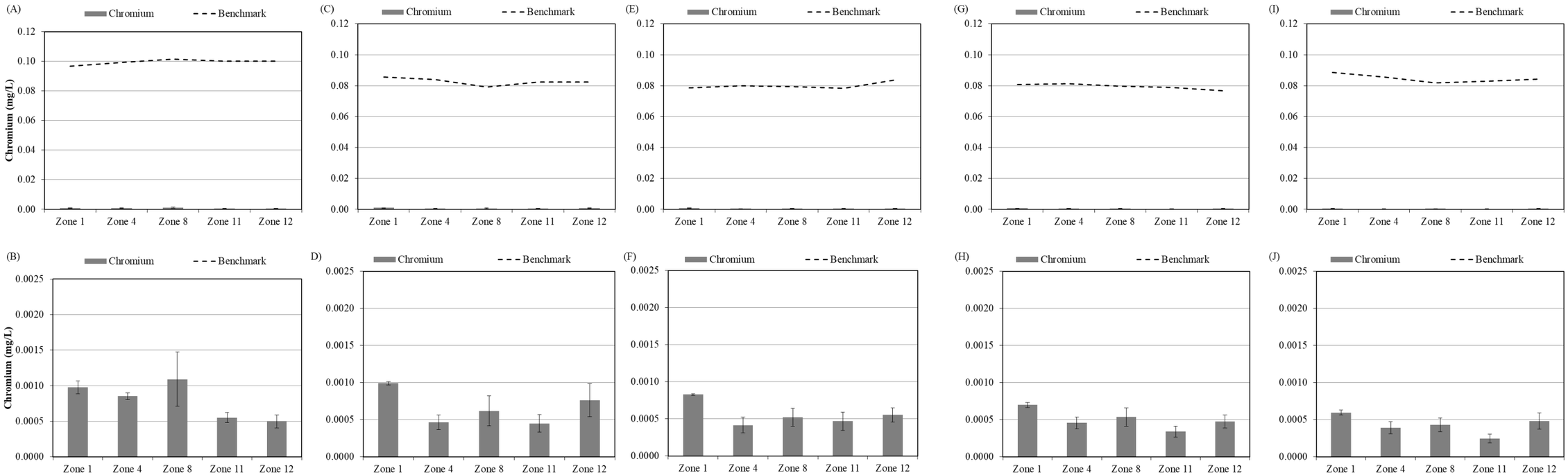

Figure A2-12: Mean (± SE) chromium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

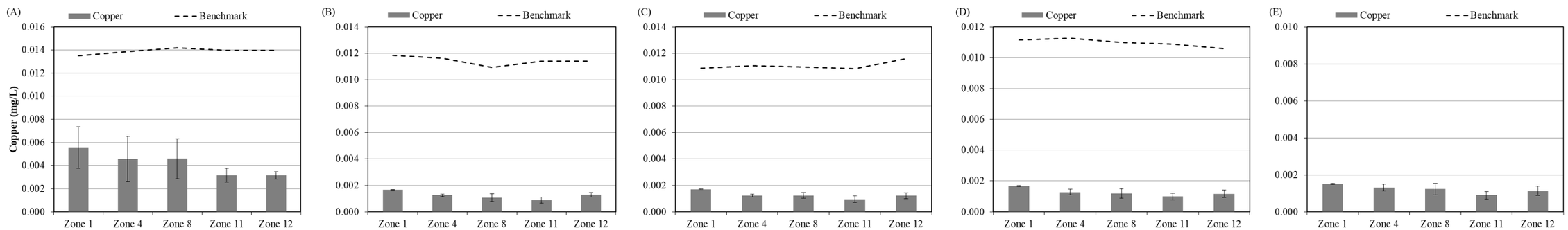

Figure A2-13: Mean (± SE) copper concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

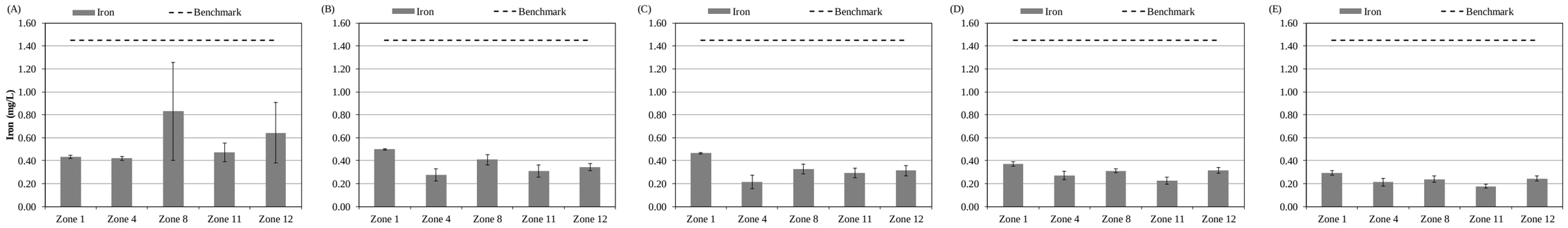

Figure A2-14: Mean (± SE) iron concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

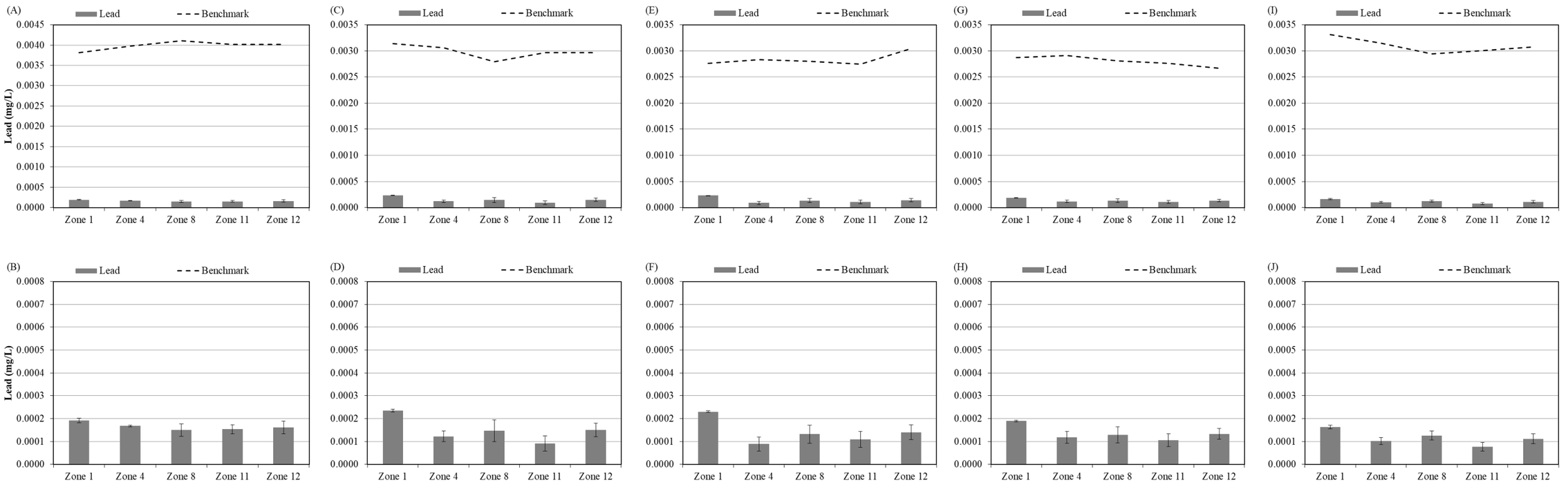

Figure A2-15: Mean (± SE) lead concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

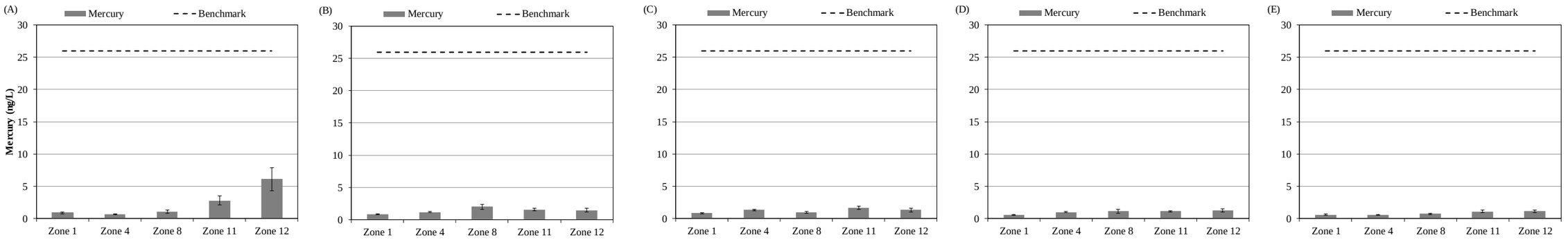

Figure A2-16: Mean (± SE) mercury concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

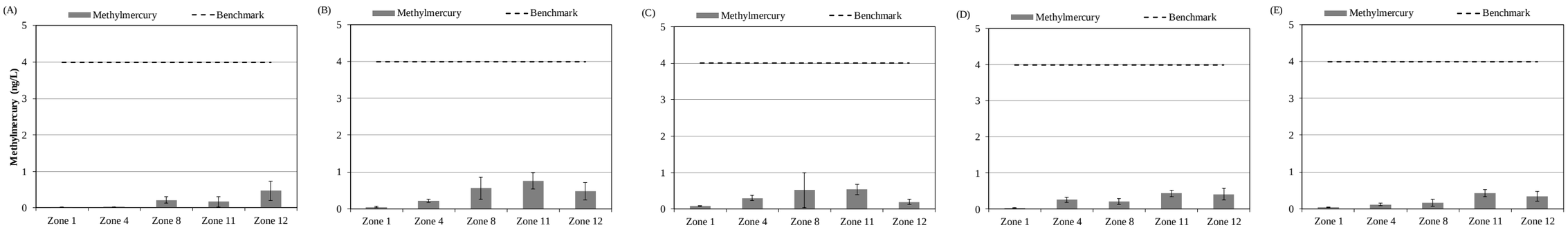

Figure A2-17: Mean (± SE) methylmercury concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

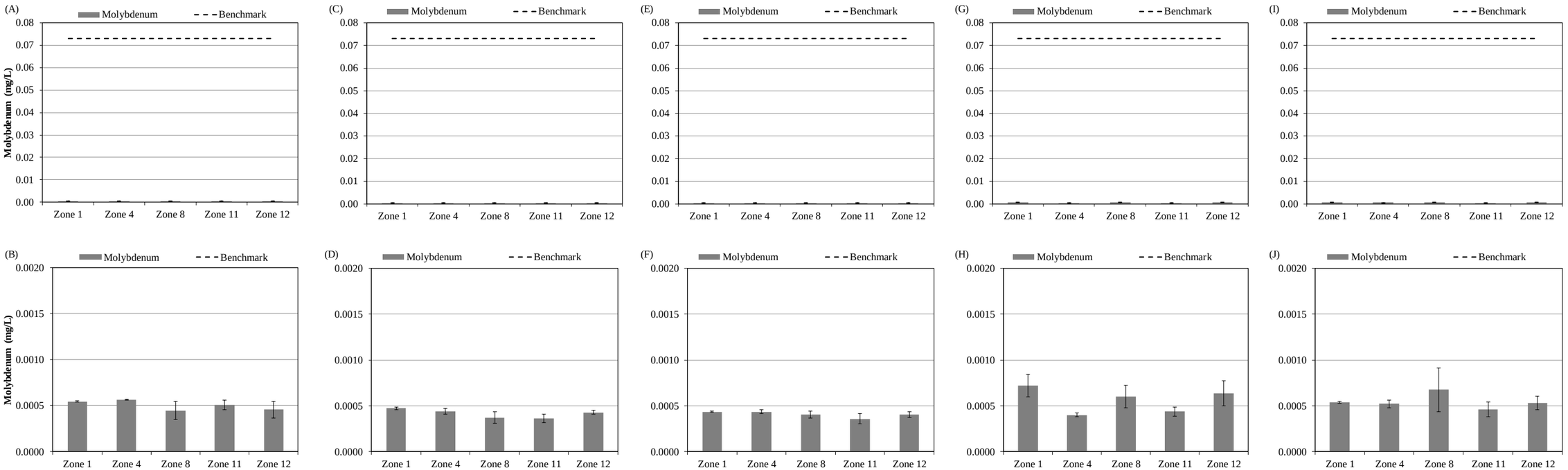

Figure A2-18: Mean (± SE) molybdenum concentrations measured the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

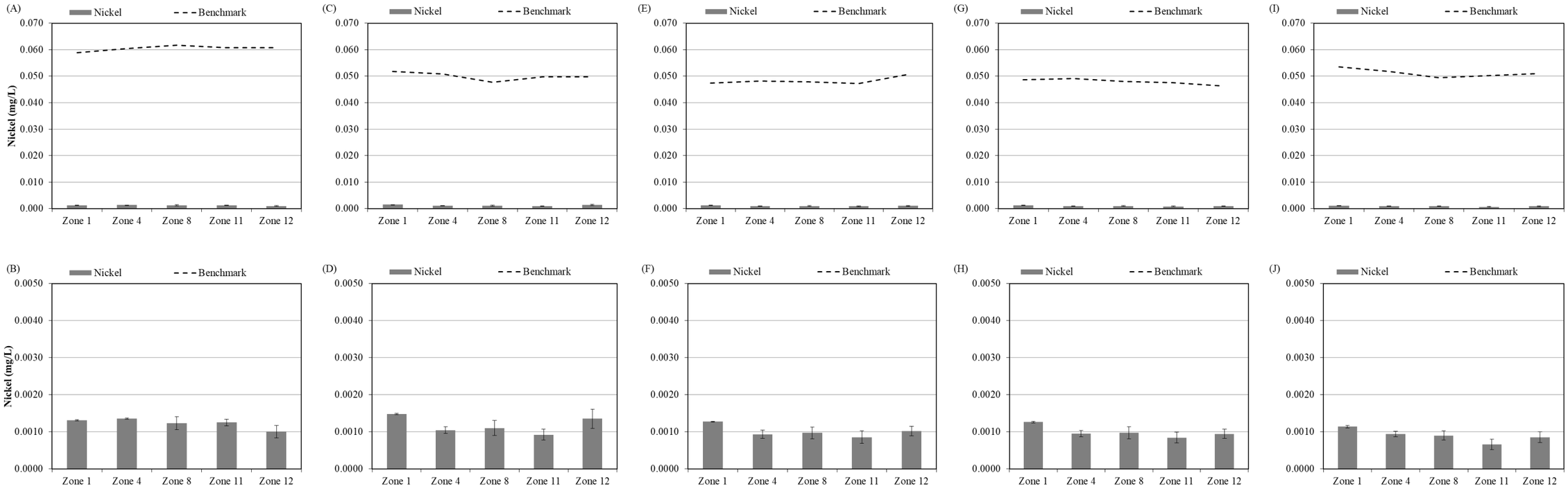

Figure A2-19: Mean (± SE) nickel concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

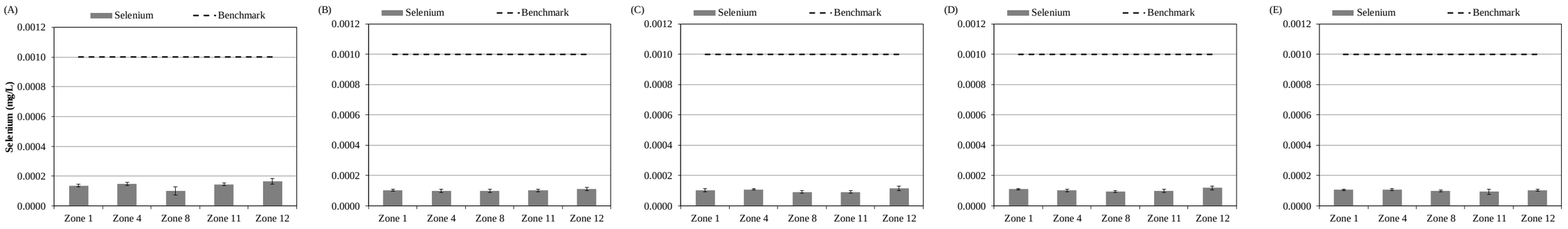

Figure A2-20: Mean (± SE) selenium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

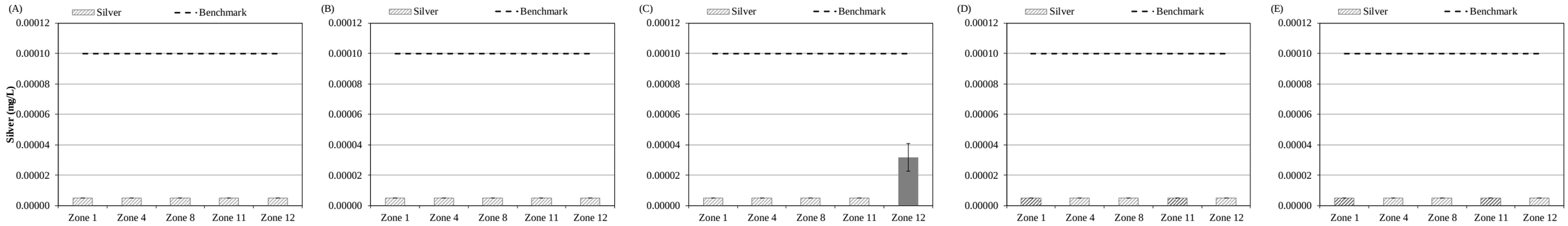

Figure A2-21: Mean (± SE) silver concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023. Hashed bars represent results below the analytical detection limit.

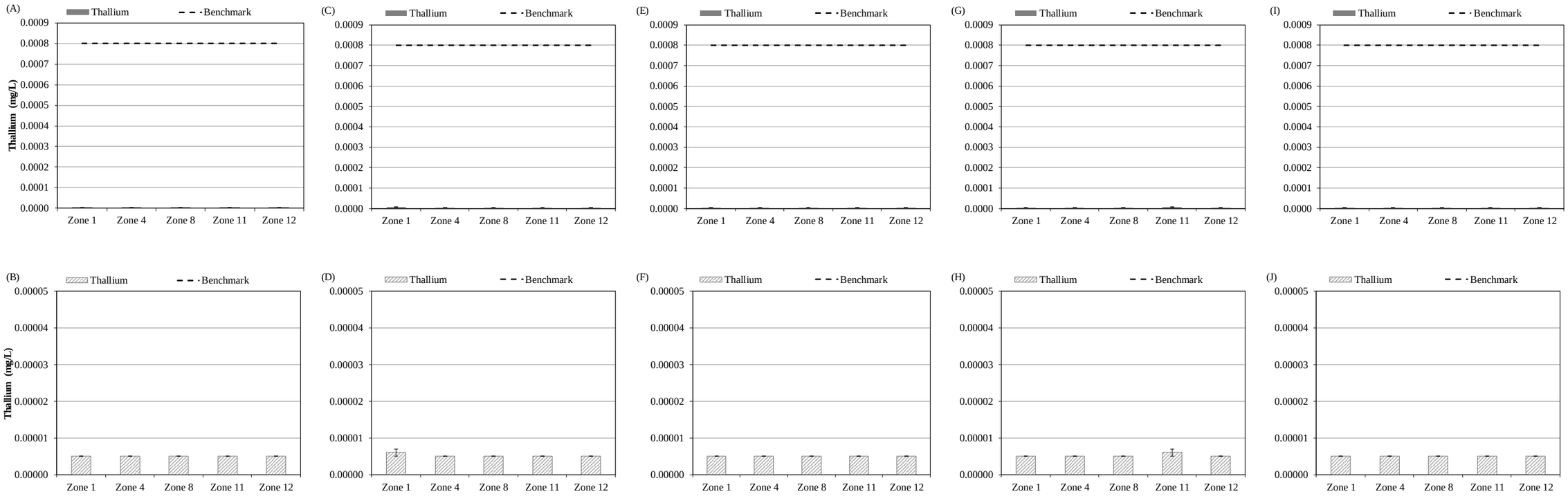

Figure A2-22: Mean (± SE) thallium concentrations measured in the Keeyask reservoir mainstem and backbays March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

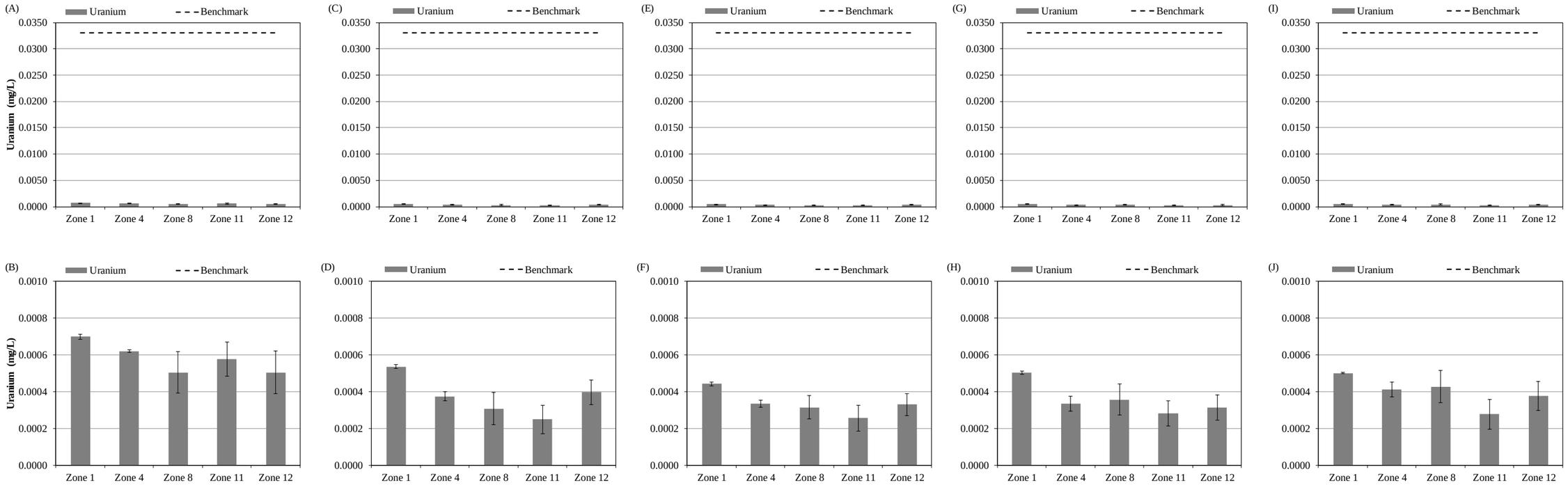

Figure A2-23: Mean (± SE) uranium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

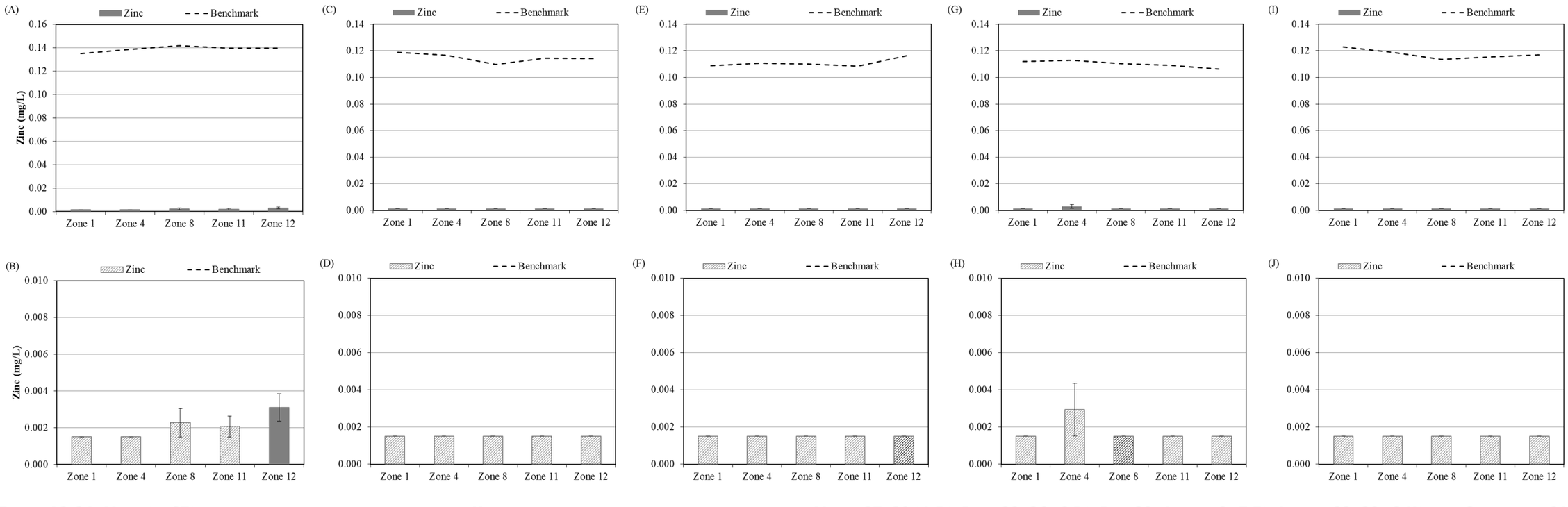

Figure A2-24: Mean (± SE) zinc concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

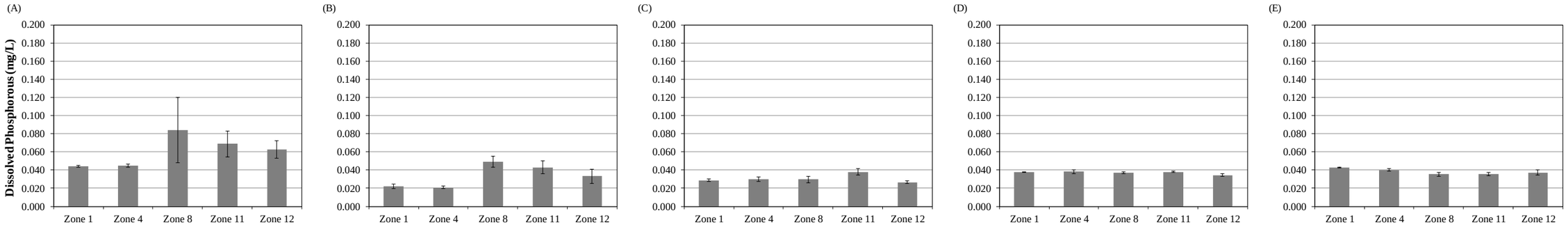

Figure A2-25: Mean (± SE) dissolved phosphorus (P) concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

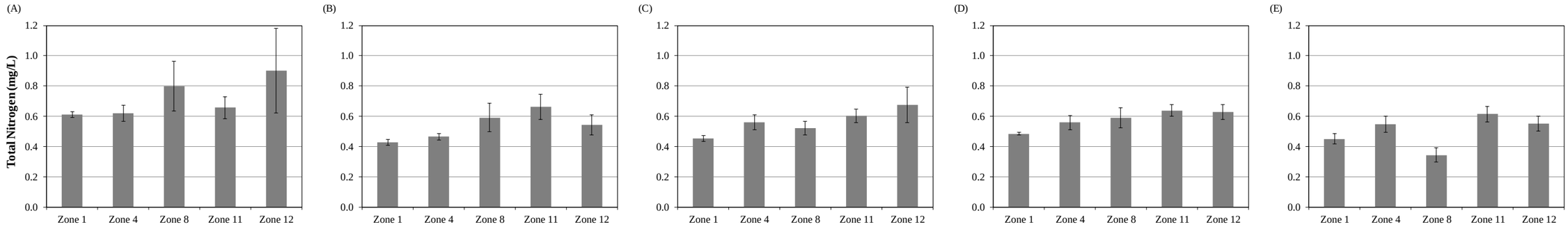

Figure A2-26: Mean (± SE) concentrations of total nitrogen (N) measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

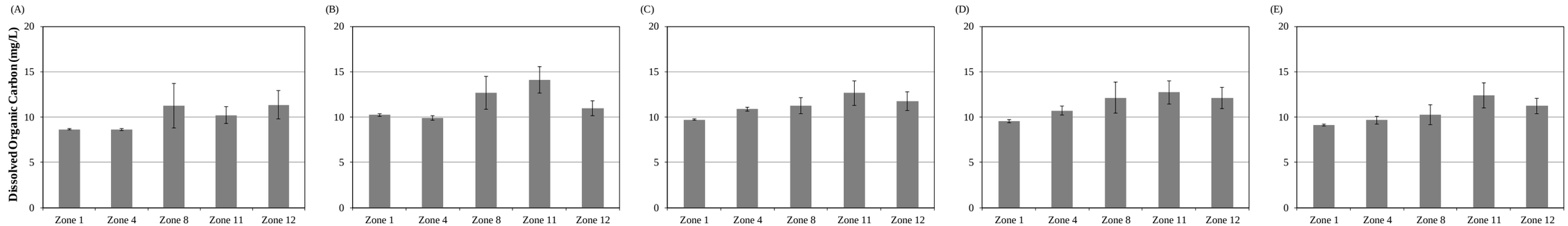

Figure A2-27: Mean (± SE) dissolved organic carbon (C) concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

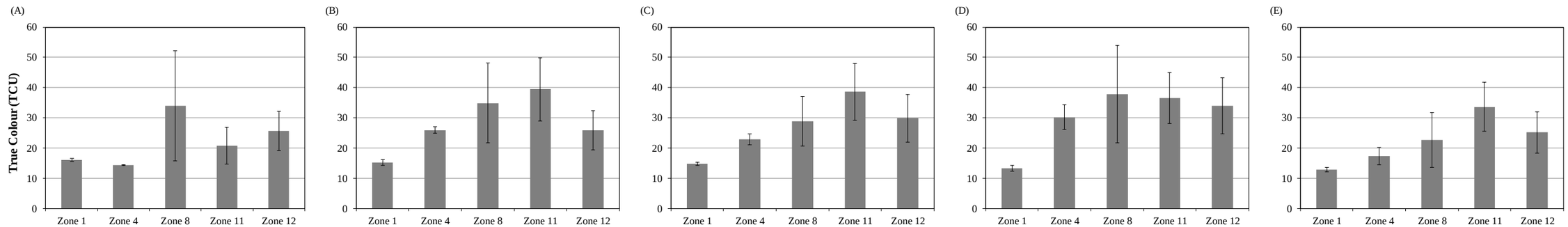

Figure A2-28: Mean (± SE) true colour measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

Figure A2-29: Mean (± SE) laboratory (top) and *in situ* (bottom) turbidity measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023.

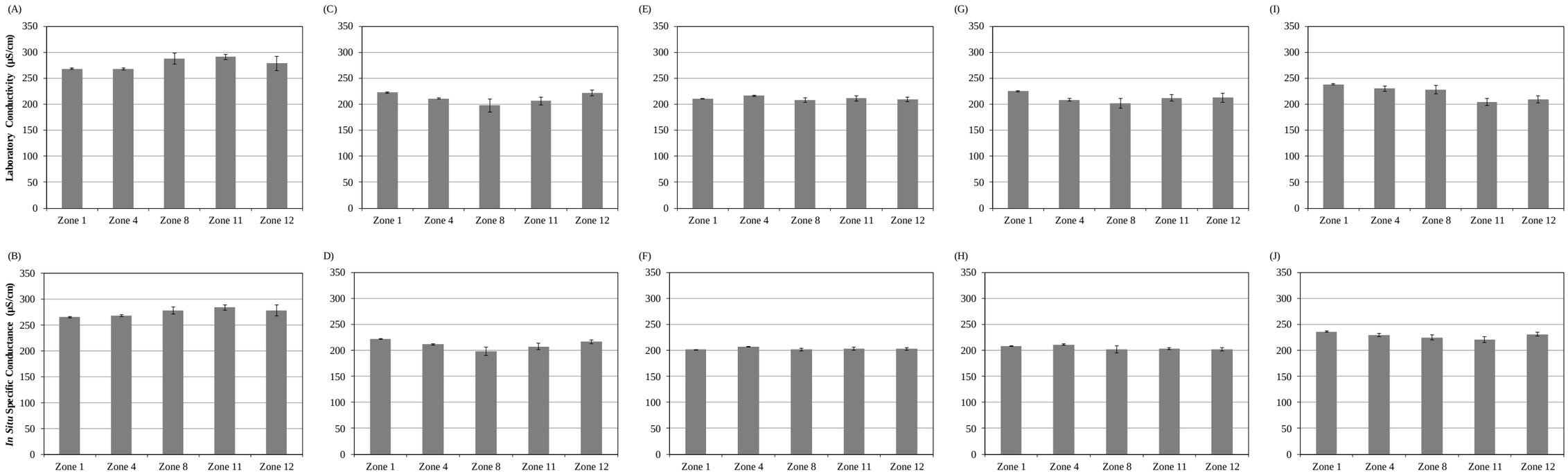

Figure A2-30: Mean (± SE) laboratory conductivity (top) and *in situ* specific conductance (bottom) measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A,B), June 22–26 (C,D), July 29–August 2 (E,F), August 23–28 (G,H), and September 21–24 (I,J), 2023.

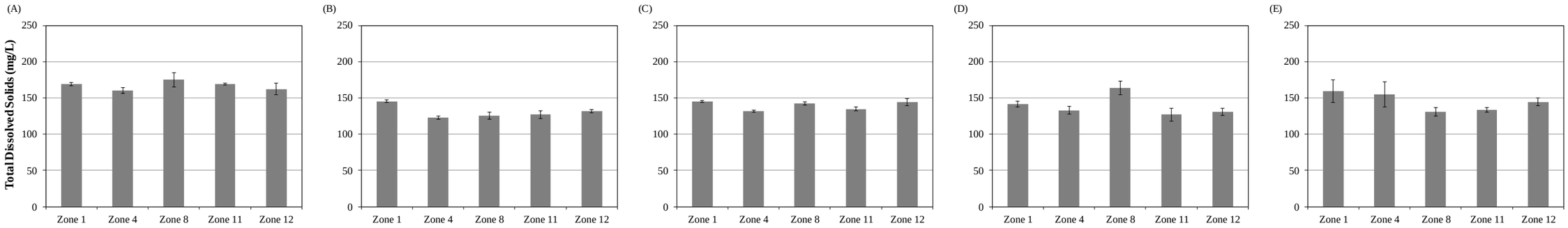

Figure A2-31: Mean (± SE) concentrations of total dissolved solids (TDS) measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

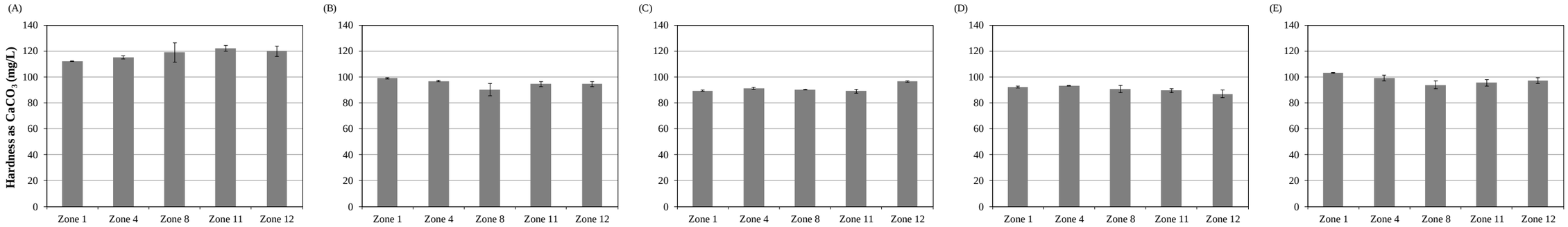

Figure A2-32: Mean (± SE) hardness measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

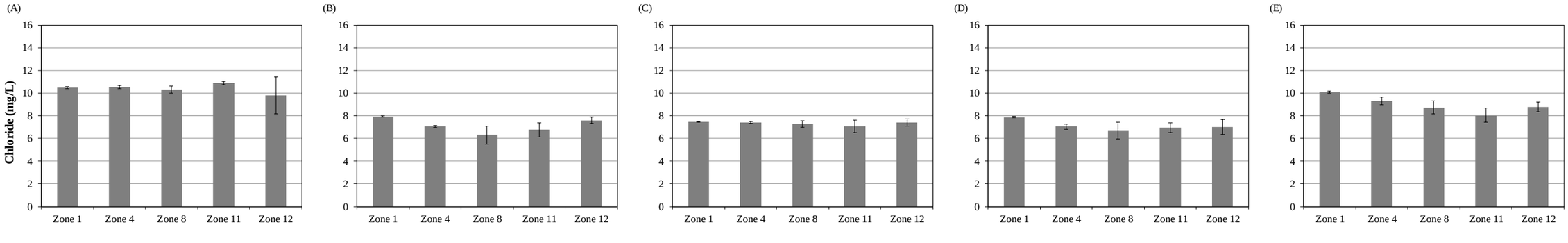

Figure A2-33: Mean (± SE) chloride concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

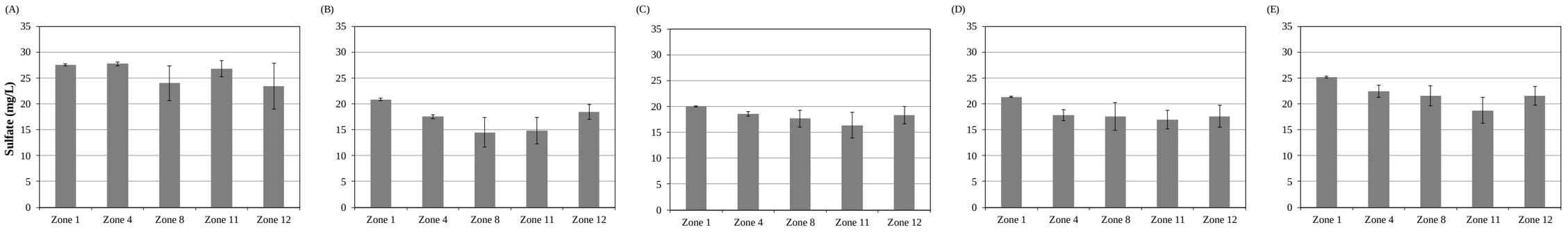

Figure A2-34: Mean (± SE) sulfate concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

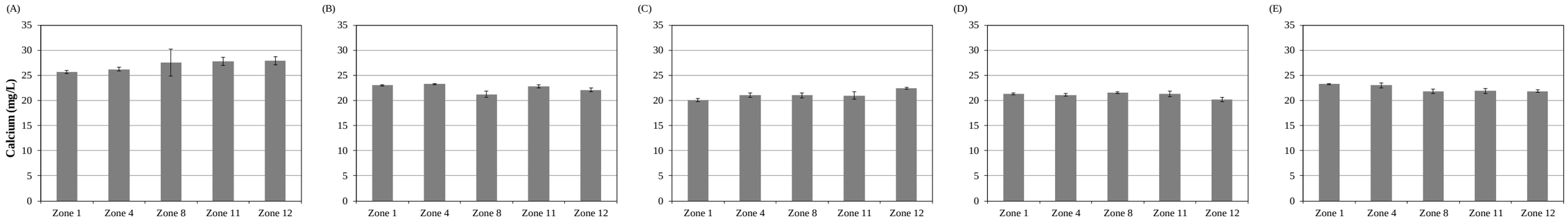

Figure A2-35: Mean (± SE) calcium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

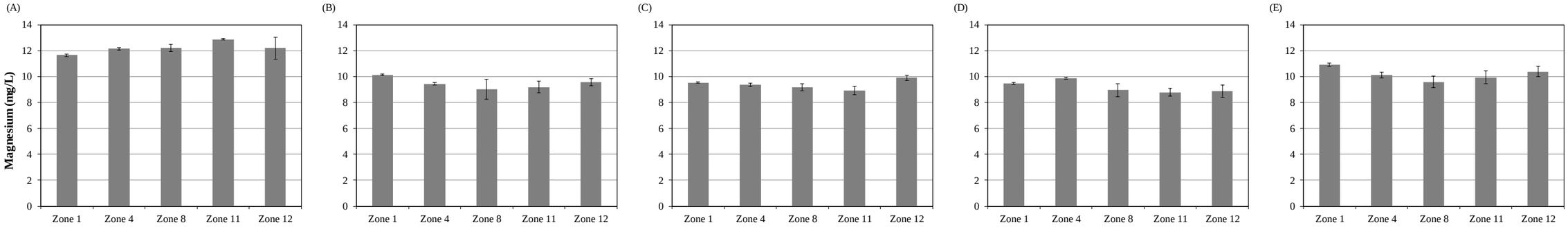

Figure A2-36: Mean (± SE) magnesium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

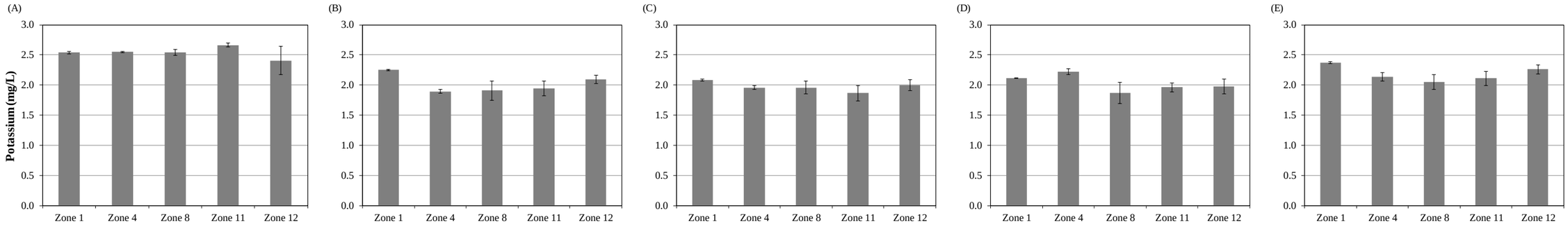

Figure A2-37: Mean (± SE) potassium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

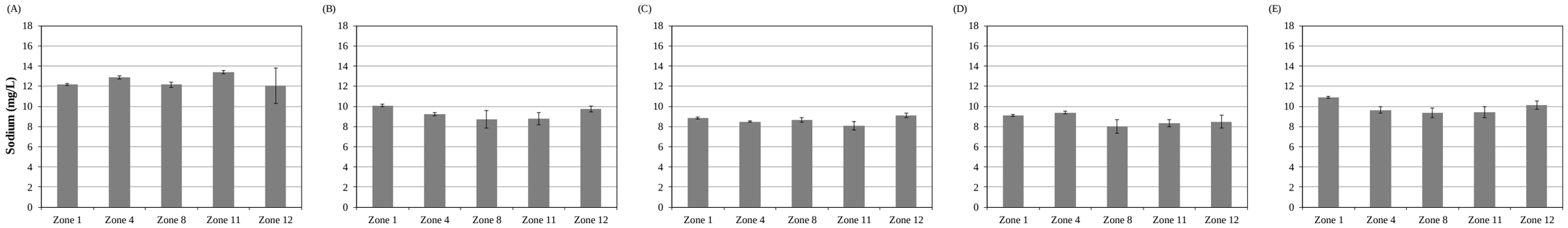

Figure A2-38: Mean (± SE) sodium concentrations measured in the Keeyask reservoir mainstem and backbays on March 27–30 (A), June 22–26 (B), July 29–August 2 (C), August 23–28 (D), and September 21–24 (E), 2023.

APPENDIX 3: FIGURES OF WATER QUALITY PARAMETERS MEASURED IN THE KEEYASK LOCAL AND REGIONAL STUDY AREAS, 2023

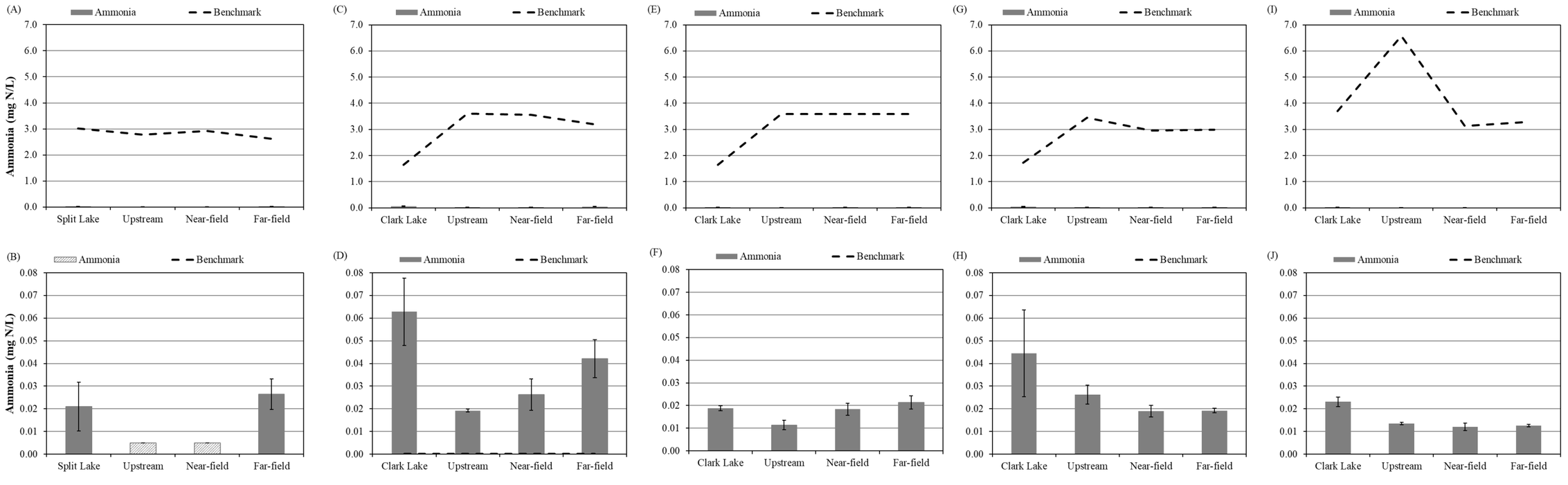

Figure A3-1: Mean (± SE) ammonia concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

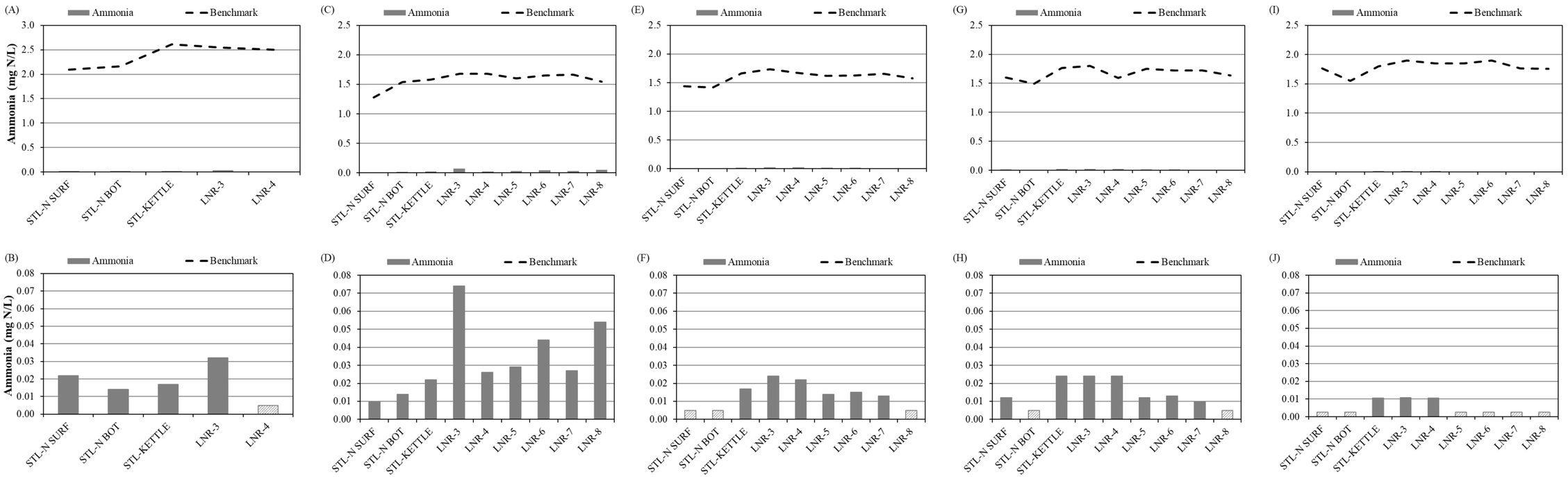

Figure A3-2: Ammonia concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

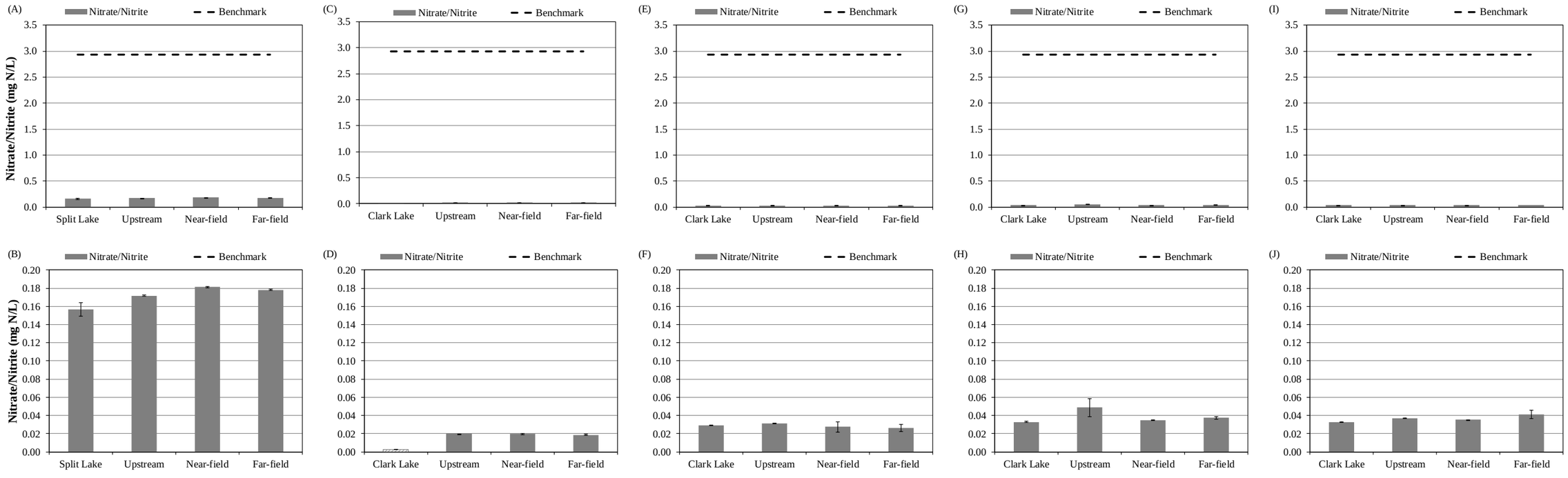

Figure A3-3: Mean (± SE) nitrate/nitrite concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

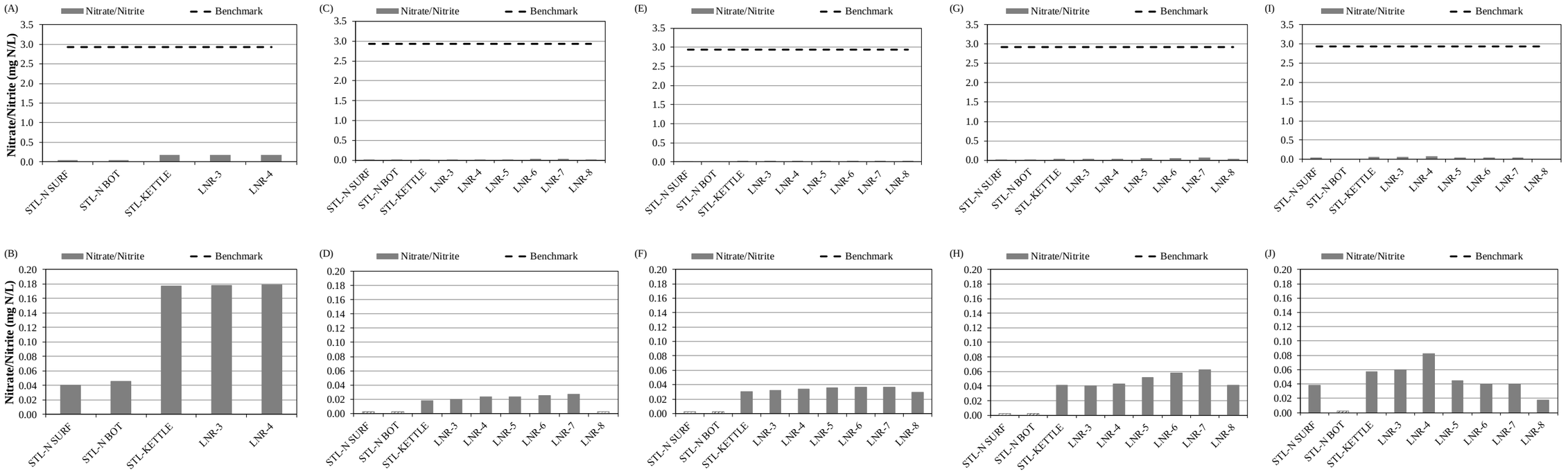

Figure A3-4: Nitrate/nitrite concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

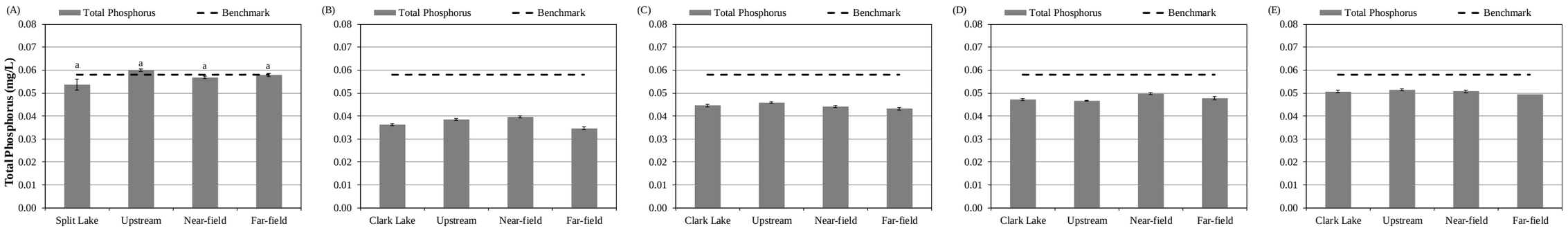

Figure A3-5: Mean (± SE) concentrations of total phosphorus measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023. Letters in (A) denote statistical comparisons.

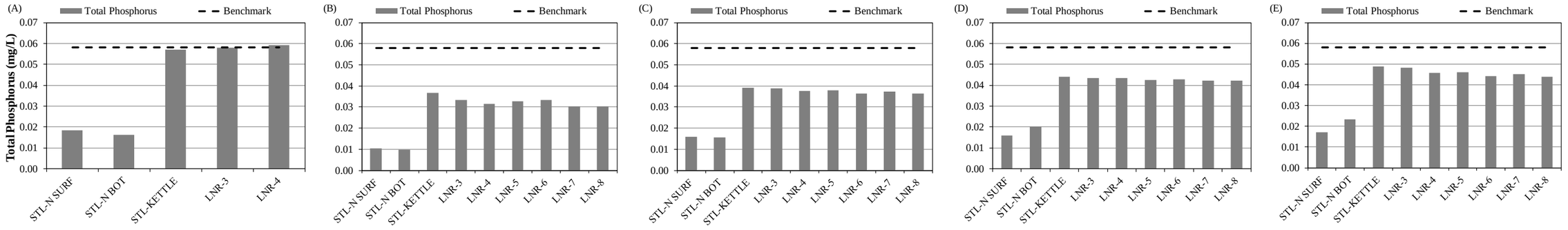

Figure A3-6: Total phosphorus concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

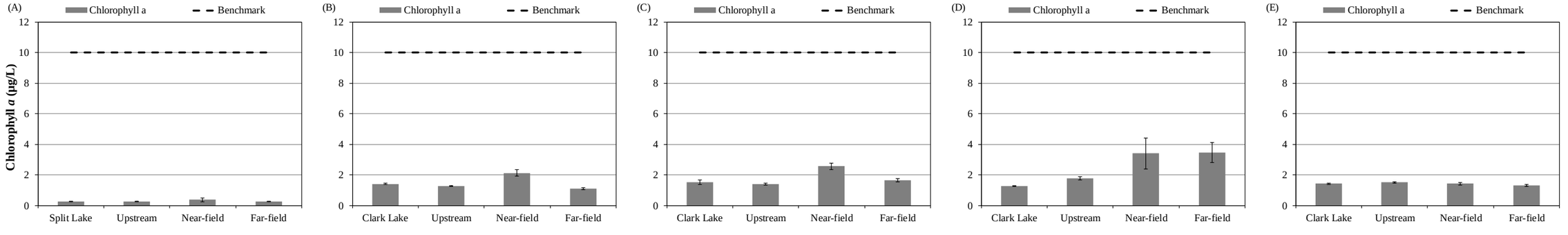

Figure A3-7: Mean (± SE) chlorophyll *a* concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

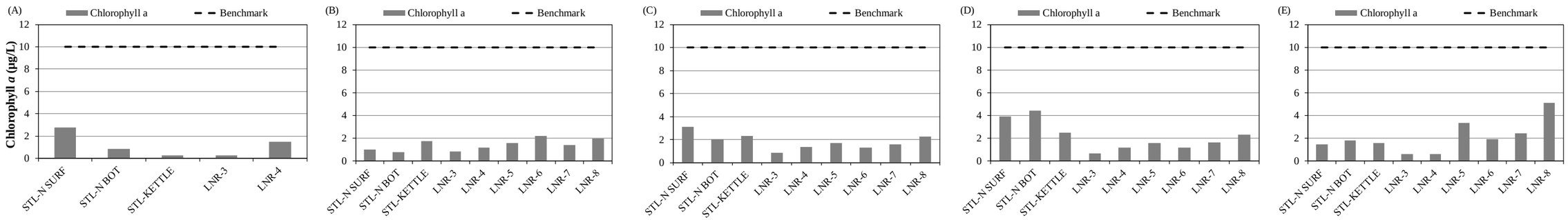

Figure A3-8: Chlorophyll *a* concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

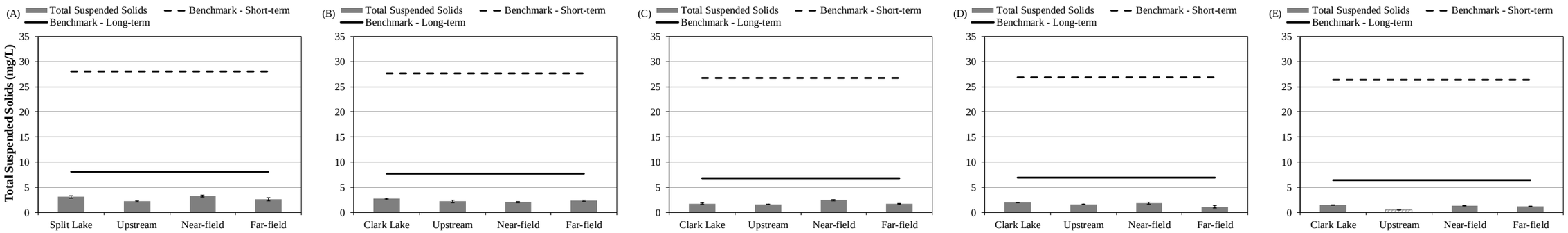

Figure A3-9: Mean (± SE) concentration of total suspended solids measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

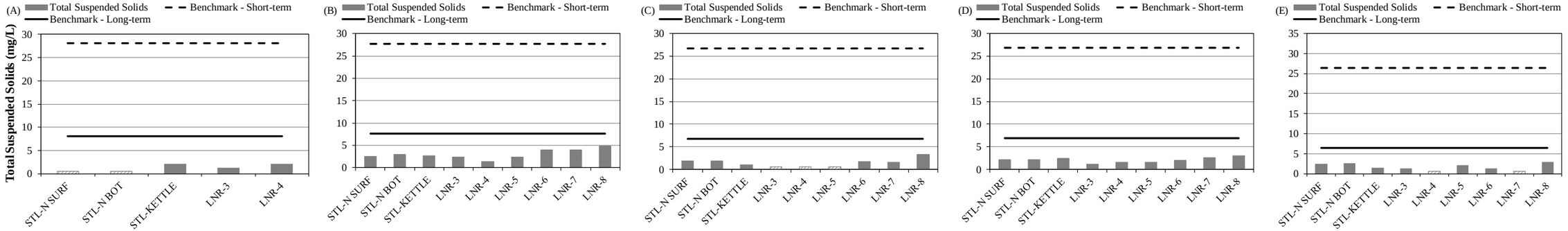

Figure A3-10: Total suspended solid concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023. Hashed bars represent results below the analytical detection limit.

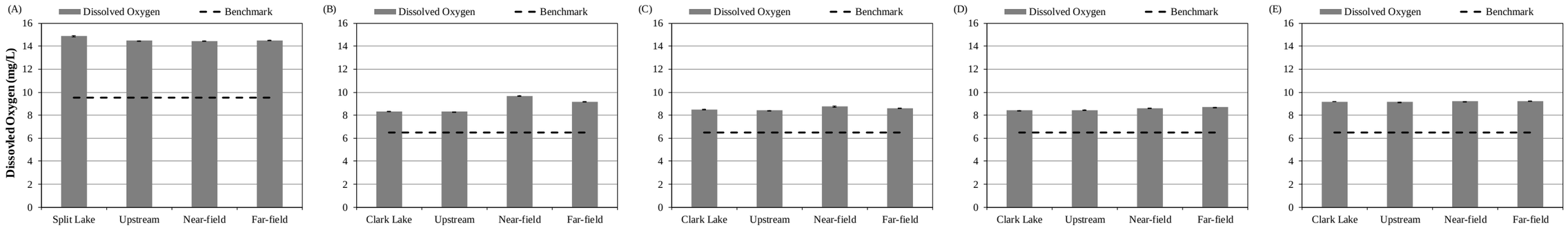

Figure A3-11: Mean (± SE) dissolved oxygen concentrations measured near the surface in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

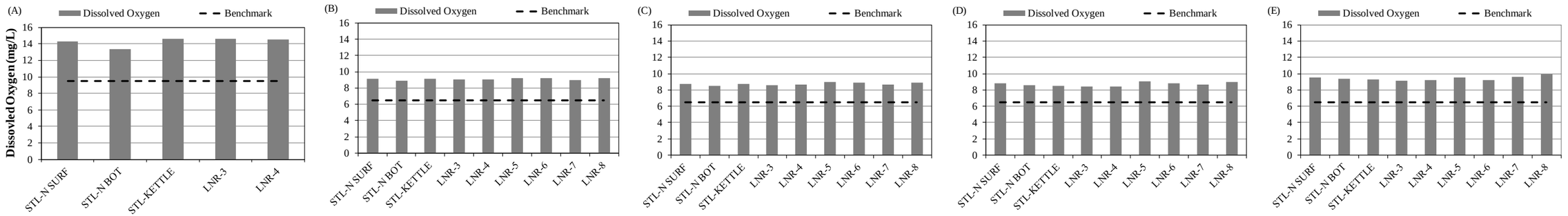

Figure A3-12: Dissolved oxygen concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

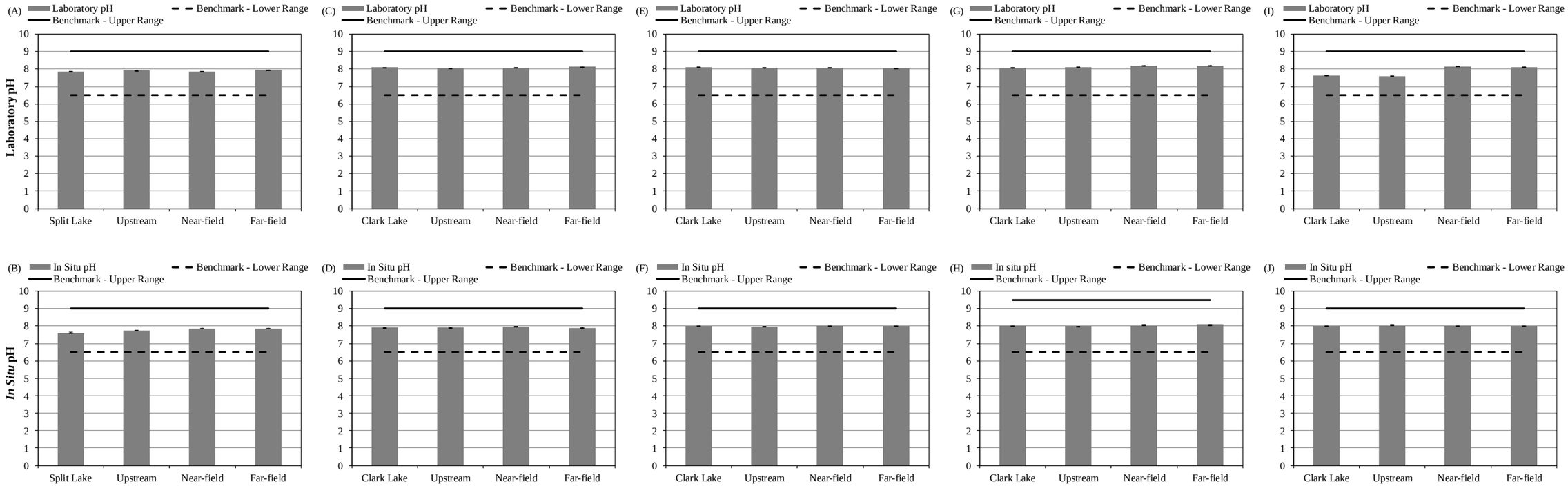

Figure A3-13: Mean (± SE) laboratory (top) and *in situ* (bottom) pH measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023.

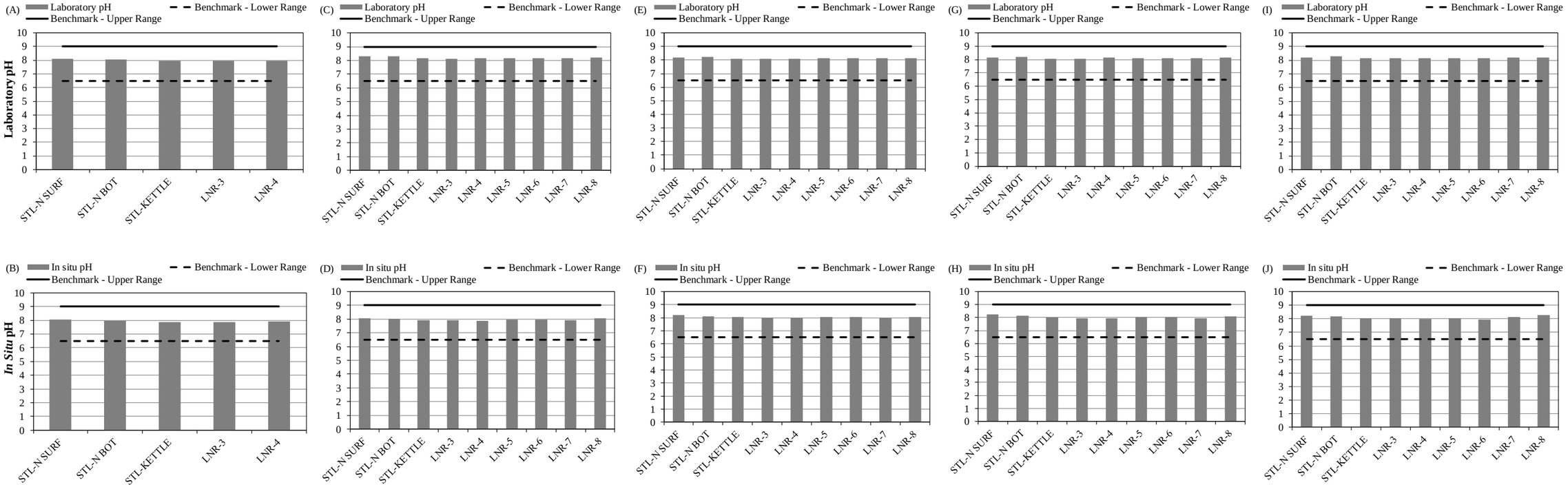

Figure A3-14: Laboratory (top) and in situ (bottom) pH measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023.

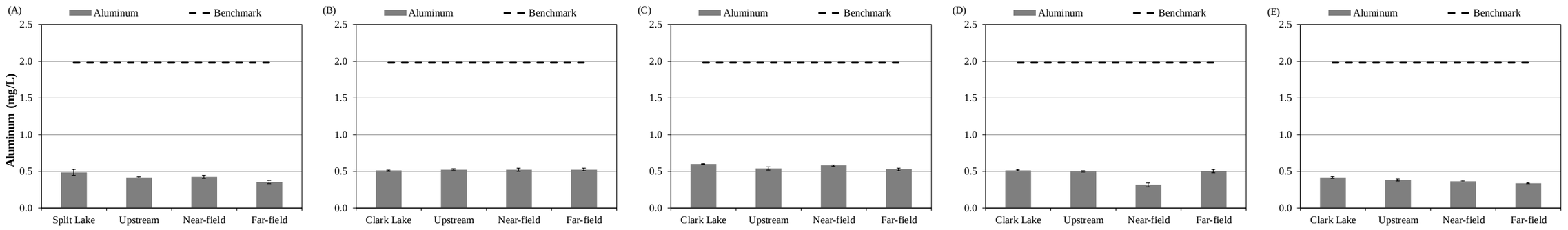

Figure A3-15: Mean (± SE) aluminum concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

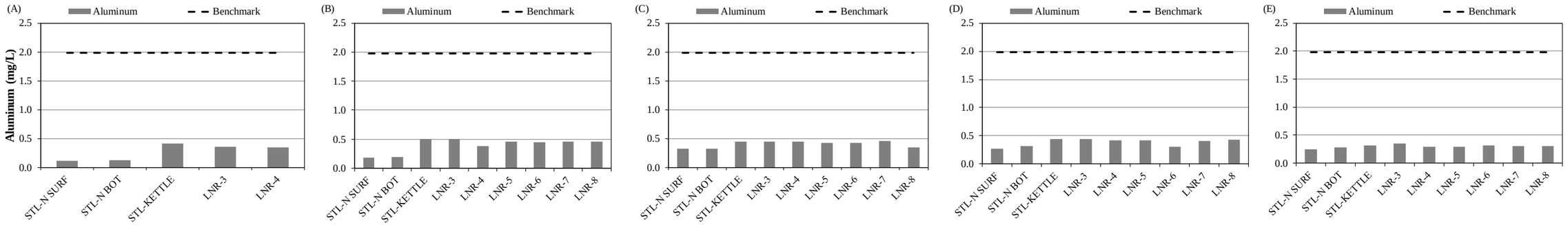

Figure A3-16: Aluminum concentrations measured in the Keeyask regional study area on March 31 (A), June 39 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

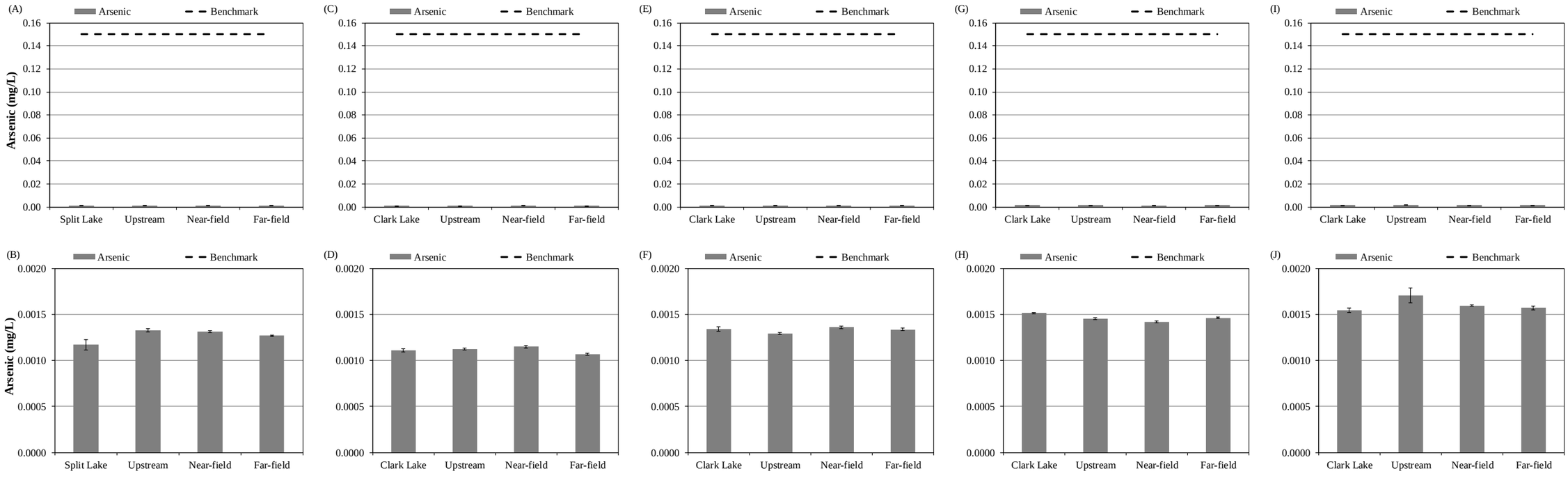

Figure A3-17: Mean (± SE) arsenic concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

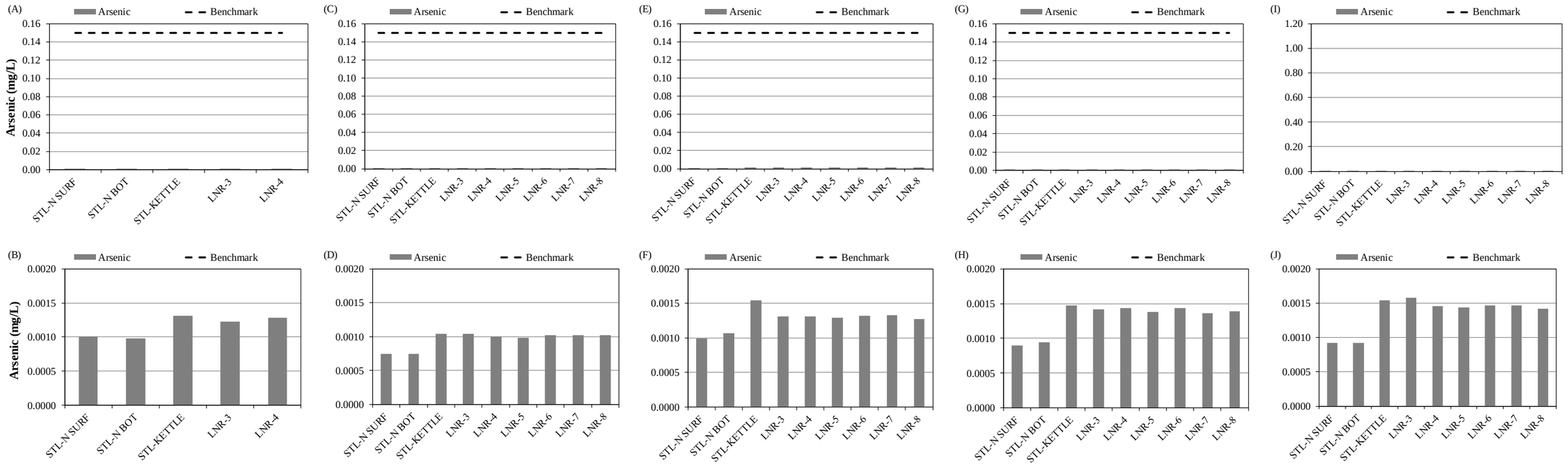

Figure A3-18: Arsenic concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom.

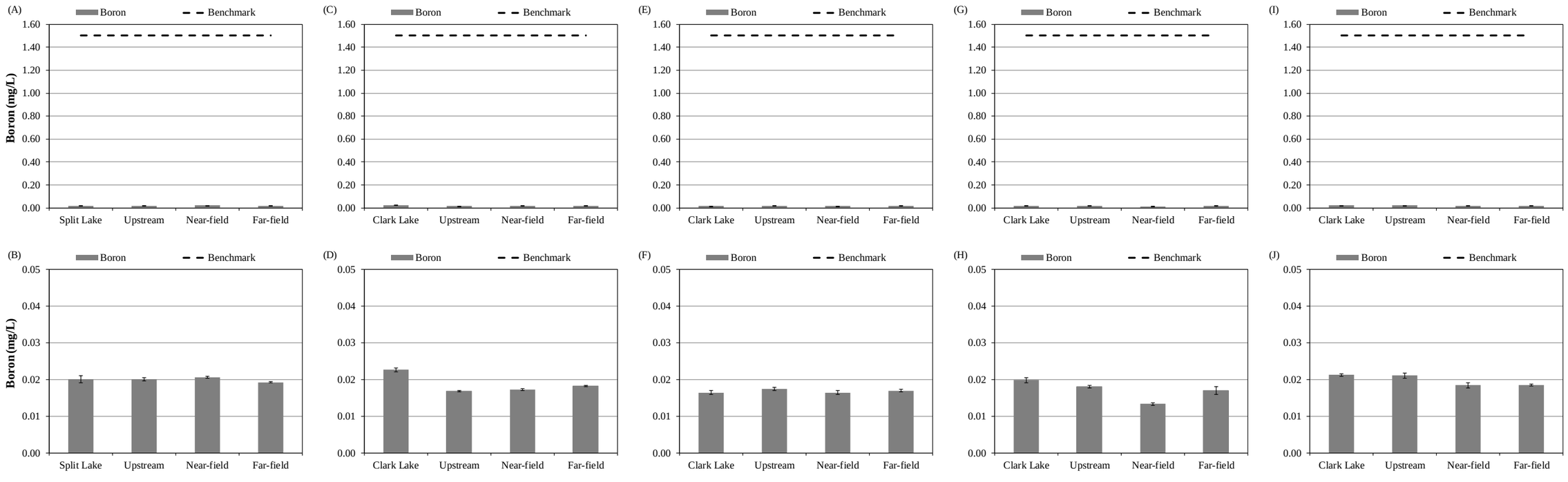

Figure A3-19: Mean (± SE) boron concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

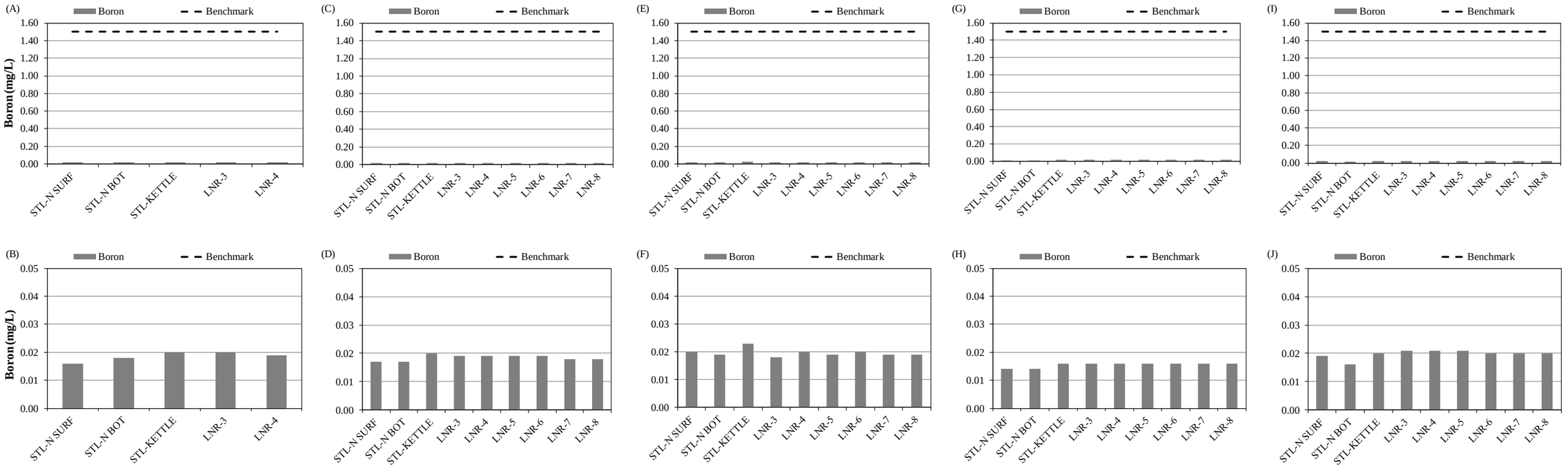

Figure A3-20: Boron concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom.

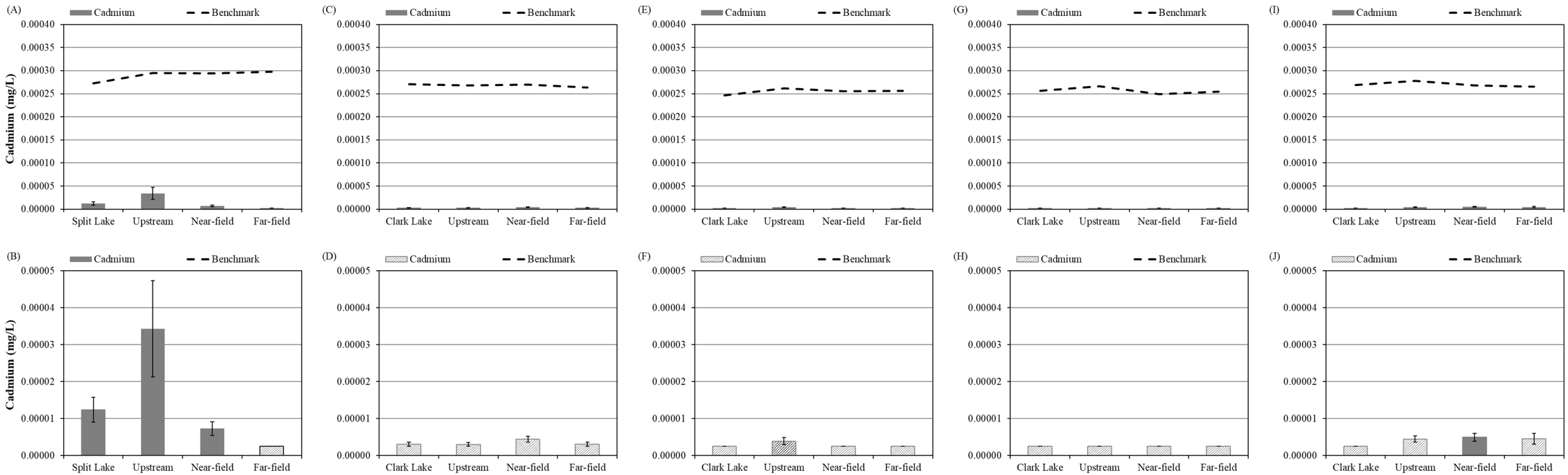

Figure A3-21: Mean (± SE) cadmium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

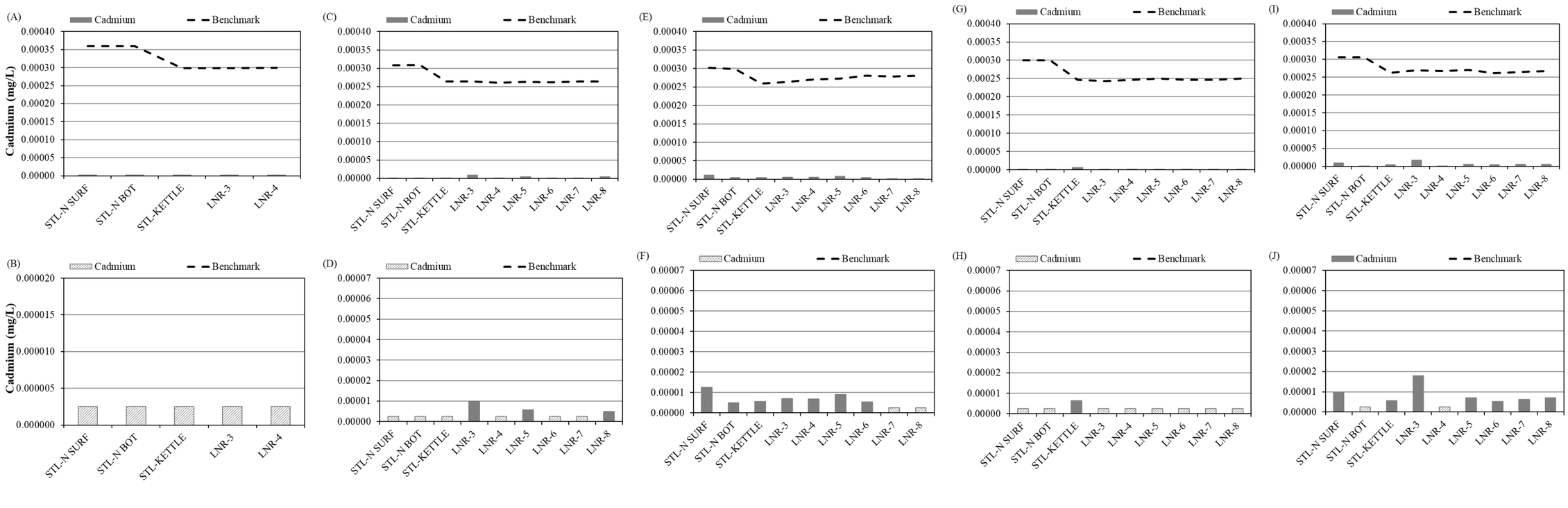

Figure A3-22: Cadmium concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

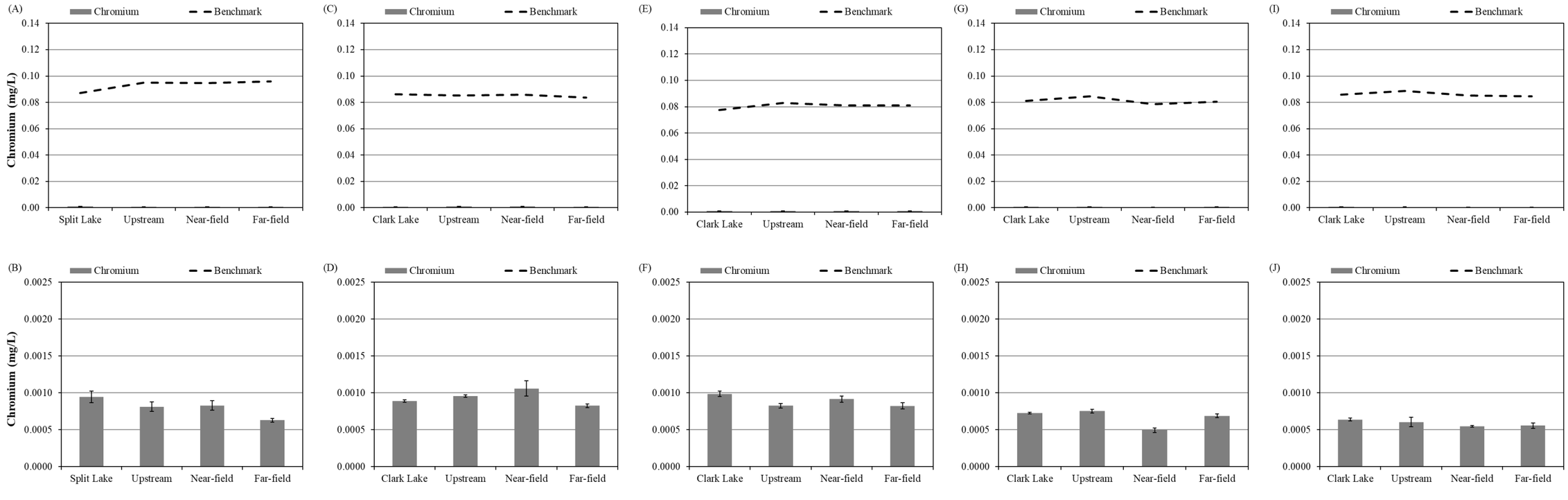

Figure A3-23: Mean (± SE) chromium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

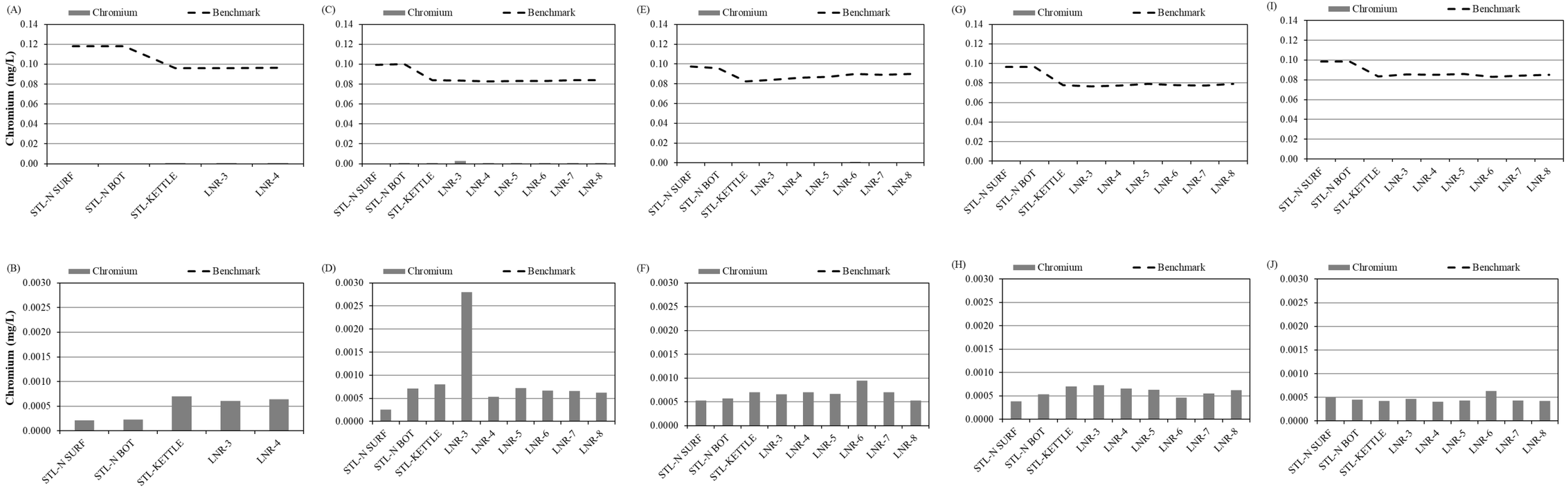

Figure A3-24: Chromium concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom.

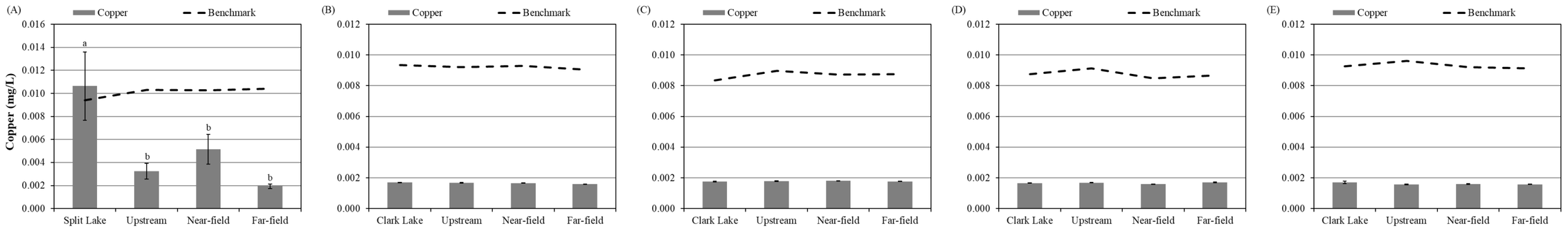

Figure A3-25: Mean (± SE) copper concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023. Letters in (A) indicate statistically significant (α = 0.05) differences.

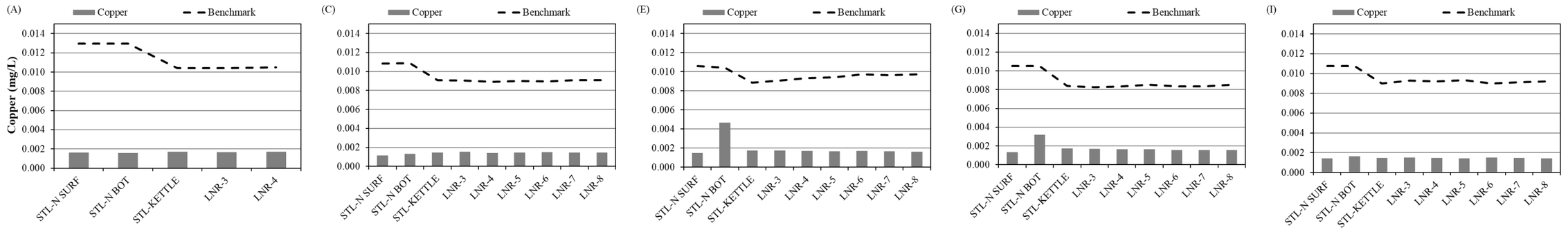

Figure A3-26: Copper concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

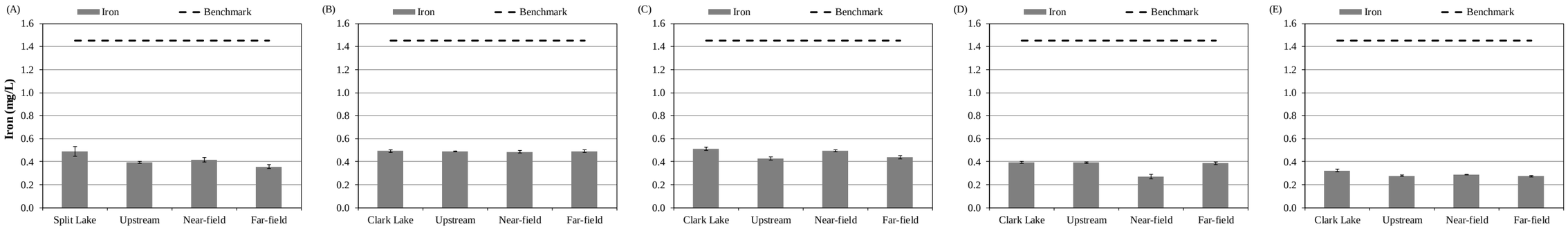

Figure A3-27: Mean (± SE) iron concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

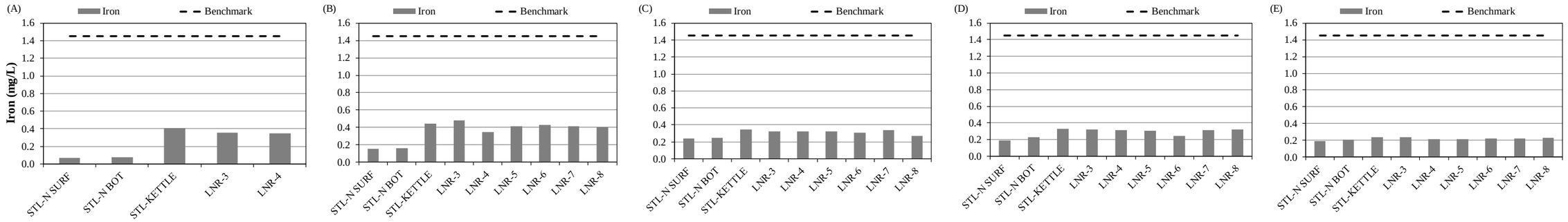

Figure A3-28: Iron concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

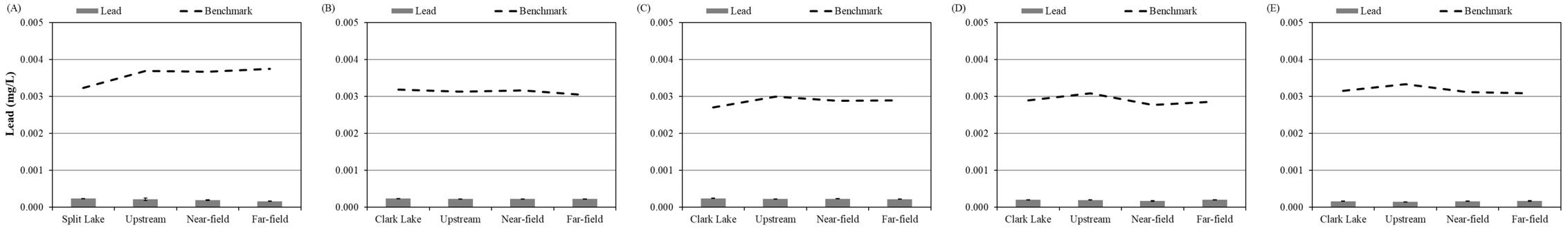

Figure A3-29: Mean (± SE) lead concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

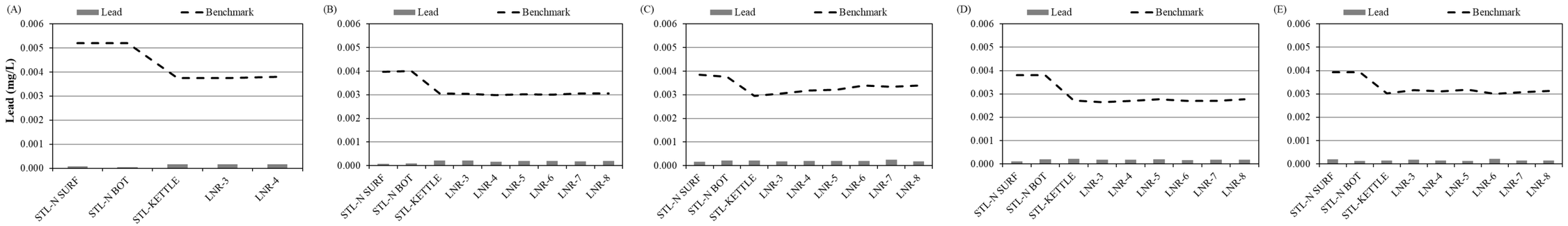

Figure A3-30: Lead concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

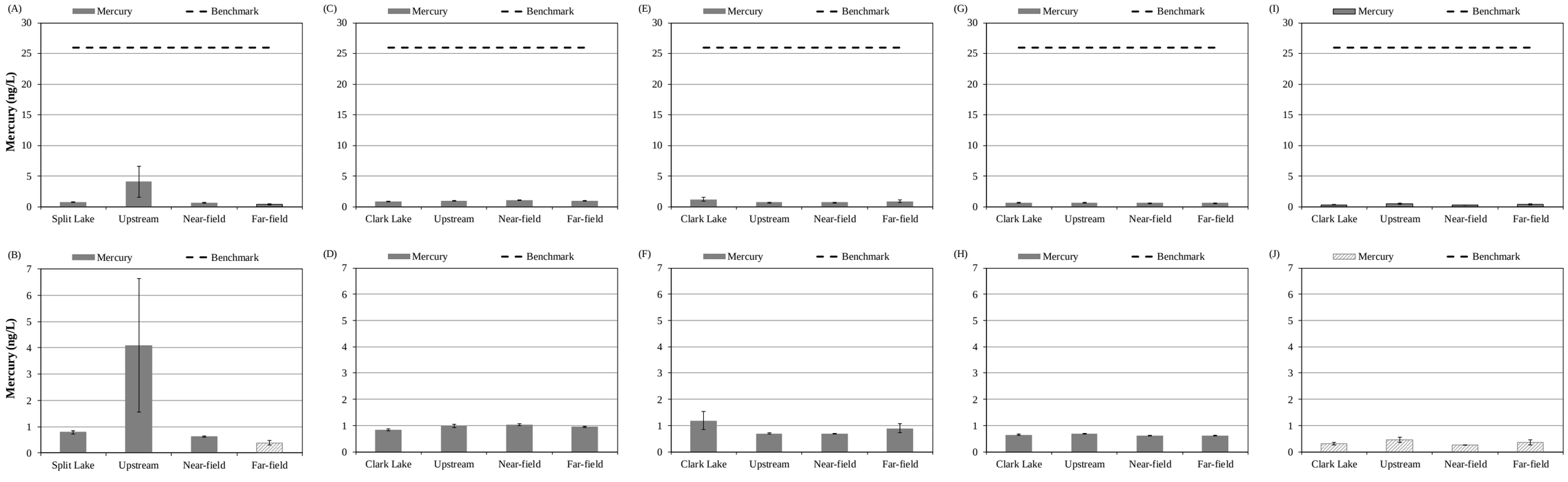

Figure A3-31: Mean (± SE) mercury concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

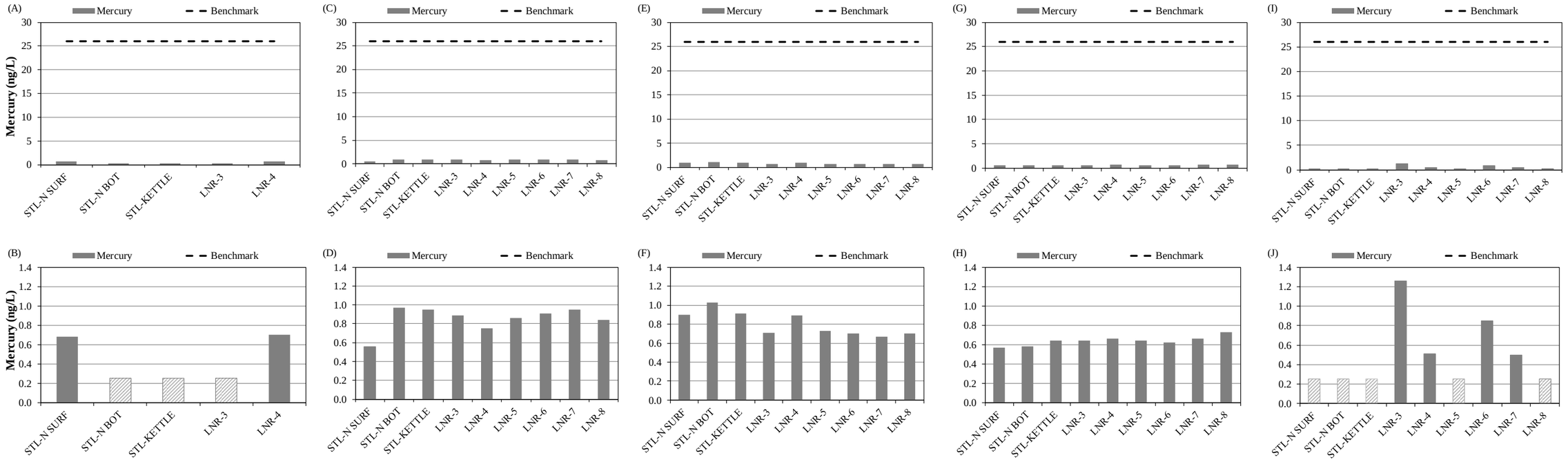

Figure A3-32: Mercury concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

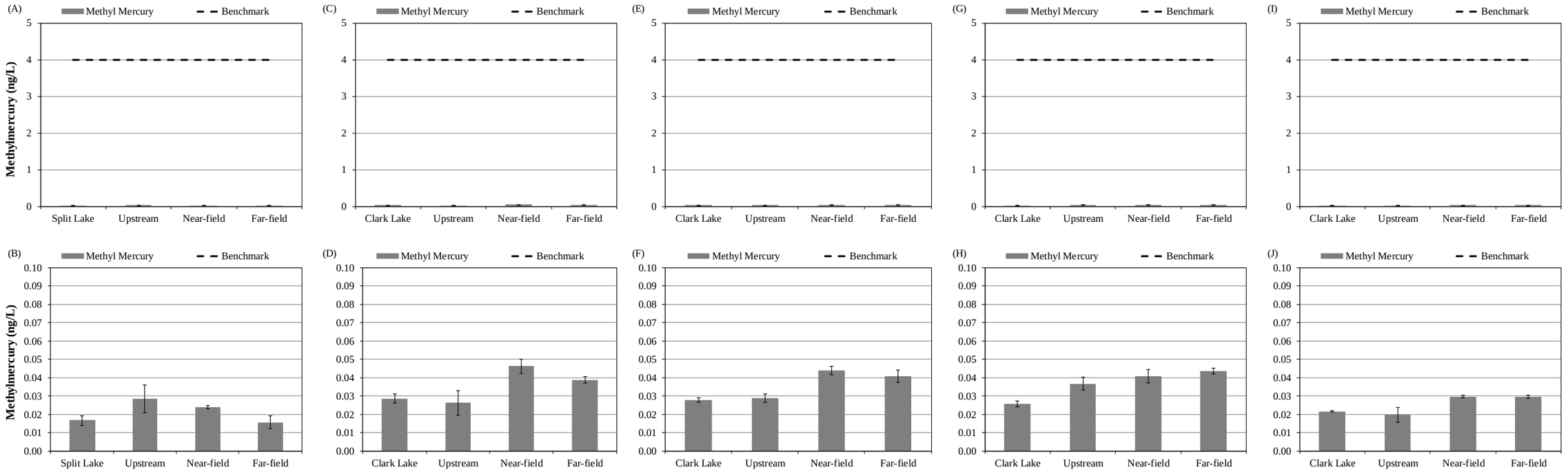

Figure A3-33: Mean (± SE) methylmercury concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

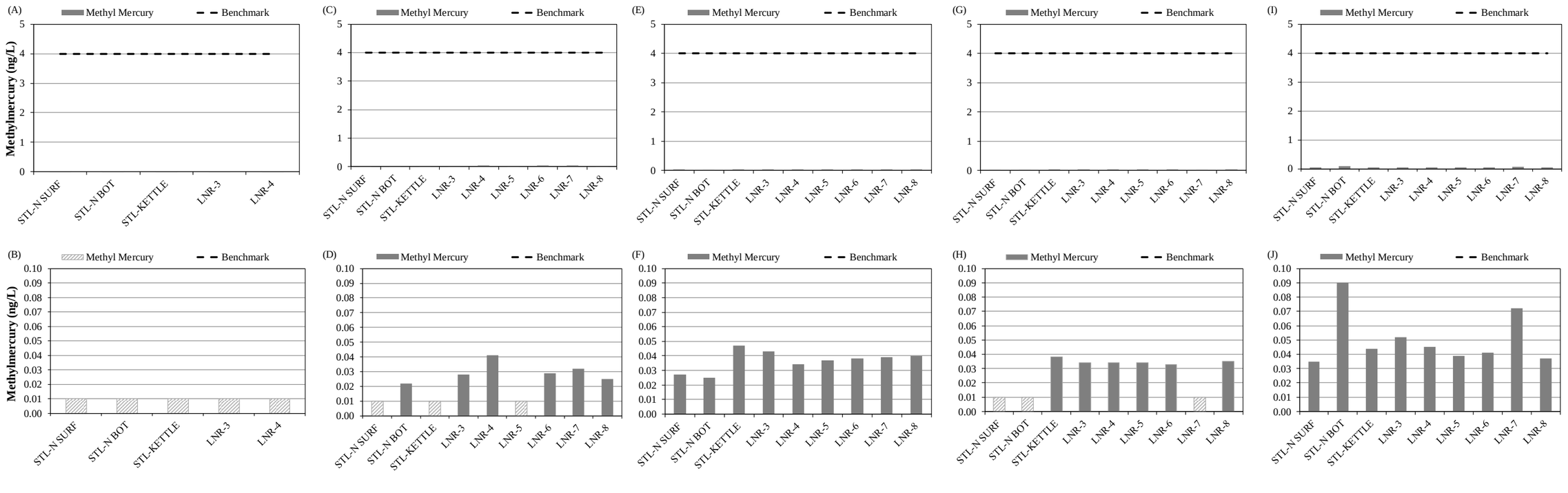

Figure A3-34: Methylmercury concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

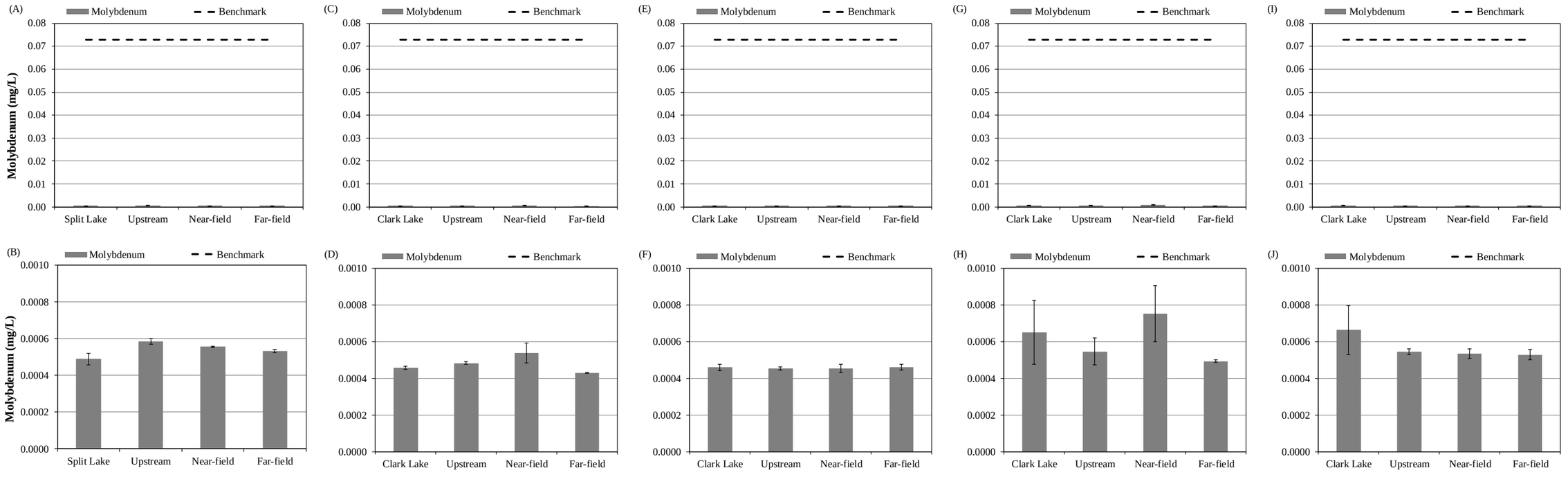

Figure A3-35: Mean (± SE) molybdenum concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

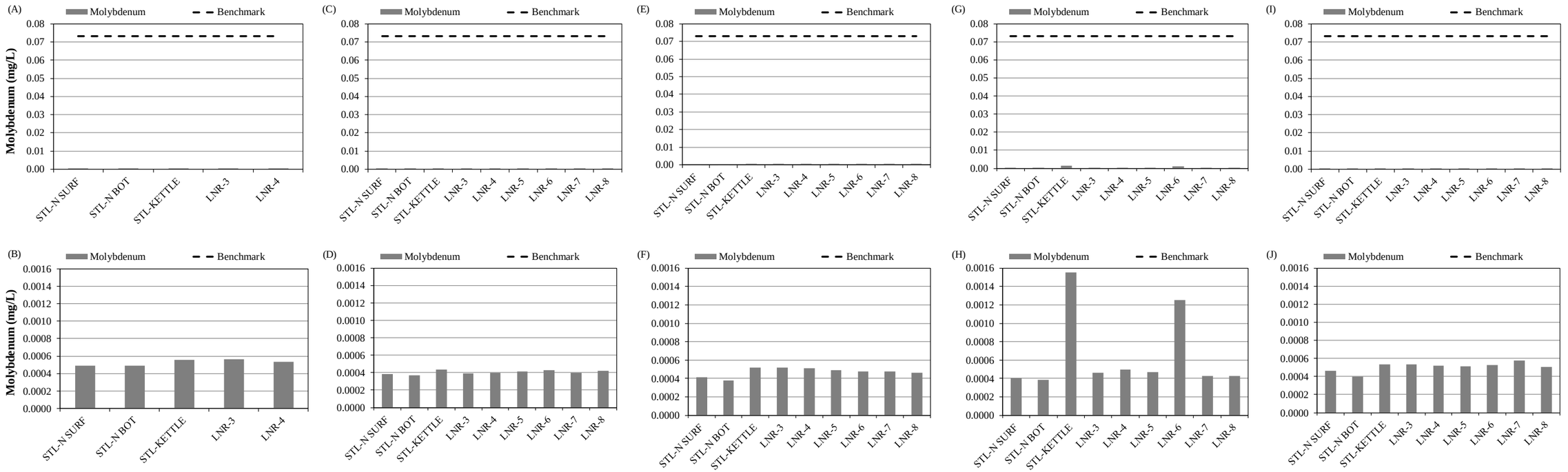

Figure A3-36: Molybdenum concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom.

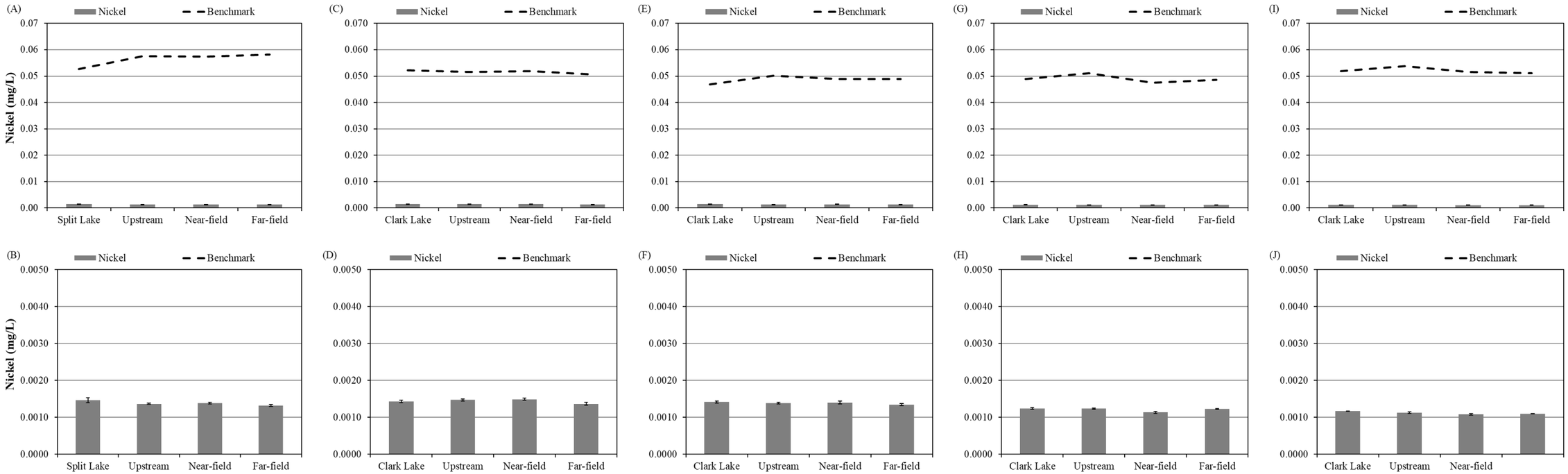

Figure A3-37: Mean (± SE) nickel concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

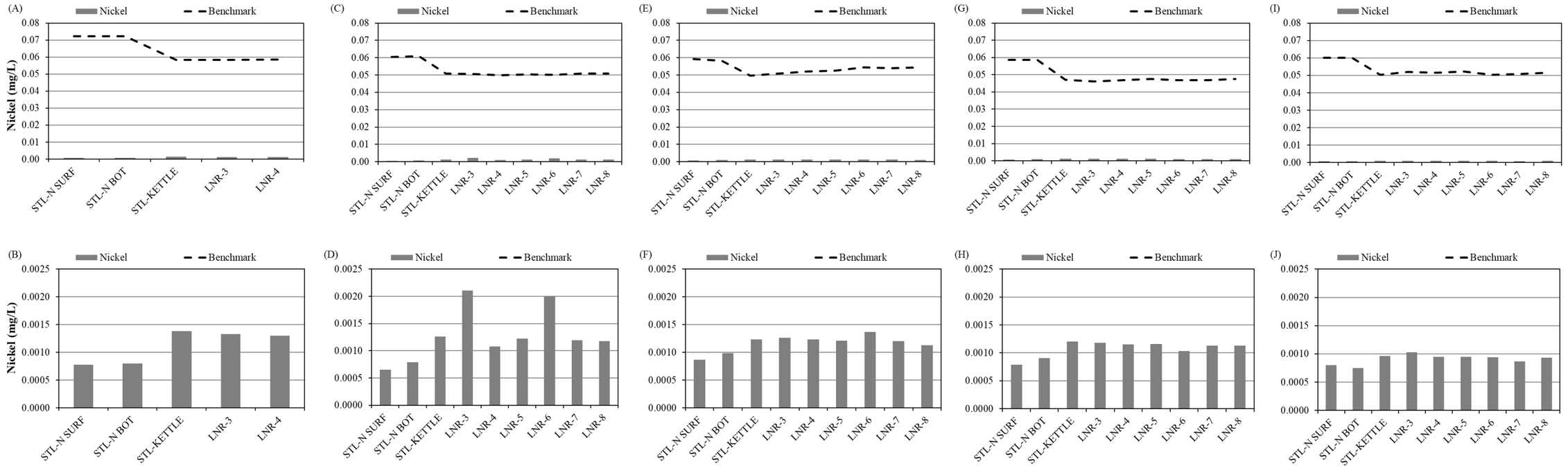

Figure A3-38: Nickel concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom.

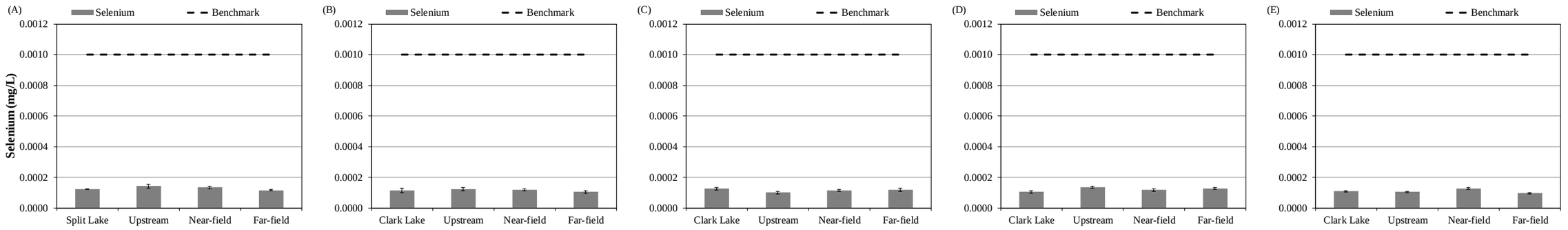

Figure A3-39: Mean (± SE) selenium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

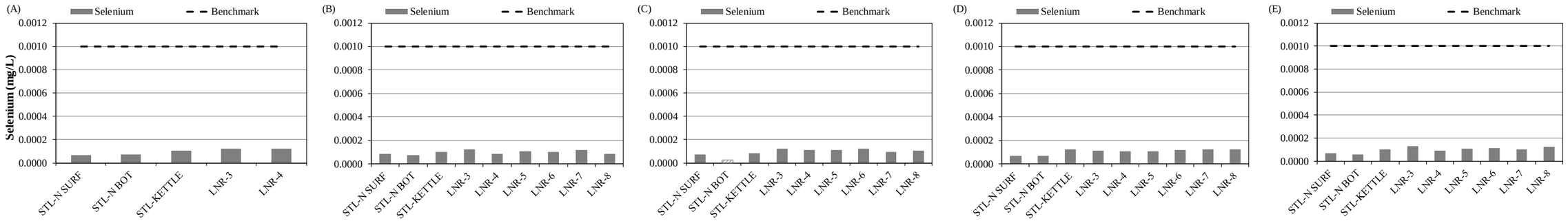

Figure A3-40: Selenium concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

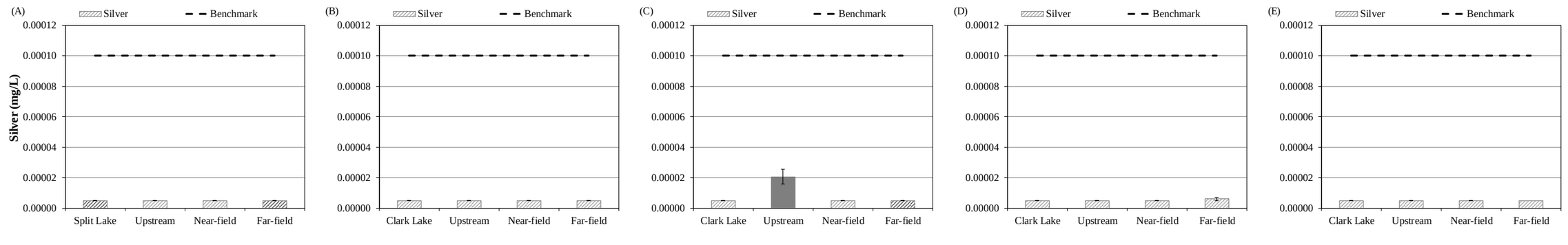

Figure A3-41: Mean (± SE) silver concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023. Hashed bars represent results below the analytical detection limit.

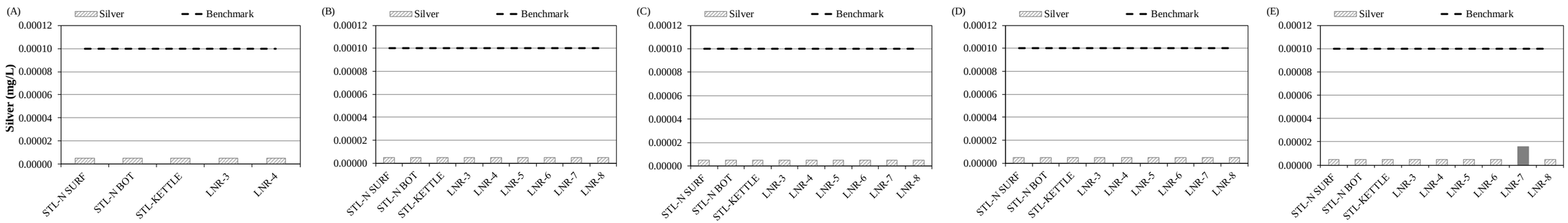

Figure A3-42: Silver concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023. Hashed bars represent results below the analytical detection limit.

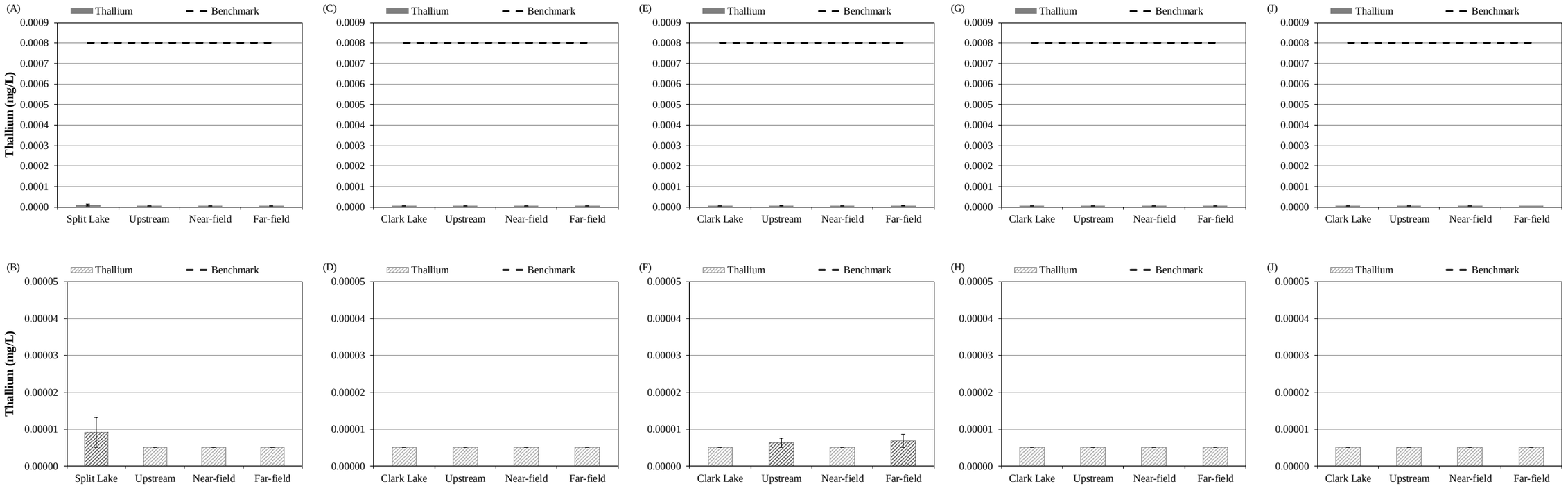

Figure A3-43: Mean (± SE) thallium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

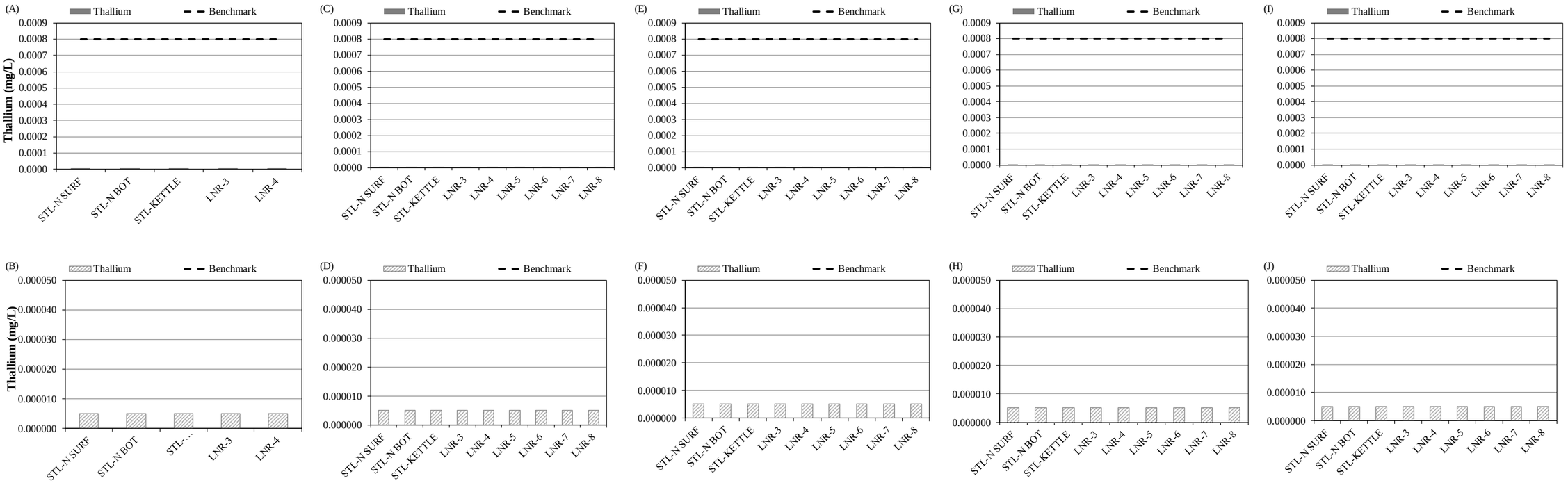

Figure A3-44: Thallium concentrations measured in the Keeyask regional study area on March 3 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

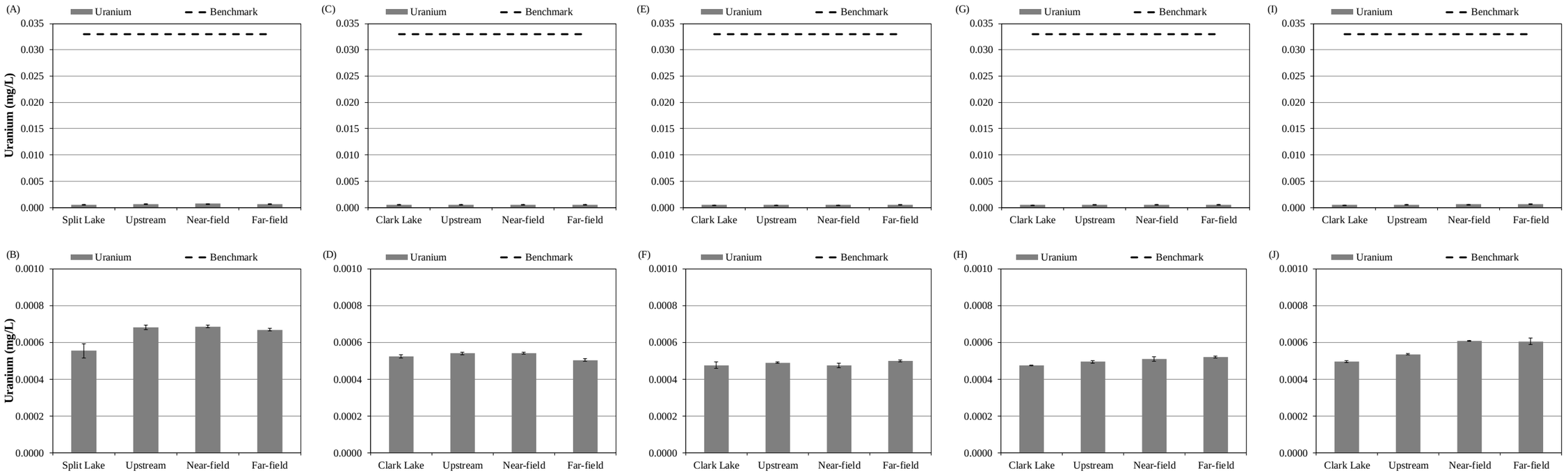

Figure A3-45: Mean (± SE) uranium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

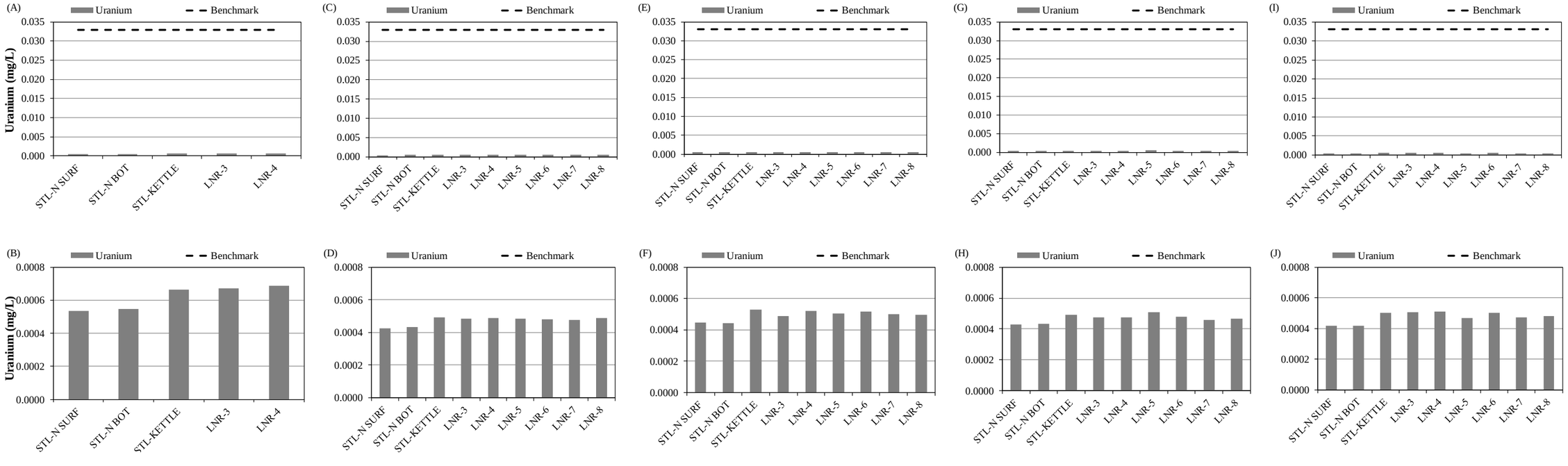

Figure A3-46: Uranium concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom.

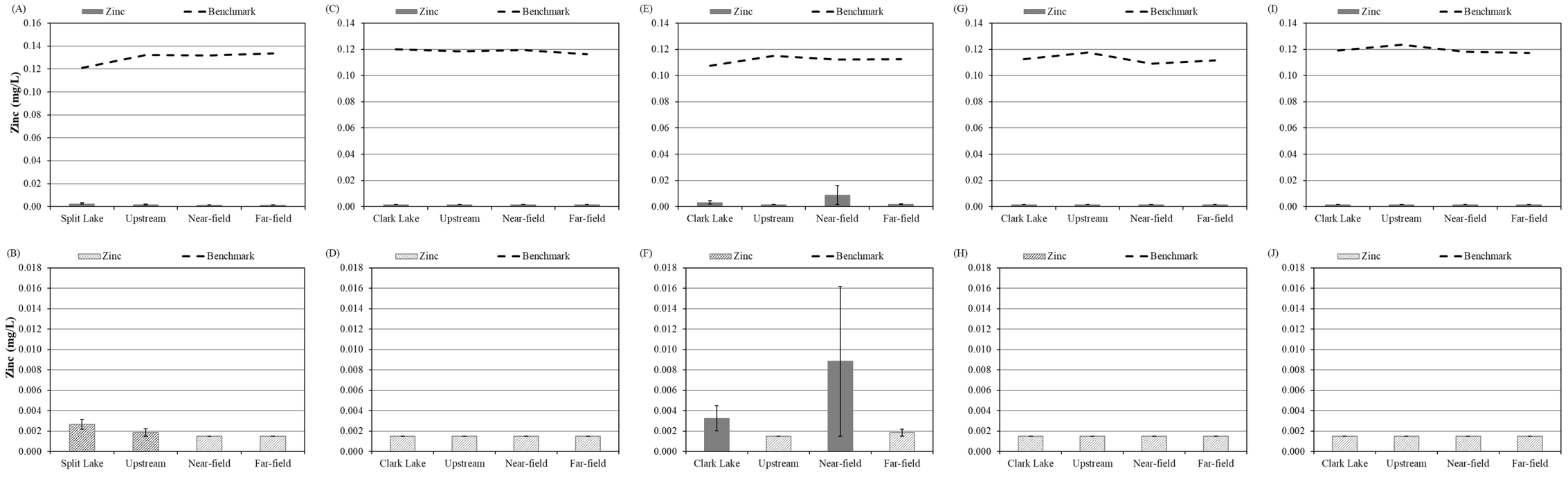

Figure A3-47: Mean (± SE) zinc concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom. Hashed bars represent results below the analytical detection limit.

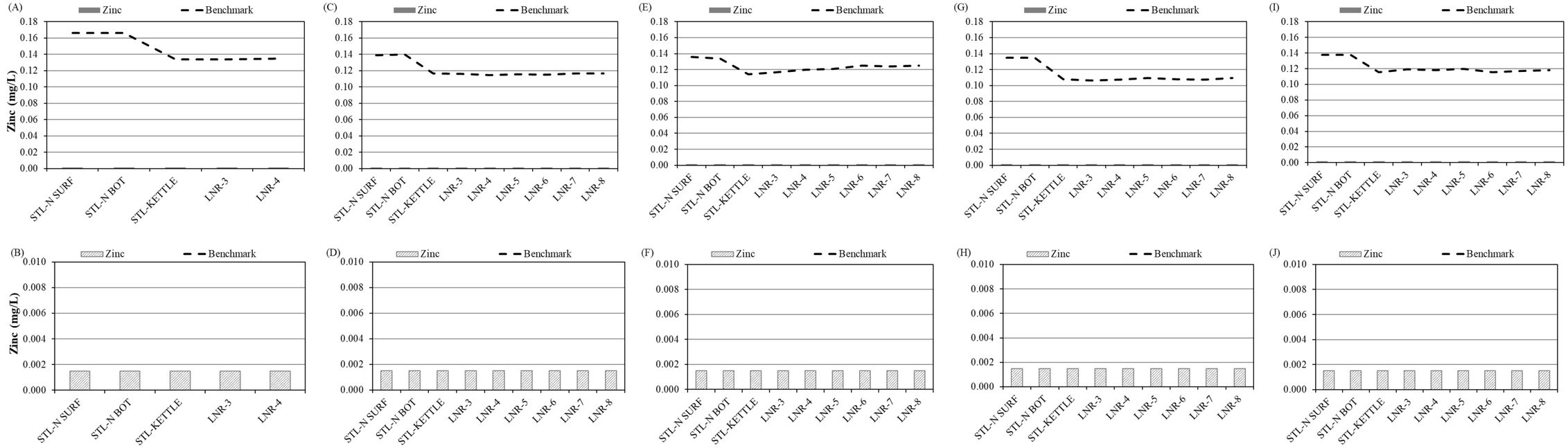

Figure A3-48: Zinc concentrations measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in individual values on the bottom. Hashed bars represent results below the analytical detection limit.

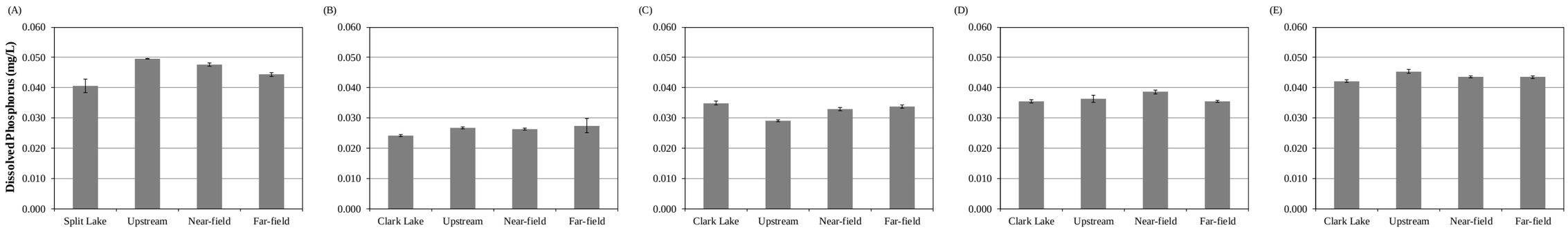

Figure A3-49: Mean (± SE) dissolved phosphorus concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D) and September 23-25 (E), 2023.

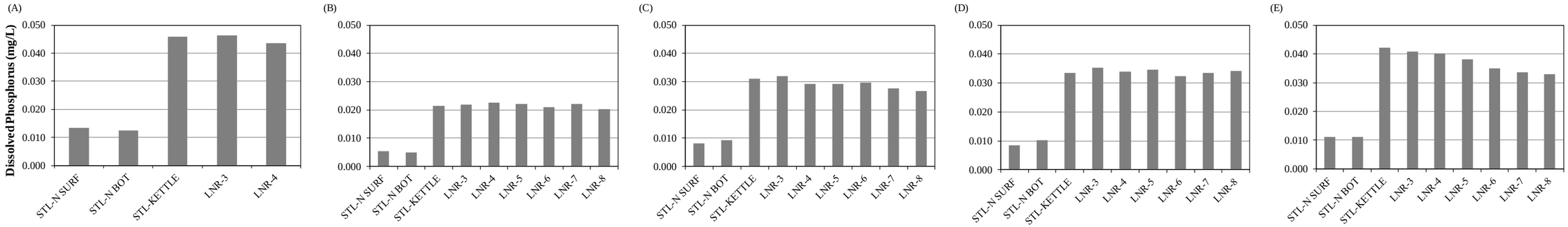

Figure A3-50: Dissolved phosphorus concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

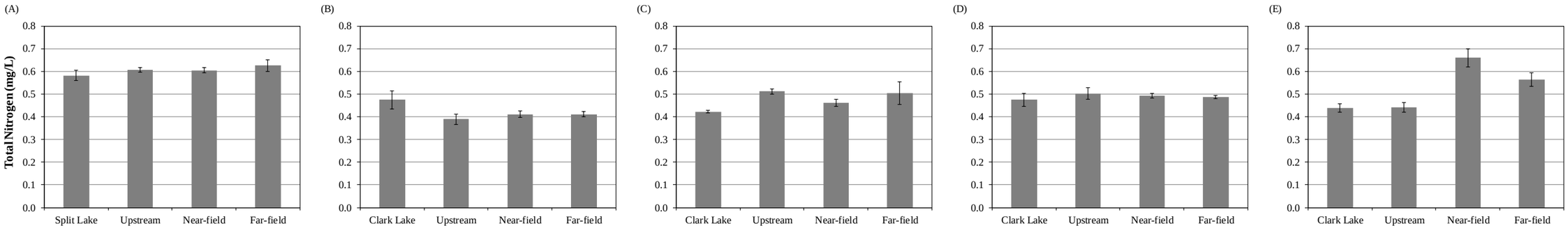

Figure A3-51: Mean (± SE) concentrations of total nitrogen measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

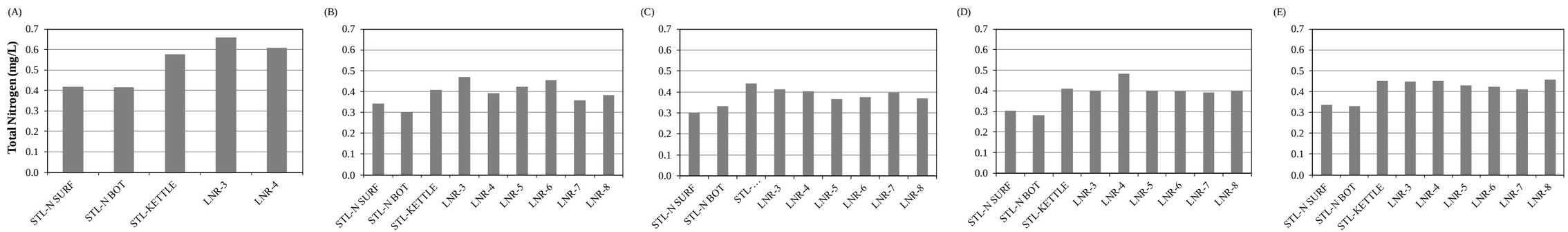

Figure A3-52: Total nitrogen concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

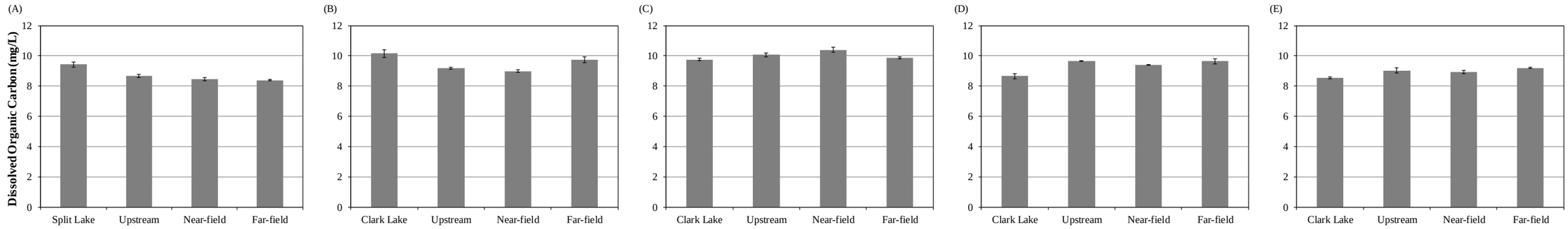

Figure A3-53: Mean (± SE) dissolved organic carbon concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

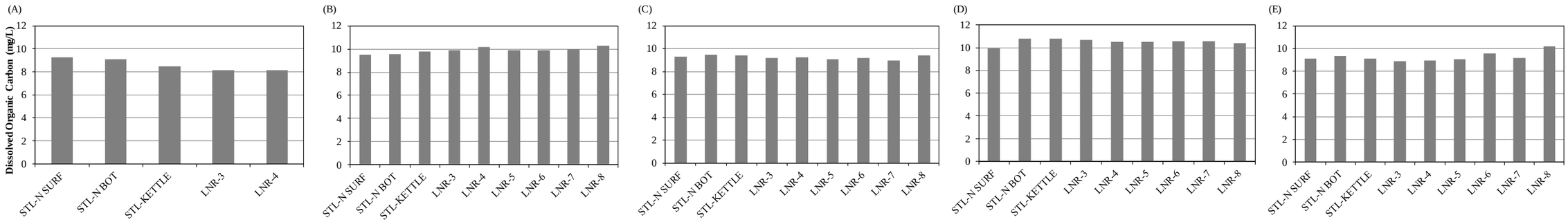

Figure A3-54: Dissolved organic carbon concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

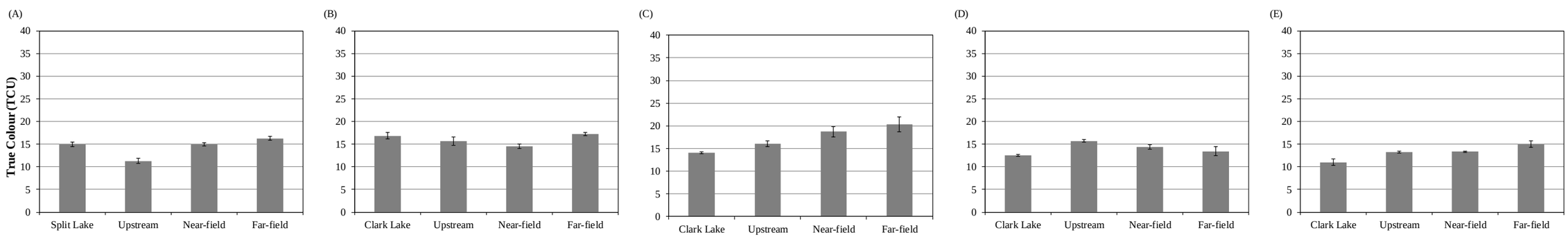

Figure A3-55: Mean (± SE) true colour measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023. Near-field site NF-4 in March reported as 235 TCU; value marked as suspect and excluded from the mean calculation.

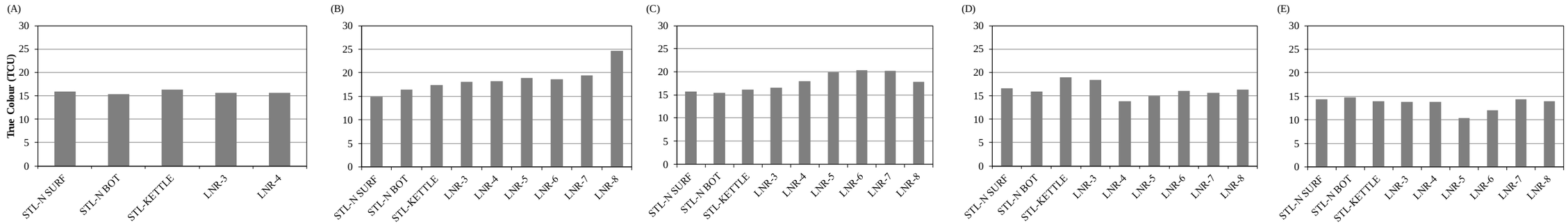

Figure A3-56: True colour measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

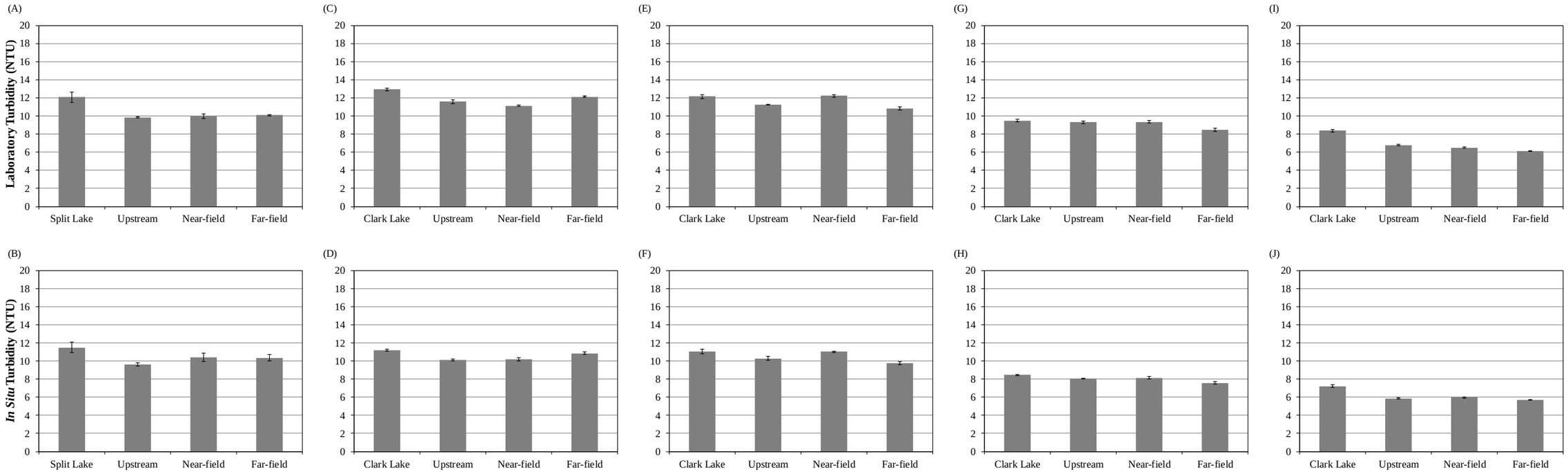

Figure A3-57: Mean (± SE) laboratory (top) and *in situ* (bottom) turbidity measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023.

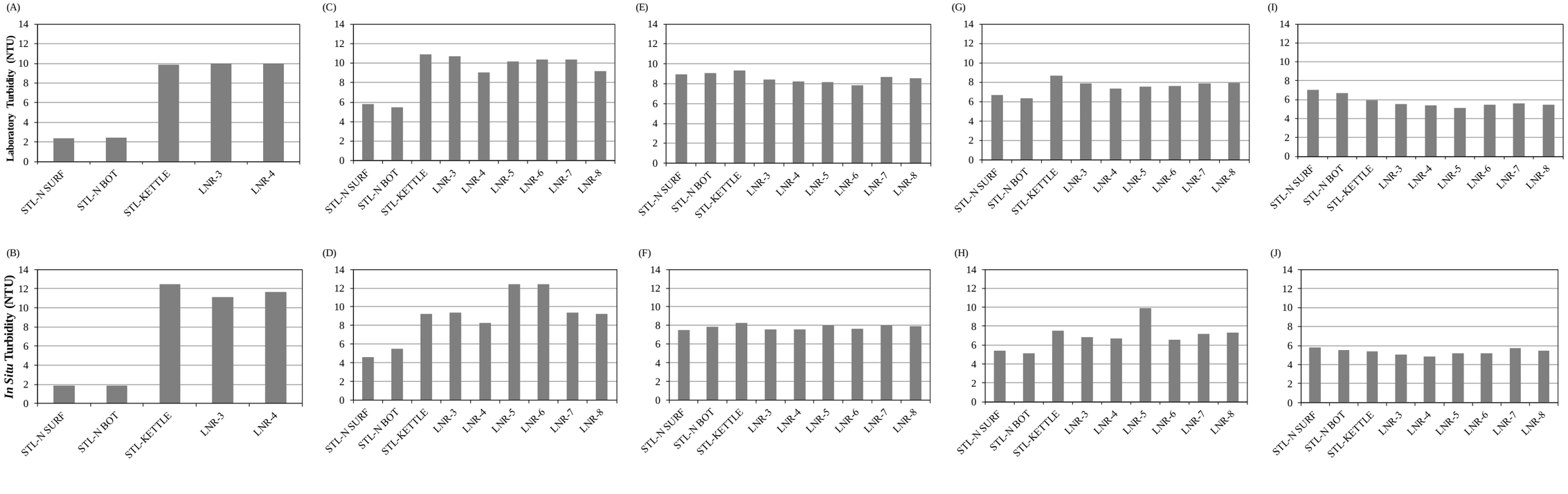

Figure A3-58: Laboratory (top) and *in situ* (bottom) turbidity measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023.

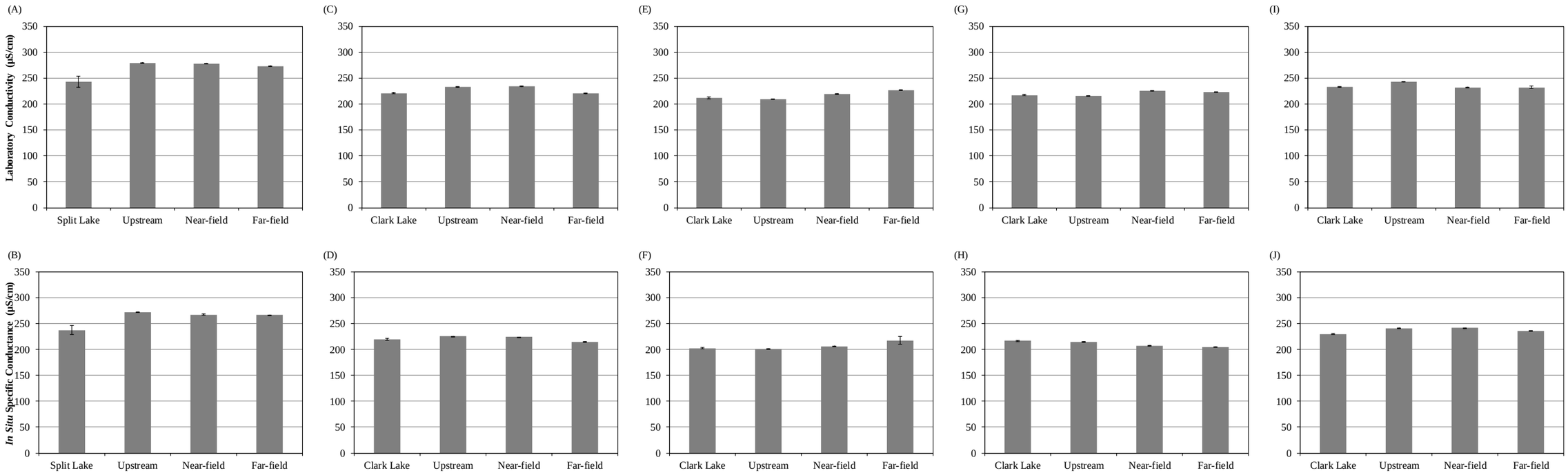

Figure A3-59: Mean (± SE) laboratory (top) and *in situ* (bottom) specific conductance measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A,B), June 23-27 (C,D), July 28-August 2 (E,F), August 23-28 (G,H), and September 23-25 (I,J), 2023.

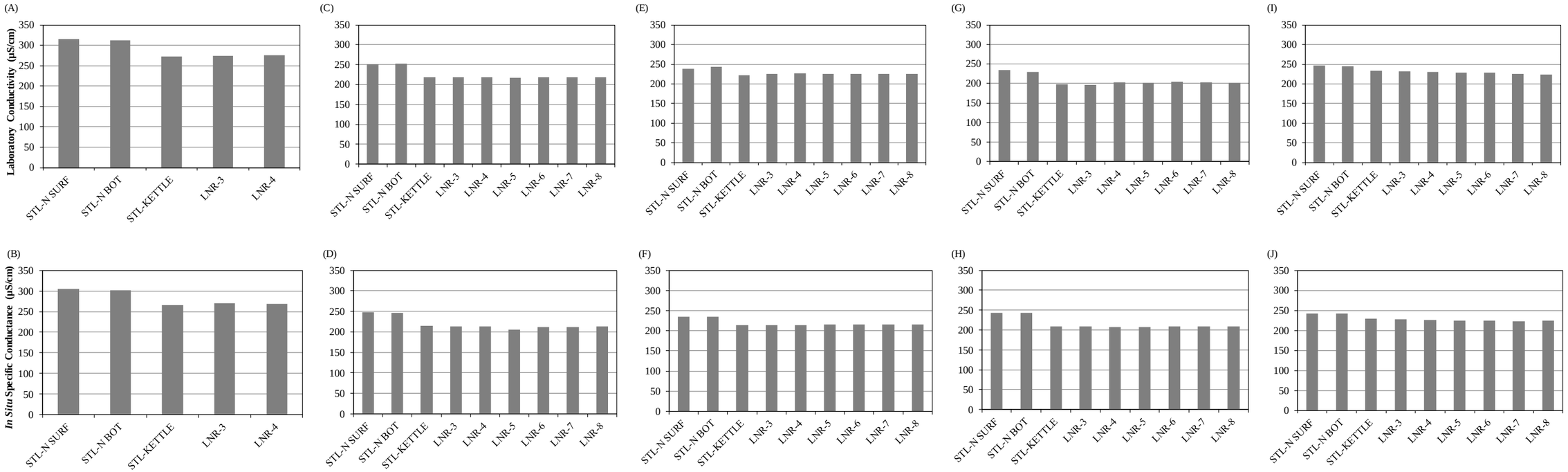

Figure A3-60: Laboratory (top) and *in situ* (bottom) specific conductance measured in the Keeyask regional study area on March 31 (A,B), June 23 (C,D), July 25 (E,F), August 21 (G,H), and September 19 (I,J), 2023.

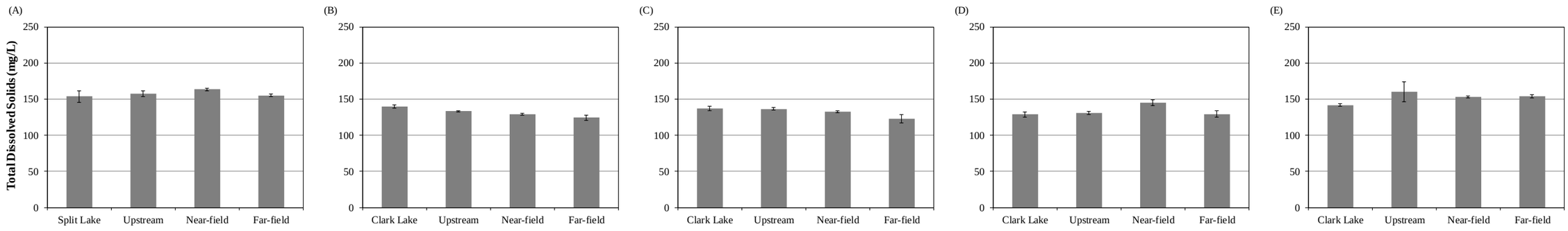

Figure A3-61: Mean (± SE) concentrations of total dissolved solids measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

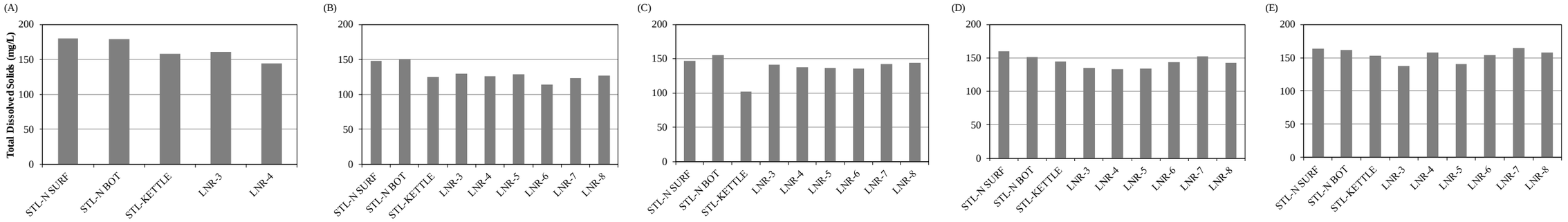

Figure A3-62: Concentration of total dissolved solids measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

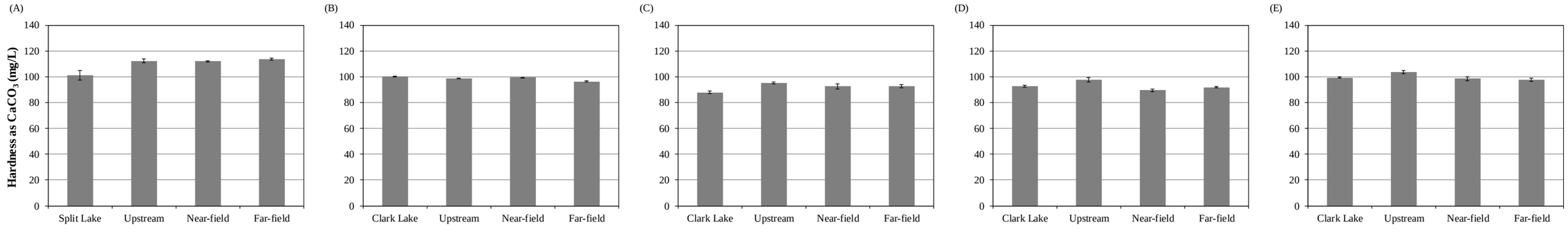

Figure A3-63: Mean (± SE) hardness measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

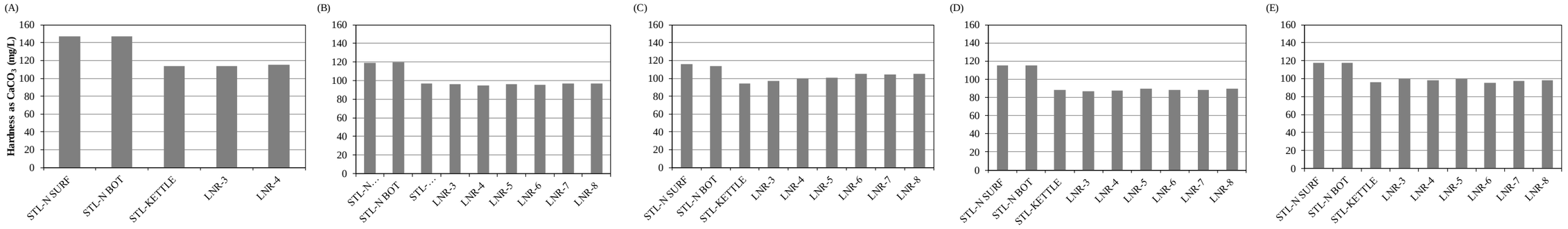

Figure A3-64: Hardness measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

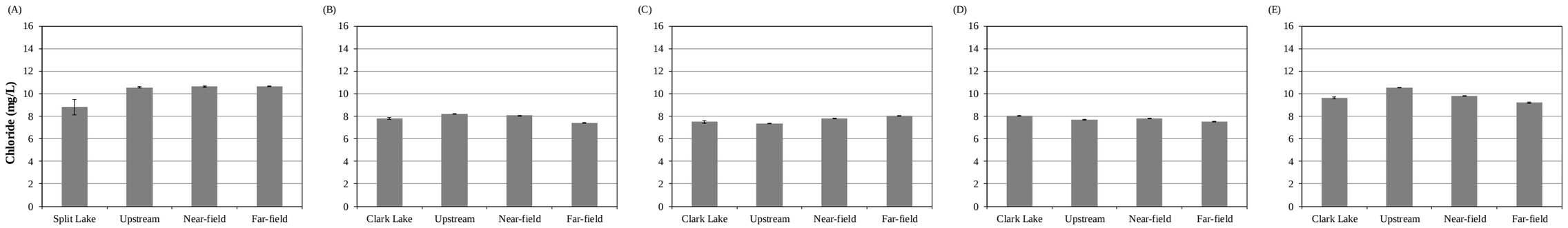

Figure A3-65: Mean (± SE) chloride concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

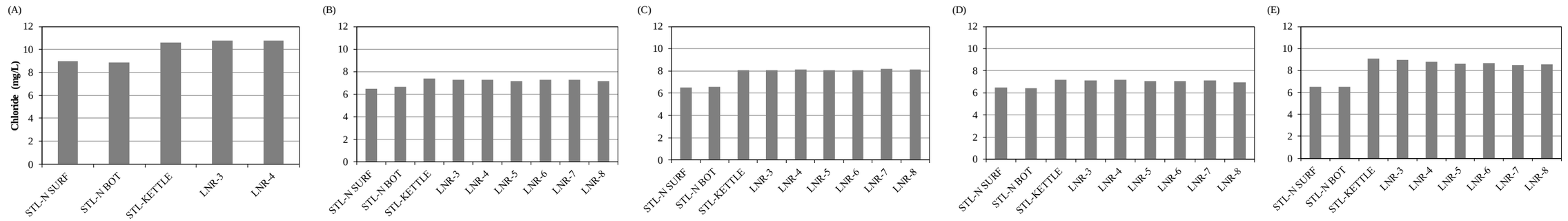

Figure A3-66: Chloride concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

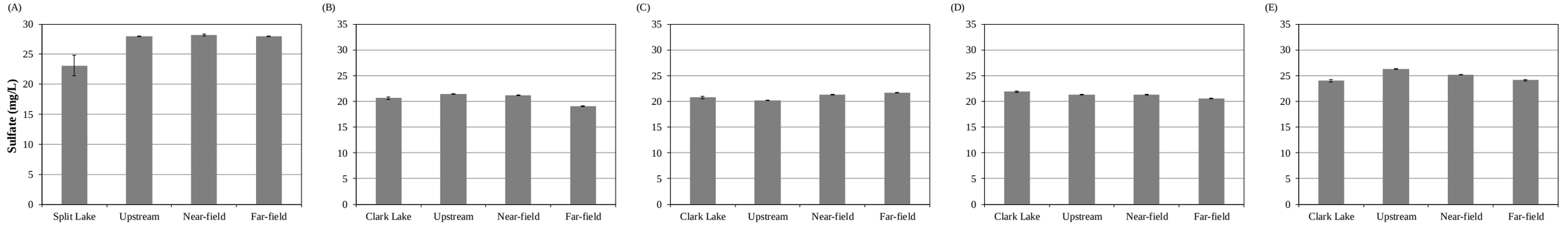

Figure A3-67: Mean (± SE) sulfate concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

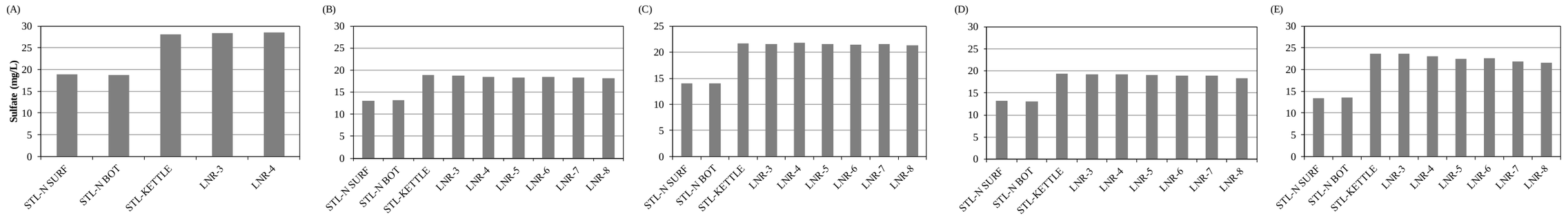

Figure A3-68: Sulfate concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

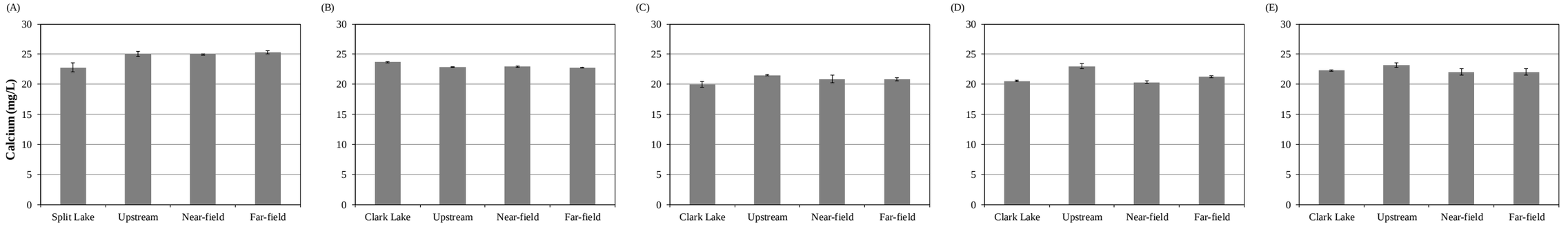

Figure A3-69: Mean (± SE) calcium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

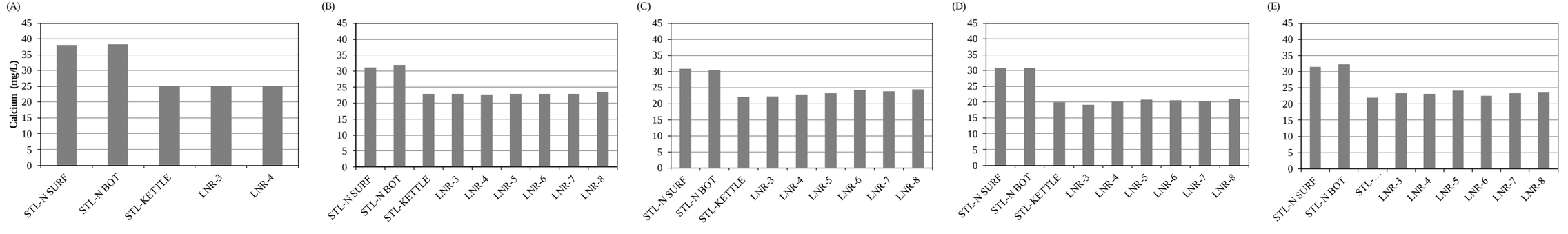

Figure A3-70: Calcium concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

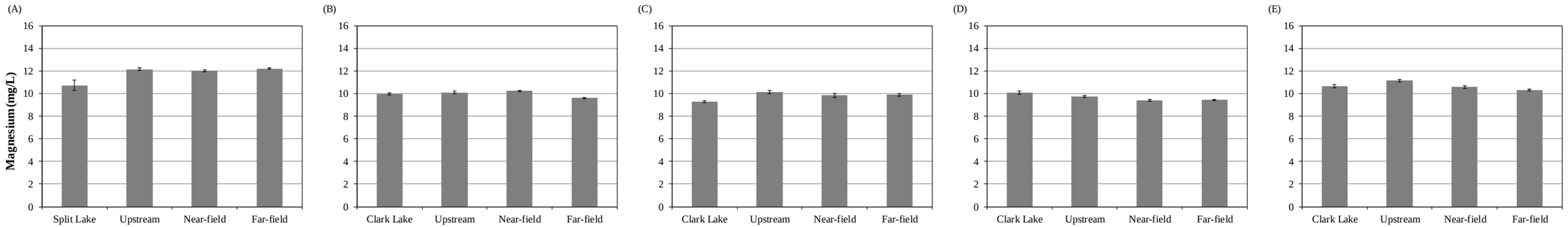

Figure A3-71: Mean (± SE) magnesium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

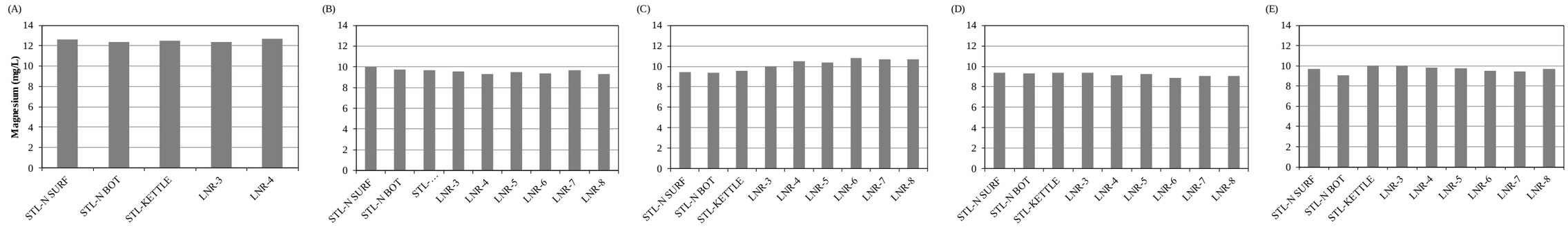

Figure A3-72: Magnesium concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

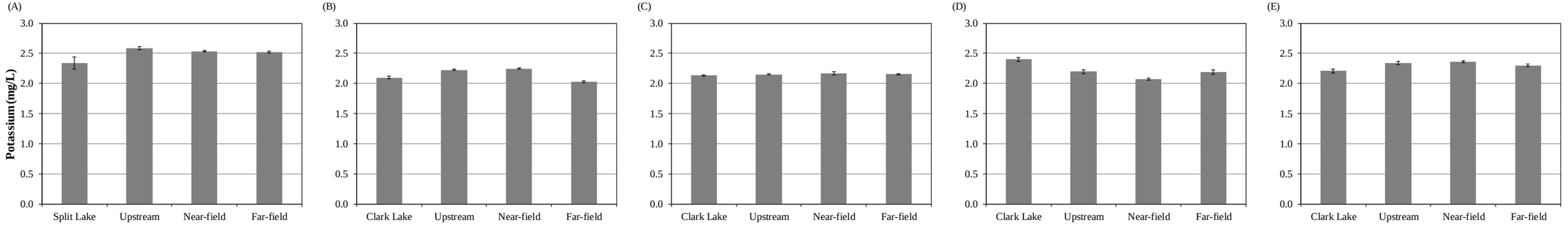

Figure A3-73: Mean (± SE) potassium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

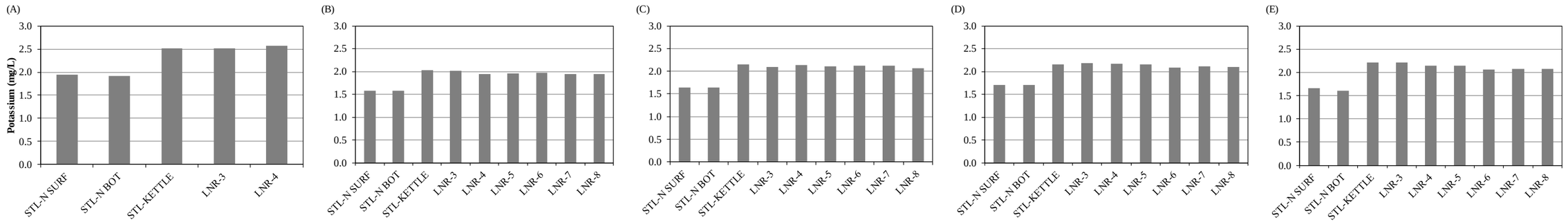

Figure A3-74: Potassium concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

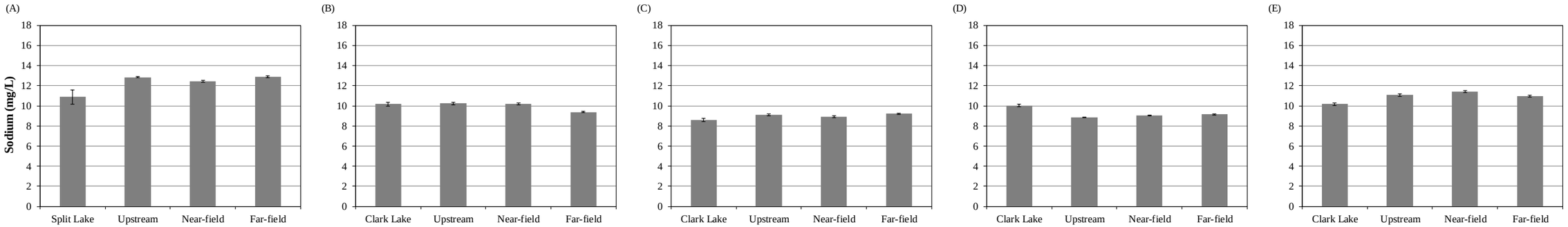

Figure A3-75: Mean (± SE) sodium concentrations measured in Split and Clark lakes, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS on March 26-31 (A), June 23-27 (B), July 28-August 2 (C), August 23-28 (D), and September 23-25 (E), 2023.

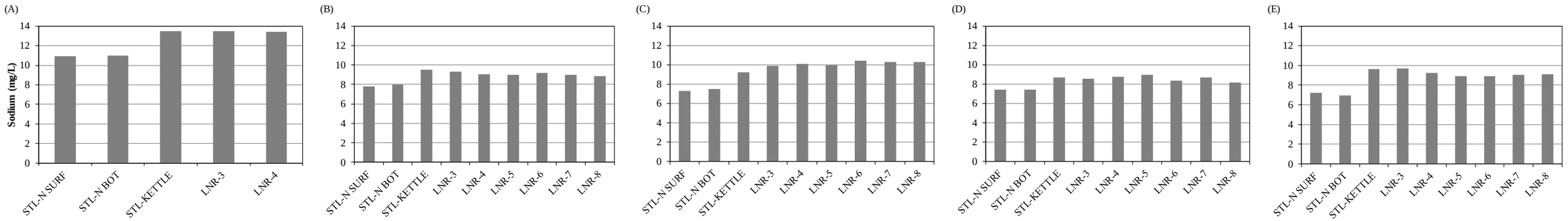

Figure A3-76: Sodium concentrations measured in the Keeyask regional study area on March 31 (A), June 23 (B), July 25 (C), August 21 (D), and September 19 (E), 2023.

APPENDIX 4: DETAILED RESULTS OF WATER QUALITY MONITORING, 2023

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023.

Site ID	Sample Date	Sample Time	Water Depth (m)[1]	Sample Depth (m)[1]	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-5	27-Mar-23	8:35	11.3	0.3	-0.01	7.81	14.59	99.8	266.8	9.81	N/A
				1.0	-0.01	7.80	14.61	100.0	266.9	9.71	
				2.0	-0.01	7.80	14.61	100.0	266.9	9.64	
				3.0	-0.01	7.81	14.62	100.0	266.8	12.76	
				4.0	-0.01	7.80	14.62	100.0	266.8	9.82	
				5.0	-0.01	7.80	14.62	100.1	266.8	11.97	
				6.0	-0.01	7.80	14.63	100.1	266.8	9.93	
				7.0	-0.01	7.80	14.63	100.1	266.8	10.11	
				8.0	-0.01	7.80	14.63	100.1	266.7	9.67	
				9.0	-0.01	7.80	14.63	100.1	266.8	10.34	
				10.0	-0.01	7.80	14.63	100.1	266.9	9.91	
Z1-6	27-Mar-23	9:30	6.5	0.3	0.01	7.73	14.29	97.8	262.9	9.96	N/A
				1.0	0.01	7.73	14.25	97.6	262.9	9.84	
				2.0	0.01	7.72	14.25	97.6	263.0	9.41	
				3.0	0.01	7.72	14.25	97.6	263.1	10.09	
				4.0	0.01	7.72	14.23	97.5	263.1	9.53	
				5.0	0.01	7.73	14.23	97.5	263.1	9.89	
				6.0	0.01	7.72	14.24	97.5	263.0	9.39	
Z1-7	27-Mar-23	10:05	14.8	0.3	-0.01	7.79	14.63	100.1	268.5	9.61	N/A
				1.0	-0.01	7.79	14.64	100.2	268.6	9.27	
				2.0	-0.01	7.80	14.64	100.2	268.6	11.26	
				3.0	-0.01	7.79	14.64	100.2	268.7	9.67	
				4.0	-0.01	7.80	14.64	100.2	268.6	9.88	
				5.0	-0.01	7.79	14.64	100.2	268.5	9.79	
				6.0	-0.01	7.79	14.64	100.2	268.7	9.71	
				7.0	-0.01	7.78	14.64	100.2	268.6	10.02	
				8.0	-0.01	7.78	14.64	100.2	268.6	9.91	
				9.0	-0.01	7.78	14.64	100.2	268.7	9.75	
				10.0	-0.01	7.78	14.64	100.2	268.6	10.25	

1. In winter, total and sample depth are recorded as effective depth, or water depth minus ice depth.

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				11.0	-0.01	7.78	14.64	100.2	268.6	9.91	
				12.0	-0.01	7.78	14.64	100.2	268.6	9.75	
				13.0	-0.01	7.78	14.64	100.2	268.6	10.05	
				14.0	-0.01	7.78	14.64	100.2	268.6	10.71	
Z1-8	27-Mar-23	10:50	5.9	0.3	0.00	7.74	14.41	98.7	262.7	9.84	N/A
				1.0	0.00	7.73	14.41	98.7	262.6	10.06	
				2.0	0.00	7.74	14.41	98.6	262.6	9.99	
				3.0	0.00	7.74	14.42	98.8	262.5	9.91	
				4.0	0.00	7.74	14.43	98.8	262.5	10.05	
				5.0	0.00	7.74	14.44	98.8	262.5	10.06	
Z1-9	27-Mar-23	11:35	9.0	0.3	-0.01	7.78	14.64	100.2	263.7	10.25	N/A
				1.0	-0.01	7.78	14.65	100.3	263.6	12.92	
				2.0	-0.01	7.78	14.65	100.3	263.6	9.85	
				3.0	-0.01	7.77	14.65	100.3	263.6	9.91	
				4.0	-0.01	7.78	14.66	100.3	263.6	9.54	
				5.0	-0.01	7.78	14.66	100.3	263.6	10.22	
				6.0	-0.01	7.78	14.66	100.3	263.5	10.91	
				7.0	-0.01	7.78	14.66	100.3	263.7	10.21	
				8.0	-0.01	7.78	14.66	100.3	263.7	10.01	
Z4-3	27-Mar-23	14:35	5.6	0.3	0.02	7.72	14.39	98.5	261.9	9.59	N/A
				1.0	0.02	7.72	14.36	98.3	263.1	9.08	
				2.0	0.04	7.70	14.26	97.8	262.8	9.45	
				3.0	0.07	7.65	13.97	95.7	264.3	9.70	
				4.0	0.11	7.61	13.73	94.2	265.1	9.57	
				5.0	0.31	7.48	12.31	85.0	269.1	9.15	
Z4-5	27-Mar-23	12:25	4.0	0.3	0.01	7.75	14.61	100.1	270.2	8.75	N/A
				1.0	0.01	7.74	14.59	99.9	270.8	8.76	
				1.5	0.02	7.73	14.56	99.7	271.0	8.85	
				2.0	0.02	7.69	14.30	97.9	271.2	8.68	
				2.5	0.03	7.62	13.96	95.6	271.7	8.66	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				3.0	0.20	7.42	12.46	85.8	271.8	8.54	
				3.5	0.35	7.11	8.25	56.6	277.2	8.08	
Z4-6	27-Mar-23	13:10	2.3	0.3	0.02	7.71	14.31	98.0	268.6	8.81	N/A
				1.0	0.03	7.70	14.27	97.8	268.4	8.90	
				1.5	0.03	7.71	14.27	97.8	268.4	9.07	
				2.0	0.04	7.71	14.23	97.6	268.2	9.02	
Z4-7	27-Mar-23	13:55	2.4	0.3	0.04	7.75	14.51	99.4	269.5	8.43	N/A
				1.0	0.03	7.74	14.42	98.9	268.9	8.82	
				1.5	0.03	7.71	14.24	97.5	268.9	8.90	
				2.0	0.05	7.67	13.97	95.8	269.1	8.94	
Z8-1	30-Mar-23	8:45	1.2	0.3	0.22	6.65	0.17	1.2	295.4	3.75	N/A
				0.6	0.25	6.65	0.11	0.8	295.7	3.77	
				0.9	n/a	6.64	0.03	0.1	295.8	3.02	
Z8-4	30-Mar-23	10:45	5.5	0.3	0.01	7.72	14.34	98.2	263.3	9.61	N/A
				1.0	0.01	7.72	14.34	98.2	263.3	10.11	
				2.0	0.02	7.72	14.32	98.1	263.9	10.14	
				3.0	0.02	7.71	14.30	97.9	264.2	9.63	
				4.0	0.03	7.66	14.16	96.9	265.3	9.91	
				5.0	0.07	7.47	13.35	91.5	270.9	9.46	
Z8-5	30-Mar-23	9:15	2.2	0.3	0.07	6.95	5.95	41.1	279.8	7.23	N/A
				1.0	0.08	6.90	5.48	37.3	282.2	7.34	
				1.5	0.06	6.86	5.26	36.0	282.2	7.23	
Z8-6	30-Mar-23	10:05	0.8	0.3	0.06	7.62	13.84	95.1	271.6	8.83	N/A
				0.5	0.06	7.58	13.67	93.7	272.9	8.79	
				0.7	0.07	7.57	13.57	93.0	273.2	9.09	
Z11-1	29-Mar-23	10:10	1.8	0.3	0.05	7.59	14.08	96.5	284.9	7.91	N/A
				1.0	0.20	7.05	8.25	56.8	292.6	6.62	
				1.5	0.69	6.82	3.15	22.0	304.3	4.73	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-3	28-Mar-23	13:55	1.9	0.3	0.08	7.76	14.51	99.5	283.1	8.04	N/A
				1.0	0.08	7.75	14.46	99.1	283.5	8.19	
				1.5	0.10	7.73	14.42	98.8	283.9	8.29	
Z11-4	28-Mar-23	14:40	4.6	0.3	0.01	7.78	14.39	98.6	274.5	8.84	N/A
				1.0	0.01	7.76	14.41	98.7	274.3	8.64	
				1.5	0.01	7.75	14.38	98.4	274.4	8.91	
				2.0	0.01	7.74	14.33	98.1	274.4	8.90	
				2.5	0.01	7.74	14.32	98.1	277.9	8.92	
				3.0	0.03	7.69	14.22	97.4	281.9	8.59	
				3.5	0.05	7.66	14.10	96.6	287.0	8.37	
				4.0	0.12	7.48	12.83	88.1	288.4	7.74	
Z11-6	28-Mar-23	15:20	5.3	0.3	-0.01	7.77	14.54	99.5	265.6	8.81	N/A
				1.0	-0.01	7.77	14.54	99.5	265.2	9.92	
				2.0	-0.01	7.77	14.54	99.5	265.3	9.02	
				3.0	-0.01	7.77	14.53	99.5	265.7	9.23	
				4.0	-0.01	7.78	14.54	99.5	265.8	9.09	
				5.0	-0.01	7.77	14.54	99.5	265.9	9.81	
Z11-10	29-Mar-23	8:45	1.6	0.3	0.26	6.75	0.13	0.9	301.0	3.71	N/A
				0.8	0.28	6.75	0.00	0.0	298.9	3.79	
				1.3	0.33	6.76	-0.06[2]	-0.4[2]	297.8	3.90	
Z11-11	29-Mar-23	9:30	1.7	0.3	0.29	6.81	1.22	8.4	294.3	5.93	N/A
				1.0	0.29	6.79	1.12	7.7	294.3	5.82	
				1.5	0.31	6.77	0.77	5.3	294.4	6.01	
Z12-6	28-Mar-23	11:50	5.6	0.3	0.01	7.72	14.14	96.8	275.9	9.01	N/A
				1.0	0.01	7.70	14.11	96.6	276.3	9.20	
				2.0	0.01	7.70	14.09	96.5	276.5	9.27	
				3.0	0.02	7.70	14.08	96.4	276.6	8.46	
				4.0	0.02	7.69	14.02	96.0	277.4	8.97	
				5.0	0.02	7.68	13.99	95.8	277.6	9.01	

2. Negative DO values at this site indicate fully depleted oxygen concentrations.

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-8	28-Mar-23	8:45	1.0	0.3	0.21	6.80	0.40	0.1	313.7	4.77	N/A
				0.5	0.21	6.77	-0.40[2]	-0.1[2]	313.8	4.75	
				0.7	0.25	6.76	-0.06[2]	-0.4[2]	313.5	4.71	
Z12-9	28-Mar-23	9:25	0.6	0.3	0.03	6.98	6.98	47.9	293.6	6.43	N/A
				0.4	0.04	6.96	6.50	44.6	292.8	6.91	
				0.5	0.05	6.96	6.47	44.3	292.7	6.41	
Z12-11	28-Mar-23	10:10	1.9	0.3	0.01	7.66	13.91	95.2	276.2	8.28	N/A
				1.0	0.00	7.66	13.90	95.2	276.3	8.36	
				1.5	0.01	7.66	13.90	95.1	276.2	8.51	
Z12-13	28-Mar-23	13:05	3.7	0.3	0.12	7.69	13.97	95.9	277.3	8.77	N/A
				1.0	0.03	7.69	14.00	95.9	277.5	8.83	
				1.5	0.02	7.69	14.01	96.0	277.5	8.93	
				2.0	0.02	7.69	14.01	96.0	277.5	8.73	
				2.5	0.02	7.68	14.01	96.0	277.6	8.62	
				3.0	0.02	7.68	14.01	95.9	277.6	8.61	
Z12-14	28-Mar-23	12:30	1.3	0.3	0.26	6.57	0.25	1.7	233.9	5.82	N/A
				0.7	0.61	6.54	0.18	1.2	251.6	3.02	
				1.0	1.06	6.55	0.12	0.8	298.2	1.98	
Z1-5	26-Jun-23	7:50	11.5	0.3	18.34	7.98	8.41	89.4	221.6	11.01	0.9
				1.0	18.35	7.97	8.36	89.0	221.7	10.79	
				2.0	18.35	7.97	8.35	88.9	221.6	10.77	
				3.0	18.35	7.97	8.34	88.8	221.8	10.62	
				4.0	18.40	7.97	8.34	88.9	221.5	10.48	
				5.0	18.41	7.96	8.35	88.9	222.7	10.63	
				6.0	18.39	7.95	8.34	88.7	222.3	10.55	
				7.0	18.35	7.95	8.33	88.8	222.0	10.66	
				8.0	18.38	7.95	8.33	88.7	222.4	10.98	
				9.0	18.37	7.95	8.33	88.6	221.9	10.97	
				10.0	18.35	7.95	8.33	88.6	221.9	11.13	

2. Negative DO values at this site indicate fully depleted oxygen concentrations.

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-6	26-Jun-23	8:20	6.7	0.3	18.03	7.90	8.28	87.5	220.2	9.82	0.9
				1.0	18.02	7.90	8.26	87.4	220.3	10.09	
				2.0	17.97	7.90	8.24	87.1	220.2	9.85	
				3.0	17.96	7.90	8.23	86.7	220.3	9.99	
				4.0	17.65	7.87	8.18	85.8	220.6	9.65	
				5.0	17.57	7.85	8.15	85.3	220.6	9.43	
				6.0	17.53	7.84	8.10	84.8	220.7	9.83	
Z1-7	26-Jun-23	8:05	14.5	0.3	18.57	7.96	8.35	89.3	225.8	10.71	0.9
				1.0	18.57	7.96	8.34	89.2	225.7	10.52	
				2.0	18.57	7.96	8.33	89.1	225.7	10.49	
				3.0	18.57	7.96	8.33	89.1	225.7	10.40	
				4.0	18.57	7.95	8.33	89.0	225.6	10.83	
				5.0	18.56	7.94	8.32	89.0	225.5	10.55	
				6.0	18.56	7.94	8.32	89.0	225.5	10.56	
				7.0	18.56	7.94	8.32	89.0	225.4	10.44	
				8.0	18.55	7.94	8.32	89.0	225.4	10.64	
				9.0	18.56	7.94	8.32	89.0	225.5	10.48	
				10.0	18.55	7.94	8.32	89.0	225.3	10.90	
				11.0	18.53	7.94	8.32	89.0	224.9	10.59	
				12.0	18.45	7.93	8.31	88.7	223.6	11.22	
				13.0	18.48	7.93	8.31	88.7	224.0	12.89	
				14.0	18.45	7.93	8.31	88.6	223.6	13.99	
Z1-8	26-Jun-23	8:35	7.7	0.3	18.08	7.92	8.27	87.6	220.5	10.29	0.9
				1.0	18.06	7.91	8.26	87.3	220.5	10.40	
				2.0	18.03	7.91	8.26	87.3	220.4	9.94	
				3.0	17.94	7.91	8.24	87.0	220.4	9.97	
				4.0	17.93	7.90	8.22	86.7	220.3	9.62	
				5.0	17.91	7.89	8.20	86.5	220.3	10.05	
				6.0	17.89	7.86	8.15	85.5	220.5	9.55	
				7.0	17.55	7.85	8.14	85.3	220.4	9.39	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-9	26-Jun-23	8:48	10.4	0.3	18.55	7.93	8.30	88.8	222.2	10.71	0.9
				1.0	18.56	7.93	8.30	88.8	222.1	10.42	
				2.0	18.55	7.93	8.30	88.8	222.0	10.41	
				3.0	18.54	7.94	8.30	88.6	222.3	10.21	
				4.0	18.55	7.94	8.30	88.7	222.1	10.34	
				5.0	18.54	7.94	8.30	88.7	222.0	10.20	
				6.0	18.54	7.94	8.30	88.7	222.1	10.35	
				7.0	18.55	7.93	8.30	88.7	222.1	11.32	
				8.0	18.54	7.93	8.30	88.7	222.1	11.21	
				9.0	18.54	7.93	8.30	88.7	222.2	10.45	
				10.0	18.54	7.93	8.30	88.7	222.2	10.58	
Z4-1	24-Jun-23	12:43	3.7	0.3	19.96	7.83	8.41	92.4	209.3	3.83	N/A
				1.0	19.89	7.84	8.40	92.2	209.2	3.96	
				1.5	19.76	7.83	8.37	91.7	209.2	3.94	
				2.0	19.70	7.83	8.32	91.1	209.2	3.87	
				2.5	18.81	7.68	7.98	85.5	207.7	3.33	
				3.0	18.61	7.68	7.94	85.0	207.3	3.22	
				3.5	18.37	7.58	7.20	76.6	207.6	3.29	
Z4-2	24-Jun-23	13:04	3.3	0.3	19.58	7.92	8.59	93.6	212.1	6.62	1.0
				1.0	19.55	7.92	8.53	93.0	212.0	6.36	
				1.5	19.54	7.90	8.50	92.6	212.0	6.42	
				2.0	19.52	7.89	8.46	92.2	211.9	6.28	
				2.5	19.37	7.89	8.34	90.5	211.9	6.54	
				3.0	18.39	7.70	8.08	86.6	210.1	5.25	
Z4-3	24-Jun-23	13:30	3.4	0.3	19.10	7.89	8.44	91.2	213.3	8.42	0.9
				1.0	19.09	7.89	8.43	91.0	213.2	8.18	
				1.5	19.09	7.89	8.42	91.0	213.2	8.21	
				2.0	19.09	7.89	8.42	91.0	213.3	8.34	
				2.5	19.08	7.89	8.42	91.0	213.1	8.27	
				3.0	18.94	7.89	8.41	90.8	213.3	8.79	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-4	24-Jun-23	13:39	4.4	0.3	19.12	7.91	8.31	89.9	217.7	10.87	0.8
				1.0	19.04	7.92	8.31	89.6	217.7	10.80	
				1.5	18.87	7.91	8.29	88.9	217.8	11.00	
				2.0	18.81	7.90	8.27	88.8	217.9	10.76	
				2.5	18.74	7.90	8.26	88.7	217.9	10.88	
				3.0	18.66	7.90	8.25	88.6	217.8	11.22	
				3.5	18.59	7.90	8.23	88.0	217.7	11.13	
				4.0	18.58	7.90	8.19	87.6	217.7	11.08	
Z4-5	24-Jun-23	12:32	2.4	0.3	20.25	7.69	8.04	88.9	209.0	3.02	1.4
				1.0	20.22	7.68	8.02	88.7	209.0	2.97	
				1.5	20.06	7.64	7.84	86.5	209.1	2.95	
				2.0	20.02	7.61	7.77	85.5	209.1	2.84	
Z4-6	24-Jun-23	12:54	1.5	0.3	19.78	7.82	8.39	92.2	209.9	4.40	1.2
				0.8	19.69	7.79	8.32	91.0	209.9	4.48	
				1.2	19.39	7.74	8.25	89.6	209.4	4.51	
Z4-7	24-Jun-23	13:18	1.5	0.3	20.40	7.69	7.95	88.3	210.0	5.24	1.2
				0.8	20.34	7.67	7.85	86.6	209.8	5.00	
				1.2	20.33	7.66	7.86	87.3	209.6	5.05	
Z8-1	22-Jun-23	8:35	1.4	0.3	18.86	7.10	5.27	56.6	159.3	0.47	1.0
				0.7	18.76	7.13	5.21	55.9	158.4	0.78	
				1.1	18.91	7.15	4.70	50.2	157.1	0.71	
Z8-2	22-Jun-23	8:55	2.5	0.3	19.02	7.28	6.05	65.2	180.9	0.91	1.0
				1.0	19.02	7.29	6.06	65.7	180.9	0.94	
				1.5	18.89	7.29	6.13	66.4	179.9	1.47	
				2.0	15.88	6.73	0.18	1.7	172.7	1.02	
Z8-4	22-Jun-23	10:05	6.2	0.3	18.00	7.87	8.06	85.2	214.2	7.07	0.8
				1.0	18.00	7.86	8.07	85.2	214.1	7.33	
				2.0	18.00	7.87	8.07	85.3	214.1	7.30	
				3.0	17.99	7.86	8.07	85.2	214.0	7.21	
				4.0	17.99	7.86	8.06	85.2	214.1	7.34	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				5.0	18.00	7.86	8.07	85.3	214.0	6.97	
Z8-5	22-Jun-23	9:10	2.7	0.3	18.63	7.33	6.36	68.0	200.8	3.45	0.9
				1.0	18.59	7.34	6.38	68.3	201.9	3.53	
				1.5	18.51	7.35	6.34	67.8	202.6	3.57	
				2.0	18.37	7.33	6.01	63.9	202.8	3.62	
Z8-6	22-Jun-23	9:30	2.2	0.3	18.25	7.54	7.09	75.3	210.0	5.60	1.0
				1.0	18.22	7.54	7.10	75.4	210.2	5.69	
				1.5	18.22	7.52	7.10	75.3	210.9	5.99	
Z8-7	22-Jun-23	9:40	3.9	0.3	18.06	7.80	7.88	83.4	212.5	6.49	0.8
				1.0	18.08	7.80	7.89	83.6	212.5	6.43	
				1.5	18.08	7.79	7.86	83.2	212.4	6.39	
				2.0	18.08	7.79	7.86	83.2	212.3	6.44	
				2.5	18.08	7.78	7.86	83.2	212.4	6.35	
				3.0	18.06	7.76	7.82	82.7	212.5	6.41	
				3.5	17.94	7.67	7.54	79.6	213.0	7.21	
Z8-8	22-Jun-23	9:55	2.3	0.3	18.43	7.71	7.77	82.8	209.5	5.35	0.8
				1.0	18.41	7.71	7.76	82.7	209.6	5.52	
				1.5	18.42	7.71	7.77	82.8	209.6	5.56	
Z11-1	26-Jun-23	9:48	1.5	0.3	17.60	7.28	6.02	63.0	205.9	1.42	1.0
				0.8	17.42	7.28	5.98	62.4	207.9	1.60	
				1.2	17.35	7.30	5.90	61.5	208.5	1.54	
Z11-2	26-Jun-23	9:28	1.0	0.3	17.10	7.09	4.52	46.8	186.2	0.63	1.0
				0.5	17.08	7.09	4.55	47.2	186.2	0.67	
				0.7	16.77	7.08	4.49	46.5	187.7	1.07	
Z11-3	26-Jun-23	9:54	1.9	0.3	17.93	7.65	7.73	81.5	215.7	4.40	1.0
				1.0	17.44	7.65	7.63	80.2	216.7	4.79	
				1.5	17.25	7.66	7.46	77.4	216.5	4.30	
Z11-4	26-Jun-23	10:06	4.9	0.3	18.40	7.74	7.82	83.1	219.3	6.46	1.0
				1.0	17.88	7.71	7.45	78.4	217.4	4.91	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				1.5	17.80	7.61	7.34	77.2	216.5	4.81	
				2.0	17.71	7.57	7.23	76.1	216.0	4.57	
				2.5	17.71	7.60	7.34	77.2	216.1	4.67	
				3.0	17.66	7.61	7.35	77.2	215.7	4.28	
				3.5	17.58	7.58	7.30	76.2	215.1	4.41	
				4.0	17.37	7.55	7.16	74.7	214.8	4.58	
				4.5	17.16	7.45	6.62	68.6	214.5	4.28	
Z11-6	26-Jun-23	10:30	5.6	0.3	18.91	7.95	8.39	89.4	226.4	9.97	0.8
				1.0	18.55	7.97	8.39	89.6	224.5	9.81	
				2.0	17.97	7.73	7.77	82.1	220.9	7.17	
				3.0	17.88	7.63	7.49	78.9	219.1	5.77	
				4.0	17.80	7.68	7.55	79.5	219.7	6.96	
				5.0	17.72	7.90	8.04	84.8	225.3	10.96	
Z11-8	26-Jun-23	10:20	5.0	0.3	18.06	7.73	7.75	81.9	219.3	6.32	0.8
				1.0	18.00	7.72	7.74	81.8	219.2	5.93	
				2.0	17.92	7.71	7.67	80.8	218.2	5.34	
				3.0	17.86	7.67	7.54	79.0	217.5	4.88	
				4.0	17.84	7.61	7.33	77.2	217.6	4.85	
Z11-9	26-Jun-23	10:48	1.7	0.3	19.32	8.25	9.01	97.0	224.9	10.37	1.0
				1.0	17.54	8.03	8.47	88.7	228.7	13.62	
				1.5	16.92	7.94	8.25	85.2	228.1	13.52	
Z11-10	26-Jun-23	9:18	1.7	0.3	16.63	7.00	3.57	36.4	175.0	1.00	1.6
				1.0	16.64	7.00	3.46	35.5	174.9	1.02	
				1.5	16.60	7.00	3.44	35.5	174.3	1.08	
Z11-11	26-Jun-23	9:37	0.8	0.3	17.41	6.93	3.05	32.1	191.0	0.53	> 0.8
				0.5	17.20	6.93	3.07	31.9	190.4	0.58	
				0.7	16.95	6.93	2.96	30.5	190.8	0.55	
Z12-1	24-Jun-23	9:01	1.7	0.3	18.86	7.87	8.32	89.5	222.7	9.13	0.8
				1.0	18.86	7.86	8.31	89.4	222.6	9.30	
				1.4	18.86	7.87	8.31	89.3	222.7	9.32	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-2	24-Jun-23	9:12	3.2	0.3	19.58	7.89	8.42	91.9	217.5	7.35	0.9
				1.0	19.60	7.90	8.41	91.8	217.6	7.30	
				1.5	19.59	7.90	8.41	91.8	217.6	7.21	
				2.0	19.57	7.89	8.41	91.7	217.7	7.36	
				2.5	19.11	7.77	8.10	87.5	215.2	6.91	
				3.0	18.89	7.60	7.75	82.4	211.2	5.99	
Z12-3	24-Jun-23	8:50	2.9	0.3	18.66	7.91	8.43	90.3	220.4	8.52	0.9
				1.0	18.65	7.90	8.42	90.2	220.5	8.55	
				1.5	18.19	7.74	8.06	85.7	219.5	8.29	
				2.0	17.84	7.56	7.57	79.6	218.7	7.87	
Z12-6	26-Jun-23	13:13	6.4	0.3	19.96	7.95	8.44	92.8	225.7	9.50	0.9
				1.0	19.00	8.00	8.54	91.5	224.4	10.27	
				2.0	18.40	7.94	8.42	89.7	224.9	9.69	
				3.0	18.13	7.91	8.27	87.6	224.9	9.93	
				4.0	18.04	7.90	8.22	87.0	224.3	9.94	
				5.0	17.88	7.83	8.16	85.9	223.8	9.81	
				6.0	17.36	7.78	7.96	83.0	224.9	10.04	
Z12-7	24-Jun-23	8:40	2.6	0.3	19.29	7.39	7.40	80.2	176.2	1.26	1.3
				1.0	19.21	7.36	7.18	77.9	176.3	1.29	
				1.5	19.01	7.34	6.83	74.9	176.4	1.12	
				2.0	18.94	7.24	6.25	68.3	176.7	1.26	
Z12-8	26-Jun-23	12:00	1.7	0.3	17.68	7.21	6.44	67.6	190.6	2.22	1.0
				0.8	16.93	7.17	5.89	61.2	188.4	1.53	
				1.2	16.98	7.11	5.69	58.0	187.4	2.53	
Z12-9	26-Jun-23	12:15	2.0	0.3	18.19	7.48	7.44	78.6	218.6	7.33	1.0
				1.0	17.56	7.31	6.36	66.4	216.7	5.86	
				1.5	17.35	7.13	5.50	56.9	216.3	5.46	
Z12-10	26-Jun-23	13:52	1.7	0.3	19.45	7.96	8.61	93.6	224.6	10.13	0.8
				1.0	19.37	7.97	8.60	93.5	224.6	10.20	
				1.5	19.26	7.96	8.55	92.8	224.3	10.22	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-11	26-Jun-23	13:43	2.3	0.3	19.07	8.03	8.66	93.5	226.3	10.01	1.0
				1.0	18.65	8.03	8.61	92.1	226.7	10.55	
				1.5	18.30	8.01	8.56	91.2	227.0	11.38	
				2.0	17.97	7.90	8.23	86.2	226.1	10.91	
Z12-12	26-Jun-23	13:30	1.3	0.3	19.26	7.95	8.47	91.7	226.4	10.20	1.0
				0.6	18.66	7.94	8.36	89.7	227.2	10.32	
				1.0	18.31	7.93	8.27	87.9	236.7	10.75	
Z12-13	26-Jun-23	12:28	4.4	0.3	18.25	7.83	8.32	89.1	223.8	8.67	0.8
				1.0	17.84	7.79	8.11	85.4	223.0	8.80	
				1.5	17.80	7.77	8.07	84.8	223.0	8.78	
				2.0	17.70	7.74	7.98	84.0	222.9	8.50	
				2.5	17.66	7.72	7.82	82.1	223.0	8.71	
				3.0	17.58	7.72	7.81	81.8	223.2	8.85	
				3.5	17.56	7.71	7.79	81.6	223.4	9.20	
				4.0	17.42	7.71	7.78	81.2	224.4	9.30	
Z12-14	26-Jun-23	12:42	1.9	0.3	19.91	7.64	7.88	86.5	204.6	3.94	0.9
				1.0	17.52	7.32	6.86	71.8	164.0	1.20	
				1.5	17.14	7.26	6.81	70.7	166.8	1.12	
Z12-15	26-Jun-23	14:01	0.8	0.3	19.66	8.17	9.12	99.6	224.5	10.30	0.5
				0.5	19.70	8.18	9.11	99.5	224.6	10.45	
				0.7	19.69	8.15	9.11	99.5	224.6	10.40	
Z12-16	26-Jun-23	14:15	1.0	0.3	19.58	8.06	8.69	94.8	227.9	9.90	0.8
				0.5	19.34	8.11	8.79	95.4	227.1	10.10	
				0.8	19.30	8.11	8.81	95.7	226.8	10.00	
Z12-17	24-Jun-23	9:25	3.8	0.3	19.06	7.86	8.31	89.7	221.0	8.96	0.8
				1.0	19.06	7.85	8.30	89.7	221.1	9.17	
				1.5	19.07	7.85	8.32	89.8	220.9	8.75	
				2.0	19.05	7.84	8.26	89.2	221.1	8.85	
				2.5	19.05	7.69	8.27	88.9	221.3	8.70	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-5	02-Aug-23	8:05	11.8	0.3	19.17	7.98	8.38	90.7	201.1	10.40	1.1
				1.0	19.16	7.98	8.38	90.6	201.1	10.38	
				2.0	19.16	7.97	8.38	90.6	201.1	10.15	
				3.0	19.17	7.97	8.38	90.6	201.1	10.14	
				4.0	19.15	7.97	8.37	90.6	201.2	10.24	
				5.0	19.15	7.97	8.37	90.5	201.2	10.31	
				6.0	19.14	7.97	8.37	90.4	201.3	10.16	
				7.0	19.13	7.97	8.37	90.5	201.3	10.06	
				8.0	19.13	7.97	8.37	90.5	201.3	10.54	
				9.0	19.10	7.96	8.36	90.4	201.3	10.16	
				10.0	19.10	7.96	8.36	90.4	201.4	10.31	
				11.0	19.10	7.96	8.36	90.3	201.3	10.45	
Z1-6	02-Aug-23	8:51	7.2	0.3	18.91	7.87	8.18	88.1	202.4	9.15	1.2
				1.0	18.91	7.87	8.18	88.1	202.4	9.17	
				2.0	18.91	7.87	8.18	88.1	202.4	9.20	
				3.0	18.89	7.87	8.15	87.7	202.5	9.37	
				4.0	18.83	7.75	7.90	84.9	202.8	8.75	
				5.0	18.74	7.74	7.87	84.4	202.6	9.07	
				6.0	18.69	7.75	7.88	84.5	202.4	9.39	
				7.0	18.68	7.76	7.88	84.4	202.5	9.40	
Z1-7	02-Aug-23	7:46	14.3	0.3	19.21	7.98	8.39	90.9	201.6	10.06	1.2
				1.0	19.20	8.01	8.38	90.8	202.1	9.94	
				2.0	19.19	8.00	8.38	90.8	202.3	9.99	
				3.0	19.19	7.98	8.37	90.7	202.1	9.71	
				4.0	19.21	7.97	8.37	90.7	202.1	10.01	
				5.0	19.21	7.98	8.38	90.7	202.4	9.94	
				6.0	19.20	7.98	8.38	90.7	202.3	10.15	
				7.0	19.20	7.98	8.38	90.7	202.4	9.97	
				8.0	19.20	7.98	8.37	90.7	202.4	10.10	
				9.0	19.20	7.98	8.37	90.7	202.3	10.27	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				10.0	19.19	7.98	8.37	90.6	202.2	9.99	
				11.0	19.18	7.97	8.37	90.6	202.2	10.07	
				12.0	19.18	7.97	8.36	90.6	202.1	10.12	
				13.0	19.18	7.97	8.36	90.5	202.0	10.30	
				14.0	19.18	7.97	8.36	90.5	202.1	10.02	
Z1-8	02-Aug-23	8:38	7.4	0.3	18.86	7.91	8.23	88.5	201.7	9.77	1.1
				1.0	18.85	7.91	8.21	88.3	201.6	9.95	
				2.0	18.85	7.90	8.21	88.3	201.7	9.79	
				3.0	18.86	7.89	8.20	88.2	201.8	9.73	
				4.0	18.85	7.89	8.19	88.1	201.8	9.60	
				5.0	18.84	7.87	8.14	87.5	201.8	9.71	
				6.0	18.84	7.88	8.19	88.0	202.0	9.54	
				7.0	18.84	7.87	8.15	87.5	202.0	9.61	
Z1-9	02-Aug-23	8:52	10.2	0.3	19.17	8.00	8.40	90.9	200.4	9.88	1.2
				1.0	19.17	8.00	8.40	90.9	200.4	9.74	
				2.0	19.17	7.99	8.39	90.8	200.4	9.85	
				3.0	19.17	7.99	8.39	90.8	200.4	9.99	
				4.0	19.17	7.99	8.39	90.8	200.4	9.96	
				5.0	19.17	7.99	8.39	90.8	200.4	9.76	
				6.0	19.18	7.99	8.38	90.8	200.4	9.88	
				7.0	19.18	7.99	8.39	90.8	200.4	9.88	
				8.0	19.17	7.99	8.39	90.8	200.4	9.82	
				9.0	19.18	7.99	8.38	90.7	200.4	10.02	
				10.0	19.17	7.99	8.38	90.7	200.4	10.20	
Z4-1	30-Jul-23	11:38	4.3	0.3	19.55	8.25	9.53	104.1	209.4	5.24	1.5
				0.5	19.45	8.27	9.61	104.7	209.3	3.83	
				1.0	18.63	8.11	9.14	97.7	209.0	3.43	
				1.5	18.57	8.08	9.03	96.6	208.9	3.37	
				2.0	18.40	7.94	8.65	92.3	209.0	3.44	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				2.5	18.33	7.98	8.68	92.4	208.4	3.76	
				3.0	18.29	7.96	8.61	91.6	208.1	4.14	
				3.5	18.27	7.92	8.55	91.0	208.0	4.00	
Z4-2	30-Jul-23	12:08	4.2	0.3	18.81	8.11	8.99	96.6	206.9	5.25	1.2
				0.5	18.67	8.10	8.97	96.1	206.9	5.14	
				1.0	18.34	8.05	8.86	94.2	207.0	5.56	
				1.5	18.23	8.05	8.78	93.3	205.7	6.88	
				2.0	18.14	7.94	8.52	90.3	206.1	6.20	
				2.5	18.11	7.99	8.61	91.3	204.9	7.15	
				3.0	18.09	7.99	8.61	91.2	204.7	7.23	
				3.5	18.08	7.96	8.56	90.5	204.9	7.13	
Z4-3	30-Jul-23	12:56	4.5	0.3	18.88	8.13	8.93	96.1	205.3	8.10	1.1
				0.5	18.86	8.13	8.93	96.1	205.2	8.17	
				1.0	18.68	8.12	8.88	95.1	205.3	8.29	
				1.5	18.13	8.05	8.06	92.7	204.9	8.15	
				2.0	18.17	8.09	8.83	93.7	204.9	8.08	
				2.5	17.98	7.96	8.43	89.1	205.2	8.88	
				3.0	17.94	7.94	8.34	88.1	205.3	8.94	
				3.5	17.86	7.88	8.16	85.8	205.8	8.91	
Z4-4	30-Jul-23	13:21	6.4	0.3	19.15	8.06	8.61	93.1	205.4	10.00	1.1
				1.0	18.49	8.05	8.57	91.5	205.1	10.37	
				2.0	18.15	8.03	8.50	90.1	205.1	10.52	
				3.0	18.08	8.01	8.46	89.5	205.0	10.41	
				4.0	18.03	7.98	8.42	89.0	205.0	10.18	
				5.0	18.03	7.98	8.41	89.0	205.0	9.75	
				6.0	18.02	7.97	8.40	88.8	205.0	10.45	
Z4-5	30-Jul-23	11:21	2.9	0.3	19.55	7.97	8.88	97.0	210.0	3.72	1.5
				0.5	19.15	7.88	8.61	92.6	210.4	3.61	
				1.0	18.62	7.92	8.52	90.5	209.6	3.43	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				1.5	18.55	7.86	8.37	89.3	209.6	3.52	
				2.0	18.52	7.75	8.05	86.0	210.0	3.66	
Z4-6	30-Jul-23	11:57	0.8	0.3	19.38	8.24	9.50	103.1	208.8	4.31	0.8
				0.5	18.86	8.13	9.23	99.2	208.9	3.80	
				0.6	18.55	8.08	9.07	96.8	208.7	3.52	
Z4-7	30-Jul-23	12:30	1.8	0.3	19.66	7.90	8.58	94.0	205.7	3.94	1.5
				0.5	19.21	7.76	8.18	88.0	206.3	4.22	
				1.0	18.47	7.53	7.30	78.2	207.1	5.52	
				1.5	18.38	7.47	6.99	74.5	207.2	5.80	
Z8-1	02-Aug-23	9:20	1.7	0.3	19.36	7.15	4.70	51.0	190.5	1.76	1.3
				1.0	19.34	7.12	4.66	50.5	190.3	1.67	
				1.5	19.26	7.06	4.06	43.7	189.4	1.70	
Z8-2	02-Aug-23	9:30	2.4	0.3	19.58	7.10	4.64	50.6	197.0	2.45	1.2
				1.0	19.51	7.10	4.61	50.3	197.8	2.46	
				1.5	19.49	7.03	4.21	46.1	197.1	2.48	
				2.0	19.38	7.04	3.85	42.0	197.2	2.47	
Z8-4	02-Aug-23	10:26	6.5	0.3	19.02	7.88	8.22	88.7	203.5	8.44	1.2
				1.0	18.99	7.89	8.22	88.6	203.5	8.70	
				2.0	18.95	7.89	8.21	88.5	203.3	8.79	
				3.0	18.86	7.91	8.26	88.9	202.8	9.40	
				4.0	18.82	7.94	8.28	89.0	202.7	9.50	
				5.0	18.81	7.93	8.26	88.7	202.7	9.44	
				6.0	18.64	7.83	7.94	84.9	203.2	9.46	
Z8-5	02-Aug-23	9:44	2.9	0.3	19.48	7.47	6.96	75.8	205.0	4.96	1.2
				1.0	19.27	7.50	6.94	75.4	205.0	5.58	
				1.5	18.83	7.61	7.29	78.3	205.4	7.18	
				2.0	18.66	7.47	6.71	71.7	205.7	7.24	
				2.5	18.36	7.17	4.32	46.0	206.5	5.05	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z8-6	02-Aug-23	9:58	2.0	0.3	18.81	7.81	8.11	87.1	205.2	7.37	1.3
				1.0	18.81	7.79	8.05	86.6	205.2	7.19	
				1.5	18.77	7.79	7.99	85.7	205.4	7.10	
Z8-7	02-Aug-23	10:08	4.1	0.3	18.96	7.92	8.33	89.8	203.8	8.47	1.1
				1.0	18.93	7.92	8.32	89.5	203.8	8.43	
				1.5	18.92	7.91	8.29	89.3	203.8	8.28	
				2.0	18.90	7.90	8.27	89.0	203.8	8.42	
				2.5	18.89	7.91	8.27	89.0	203.7	8.53	
				3.0	18.87	7.91	8.26	88.8	203.7	8.43	
				3.5	18.66	7.88	8.02	85.6	203.2	8.66	
Z8-8	02-Aug-23	10:17	2.3	0.3	19.08	7.69	7.95	85.9	204.6	7.64	1.1
				1.0	18.98	7.80	7.93	85.5	203.9	8.22	
				1.5	18.89	7.84	7.99	86.0	203.7	8.93	
				2.0	18.86	7.82	7.91	85.1	203.2	9.10	
Z11-1	29-Jul-23	10:35	1.8	0.3	17.43	7.37	6.64	69.4	204.6	2.02	1.2
				1.0	17.22	7.30	6.18	64.5	203.3	1.57	
				1.5	17.12	7.28	5.94	61.6	203.0	1.74	
Z11-2	29-Jul-23	9:30	1.1	0.3	17.68	7.24	5.70	59.9	194.4	1.00	0.5
				0.6	17.27	7.18	5.34	55.4	195.5	0.72	
				0.7	16.97	7.13	4.41	44.9	195.3	0.76	
Z11-3	29-Jul-23	10:47	2.3	0.3	17.91	7.93	8.65	91.0	212.8	7.01	1.5
				1.0	17.25	7.93	8.63	90.4	211.9	7.04	
				1.5	17.15	7.92	8.62	89.9	211.8	7.06	
				2.0	17.06	7.88	8.54	88.5	211.7	7.03	
Z11-4	29-Jul-23	11:11	3.3	0.3	18.05	8.03	8.81	93.3	210.6	8.04	1.5
				1.0	17.72	8.03	8.78	92.3	210.4	8.20	
				1.5	17.49	7.99	8.67	90.6	210.6	8.10	
				2.0	17.43	7.96	8.62	90.0	210.9	8.06	
				2.5	17.31	7.90	8.52	88.8	211.6	7.31	
				3.0	17.24	7.90	8.46	88.0	211.5	7.37	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-5	29-Jul-23	11:30	1.8	0.3	18.40	7.91	8.47	90.6	210.9	7.06	1.4
				1.0	17.93	7.93	8.45	89.9	211.0	7.73	
				1.5	17.75	7.86	8.30	87.4	211.3	7.72	
Z11-6	29-Jul-23	12:25	5.4	0.3	18.67	8.14	8.83	94.7	206.2	9.96	1.2
				1.0	18.56	8.13	8.82	94.3	206.4	10.11	
				2.0	17.81	8.10	8.66	91.1	208.9	8.91	
				3.0	17.55	7.97	8.49	88.8	210.4	8.58	
				4.0	17.43	7.88	8.20	85.6	210.7	7.90	
				5.0	17.04	7.68	7.44	77.1	211.9	7.40	
Z11-8	29-Jul-23	11:46	4.3	0.3	18.41	8.04	8.60	92.0	207.9	10.00	1.3
				1.0	17.67	7.95	8.45	88.8	210.6	8.17	
				1.5	17.54	7.92	8.37	87.7	210.7	8.12	
				2.0	17.51	7.87	8.31	86.9	211.1	7.40	
				2.5	17.47	7.84	8.24	86.1	211.5	7.06	
				3.0	17.45	7.83	8.19	85.6	211.4	7.26	
				3.5	17.43	7.82	8.17	85.3	211.4	7.06	
				4.0	17.40	7.82	8.15	85.1	211.3	7.10	
Z11-9	29-Jul-23	12:09	2.2	0.3	18.48	8.26	9.14	97.9	205.7	10.31	1.2
				1.0	17.50	8.09	8.51	90.1	209.0	10.80	
				1.5	17.33	7.93	8.15	84.8	209.3	10.40	
				2.0	16.99	7.81	7.60	78.6	210.0	9.30	
Z11-10	29-Jul-23	10:03	1.2	0.3	17.56	7.20	5.82	60.9	178.9	0.45	0.8
				0.8	16.91	7.09	4.63	47.5	179.2	0.43	
				1.1	16.83	7.08	4.42	45.2	179.3	0.40	
Z11-11	29-Jul-23	10:20	1.2	0.3	17.52	7.11	4.87	51.0	197.1	0.58	0.8
				0.7	17.16	7.13	4.75	49.4	197.6	0.58	
				1.0	17.08	7.13	4.59	47.7	197.8	0.65	
Z12-1	31-Jul-23	9:06	2.0	0.3	18.68	7.91	8.43	90.3	209.3	8.36	1.2
				1.0	18.67	7.91	8.40	90.0	209.4	8.30	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				1.5	18.63	7.90	8.38	89.7	209.4	7.91	
Z12-2	31-Jul-23	9:30	2.9	0.3	19.11	8.04	8.83	95.4	207.7	7.59	1.1
				1.0	19.05	7.98	8.68	93.7	208.5	8.07	
				1.5	18.98	7.97	8.58	92.4	208.9	8.20	
				2.0	18.90	7.95	8.52	91.7	209.1	7.96	
				2.5	18.75	7.91	8.43	90.3	209.3	7.93	
Z12-3	31-Jul-23	8:52	2.4	0.3	18.76	8.01	8.54	91.7	208.4	9.28	1.1
				1.0	18.76	8.02	8.53	91.6	208.5	9.42	
				1.5	18.76	8.02	8.53	91.6	208.5	9.45	
				2.0	18.73	8.01	8.49	91.1	208.5	9.44	
Z12-6	31-Jul-23	10:15	6.4	0.3	18.85	7.97	8.57	92.2	208.5	9.16	1.2
				1.0	18.58	7.94	8.43	90.2	208.4	9.29	
				2.0	18.53	7.95	8.40	89.8	208.4	9.33	
				3.0	18.51	7.95	8.40	89.8	208.3	9.23	
				4.0	18.19	7.88	8.20	87.0	208.6	9.10	
				5.0	18.15	7.83	8.03	85.1	208.6	9.24	
				6.0	18.15	7.83	8.00	84.8	208.7	9.21	
Z12-7	31-Jul-23	7:55	2.9	0.3	19.12	8.48	10.96	118.6	186.2	2.15	1.1
				1.0	18.44	8.12	9.80	104.5	186.9	2.12	
				1.5	17.93	7.76	8.16	86.0	186.9	2.25	
				2.0	17.26	7.17	4.83	50.4	187.5	1.99	
				2.5	16.88	7.07	3.95	40.7	188.1	1.77	
Z12-8	31-Jul-23	8:20	1.9	0.3	18.87	7.67	9.10	97.9	191.5	2.84	1.2
				1.0	18.78	7.60	8.17	87.6	193.3	2.43	
				1.5	17.80	6.93	3.19	33.5	196.8	1.76	
Z12-9	31-Jul-23	8:40	1.4	0.3	18.84	7.27	7.04	75.6	208.6	6.95	1.1
				0.8	18.81	7.22	6.68	71.8	208.7	8.20	
				1.2	18.78	7.21	6.51	70.0	208.5	7.02	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-10	31-Jul-23	10:46	1.9	0.3	18.99	7.97	8.54	92.1	208.6	9.16	1.1
				1.0	18.76	7.94	8.41	90.2	208.7	9.20	
				1.5	18.61	7.89	8.36	89.5	209.1	8.56	
Z12-11	31-Jul-23	10:58	3.3	0.3	18.90	7.86	8.23	88.9	208.9	9.45	1.1
				1.0	18.52	7.78	7.85	83.8	209.2	9.40	
				1.5	18.40	7.80	7.87	83.9	209.2	9.27	
				2.0	18.27	7.83	7.94	84.4	209.1	9.54	
				2.5	18.25	7.85	7.98	84.8	209.1	9.58	
				3.0	18.21	7.88	8.06	85.5	209.1	9.52	
Z12-12	31-Jul-23	10:35	0.9	0.3	18.30	7.84	8.01	85.2	209.0	10.15	0.9
				0.5	18.33	7.84	8.00	85.1	209.0	9.99	
				0.7	18.24	7.83	7.97	84.6	209.1	10.25	
Z12-13	31-Jul-23	9:45	3.9	0.3	18.85	7.98	8.62	92.7	182.7	9.02	1.2
				1.0	18.60	7.93	8.40	89.9	208.4	9.18	
				1.5	18.35	7.89	8.24	87.7	208.6	9.17	
				2.0	18.30	7.87	8.18	87.0	208.5	9.24	
				2.5	18.28	7.86	8.16	86.7	208.6	9.01	
				3.0	18.09	7.74	7.86	83.2	209.3	8.65	
				3.5	17.95	7.71	7.70	81.2	209.6	8.32	
Z12-14	31-Jul-23	9:18	1.1	0.3	18.96	7.91	9.00	97.0	186.2	2.84	1.1
				0.6	18.93	7.96	8.93	96.1	187.3	3.03	
				0.9	18.93	7.93	8.87	95.5	190.0	2.82	
Z12-15	31-Jul-23	11:13	0.9	0.3	18.49	8.02	8.45	90.2	208.8	9.41	0.7
				0.5	18.48	8.02	8.45	90.2	208.8	9.33	
				0.7	18.47	8.02	8.45	90.2	208.8	9.42	
Z12-16	31-Jul-23	11:21	2.8	0.3	18.56	8.04	8.52	91.2	207.0	9.89	1.2
				1.0	18.46	8.00	8.49	90.6	206.9	9.96	
				1.5	18.43	7.99	8.43	89.8	206.9	9.90	
				2.0	18.44	8.00	8.43	89.8	206.9	9.03	
				2.5	18.43	8.00	8.41	89.6	207.0	9.05	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z12-17	31-Jul-23	10:03	1.8	0.3	18.96	8.00	8.67	93.4	208.8	8.90	1.0
				1.0	18.88	7.97	8.51	91.6	208.7	9.01	
				1.5	18.85	7.95	8.45	90.8	208.6	9.07	
Z1-5	28-Aug-23	10:48	11.6	0.3	17.65	8.06	8.55	89.7	208.8	7.86	1.2
				1.0	17.66	8.05	8.55	89.7	208.7	8.11	
				2.0	17.67	8.03	8.54	89.6	208.8	8.19	
				3.0	17.66	8.03	8.53	89.5	208.8	7.78	
				4.0	17.66	8.04	8.53	89.5	208.8	7.94	
				5.0	17.65	8.05	8.52	89.4	208.9	8.11	
				6.0	17.65	8.05	8.52	89.4	208.8	8.05	
				7.0	17.65	8.03	8.52	89.4	208.8	8.20	
				8.0	17.65	8.02	8.52	89.4	208.9	8.05	
				9.0	17.65	8.02	8.52	89.4	208.8	8.10	
				10.0	17.65	8.03	8.52	89.4	208.9	8.08	
				11.0	17.65	8.04	8.52	89.4	208.9	8.31	
Z1-6	28-Aug-23	11:44	6.9	0.3	17.35	7.96	8.43	87.9	206.6	8.05	1.1
				1.0	17.36	7.95	8.42	87.8	206.6	7.96	
				2.0	17.36	7.96	8.41	87.7	206.6	8.01	
				3.0	17.35	7.96	8.40	87.6	206.6	8.17	
				4.0	17.30	7.96	8.37	87.3	206.4	8.26	
				5.0	17.14	7.91	8.28	85.9	205.9	7.77	
				6.0	16.82	7.77	7.99	82.3	204.1	6.80	
Z1-7	28-Aug-23	10:09	15.1	0.3	17.69	8.07	8.56	89.9	209.8	7.84	1.2
				1.0	17.69	8.06	8.55	89.8	209.8	8.13	
				2.0	17.69	8.05	8.55	89.8	209.9	8.12	
				3.0	17.69	8.04	8.55	89.8	210.0	8.14	
				4.0	17.69	8.05	8.55	89.8	210.0	8.32	
				5.0	17.69	8.05	8.55	89.8	210.2	7.88	
				6.0	17.68	8.04	8.54	89.7	210.7	8.02	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				7.0	17.66	8.05	8.54	89.7	210.4	8.15	
				8.0	17.66	8.05	8.54	89.6	210.8	8.01	
				9.0	17.65	8.04	8.53	89.6	210.8	7.87	
				10.0	17.65	8.03	8.54	89.5	210.9	8.04	
				11.0	17.65	8.03	8.53	89.5	210.9	8.00	
				12.0	17.65	8.03	8.54	89.6	210.8	7.92	
				13.0	17.65	8.03	8.54	89.6	210.9	8.24	
				14.0	17.65	8.05	8.53	89.6	210.9	8.55	
Z1-8	28-Aug-23	11:28	7.2	0.3	17.49	7.97	8.45	88.4	207.4	8.25	1.1
				1.0	17.47	7.97	8.43	88.1	207.2	7.99	
				2.0	17.41	7.96	8.38	87.6	207.0	7.87	
				3.0	17.42	7.96	8.38	87.5	207.0	7.81	
				4.0	17.20	7.89	8.24	85.8	205.6	7.81	
				5.0	17.18	7.87	8.20	85.2	205.4	7.51	
				6.0	17.06	7.83	8.10	83.7	205.1	7.40	
Z1-9	28-Aug-23	11:09	9.7	0.3	17.70	8.05	8.55	89.8	208.3	7.98	1.2
				1.0	17.69	8.04	8.55	89.8	208.3	7.98	
				2.0	17.70	8.04	8.55	89.8	208.3	8.60	
				3.0	17.70	8.06	8.55	89.8	208.2	7.82	
				4.0	17.71	8.05	8.54	89.7	208.3	7.89	
				5.0	17.71	8.05	8.54	89.7	208.3	7.71	
				6.0	17.71	8.04	8.54	89.8	208.2	7.93	
				7.0	17.71	8.04	8.54	89.8	208.3	7.95	
				8.0	17.71	8.05	8.55	89.8	208.2	7.88	
				9.0	17.71	8.05	8.54	89.8	208.2	7.99	
Z4-1	25-Aug-23	11:01	1.5	0.3	17.98	7.65	7.77	82.1	208.5	4.04	1.1
				0.8	17.97	7.64	7.75	81.8	208.6	4.02	
				1.2	17.97	7.64	7.73	81.7	208.5	3.97	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z4-2	25-Aug-23	11:23	4.2	0.3	17.82	7.85	8.33	87.7	210.8	6.35	
				1.0	17.82	7.86	8.32	87.6	210.9	6.28	
				1.5	17.81	7.85	8.31	87.4	210.9	6.35	
				2.0	17.81	7.84	8.29	87.3	210.9	6.40	
				2.5	17.80	7.83	8.27	86.9	210.8	6.31	
Z4-3	25-Aug-23	11:45	3.9	0.3	18.19	7.94	8.34	88.5	215.6	7.76	1.2
				1.0	18.17	7.93	8.35	88.6	215.6	7.65	
				1.5	18.16	7.94	8.35	88.5	215.5	7.53	
				2.0	18.10	7.95	8.37	88.6	215.6	7.56	
				2.5	18.08	7.95	8.37	88.7	215.5	7.60	
				3.0	18.07	7.96	8.38	88.7	215.5	7.45	
				3.5	17.89	7.85	8.19	86.2	214.1	7.51	
Z4-4	25-Aug-23	12:05	3.4	0.3	18.37	8.02	8.45	90.0	217.5	8.01	1.1
				1.0	18.37	8.02	8.44	89.8	217.5	7.91	
				1.5	18.35	8.02	8.44	89.8	217.6	7.92	
				2.0	18.35	8.02	8.44	89.9	217.6	8.05	
				2.5	18.35	8.02	8.43	89.9	217.8	8.02	
				3.0	18.35	8.01	8.44	89.9	217.8	7.96	
Z4-5	25-Aug-23	10:45	2.6	0.3	17.79	7.44	6.88	72.4	208.2	3.14	1.5
				1.0	17.74	7.44	6.88	72.3	208.2	3.11	
				1.5	17.71	7.43	6.85	72.0	208.1	3.24	
				2.0	17.48	7.39	6.33	68.0	208.3	3.23	
Z4-6	25-Aug-23	11:11	1.4	0.3	17.99	7.65	7.92	83.7	207.9	3.53	1.0
				0.8	17.99	7.66	7.88	83.3	207.8	3.43	
				1.0	17.96	7.66	7.86	82.9	207.8	3.59	
Z4-7	25-Aug-23	11:33	1.2	0.3	17.58	7.68	7.95	83.3	209.0	5.25	1.0
				0.6	17.51	7.67	7.92	82.7	209.0	5.19	
				1.0	17.32	7.52	7.20	75.5	209.2	4.19	
Z8-1	23-Aug-23	8:12	1.4	0.3	17.74	6.95	3.67	38.6	172.9	1.50	1.2
				0.6	17.74	6.95	3.66	38.4	172.8	1.50	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				1.0	17.74	6.94	3.65	38.4	172.9	1.42	
Z8-2	23-Aug-23	8:26	2.2	0.3	17.66	7.07	4.66	48.1	181.8	2.66	1.2
				0.5	17.62	7.06	4.67	48.6	185.0	2.54	
				1.0	17.60	7.07	4.62	48.4	184.9	2.57	
				1.5	17.61	7.07	4.60	48.2	184.5	2.73	
				2.0	17.61	7.07	4.58	48.0	184.5	2.61	
Z8-4	23-Aug-23	9:38	6.1	0.3	18.30	7.97	8.47	90.1	213.1	7.59	1.3
				1.0	18.13	7.96	8.40	89.0	213.7	7.80	
				2.0	18.11	7.97	8.38	88.7	214.1	8.00	
				3.0	18.08	7.95	8.32	88.1	214.2	8.10	
				4.0	18.04	7.93	8.26	87.4	214.3	8.20	
				5.0	17.95	7.85	8.01	84.5	214.2	8.69	
				6.0	17.69	7.60	7.25	76.1	212.6	8.42	
Z8-5	23-Aug-23	8:42	1.9	0.3	17.53	7.52	7.21	75.5	206.9	6.13	1.1
				0.5	17.55	7.52	7.20	75.4	207.0	6.05	
				1.0	17.54	7.52	7.18	75.2	207.0	6.08	
				1.5	17.53	7.52	7.17	75.0	207.1	6.06	
Z8-6	23-Aug-23	8:58	2.2	0.3	17.82	7.85	8.22	86.6	211.8	7.30	1.3
				0.5	17.83	7.85	8.20	86.4	211.9	7.31	
				1.0	17.38	7.69	7.82	81.7	208.9	6.55	
				1.5	17.18	7.51	7.22	75.1	207.7	5.84	
				2.0	17.15	7.45	7.45	71.9	207.6	5.79	
Z8-7	23-Aug-23	9:11	3.7	0.3	18.09	7.88	8.24	87.3	213.6	7.62	1.2
				0.5	18.08	7.88	8.21	86.9	213.6	7.53	
				1.0	18.08	7.88	8.21	86.9	213.5	7.57	
				1.5	18.02	7.86	8.14	86.1	213.7	7.59	
				2.0	17.96	7.42	8.05	85.0	213.4	7.41	
				2.5	17.91	7.98	7.99	84.2	211.2	6.90	
				3.0	17.88	7.72	7.84	82.6	210.4	6.82	
Z8-8	23-Aug-23	9:27	2.3	0.3	18.19	7.88	8.24	87.4	213.4	7.45	1.2

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				0.5	18.16	7.88	8.23	87.2	213.3	7.49	
				1.0	18.13	7.88	8.21	87.0	213.1	7.50	
				1.5	18.00	7.82	8.07	85.3	212.0	7.25	
				2.0	17.85	7.61	7.70	81.2	209.4	7.00	
Z11-1	28-Aug-23	8:14	1.7	0.3	16.04	7.45	7.02	71.1	198.9	3.95	1.5
				0.5	16.03	7.44	6.95	70.4	198.9	3.91	
				1.0	16.03	7.43	6.86	69.6	198.8	3.79	
				1.5	16.04	7.43	6.81	69.1	198.8	3.87	
Z11-2	28-Aug-23	7:53	1.0	0.3	15.54	7.20	5.36	53.8	194.9	2.80	1.0
				0.5	15.56	7.23	5.24	52.6	194.8	2.76	
				0.9	15.58	7.19	4.88	49.1	194.5	3.36	
Z11-3	28-Aug-23	8:23	2.1	0.3	16.01	7.59	7.60	77.1	202.9	5.08	1.5
				0.5	16.03	7.59	7.55	76.5	203.0	5.16	
				1.0	15.97	7.57	7.46	75.7	203.9	5.35	
				1.5	15.94	7.52	7.15	72.4	204.4	5.70	
				2.0	15.94	7.52	7.12	72.2	204.3	6.33	
Z11-4	28-Aug-23	8:37	5.1	0.3	16.73	7.78	8.13	83.7	206.2	6.27	1.5
				1.0	16.75	7.78	8.08	83.2	206.2	6.34	
				2.0	16.75	7.78	8.07	83.2	206.2	6.24	
				3.0	16.71	7.75	7.97	82.0	205.7	5.81	
				4.0	16.58	7.66	7.67	78.7	204.2	5.21	
Z11-5	28-Aug-23	8:55	2.0	0.3	16.34	7.44	6.80	69.2	203.0	4.54	1.5
				0.5	16.31	7.45	6.74	68.8	203.0	4.57	
				1.0	16.19	7.44	6.59	67.2	203.0	4.49	
				1.5	15.83	7.33	5.77	58.2	203.0	4.24	
Z11-6	28-Aug-23	9:42	5.1	0.3	17.32	8.02	8.44	87.9	211.5	7.89	1.5
				1.0	17.31	8.01	8.42	87.8	211.3	8.16	
				2.0	17.30	8.00	8.39	87.4	211.1	7.72	
				3.0	17.29	7.99	8.38	87.2	211.0	7.71	
				4.0	16.94	7.78	7.90	81.6	208.8	7.77	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				5.0	16.87	7.76	7.77	80.2	208.9	8.19	
Z11-8	28-Aug-23	9:07	4.4	0.3	17.14	7.97	8.41	87.3	210.1	7.50	1.5
				0.5	17.13	7.96	8.37	86.9	210.0	7.48	
				1.0	17.12	7.95	8.36	86.8	209.7	7.40	
				1.5	17.00	7.90	8.24	85.4	208.5	7.22	
				2.0	16.97	7.76	8.00	82.5	208.2	6.38	
				2.5	16.89	7.71	7.83	80.8	207.1	5.78	
				3.0	16.84	7.64	7.49	77.3	205.7	5.80	
				3.5	16.83	7.67	7.61	78.5	206.0	5.83	
Z11-9	28-Aug-23	9:26	2.2	0.3	16.51	7.89	8.05	82.4	212.5	9.52	1.5
				0.5	16.44	7.87	8.00	81.8	212.6	10.51	
				1.0	16.39	7.87	8.03	82.1	211.8	10.06	
				1.5	16.21	7.83	8.02	81.5	212.0	10.34	
				2.0	16.01	7.75	7.75	78.6	211.8	10.14	
Z11-10	27-Aug-23	8:13	0.9	0.3	17.10	7.06	4.12	42.7	192.1	0.58	0.9
				0.5	17.11	7.05	3.96	41.0	192.1	0.59	
				0.7	17.12	7.04	3.88	40.0	192.0	*3.69*	
Z11-11	27-Aug-23	8:30	0.9	0.3	16.93	7.25	5.46	56.5	201.5	1.58	0.9
				0.5	16.93	7.26	5.33	55.1	201.6	*5.54*	
				0.7	16.94	7.25	5.21	54.0	201.3	2.11	
Z12-1	28-Aug-23	13:50	1.9	0.3	16.01	7.67	7.96	80.7	205.5	6.60	1.0
				0.8	16.00	7.67	7.94	80.5	205.5	6.46	
				1.2	15.98	7.67	7.94	80.4	205.5	6.54	
Z12-2	28-Aug-23	14:12	2.5	0.3	15.92	7.74	8.19	82.8	204.4	6.27	1.3
				1.0	15.90	7.73	8.14	82.4	204.4	6.31	
				1.5	15.83	7.72	8.10	81.8	203.8	6.13	
				2.0	15.79	7.73	8.09	81.5	204.0	6.21	
Z12-3	28-Aug-23	13:37	1.5	0.3	16.63	7.80	8.26	84.9	207.6	7.85	1.1
				0.8	16.63	7.79	8.27	85.0	207.6	8.01	
				1.2	16.63	7.81	8.16	83.5	207.6	7.98	
Z12-6	28-Aug-23	14:37	6.5	0.3	17.27	8.02	8.56	89.1	209.8	8.24	1.2
				1.0	17.17	8.00	8.42	87.5	209.3	8.40	
				2.0	16.84	7.90	8.25	85.1	208.7	8.70	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				3.0	16.72	7.83	8.14	83.6	208.3	9.36	
				4.0	16.67	7.80	8.11	83.4	208.4	9.44	
				5.0	16.66	7.80	8.09	83.2	208.5	9.20	
				6.0	16.65	7.79	8.03	82.5	208.4	8.84	
Z12-7	28-Aug-23	13:02	2.7	0.3	15.65	7.25	6.06	60.9	185.0	2.25	1.4
				1.0	15.64	7.25	6.04	60.8	184.9	2.32	
				1.5	15.60	7.25	6.03	60.6	184.8	2.28	
				2.0	15.59	7.25	6.03	60.6	184.4	2.20	
Z12-8	28-Aug-23	13:15	1.8	0.3	15.45	7.15	5.20	52.1	192.2	3.01	1.2
				1.0	15.43	7.15	5.15	51.6	189.7	2.70	
				1.5	15.42	7.15	4.70	47.0	190.8	2.82	
Z12-9	28-Aug-23	13:27	1.8	0.3	16.14	7.40	6.81	69.1	203.5	5.83	1.2
				1.0	16.14	7.38	6.62	67.5	203.5	5.87	
				1.5	16.15	7.33	6.32	64.2	203.2	5.58	
Z12-10	28-Aug-23	15:34	1.9	0.3	15.83	7.64	8.11	81.9	206.8	6.46	0.8
				1.0	15.71	7.55	7.61	76.6	206.8	6.38	
				1.5	15.64	7.56	7.56	76.0	206.7	6.52	
Z12-11	28-Aug-23	15:22	3.2	0.3	16.87	7.93	8.36	86.2	210.2	9.24	1.0
				1.0	16.87	7.92	8.29	85.6	210.3	8.90	
				1.5	16.84	7.92	8.27	85.3	210.4	8.82	
				2.0	16.81	7.92	8.28	85.4	210.3	9.09	
				2.5	16.64	7.90	8.28	85.2	210.2	8.97	
Z12-12	28-Aug-23	15:07	1.6	0.3	16.88	7.81	8.01	82.7	211.0	8.45	1.0
				1.0	16.87	7.81	7.95	82.2	210.8	8.39	
				1.2	16.85	7.79	7.91	81.8	210.8	8.25	
Z12-13	28-Aug-23	14:51	3.6	0.3	16.42	7.71	8.07	82.5	205.9	6.80	1.1
				1.0	16.42	7.71	8.06	82.5	205.9	6.83	
				1.5	16.42	7.72	8.06	82.4	205.9	6.66	
				2.0	16.42	7.72	8.04	82.1	205.9	6.73	
				2.5	16.31	7.70	7.90	80.6	206.1	6.53	

Table A4-1: In situ parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				3.0	16.28	7.70	7.86	80.1	205.9	6.74	
Z12-14	28-Aug-23	14:02	2.3	0.3	15.45	7.18	5.70	57.1	158.4	2.47	1.1
				1.0	15.45	7.18	5.65	56.5	158.3	2.42	
				1.5	15.44	7.18	5.62	56.3	158.1	2.41	
				2.0	15.44	7.18	5.59	56.0	157.8	2.39	
Z12-15	28-Aug-23	15:49	1.2	0.3	17.21	8.04	8.64	89.7	210.6	8.60	1.0
				0.6	17.21	8.04	8.58	89.2	210.7	8.53	
				0.9	17.21	8.04	8.56	89.0	210.8	8.40	
Z12-16	28-Aug-23	15:58	1.9	0.3	17.55	8.08	8.67	90.7	211.6	8.05	1.1
				1.0	17.52	8.06	8.58	89.8	211.7	7.86	
				1.5	17.51	8.06	8.57	89.7	211.6	8.08	
Z12-17	28-Aug-23	14:24	2.4	0.3	16.51	7.85	8.45	86.5	207.5	7.51	1.0
				1.0	16.52	7.82	8.36	85.7	207.5	7.41	
				1.5	16.52	7.83	8.31	85.1	207.5	7.29	
				2.0	16.41	7.67	7.67	78.3	208.4	6.70	
Z1-5	24-Sep-23	8:43	11.9	0.3	15.37	8.02	9.19	91.9	234.4	6.75	1.6
				1.0	15.38	8.04	9.18	91.8	234.2	6.81	
				2.0	15.38	8.04	9.18	91.9	234.2	6.74	
				3.0	15.39	8.04	9.18	91.8	*238.4*	6.84	
				4.0	15.37	8.03	9.16	91.6	234.5	6.93	
				5.0	15.37	8.03	9.16	91.6	235.1	6.87	
				6.0	15.37	8.03	9.15	91.6	235.2	6.85	
				7.0	15.37	8.03	9.14	91.4	236.0	6.70	
				8.0	15.36	8.02	9.14	91.4	236.3	6.82	
				9.0	15.36	8.03	9.14	91.4	236.4	6.77	
				10.0	15.36	8.03	9.14	91.4	236.4	6.77	
				11.0	15.36	8.02	9.14	91.4	236.6	6.79	
Z1-6	24-Sep-23	7:50	7.0	0.3	15.09	7.96	9.09	90.4	239.2	5.71	1.6
				1.0	15.12	7.95	9.12	90.7	239.0	5.72	
				2.0	15.12	7.93	9.15	91.1	237.9	5.61	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				3.0	15.13	7.88	9.12	90.8	237.3	5.34	
				4.0	15.12	7.87	9.11	90.7	237.3	5.24	
				5.0	15.08	7.88	9.08	90.2	238.0	5.47	
				6.0	15.06	7.87	9.05	89.9	238.1	5.49	
Z1-7	24-Sep-23	9:04	15.3	0.3	15.42	8.02	9.24	92.5	234.8	6.68	1.5
				1.0	15.43	8.03	9.21	92.2	234.6	6.66	
				2.0	15.44	8.04	9.19	92.1	234.6	6.65	
				3.0	15.43	8.04	9.19	92.1	234.7	6.65	
				4.0	15.44	8.03	9.18	91.9	235.1	6.78	
				5.0	15.44	8.04	9.19	92.1	234.7	6.68	
				6.0	15.44	8.04	9.18	92.0	235.0	6.69	
				7.0	15.44	8.04	9.19	92.0	234.7	6.70	
				8.0	15.44	8.04	9.18	92.0	235.0	6.80	
				9.0	15.44	8.03	9.19	92.0	234.9	6.76	
				10.0	15.44	8.04	9.19	92.1	234.6	6.82	
				11.0	15.44	8.03	9.19	92.1	235.2	6.65	
				12.0	15.44	8.03	9.18	92.0	235.0	6.61	
				13.0	15.44	8.03	9.19	92.0	235.0	6.66	
				14.0	15.44	8.03	9.19	92.0	235.1	6.59	
				15.0	15.44	8.03	9.19	92.0	235.1	6.63	
Z1-8	24-Sep-23	8:10	7.4	0.3	15.14	7.94	9.20	91.8	238.1	5.89	1.6
				1.0	15.13	7.96	9.17	91.2	238.0	5.81	
				2.0	15.13	7.97	9.17	91.2	238.0	5.89	
				3.0	15.11	7.97	9.17	91.2	237.8	5.54	
				4.0	15.10	7.97	9.16	91.2	237.8	5.56	
				5.0	15.11	7.96	9.16	91.0	237.8	5.55	
				6.0	15.09	7.96	9.15	91.0	237.8	5.54	
				7.0	15.08	7.94	9.08	90.3	237.7	5.47	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z1-9	24-Sep-23	8:20	9.7	0.3	15.39	8.03	9.21	92.2	233.7	6.68	1.5
				1.0	15.39	8.05	9.21	92.1	233.7	6.64	
				2.0	15.40	8.05	9.20	92.1	233.7	6.88	
				3.0	15.40	8.04	9.20	92.1	233.8	6.71	
				4.0	15.40	8.04	9.20	92.1	233.7	6.70	
				5.0	15.40	8.03	9.20	92.1	233.8	6.71	
				6.0	15.41	8.04	9.20	92.1	233.7	6.88	
				7.0	15.41	8.03	9.20	92.1	233.7	6.85	
				8.0	15.41	8.03	9.20	92.1	233.8	6.94	
				9.0	15.41	8.03	9.20	92.1	233.8	6.72	
Z4-1	23-Sep-23	11:24	4.1	0.3	14.76	7.79	9.14	90.2	219.6	3.03	1.7
				1.0	14.74	7.80	9.14	90.2	219.6	2.96	
				1.5	14.65	7.79	9.13	89.9	219.6	3.06	
				2.0	14.63	7.78	9.09	89.4	219.6	3.07	
				2.5	14.60	7.77	9.03	88.8	219.7	3.09	
				3.0	14.57	7.74	8.92	87.7	219.9	3.16	
				3.5	14.49	7.70	8.77	85.9	220.8	3.23	
Z4-2	23-Sep-23	11:40	4.0	0.3	14.88	7.93	9.33	92.4	229.9	4.86	1.6
				1.0	14.81	7.94	9.31	92.0	230.2	5.04	
				1.5	14.79	7.94	9.29	91.7	230.4	5.03	
				2.0	14.79	7.93	9.29	91.7	230.4	5.05	
				2.5	14.78	7.93	9.28	91.7	230.3	5.01	
				3.0	14.77	7.93	9.27	91.6	230.3	5.00	
				3.5	14.77	7.92	9.27	91.6	230.3	4.97	
Z4-3	23-Sep-23	15:20	4.2	0.3	15.74	8.04	9.26	93.3	237.7	6.12	1.6
				1.0	15.67	8.04	9.26	93.3	237.7	6.10	
				1.5	15.64	8.03	9.27	93.2	237.7	6.04	
				2.0	15.54	8.03	9.26	93.0	237.4	5.98	
				2.5	15.45	8.03	9.25	92.7	237.2	6.04	
				3.0	15.33	8.01	9.24	92.3	236.9	5.96	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				3.5	14.99	7.94	9.13	90.6	234.5	6.13	
Z4-4	23-Sep-23	11:53	4.1	0.3	15.49	8.05	9.20	92.3	239.1	6.20	1.6
				1.0	15.49	8.05	9.20	92.3	239.1	6.22	
				1.5	15.42	8.06	9.20	92.1	239.2	6.03	
				2.0	15.35	8.05	9.18	91.8	239.3	6.10	
				2.5	15.31	8.05	9.17	91.6	239.3	6.15	
				3.0	15.30	8.04	9.16	91.4	239.2	6.18	
				3.5	15.29	8.04	9.14	91.3	239.3	6.07	
Z4-5	23-Sep-23	14:52	2.6	0.3	15.49	7.86	9.41	94.4	219.6	2.83	1.6
				1.0	15.41	7.86	9.40	94.2	219.5	2.93	
				1.5	15.36	7.85	9.38	93.8	219.5	2.90	
				2.0	15.16	7.83	9.24	91.9	219.5	2.83	
Z4-6	23-Sep-23	15:06	1.3	0.3	15.27	7.86	9.40	93.8	224.3	3.78	1.3
				0.7	15.25	7.87	9.41	93.9	224.2	3.80	
				1.0	15.21	7.87	9.40	93.7	224.2	4.20	
Z4-7	23-Sep-23	15:32	1.7	0.3	15.68	7.87	9.19	92.5	232.0	4.70	1.2
				0.8	15.10	7.61	8.29	82.2	228.7	3.75	
				1.2	14.90	7.47	7.95	78.7	226.7	3.60	
Z8-1	21-Sep-23	11:40	1.8	0.3	14.75	7.23	6.83	67.5	201.0	1.92	1.1
				1.0	14.75	7.23	6.80	67.2	200.8	1.93	
				1.5	14.75	7.23	6.80	67.2	200.9	1.92	
Z8-2	21-Sep-23	12:10	2.4	0.3	14.70	7.28	6.91	68.1	208.8	2.47	1.6
				1.0	14.67	7.28	6.90	68.0	209.3	2.56	
				1.5	14.67	7.29	6.89	67.8	208.4	2.57	
				2.0	14.66	7.28	6.88	67.8	209.3	2.52	
Z8-4	21-Sep-23	13:23	6.4	0.3	14.89	7.98	9.13	90.4	234.8	6.03	1.7
				1.0	14.90	7.98	9.12	90.3	234.8	6.00	
				2.0	14.88	7.96	9.11	90.1	234.9	5.95	
				3.0	14.87	7.95	9.10	90.1	234.8	6.02	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				4.0	14.86	7.96	9.10	90.1	234.7	5.98	
				5.0	14.86	7.94	9.08	89.8	234.7	6.01	
				6.0	14.85	7.95	9.08	89.8	234.6	6.02	
Z8-5	21-Sep-23	12:28	3.1	0.3	14.48	7.67	8.51	83.5	229.9	5.17	1.6
				1.0	14.46	7.68	8.51	83.4	229.8	5.23	
				1.5	14.49	7.67	8.50	83.4	229.8	5.13	
				2.0	14.43	7.67	8.46	82.9	229.7	5.10	
				2.5	14.39	7.64	8.38	82.0	229.8	5.09	
Z8-6	21-Sep-23	13:11	1.5	0.3	14.89	7.86	9.02	89.2	233.0	5.68	1.0
				0.8	14.83	7.85	8.98	88.7	233.0	5.70	
				1.2	14.83	7.87	9.02	89.1	233.1	5.77	
Z8-7	21-Sep-23	12:55	4.4	0.3	14.87	7.87	9.06	89.6	233.6	5.93	1.6
				1.0	14.84	7.94	9.04	89.4	233.5	5.87	
				1.5	14.85	7.94	9.04	89.4	233.6	5.88	
				2.0	14.84	7.94	9.03	89.4	233.5	5.83	
				2.5	14.78	7.92	9.01	88.9	233.4	6.01	
				3.0	14.77	7.92	8.99	88.7	233.4	5.93	
				3.5	14.76	7.91	8.96	88.5	233.4	5.81	
Z8-8	21-Sep-23	12:43	1.9	0.3	14.79	7.95	9.38	92.7	233.0	5.76	1.2
				1.0	14.79	7.96	9.37	92.5	233.0	5.86	
				1.5	14.78	7.96	9.36	92.4	232.7	5.67	
Z11-1	22-Sep-23	10:04	1.5	0.3	13.93	7.33	7.03	68.1	216.5	2.63	1.3
				0.5	13.93	7.33	6.99	67.7	216.7	2.61	
				1.0	13.92	7.33	6.97	67.6	216.9	2.71	
Z11-2	22-Sep-23	8:50	1.1	0.3	13.41	6.91	3.80	36.2	195.3	0.62	1.1
				0.5	13.40	6.93	3.68	35.2	195.3	0.55	
				1.0	13.31	6.94	3.54	33.9	195.4	0.59	
Z11-3	22-Sep-23	9:29	2.2	0.3	13.98	7.75	8.62	83.6	229.0	4.20	1.4
				0.5	13.99	7.73	8.62	83.6	229.1	4.27	
				1.0	13.98	7.73	8.62	83.6	229.1	4.34	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				1.5	13.92	7.72	8.56	83.0	229.3	4.22	
				2.0	13.92	7.70	8.47	82.2	229.2	5.04	
Z11-4	22-Sep-23	9:45	5.1	0.3	14.42	7.85	9.01	88.3	233.5	5.23	1.3
				1.0	14.41	7.85	8.97	87.9	233.3	5.23	
				2.0	14.42	7.86	8.97	87.9	233.0	4.96	
				3.0	14.38	7.84	8.92	87.4	232.8	5.04	
				4.0	14.29	7.77	8.77	85.6	231.4	4.61	
Z11-5	22-Sep-23	10:26	1.9	0.3	14.28	7.68	8.56	83.5	229.2	4.80	1.0
				0.5	14.21	7.66	8.50	82.6	229.3	4.87	
				1.0	14.02	7.60	8.17	79.4	229.8	4.89	
				1.5	13.91	7.55	7.93	76.8	229.9	4.93	
Z11-6	22-Sep-23	11:19	5.1	0.3	14.85	7.92	9.17	90.5	238.9	5.83	1.3
				1.0	14.82	7.93	8.98	88.8	238.9	5.84	
				2.0	14.81	7.92	8.95	88.4	239.1	5.88	
				3.0	14.78	7.94	8.93	88.2	239.4	6.08	
				4.0	14.69	7.92	8.85	87.3	240.2	6.01	
				5.0	14.64	7.93	8.87	87.3	241.1	6.09	
Z11-8	22-Sep-23	10:41	4.6	0.3	14.54	7.74	8.73	85.7	231.3	4.63	1.3
				0.5	14.54	7.75	8.73	85.8	231.2	4.55	
				1.0	14.50	7.73	8.62	84.7	231.7	4.66	
				1.5	14.53	7.74	8.68	85.3	231.4	4.55	
				2.0	14.51	7.73	8.64	84.8	231.6	4.60	
				2.5	14.49	7.73	8.58	84.4	231.7	4.60	
				3.0	14.50	7.72	8.61	84.5	231.6	4.59	
				3.5	14.49	7.71	8.58	84.1	231.7	4.68	
				4.0	14.49	7.71	8.56	84.0	231.7	4.80	
Z11-9	22-Sep-23	11:02	1.8	0.3	14.33	7.90	8.96	87.6	236.7	6.27	1.2
				0.5	14.34	7.89	8.93	87.3	236.8	6.21	
				1.0	14.30	7.87	8.79	85.9	238.1	6.28	
				1.5	14.19	7.79	8.39	81.7	241.9	6.98	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
Z11-10	22-Sep-23	8:29	2.3	0.3	13.96	6.85	3.49	33.9	192.8	0.47	1.5
				0.5	13.94	6.88	3.44	33.4	192.8	0.45	
				1.0	13.87	6.89	3.32	32.2	193.2	0.48	
				1.5	13.62	6.90	3.23	31.0	193.7	0.68	
				2.0	13.45	6.90	3.12	30.0	193.8	0.81	
Z11-11	22-Sep-23	9:03	2.5	0.3	13.64	7.03	4.19	40.1	200.0	0.81	1.5
				0.5	13.64	7.03	4.03	38.8	200.0	0.82	
				1.0	13.64	7.02	3.88	37.4	200.1	0.83	
				1.5	13.60	7.05	3.95	38.1	202.0	0.90	
				2.0	13.59	7.05	4.03	38.8	201.1	0.90	
Z12-1	23-Sep-23	9:09	2.1	0.3	14.14	7.71	8.64	84.2	236.3	5.83	1.4
				1.0	14.13	7.73	8.63	83.9	236.3	5.91	
				1.5	14.12	7.73	8.60	83.7	236.2	5.92	
Z12-2	23-Sep-23	9:25	3.4	0.3	14.32	7.63	8.51	83.2	232.8	5.14	1.4
				1.0	14.32	7.64	8.49	83.0	232.7	5.17	
				1.5	14.31	7.64	8.48	82.8	232.9	5.18	
				2.0	14.27	7.64	8.45	82.5	232.9	5.18	
				2.5	14.22	7.62	8.38	81.8	233.1	5.16	
				3.0	14.09	7.57	8.17	79.4	233.2	4.97	
Z12-3	23-Sep-23	8:52	2.8	0.3	14.33	7.69	8.59	84.0	236.5	5.94	1.4
				1.0	14.32	7.73	8.64	84.6	236.5	5.96	
				1.5	14.30	7.73	8.64	84.4	236.5	5.94	
				2.0	14.30	7.72	8.62	84.2	236.6	5.96	
				2.5	14.25	7.69	8.49	82.9	236.5	5.99	
Z12-6	22-Sep-23	13:35	6.5	0.3	15.09	7.98	9.10	90.4	239.1	6.22	1.2
				1.0	15.07	7.98	9.09	90.3	239.2	6.24	
				2.0	15.08	7.98	9.10	90.4	239.2	6.32	
				3.0	15.08	7.98	9.09	90.4	239.2	6.18	
				4.0	14.94	7.97	9.08	90.1	239.1	6.08	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				5.0	14.81	7.90	9.01	89.0	236.8	6.24	
				6.0	14.42	7.79	8.78	86.2	233.2	6.00	
Z12-7	23-Sep-23	8:32	2.4	0.3	14.04	7.30	7.48	72.6	202.8	1.50	1.7
				1.0	14.04	7.30	7.42	72.1	202.8	1.36	
				1.5	14.04	7.31	7.44	72.3	202.8	1.35	
				2.0	14.04	7.32	7.44	72.4	202.8	1.34	
Z12-8	22-Sep-23	11:52	1.0	0.3	14.05	7.18	6.24	60.5	203.1	1.22	1.0
				0.5	14.04	7.17	6.20	60.1	202.9	1.21	
				0.9	14.05	7.18	6.18	60.0	202.9	1.36	
Z12-9	22-Sep-23	12:14	1.0	0.3	14.62	7.51	8.00	78.7	229.7	5.24	1.0
				0.5	14.62	7.49	7.97	78.4	229.7	5.16	
				0.8	14.63	7.48	7.92	77.9	229.7	5.07	
Z12-10	23-Sep-23	10:12	2.2	0.3	14.01	7.72	8.51	82.7	236.9	6.17	1.3
				1.0	13.99	7.71	8.49	82.4	237.0	6.32	
				1.5	13.98	7.70	8.46	82.1	237.1	6.19	
Z12-11	22-Sep-23	12:32	3.3	0.3	14.74	7.93	9.13	90.1	237.1	7.08	1.0
				0.5	14.74	7.93	9.10	89.8	237.1	7.12	
				1.0	14.72	7.93	9.08	89.5	237.2	7.10	
				1.5	14.70	7.92	9.04	89.0	237.2	7.09	
				2.0	14.71	7.93	9.05	89.2	237.1	7.11	
				2.5	14.69	7.92	9.02	88.9	237.1	7.05	
				3.0	14.64	7.90	8.96	88.2	237.3	7.04	
Z12-12	23-Sep-23	9:57	2.2	0.3	14.85	7.87	8.78	86.8	242.8	6.09	1.5
				1.0	14.84	7.88	8.77	86.8	242.8	6.29	
				1.5	14.84	7.88	8.77	86.8	242.9	6.33	
Z12-13	22-Sep-23	12:56	5.1	0.3	14.65	7.82	8.92	87.6	236.3	6.62	1.1
				1.0	14.64	7.81	8.83	86.9	236.3	6.76	
				2.0	14.64	7.81	8.81	86.8	236.3	6.68	
				3.0	14.63	7.79	8.79	86.3	236.2	6.66	

Table A4-1: *In situ* parameters measured in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Water Depth (m)	Sample Depth (m)	Temperature (°C)	pH	Dissolved Oxygen		Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
							(mg/L)	(% Sat)			
				4.0	14.56	7.77	8.72	85.5	235.7	6.64	
				5.0	14.44	7.71	8.53	83.4	235.3	6.49	
Z12-14	22-Sep-23	13:23	1.2	0.3	14.61	7.57	8.77	86.3	204.8	3.66	1.0
				0.5	14.62	7.57	8.76	86.2	204.7	3.63	
				1.0	14.56	7.55	8.70	85.5	205.4	3.73	
Z12-15	23-Sep-23	10:28	0.8	0.3	15.11	8.08	9.32	92.7	242.6	6.05	0.8
				0.5	15.11	8.09	9.32	92.8	242.6	6.14	
				0.7	15.11	8.09	9.33	92.8	242.6	6.16	
Z12-16	23-Sep-23	10:38	3.0	0.3	15.11	8.04	9.15	91.0	243.2	6.04	1.5
				1.0	15.10	8.04	9.15	91.1	243.3	5.86	
				1.5	15.09	8.04	9.15	91.0	243.2	6.02	
				2.0	15.09	8.03	9.14	90.8	243.3	6.02	
				2.5	15.09	8.03	9.14	90.8	243.2	6.00	
Z12-17	23-Sep-23	9:38	2.3	0.3	14.51	7.85	8.93	87.7	238.0	6.04	1.4
				1.0	14.45	7.82	8.87	86.9	237.9	6.14	
				1.5	14.40	7.80	8.79	86.2	237.4	6.12	
				2.0	14.39	7.80	8.78	86.1	237.4	6.08	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023.

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
SPL-10	26-Mar-23	11:00	19.2	0.3	0.01	7.47	14.86	101.8	225.1	11.74	N/A
				1.0	0.01	7.47	14.87	101.8	226.3	11.84	
				2.0	0.01	7.47	14.90	102.0	226.9	11.67	
				3.0	0.01	7.48	14.91	102.0	226.7	12.02	
				4.0	0.01	7.49	14.91	102.1	226.8	11.52	
				5.0	0.00	7.53	14.89	101.9	229.9	12.42	
				6.0	0.01	7.57	14.91	102.1	230.5	12.06	
				7.0	0.01	7.57	14.91	102.1	228.1	12.17	
				8.0	0.00	7.56	14.87	101.7	244.9	11.89	
				9.0	0.00	7.56	14.86	101.7	241.5	11.43	
				10.0	0.00	7.55	14.85	101.6	242.9	11.83	
				11.0	0.00	7.55	14.85	101.6	242.1	10.96	
				12.0	0.00	7.55	14.85	101.6	241.4	11.03	
				13.0	0.00	7.54	14.83	101.5	245.2	11.31	
				14.0	0.00	7.54	14.82	101.4	248.9	11.19	
				15.0	0.00	7.54	14.82	101.5	247.1	11.09	
				16.0	0.00	7.54	14.83	101.5	244.9	11.18	
				17.0	0.00	7.54	14.82	101.4	248.4	10.73	
				18.0	0.00	7.54	14.81	101.4	248.7	11.91	
SPL-11	26-Mar-23	14:25	18.8	0.3	0.00	7.65	14.88	101.8	239.2	12.47	N/A
				1.0	0.00	7.64	14.89	102.0	235.5	11.64	
				2.0	0.00	7.66	14.91	102.1	234.8	12.01	
				3.0	0.00	7.66	14.91	102.1	233.1	11.72	
				4.0	0.00	7.66	14.91	102.1	231.7	11.93	
				5.0	0.00	7.66	14.92	102.1	232.4	11.75	
				6.0	0.00	7.66	14.92	102.1	232.0	11.79	
				7.0	0.00	7.65	14.92	102.1	234.3	11.65	
				8.0	0.00	7.65	14.90	102.0	246.7	11.31	
				9.0	0.00	7.66	14.87	101.8	241.9	11.31	
				10.0	0.00	7.65	14.85	101.6	254.3	11.14	

1. In winter, total and sample depth are recorded as effective depth, or water depth minus ice depth.

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023.

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				11.0	0.00	7.66	14.83	101.5	260.1	10.23	
				12.0	0.00	7.65	14.77	101.1	262.2	10.19	
				13.0	0.00	7.66	14.75	101.0	264.5	10.05	
				14.0	0.00	7.67	14.73	100.8	267.0	10.28	
				15.0	0.00	7.66	14.73	100.8	267.1	10.12	
				16.0	0.00	7.66	14.72	100.7	268.2	9.97	
SPL-12	26-Mar-23	12:50	6.2	0.3	0.01	7.66	14.86	101.8	241.2	11.36	N/A
				1.0	0.01	7.65	14.86	101.8	243.1	11.43	
				2.0	0.01	7.67	14.86	101.7	248.1	11.46	
				3.0	0.01	7.65	14.85	101.7	246.2	11.63	
				4.0	0.01	7.66	14.84	101.6	247.9	10.89	
				5.0	0.01	7.66	14.83	101.5	249.3	11.72	
SPL-13	26-Mar-23	13:40	20.6	0.3	0.01	7.64	15.00	102.7	216.7	12.42	N/A
				2.0	0.01	7.63	15.01	102.8	217.9	12.06	
				4.0	0.01	7.63	15.00	102.7	219.2	12.67	
				6.0	0.01	7.63	14.97	102.4	229.3	12.02	
				8.0	0.01	7.64	14.96	102.3	229.4	11.87	
				10.0	0.00	7.64	14.90	102.0	241.3	11.45	
				12.0	0.00	7.64	14.87	101.8	246.5	11.01	
				14.0	0.00	7.64	14.84	101.6	255.2	10.25	
				16.0	0.00	7.64	14.81	101.3	258.8	10.38	
				18.0	0.00	7.65	14.79	101.2	259.8	10.38	
SPL-14	26-Mar-23	12:10	16.0	0.3	0.00	7.61	14.71	100.7	265.0	9.48	N/A
				1.0	0.00	7.62	14.67	100.4	274.7	9.02	
				2.0	0.00	7.63	14.66	100.4	275.2	8.95	
				3.0	0.00	7.63	14.66	100.3	276.0	9.69	
				4.0	0.00	7.64	14.65	100.3	276.2	9.74	
				5.0	0.00	7.62	14.66	100.3	276.9	9.51	
				6.0	0.00	7.63	14.65	100.3	277.3	9.40	
				7.0	0.00	7.62	14.65	100.3	277.9	9.54	
				8.0	0.00	7.62	14.65	100.3	272.0	9.40	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				9.0	0.00	7.63	14.64	100.2	273.6	9.55	
				10.0	0.00	7.62	14.64	100.2	278.5	9.41	
				11.0	0.00	7.63	14.64	100.2	278.9	9.52	
				12.0	0.00	7.63	14.64	100.2	279.3	9.20	
				13.0	0.00	7.63	14.64	100.2	278.9	9.19	
				14.0	0.00	7.63	14.63	100.1	279.5	9.32	
				15.0	0.00	7.63	14.63	100.1	279.6	9.15	
US-6	29-Mar-23	10:55	6.1	0.3	0.00	7.75	14.48	99.1	272.2	9.68	N/A
				1.0	-0.01	7.75	14.48	99.1	272.1	9.51	
				2.0	-0.01	7.76	14.48	99.1	272.2	9.13	
				3.0	-0.01	7.76	14.49	99.1	272.1	10.03	
				4.0	0.00	7.76	14.48	99.1	272.2	9.02	
				5.0	0.00	7.76	14.48	99.1	272.2	10.09	
US-7	29-Mar-23	13:35	6.6	0.3	0.00	7.77	14.48	99.1	272.5	9.10	N/A
				1.0	0.00	7.77	14.49	99.2	272.5	9.93	
				2.0	-0.01	7.77	14.50	99.2	272.6	9.66	
				3.0	0.00	7.78	14.50	99.2	272.5	9.93	
				4.0	-0.01	7.78	14.50	99.2	272.6	9.84	
				5.0	-0.01	7.78	14.50	99.2	272.4	10.12	
				6.0	0.00	7.78	14.50	99.2	272.5	9.77	
US-8	29-Mar-23	12:50	6.0	0.3	-0.01	7.77	14.53	99.4	271.6	9.59	N/A
				1.0	-0.01	7.77	14.53	99.4	271.5	9.17	
				2.0	-0.01	7.77	14.53	99.5	271.6	9.51	
				3.0	-0.01	7.77	14.53	99.4	271.6	9.47	
				4.0	-0.01	7.77	14.53	99.5	271.7	9.32	
				5.0	-0.01	7.77	14.53	99.5	271.5	9.89	
US-9	29-Mar-23	11:35	6.4	0.3	0.00	7.75	14.47	99.1	272.4	9.45	N/A
				1.0	-0.01	7.75	14.48	99.1	272.5	9.89	
				2.0	0.00	7.75	14.48	99.1	272.4	9.83	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	-0.01	7.73	14.48	99.1	272.5	9.73	
				4.0	0.00	7.73	14.48	99.1	272.4	9.98	
				5.0	0.00	7.73	14.48	99.1	272.3	9.22	
				6.0	0.00	7.73	14.48	99.1	272.4	9.78	
US-10	29-Mar-23	12:15	6.6	0.3	0.00	7.74	14.40	98.4	272.2	10.27	N/A
				1.0	-0.01	7.75	14.44	98.8	271.9	9.71	
				2.0	-0.01	7.75	14.46	99.0	271.9	9.82	
				3.0	-0.01	7.76	14.48	99.1	271.9	9.27	
				4.0	-0.01	7.76	14.48	99.1	271.8	9.25	
				5.0	-0.01	7.76	14.49	99.2	271.9	10.03	
				6.0	-0.01	7.76	14.50	99.2	271.8	9.95	
NF-1	30-Mar-23	13:00	17.8	0.3	-0.01	7.88	14.28	97.8	265.7	11.41	N/A
				1.0	-0.01	7.86	14.34	98.2	265.8	10.59	
				2.0	-0.01	7.86	14.36	98.3	264.9	9.92	
				3.0	-0.01	7.85	14.35	98.2	265.6	9.94	
				4.0	-0.01	7.83	14.35	98.2	265.4	9.61	
				5.0	-0.01	7.83	14.35	98.2	264.8	9.53	
				6.0	-0.01	7.85	14.34	98.1	265.9	9.39	
				7.0	-0.01	7.84	14.33	98.1	265.6	9.32	
				8.0	-0.01	7.84	14.32	98.0	266.8	9.65	
				9.0	-0.01	7.83	14.32	98.0	265.9	10.05	
				10.0	-0.01	7.84	14.31	97.9	266.1	9.35	
				11.0	-0.01	7.84	14.30	97.8	266.3	9.43	
				12.0	-0.01	7.84	14.29	97.8	266.2	9.25	
				13.0	-0.01	7.85	14.28	97.7	266.2	9.49	
				14.0	-0.01	7.85	14.27	97.7	265.8	10.11	
				15.0	-0.01	7.84	14.26	97.5	266.7	9.68	
				16.0	-0.01	7.85	14.24	97.5	266.6	9.51	
				17.0	-0.01	7.85	14.23	97.4	266.5	9.86	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
NF-2	30-Mar-23	15:30	10.2	0.3	-0.01	7.86	14.48	99.1	268.9	11.44	N/A
				1.0	-0.01	7.86	14.47	99.0	268.9	11.32	
				2.0	-0.01	7.84	14.47	99.0	267.7	10.78	
				3.0	-0.01	7.84	14.45	98.9	269.2	9.42	
				4.0	-0.01	7.84	14.44	98.8	268.9	9.54	
				5.0	-0.01	7.84	14.44	98.8	268.4	11.32	
				6.0	-0.01	7.84	14.42	98.7	268.9	9.74	
				7.0	-0.01	7.84	14.41	98.6	268.9	9.61	
				8.0	-0.01	7.84	14.40	98.5	268.4	9.34	
				9.0	-0.01	7.84	14.38	98.4	268.3	10.42	
NF-3	30-Mar-23	13:45	17.8	0.3	-0.01	7.85	14.45	98.9	268.6	9.51	N/A
				1.0	-0.02	7.85	14.45	98.9	268.1	11.83	
				2.0	-0.02	7.85	14.44	98.8	268.4	9.01	
				3.0	-0.01	7.85	14.42	98.7	268.9	11.04	
				4.0	-0.01	7.85	14.41	98.6	269.3	9.17	
				5.0	-0.01	7.84	14.40	98.5	268.2	9.59	
				6.0	-0.01	7.85	14.38	98.4	268.2	8.93	
				7.0	-0.01	7.85	14.37	98.3	268.5	9.32	
				8.0	-0.01	7.85	14.36	98.2	267.9	9.72	
				9.0	-0.01	7.84	14.34	98.2	268.2	10.35	
				10.0	-0.02	7.85	14.33	98.1	269.0	10.98	
				11.0	-0.02	7.84	14.32	98.0	268.4	9.45	
				12.0	-0.02	7.84	14.31	97.9	268.6	11.06	
				13.0	-0.02	7.85	14.30	97.8	268.7	9.31	
				14.0	-0.02	7.84	14.28	97.7	269.0	9.56	
				15.0	-0.01	7.84	14.27	97.6	268.3	10.46	
				16.0	-0.02	7.84	14.27	97.6	268.4	9.68	
				17.0	-0.01	7.84	14.25	97.5	268.9	10.39	
NF-4	30-Mar-23	16:10	5.4	0.3	-0.01	7.86	14.48	99.1	268.4	9.14	N/A
				1.0	-0.01	7.85	14.48	99.1	268.6	11.44	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				2.0	-0.01	7.85	14.47	99.0	268.3	9.92	
				3.0	-0.01	7.85	14.46	99.0	268.1	9.76	
				4.0	-0.01	7.85	14.45	98.9	268.1	11.16	
				5.0	-0.01	7.85	14.44	98.8	268.4	11.06	
NF-5	30-Mar-23	14:40	16.7	0.3	-0.01	7.85	14.53	99.4	263.7	10.47	N/A
				1.0	-0.01	7.85	14.52	99.4	265.0	10.84	
				2.0	-0.01	7.85	14.51	99.3	264.9	9.91	
				3.0	-0.01	7.85	14.51	99.3	264.2	9.89	
				4.0	-0.01	7.85	14.50	99.2	265.1	11.97	
				5.0	-0.01	7.85	14.48	99.1	265.0	9.57	
				6.0	-0.01	7.85	14.46	98.9	265.0	11.83	
				7.0	-0.01	7.85	14.44	98.8	265.0	9.42	
				8.0	-0.01	7.85	14.43	98.7	265.0	9.43	
				9.0	-0.01	7.85	14.41	98.6	265.5	12.04	
				10.0	-0.01	7.85	14.40	98.5	265.6	10.52	
				11.0	-0.01	7.85	14.39	98.4	265.7	11.89	
				12.0	-0.01	7.84	14.37	98.3	265.8	9.83	
				13.0	-0.01	7.84	14.36	98.3	266.1	11.77	
				14.0	-0.01	7.84	14.35	98.2	266.7	9.82	
				15.0	-0.01	7.84	14.33	98.1	266.4	10.08	
				16.0	-0.01	7.84	14.32	98.0	266.3	9.84	
FF-1	31-Mar-23	9:20	21.1	0.3	0.00	7.87	14.46	99.0	266.1	9.86	N/A
				2.0	0.00	7.87	14.47	99.0	265.2	10.11	
				4.0	0.00	7.87	14.44	98.8	266.0	10.27	
				6.0	0.00	7.87	14.42	98.7	265.6	10.11	
				8.0	0.00	7.87	14.40	98.6	265.9	9.57	
				10.0	0.00	7.87	14.37	98.4	265.8	10.05	
				12.0	0.00	7.87	14.35	98.3	265.1	9.63	
				14.0	0.00	7.86	14.33	98.1	265.4	11.01	
				16.0	0.00	7.86	14.31	97.9	264.6	11.49	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				18.0	0.00	7.86	14.28	97.8	265.0	10.86	
				20.0	0.00	7.86	14.26	97.6	265.4	9.62	
FF-2	31-Mar-23	10:00	13.8	0.3	-0.01	7.85	14.52	99.4	265.8	9.87	N/A
				1.0	-0.01	7.85	14.52	99.4	266.2	10.77	
				2.0	-0.01	7.85	14.52	99.4	265.9	10.03	
				3.0	-0.01	7.85	14.51	99.3	265.8	10.39	
				4.0	-0.01	7.85	14.50	99.3	265.5	10.23	
				5.0	-0.01	7.86	14.49	99.2	265.2	10.19	
				6.0	-0.01	7.86	14.48	99.1	266.0	9.85	
				7.0	-0.01	7.85	14.47	99.0	265.7	9.95	
				8.0	-0.01	7.86	14.46	98.9	265.9	10.29	
				9.0	-0.01	7.85	14.44	98.8	265.8	10.65	
				10.0	-0.01	7.86	14.43	98.8	265.9	9.55	
				11.0	-0.01	7.86	14.42	98.7	266.1	10.51	
				12.0	-0.01	7.86	14.40	98.6	265.9	9.57	
				13.0	-0.01	7.86	14.39	98.5	266.1	9.68	
FF-3	31-Mar-23	10:30	24.9	0.3	-0.01	7.85	14.52	99.3	267.7	11.81	N/A
				2.0	-0.01	7.85	14.51	99.3	267.9	11.49	
				4.0	-0.01	7.84	14.49	99.1	266.6	11.81	
				6.0	-0.01	7.85	14.46	98.9	267.4	9.77	
				8.0	-0.01	7.85	14.43	98.8	267.3	9.14	
				10.0	-0.01	7.85	14.41	98.6	267.6	11.91	
				12.0	-0.01	7.84	14.39	98.4	267.1	12.74	
				14.0	-0.01	7.84	14.35	98.2	267.1	10.05	
				16.0	-0.01	7.84	14.33	98.0	267.0	9.37	
				18.0	-0.01	7.84	14.30	97.9	267.8	11.81	
				20.0	-0.01	7.84	14.28	97.7	267.9	11.24	
				22.0	-0.01	7.84	14.25	97.5	267.6	10.95	
				24.0	-0.01	7.84	14.23	97.3	268.1	9.73	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
FF-4	31-Mar-23	11:10	11.7	0.3	-0.01	7.86	14.56	99.7	266.1	10.38	N/A
				1.0	-0.01	7.86	14.56	99.7	265.8	9.67	
				2.0	-0.01	7.86	14.55	99.6	265.9	10.31	
				3.0	-0.01	7.86	14.54	99.5	265.7	10.62	
				4.0	-0.01	7.86	14.53	99.4	266.0	9.67	
				5.0	-0.01	7.86	14.52	99.4	266.1	9.94	
				6.0	-0.01	7.86	14.50	99.2	265.6	10.14	
				7.0	-0.01	7.86	14.49	99.1	266.1	9.81	
				8.0	-0.01	7.86	14.47	99.0	266.1	10.49	
				9.0	-0.01	7.86	14.46	98.9	266.1	10.29	
				10.0	-0.01	7.86	14.45	98.9	265.9	9.96	
				11.0	-0.01	7.86	14.43	98.8	266.3	10.08	
FF-5	31-Mar-23	11:50	10.0	0.3	-0.01	7.86	14.54	99.5	265.2	9.87	N/A
				1.0	-0.01	7.86	14.54	99.5	264.5	10.64	
				2.0	-0.01	7.86	14.53	99.5	264.1	10.47	
				3.0	-0.01	7.86	14.52	99.4	264.6	10.52	
				4.0	-0.01	7.86	14.51	99.3	264.9	11.72	
				5.0	-0.01	7.86	14.50	99.2	264.4	9.86	
				6.0	-0.01	7.86	14.49	99.2	264.9	10.05	
				7.0	-0.01	7.86	14.48	99.1	264.8	9.39	
				8.0	-0.01	7.86	14.47	99.0	264.8	9.83	
				9.0	-0.01	7.86	14.45	98.9	264.6	9.74	
CL-1	24-Jun-23	10:45	11.4	0.3	18.56	7.87	8.35	89.3	215.0	11.50	0.7
				1.0	18.54	7.88	8.34	89.2	216.7	11.71	
				2.0	18.55	7.88	8.34	89.1	216.7	11.58	
				3.0	18.53	7.89	8.34	89.1	216.4	11.83	
				4.0	18.53	7.91	8.32	89.0	218.0	11.49	
				5.0	18.54	7.91	8.32	88.9	217.9	11.76	
				6.0	18.53	7.92	8.32	88.9	218.6	11.90	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				7.0	18.54	7.92	8.32	88.9	218.9	11.87	
				8.0	18.55	7.92	8.32	88.9	219.2	11.88	
				9.0	18.54	7.92	8.32	88.9	219.0	11.81	
				10.0	18.53	7.92	8.32	88.9	219.0	11.61	
				11.0	18.54	7.92	8.32	88.9	219.6	11.74	
CL-2	24-Jun-23	11:18	12.4	0.3	18.61	7.92	8.30	88.9	221.8	11.09	0.7
				1.0	18.60	7.91	8.30	88.9	221.9	11.15	
				2.0	18.59	7.92	8.30	88.9	221.7	11.14	
				3.0	18.59	7.92	8.30	88.9	221.7	11.40	
				4.0	18.58	7.92	8.30	88.9	221.6	11.12	
				5.0	18.57	7.92	8.30	88.9	221.4	11.40	
				6.0	18.58	7.92	8.30	88.9	221.4	11.19	
				7.0	18.58	7.92	8.29	88.7	221.5	11.59	
				8.0	18.57	7.92	8.30	88.9	220.4	11.42	
				9.0	18.57	7.92	8.29	88.7	220.7	11.61	
				10.0	18.57	7.92	8.30	88.9	220.4	11.64	
				11.0	18.57	7.92	8.30	88.7	220.7	12.10	
				12.0	18.57	7.92	8.29	88.7	220.5	12.00	
CL-3	24-Jun-23	11:04	8.9	0.3	18.61	7.93	8.32	89.1	222.4	10.84	0.7
				1.0	18.57	7.92	8.31	88.9	222.4	10.94	
				2.0	18.60	7.92	8.31	88.8	222.2	11.17	
				3.0	18.57	7.92	8.30	88.8	222.1	11.53	
				4.0	18.57	7.91	8.30	88.8	221.7	10.94	
				5.0	18.56	7.92	8.30	88.8	221.8	11.64	
				6.0	18.56	7.92	8.30	88.8	221.9	11.63	
				7.0	18.56	7.91	8.30	88.8	221.9	11.84	
				8.0	18.56	7.93	8.30	88.8	221.7	11.90	
CL-4	24-Jun-23	11:31	6.4	0.3	18.56	7.90	8.28	88.7	216.9	11.32	0.8
				1.0	18.66	7.90	8.27	88.5	214.3	11.47	
				2.0	18.66	7.90	8.27	88.5	214.8	11.86	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	18.59	7.90	8.27	88.5	214.4	11.95	
				4.0	18.58	7.90	8.27	88.5	214.6	11.97	
				5.0	18.58	7.90	8.27	88.5	214.5	12.44	
				6.0	18.58	7.91	8.28	88.5	214.8	12.44	
CL-5	24-Jun-23	11:45	7.4	0.3	18.60	7.92	8.30	88.8	221.5	11.13	0.7
				1.0	18.65	7.92	8.30	88.8	220.4	11.13	
				2.0	18.61	7.92	8.29	88.7	221.9	11.22	
				3.0	18.62	7.91	8.28	88.6	219.3	11.57	
				4.0	18.60	7.91	8.28	88.6	219.1	11.35	
				5.0	18.60	7.92	8.28	88.6	220.5	11.51	
				6.0	18.59	7.92	8.28	88.6	220.8	12.04	
				7.0	18.60	7.92	8.28	88.6	219.9	12.31	
US-1	27-Jun-23	7:34	15.6	0.3	18.42	7.92	8.31	88.6	225.5	10.00	1.2
				1.0	18.44	7.92	8.30	88.5	225.5	10.17	
				2.0	18.43	7.91	8.30	88.5	225.6	9.94	
				3.0	18.44	7.91	8.30	88.5	225.6	10.43	
				4.0	18.44	7.91	8.30	88.5	225.6	10.81	
				5.0	18.44	7.91	8.30	88.5	225.5	10.55	
				6.0	18.43	7.91	8.30	88.5	225.4	10.41	
				7.0	18.44	7.91	8.30	88.5	225.5	10.60	
				8.0	18.44	7.91	8.30	88.5	225.6	10.90	
				9.0	18.44	7.91	8.30	88.5	225.6	10.47	
				10.0	18.44	7.91	8.29	88.4	225.5	10.41	
				11.0	18.44	7.91	8.30	88.5	225.5	10.70	
				12.0	18.44	7.91	8.30	88.5	225.5	10.80	
				13.0	18.44	7.91	8.30	88.5	225.5	10.26	
				14.0	18.44	7.91	8.30	88.5	225.5	10.78	
				15.0	18.44	7.91	8.29	88.4	225.6	10.24	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
US-2	27-Jun-23	7:54	12.4	0.3	18.42	7.93	8.32	88.6	224.9	10.30	1.2
				1.0	18.38	7.94	8.30	88.5	225.3	10.71	
				2.0	18.38	7.94	8.30	88.4	225.4	10.58	
				3.0	18.39	7.93	8.29	88.4	225.5	10.23	
				4.0	18.41	7.92	8.29	88.3	225.7	11.05	
				5.0	18.41	7.91	8.28	88.3	225.6	10.32	
				6.0	18.42	7.91	8.28	88.3	225.6	10.45	
				7.0	18.41	7.91	8.29	88.4	225.6	10.34	
				8.0	18.41	7.91	8.28	88.2	225.6	10.26	
				9.0	18.42	7.91	8.28	88.2	225.6	10.55	
				10.0	18.42	7.91	8.28	88.2	225.6	10.37	
				11.0	18.42	7.91	8.28	88.3	225.6	10.67	
				12.0	18.43	7.91	8.29	88.3	225.6	10.24	
US-3	27-Jun-23	8:08	13.7	0.3	18.41	7.91	8.29	88.4	225.5	10.03	1.1
				1.0	18.41	7.91	8.30	88.4	225.3	10.00	
				2.0	18.41	7.91	8.29	88.4	225.4	10.01	
				3.0	18.41	7.91	8.29	88.4	225.4	9.88	
				4.0	18.41	7.90	8.29	88.4	225.5	10.43	
				5.0	18.41	7.91	8.29	88.4	225.5	10.60	
				6.0	18.41	7.91	8.29	88.4	225.5	10.91	
				7.0	18.41	7.92	8.28	88.3	225.6	10.94	
				8.0	18.41	7.91	8.28	88.3	225.4	10.38	
				9.0	18.41	7.91	8.29	88.3	225.5	10.09	
				10.0	18.41	7.91	8.28	88.3	225.5	10.51	
				11.0	18.40	7.92	8.28	88.3	225.6	10.67	
				12.0	18.41	7.92	8.28	88.3	225.4	10.45	
				13.0	18.40	7.92	8.29	88.3	225.6	10.42	
US-4	27-Jun-23	8:20	14.4	0.3	18.42	7.91	8.29	88.4	225.2	9.88	N/A
				1.0	18.42	7.91	8.29	88.4	225.2	9.82	
				2.0	18.43	7.91	8.29	88.4	225.2	9.96	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	18.43	7.91	8.29	88.4	225.2	9.89	
				4.0	18.42	7.91	8.29	88.4	225.2	10.02	
				5.0	18.43	7.91	8.29	88.4	225.2	10.07	
				6.0	18.43	7.91	8.29	88.4	225.3	10.09	
				7.0	18.43	7.91	8.29	88.4	225.3	9.53	
				8.0	18.43	7.91	8.29	88.4	225.3	9.89	
				9.0	18.42	7.91	8.29	88.4	225.2	9.93	
				10.0	18.43	7.91	8.29	88.4	225.2	10.37	
				11.0	18.43	7.91	8.29	88.4	225.2	10.19	
				12.0	18.43	7.91	8.29	88.4	225.2	10.45	
				13.0	18.43	7.91	8.29	88.4	225.2	10.59	
				14.0	18.42	7.91	8.29	88.4	225.3	10.24	
US-5	27-Jun-23	8:35	14.7	0.3	18.48	7.92	8.31	88.7	224.0	10.49	1.2
				1.0	18.48	7.92	8.31	88.7	224.0	10.34	
				2.0	18.45	7.92	8.31	88.7	224.2	10.39	
				3.0	18.44	7.92	8.30	88.5	224.4	10.24	
				4.0	18.43	7.91	8.30	88.5	224.5	10.12	
				5.0	18.43	7.91	8.30	88.5	224.6	10.30	
				6.0	18.42	7.91	8.30	88.5	224.7	10.81	
				7.0	18.42	7.91	8.29	88.4	224.7	10.65	
				8.0	18.41	7.91	8.29	88.4	224.8	10.70	
				9.0	18.42	7.91	8.29	88.4	224.7	10.68	
				10.0	18.42	7.91	8.30	88.4	224.8	10.34	
				11.0	18.41	7.92	8.29	88.4	224.9	10.37	
				12.0	18.41	7.92	8.30	88.4	224.8	10.54	
				13.0	18.41	7.92	8.29	88.4	224.9	10.40	
				14.0	18.41	7.92	8.30	88.4	224.8	10.31	
NF-1	27-Jun-23	9:40	18.7	0.3	18.67	7.93	9.61	103.0	224.2	10.02	1.0
				1.0	18.67	7.94	9.62	103.1	224.2	10.04	
				2.0	18.67	7.94	9.62	103.0	224.1	10.05	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	18.66	7.93	9.62	103.0	224.2	10.06	
				4.0	18.66	7.92	9.62	103.1	224.2	10.02	
				5.0	18.66	7.92	9.62	103.0	224.1	11.12	
				6.0	18.66	7.93	9.63	103.1	224.2	10.93	
				7.0	18.66	7.93	9.64	103.3	224.3	10.45	
				8.0	18.66	7.93	9.64	103.3	224.2	10.86	
				9.0	18.66	7.93	9.64	103.3	224.3	10.67	
				10.0	18.66	7.93	9.64	103.2	224.2	10.19	
				11.0	18.66	7.94	9.64	103.2	224.2	10.13	
				12.0	18.66	7.93	9.63	103.1	224.2	10.13	
				13.0	18.66	7.93	9.62	103.1	224.1	10.20	
				14.0	18.65	7.93	9.62	103.1	224.2	10.77	
				15.0	18.66	7.92	9.62	103.1	224.2	10.39	
				16.0	18.66	7.93	9.62	103.0	224.2	10.83	
				17.0	18.65	7.93	9.61	103.0	224.2	10.53	
				18.0	18.65	7.93	9.62	103.0	224.2	10.86	
NF-2	27-Jun-23	10:35	10.7	0.3	18.71	7.98	9.72	104.4	223.8	10.33	1.0
				1.0	18.69	7.96	9.72	104.2	223.7	10.32	
				2.0	18.67	7.96	9.73	104.2	223.7	10.24	
				3.0	18.66	7.95	9.72	104.2	223.7	10.51	
				4.0	18.66	7.95	9.71	104.0	223.8	10.46	
				5.0	18.65	7.95	9.71	104.0	223.7	10.85	
				6.0	18.65	7.95	9.71	103.9	223.8	10.62	
				7.0	18.65	7.94	9.70	103.8	223.7	10.31	
				8.0	18.60	7.94	9.66	103.5	223.8	10.45	
				9.0	18.57	7.94	9.65	103.1	223.8	10.59	
				10.0	18.52	7.93	9.62	102.8	223.7	10.90	
NF-3	27-Jun-23	10:00	20.9	0.3	18.73	7.94	9.64	103.4	224.5	9.93	1.0
				2.0	18.68	7.93	9.65	103.5	224.4	9.98	
				4.0	18.66	7.92	9.64	103.3	224.3	9.99	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				6.0	18.67	7.93	9.66	103.5	224.4	10.97	
				8.0	18.67	7.93	9.66	103.5	224.5	10.21	
				10.0	18.67	7.93	9.67	103.6	224.5	10.06	
				12.0	18.67	7.93	9.66	103.5	224.5	10.12	
				14.0	18.67	7.93	9.66	103.5	224.4	10.11	
				16.0	18.67	7.93	9.65	103.4	224.4	10.15	
				18.0	18.66	7.93	9.64	103.2	224.3	10.46	
				20.0	18.66	7.93	9.64	103.2	224.4	10.32	
NF-4	27-Jun-23	10:50	5.7	0.3	18.78	7.97	9.69	104.0	223.9	10.76	1.0
				1.0	18.66	7.96	9.68	103.7	223.8	10.69	
				2.0	18.63	7.95	9.69	103.7	223.7	10.55	
				3.0	18.61	7.94	9.69	103.7	223.7	10.94	
				4.0	18.58	7.94	9.67	103.4	223.7	10.77	
				5.0	18.54	7.94	9.65	103.1	223.8	10.61	
NF-5	27-Jun-23	10:15	17.9	0.3	18.69	7.95	9.66	103.6	224.4	9.96	1.0
				1.0	18.64	7.94	9.65	103.4	224.4	10.21	
				2.0	18.63	7.93	9.64	103.2	224.2	10.42	
				3.0	18.63	7.93	9.65	103.3	224.3	10.22	
				4.0	18.62	7.93	9.63	103.1	224.1	10.96	
				5.0	18.62	7.94	9.63	103.1	224.1	11.10	
				6.0	18.63	7.93	9.64	103.2	224.3	10.17	
				7.0	18.61	7.93	9.62	103.0	224.0	10.51	
				8.0	18.58	7.93	9.62	102.8	223.9	10.54	
				9.0	18.54	7.93	9.61	102.8	223.7	10.61	
				10.0	18.53	7.93	9.62	102.7	223.7	10.65	
				11.0	18.53	7.93	9.62	102.8	223.8	10.86	
				12.0	18.48	7.93	9.63	102.8	223.7	11.02	
				13.0	18.47	7.93	9.63	102.8	223.6	11.21	
				14.0	18.46	7.93	9.63	102.7	223.7	11.13	
				15.0	18.46	7.94	9.63	102.7	223.6	11.26	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				16.0	18.43	7.94	9.62	102.5	223.8	12.02	
				17.0	18.41	7.94	9.60	102.3	223.9	12.45	
FF-1	23-Jun-23	7:30	22.2	0.3	17.26	7.92	9.06	94.3	214.6	10.21	0.8
				2.0	17.29	7.91	9.07	94.5	214.6	10.83	
				4.0	17.28	7.91	9.07	94.4	214.7	10.86	
				6.0	17.29	7.91	9.09	94.7	214.6	10.51	
				8.0	17.29	7.91	9.09	94.7	214.7	10.83	
				10.0	17.28	7.90	9.08	94.5	214.7	10.57	
				12.0	17.21	7.90	9.03	93.8	214.8	10.33	
				14.0	17.14	7.90	8.97	93.2	214.9	9.66	
				16.0	16.80	7.88	9.00	92.8	214.9	10.16	
				18.0	16.55	7.87	8.96	92.3	214.8	9.87	
				20.0	15.97	7.83	8.88	90.0	215.5	10.00	
FF-2	23-Jun-23	8:10	15.2	0.3	17.32	7.90	9.22	96.1	214.9	11.01	0.8
				1.0	17.32	7.90	9.22	96.1	214.9	11.15	
				2.0	17.32	7.90	9.22	96.1	214.9	11.09	
				3.0	17.32	7.89	9.22	96.1	214.9	11.27	
				4.0	17.32	7.90	9.22	96.1	214.9	11.06	
				5.0	17.32	7.89	9.23	96.2	214.9	11.16	
				6.0	17.32	7.89	9.23	96.2	214.9	11.17	
				7.0	17.32	7.89	9.23	96.2	214.9	11.05	
				8.0	17.32	7.89	9.23	96.2	214.9	11.04	
				9.0	17.32	7.89	9.23	96.2	214.9	11.15	
				10.0	17.32	7.89	9.23	96.2	214.8	11.06	
				11.0	17.32	7.89	9.24	96.3	214.9	11.07	
				12.0	17.32	7.89	9.23	96.2	214.9	11.21	
				13.0	17.33	7.89	9.23	96.2	214.9	11.13	
				14.0	17.32	7.89	9.23	96.2	214.9	11.21	
FF-3	23-Jun-23	8:58	25.2	0.3	17.70	7.93	9.27	97.4	215.8	11.14	0.8
				2.0	17.71	7.92	9.28	97.5	215.9	11.11	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				4.0	17.69	7.91	9.28	97.4	215.8	11.10	
				6.0	17.71	7.91	9.27	97.4	215.8	10.99	
				8.0	17.70	7.91	9.27	97.4	215.9	11.11	
				10.0	17.68	7.91	9.30	97.7	215.9	11.45	
				12.0	17.66	7.91	9.32	97.9	215.8	11.48	
				14.0	17.65	7.90	9.33	97.9	215.8	11.32	
				16.0	17.64	7.90	9.32	97.8	215.6	11.13	
				18.0	17.63	7.90	9.31	97.7	215.6	10.97	
				20.0	17.64	7.90	9.31	97.7	215.6	10.92	
				22.0	17.64	7.90	9.30	97.6	215.6	11.21	
				24.0	17.16	7.87	9.04	93.9	215.5	10.46	
FF-4	23-Jun-23	8:32	13.5	0.3	17.35	7.91	9.20	95.9	214.9	10.92	1.0
				1.0	17.34	7.91	9.21	96.0	214.9	11.18	
				2.0	17.35	7.91	9.21	96.0	215.0	10.66	
				3.0	17.35	7.90	9.21	96.0	215.0	10.77	
				4.0	17.35	7.91	9.21	96.0	214.9	11.08	
				5.0	17.36	7.91	9.21	96.0	215.0	11.10	
				6.0	17.40	7.91	9.22	96.3	215.1	11.07	
				7.0	17.38	7.91	9.22	96.2	215.0	10.93	
				8.0	17.36	7.91	9.22	96.1	215.0	10.91	
				9.0	17.36	7.91	9.22	96.2	215.0	11.12	
				10.0	17.37	7.91	9.22	96.2	215.0	10.84	
				11.0	17.38	7.90	9.22	96.2	215.0	11.19	
				12.0	17.36	7.90	9.22	96.2	215.0	11.17	
				13.0	17.36	7.90	9.22	96.2	215.0	11.00	
FF-5	23-Jun-23	7:50	12.1	0.3	17.34	7.86	9.13	95.2	214.7	10.98	0.8
				1.0	17.34	7.86	9.13	95.1	214.7	11.09	
				2.0	17.35	7.87	9.13	95.3	214.7	10.98	
				3.0	17.34	7.87	9.13	95.2	214.7	11.02	
				4.0	17.36	7.88	9.14	95.3	214.7	11.01	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				5.0	17.35	7.89	9.13	95.1	214.7	11.19	
				6.0	17.33	7.89	9.12	95.1	214.6	10.91	
				7.0	17.33	7.89	9.12	95.1	214.6	11.26	
				8.0	17.34	7.89	9.12	95.1	214.7	11.06	
				9.0	17.35	7.89	9.13	95.2	214.7	10.82	
				10.0	17.35	7.89	9.13	95.2	214.7	11.12	
				11.0	17.35	7.89	9.13	95.2	214.8	11.04	
CL-1	30-Jul-23	10:01	12.4	0.3	18.22	8.02	8.49	90.1	201.3	10.96	1.2
				1.0	18.20	8.00	8.47	89.9	201.3	10.84	
				2.0	18.20	8.00	8.47	89.9	201.3	11.03	
				3.0	18.19	8.00	8.47	89.9	201.3	11.14	
				4.0	18.19	8.01	8.47	89.9	201.2	11.18	
				5.0	18.18	8.01	8.46	89.8	201.3	11.35	
				6.0	18.20	8.01	8.47	89.8	201.4	11.51	
				7.0	18.19	8.01	8.47	89.8	201.3	11.27	
				8.0	18.19	8.00	8.47	89.8	201.4	11.19	
				9.0	18.19	8.01	8.47	89.8	201.3	11.41	
				10.0	18.19	8.02	8.47	89.8	201.4	11.42	
CL-2	30-Jul-23	9:41	12.4	0.3	18.18	8.03	8.50	90.1	203.2	11.36	1.2
				1.0	18.18	8.01	8.48	90.0	202.2	11.02	
				2.0	18.18	8.01	8.48	90.0	202.0	10.53	
				3.0	18.18	8.01	8.48	89.9	202.0	11.00	
				4.0	18.18	8.01	8.48	89.9	201.4	11.26	
				5.0	18.18	8.00	8.48	89.9	201.8	11.18	
				6.0	18.18	8.00	8.47	89.9	201.6	11.21	
				7.0	18.18	8.00	8.47	89.9	201.6	11.52	
				8.0	18.18	8.01	8.47	89.9	202.2	11.43	
				9.0	18.18	8.01	8.47	89.9	202.1	11.62	
				10.0	18.18	8.01	8.47	89.9	202.0	11.38	
				11.0	18.18	8.01	8.47	89.9	202.1	11.29	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
CL-3	30-Jul-23	10:27	8.5	0.3	18.24	8.03	8.49	90.1	206.8	10.23	1.2
				1.0	18.23	8.02	8.48	90.0	206.1	10.35	
				2.0	18.21	8.02	8.47	89.9	206.6	10.34	
				3.0	18.20	8.02	8.47	89.9	206.6	10.43	
				4.0	18.20	8.01	8.47	89.9	206.3	10.80	
				5.0	18.21	8.01	8.47	89.9	206.0	11.08	
				6.0	18.20	8.01	8.47	89.9	206.2	11.21	
CL-4	30-Jul-23	9:25	7.2	0.3	18.12	8.01	8.49	89.9	197.8	11.70	1.1
				1.0	18.10	8.00	8.48	89.8	197.7	11.79	
				2.0	18.10	8.00	8.48	89.8	197.8	11.81	
				3.0	18.10	8.00	8.48	89.8	197.3	11.51	
				4.0	18.10	8.00	8.48	89.8	197.9	11.86	
				5.0	18.11	7.99	8.48	89.8	197.8	11.82	
				6.0	18.12	8.00	8.48	89.8	198.7	12.15	
CL-5	30-Jul-23	9:06	7.2	0.3	18.14	7.96	8.50	90.0	203.6	11.00	1.1
				1.0	18.15	7.98	8.49	90.0	204.0	11.00	
				2.0	18.15	7.99	8.49	90.0	204.0	11.20	
				3.0	18.14	8.00	8.49	89.9	204.0	11.30	
				4.0	18.14	8.00	8.49	89.9	203.7	11.18	
				5.0	18.13	8.00	8.48	89.9	202.9	11.56	
				6.0	18.13	8.01	8.48	89.9	203.3	11.41	
US-1	01-Aug-23	9:09	17.0	0.3	18.53	7.98	8.40	89.7	201.1	10.37	1.2
				1.0	18.54	7.98	8.39	89.7	201.2	10.07	
				2.0	18.53	7.97	8.39	89.6	201.2	10.00	
				3.0	18.54	7.96	8.39	89.6	201.2	10.21	
				4.0	18.54	7.96	8.39	89.6	201.3	10.09	
				5.0	18.54	7.96	8.39	89.6	201.2	10.29	
				6.0	18.54	7.96	8.39	89.6	201.2	10.37	
				7.0	18.54	7.96	8.39	89.6	201.1	10.14	
				8.0	18.54	7.96	8.39	89.6	201.2	10.33	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				9.0	18.53	7.97	8.39	89.6	201.1	10.50	
				10.0	18.54	7.96	8.39	89.6	201.1	10.01	
				11.0	18.53	7.97	8.39	89.7	201.0	10.48	
				12.0	18.53	7.97	8.39	89.7	201.0	10.51	
				13.0	18.53	7.96	8.39	89.6	201.0	10.23	
				14.0	18.53	7.96	8.39	89.6	200.9	10.05	
				15.0	18.53	7.97	8.39	89.6	201.0	10.84	
				16.0	18.53	7.97	8.39	89.6	201.0	10.67	
US-2	01-Aug-23	8:49	10.5	0.3	18.67	7.98	8.41	90.1	201.1	10.96	1.2
				1.0	18.69	7.98	8.40	90.0	201.0	10.26	
				2.0	18.68	7.98	8.40	90.0	201.0	10.08	
				3.0	18.66	7.98	8.39	89.9	201.0	10.14	
				4.0	18.68	7.98	8.40	90.0	200.9	10.49	
				5.0	18.67	7.97	8.40	89.9	201.0	10.58	
				6.0	18.66	7.97	8.39	89.9	201.0	10.84	
				7.0	18.64	7.97	8.38	89.8	201.0	10.67	
				8.0	18.61	7.97	8.38	89.7	200.9	10.75	
				9.0	18.63	7.97	8.38	89.7	201.1	10.79	
US-3	01-Aug-23	7:55	14.6	0.3	18.53	7.97	8.42	90.0	201.2	10.03	1.2
				1.0	18.54	7.97	8.41	89.9	201.5	10.26	
				2.0	18.54	7.96	8.41	89.9	201.3	10.32	
				3.0	18.54	7.96	8.41	89.9	201.5	10.41	
				4.0	18.57	7.97	8.42	90.0	201.4	10.35	
				5.0	18.54	7.96	8.41	89.9	201.6	10.43	
				6.0	18.54	7.96	8.41	89.8	201.5	10.43	
				7.0	18.58	7.97	8.41	89.9	201.5	10.47	
				8.0	18.55	7.97	8.41	89.9	201.5	10.92	
				9.0	18.55	7.98	8.41	89.9	201.5	10.76	
				10.0	18.54	7.97	8.41	89.8	201.3	10.72	
				11.0	18.55	7.97	8.41	89.9	201.4	10.51	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				12.0	18.54	7.97	8.41	89.8	201.5	10.66	
				13.0	18.54	7.97	8.41	89.9	201.4	10.84	
				14.0	18.54	7.97	8.41	89.8	201.4	10.42	
US-4	01-Aug-23	8:18	15.6	0.3	18.54	7.98	8.40	89.8	200.5	9.87	1.2
				1.0	18.54	7.98	8.40	89.8	200.5	10.62	
				2.0	18.54	7.97	8.40	89.7	200.6	10.20	
				3.0	18.54	7.97	8.40	89.7	200.5	10.30	
				4.0	18.54	7.98	8.40	89.7	200.6	10.00	
				5.0	18.54	7.98	8.40	89.8	200.6	10.24	
				6.0	18.54	7.97	8.40	89.7	200.5	10.18	
				7.0	18.56	7.97	8.40	89.8	200.8	10.40	
				8.0	18.54	7.97	8.40	89.7	200.5	10.74	
				9.0	18.55	7.97	8.40	89.7	200.6	10.47	
				10.0	18.54	7.97	8.40	89.7	200.6	10.50	
				11.0	18.54	7.97	8.40	89.7	200.7	10.41	
				12.0	18.54	7.97	8.39	89.7	200.8	10.85	
				13.0	18.54	7.97	8.39	89.7	200.7	11.07	
				14.0	18.54	7.97	8.39	89.7	200.8	10.46	
				15.0	18.54	7.97	8.39	89.7	200.8	10.79	
US-5	01-Aug-23	7:25	14.9	0.3	18.73	7.98	8.45	90.7	202.6	10.19	1.2
				1.0	18.74	7.97	8.45	90.7	202.6	9.88	
				2.0	18.74	7.97	8.45	90.6	202.5	10.16	
				3.0	18.73	7.97	8.45	90.6	202.4	10.08	
				4.0	18.72	7.97	8.45	90.6	202.4	10.48	
				5.0	18.73	7.98	8.45	90.6	202.3	10.28	
				6.0	18.73	7.98	8.44	90.6	202.3	10.34	
				7.0	18.72	7.98	8.44	90.5	202.2	10.42	
				8.0	18.71	7.98	8.44	90.5	202.1	10.20	
				9.0	18.71	7.98	8.44	90.5	202.0	10.43	
				10.0	18.72	7.98	8.44	90.5	202.1	10.76	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				11.0	18.71	7.98	8.44	90.5	202.0	10.32	
				12.0	18.71	7.98	8.44	90.5	201.8	10.70	
				13.0	18.71	7.98	8.44	90.5	201.9	10.52	
				14.0	18.71	7.98	8.44	90.5	201.9	10.54	
NF-1	28-Jul-23	12:25	17.5	0.3	17.74	8.00	8.70	91.4	206.0	11.05	1.1
				1.0	17.67	7.98	8.74	91.7	206.1	11.01	
				2.0	17.62	7.98	8.74	91.7	206.1	10.94	
				3.0	17.62	7.97	8.75	91.7	206.2	10.97	
				4.0	17.62	7.98	8.75	91.8	206.1	11.42	
				5.0	17.62	7.99	8.74	91.6	206.1	11.40	
				6.0	17.62	7.99	8.75	91.8	206.1	11.51	
				7.0	17.62	7.99	8.75	91.8	206.1	11.32	
				8.0	17.62	7.99	8.75	91.7	206.1	11.26	
				9.0	17.62	7.99	8.75	91.9	206.1	11.32	
				10.0	17.62	7.99	8.76	91.9	206.1	11.54	
				11.0	17.62	7.98	8.76	91.8	206.2	11.22	
				12.0	17.62	7.98	8.75	91.9	206.2	11.46	
				13.0	17.62	7.98	8.76	91.9	206.2	11.44	
				14.0	17.62	7.98	8.79	92.1	206.1	11.14	
				15.0	17.61	7.98	8.79	92.2	206.3	11.33	
				16.0	17.61	7.98	8.80	92.2	206.3	11.35	
				17.0	17.62	7.98	8.76	91.8	206.2	11.11	
NF-2	28-Jul-23	13:24	9.5	0.3	18.03	8.03	8.90	94.0	206.3	11.06	1.1
				1.0	17.97	8.02	8.84	93.4	206.3	11.15	
				2.0	17.88	8.00	8.83	93.0	206.2	10.88	
				3.0	17.82	7.99	8.83	92.9	206.3	10.90	
				4.0	17.74	7.98	8.78	92.2	206.2	11.44	
				5.0	17.70	7.99	8.77	92.1	206.2	11.14	
				6.0	17.64	8.00	8.78	92.2	206.3	11.13	
				7.0	17.60	8.00	8.80	92.3	206.5	11.33	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				8.0	17.59	8.00	8.80	92.3	206.6	11.09	
				9.0	17.59	8.00	8.80	92.3	206.6	11.25	
NF-3	28-Jul-23	12:54	16.4	0.3	17.90	8.01	8.68	91.4	205.9	10.86	1.0
				1.0	17.87	7.99	8.65	91.3	206.0	10.84	
				2.0	17.79	7.99	8.65	91.1	206.0	10.90	
				3.0	17.76	7.98	8.65	91.0	206.0	10.81	
				4.0	17.75	7.98	8.64	90.9	206.0	11.14	
				5.0	17.75	7.99	8.64	90.9	206.0	11.22	
				6.0	17.73	7.99	8.66	91.0	206.1	11.28	
				7.0	17.72	7.99	8.67	91.1	206.1	11.20	
				8.0	17.71	7.99	8.66	91.0	206.1	11.11	
				9.0	17.73	7.99	8.63	90.7	206.0	11.10	
				10.0	17.70	7.98	8.67	91.0	206.1	11.24	
				11.0	17.70	7.98	8.65	90.9	206.0	11.36	
				12.0	17.67	7.98	8.70	91.3	206.1	11.12	
				13.0	17.67	7.98	8.70	91.3	206.2	11.40	
				14.0	17.65	7.97	8.74	91.8	206.3	11.18	
				15.0	17.64	7.98	8.76	91.9	206.3	11.07	
				16.0	17.64	7.98	8.75	91.9	206.2	11.13	
NF-4	28-Jul-23	13:46	5.1	0.3	18.07	8.03	8.86	93.7	206.4	11.06	1.0
				1.0	18.04	8.02	8.87	93.8	206.4	11.01	
				2.0	18.00	8.01	8.86	93.4	206.6	10.89	
				3.0	17.86	8.01	8.86	93.2	206.5	11.01	
				4.0	17.67	8.00	8.84	92.8	206.6	10.97	
				5.0	17.60	8.00	8.80	92.2	206.8	11.43	
NF-5	28-Jul-23	11:50	17.2	0.3	17.88	8.02	8.59	90.6	206.0	11.00	1.0
				1.0	17.86	8.00	8.58	90.5	206.0	11.00	
				2.0	17.74	7.97	8.59	90.3	206.0	11.00	
				3.0	17.65	7.96	8.60	90.2	206.0	10.89	
				4.0	17.58	7.97	8.62	90.4	205.9	11.24	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				5.0	17.56	7.98	8.63	90.4	205.9	11.40	
				6.0	17.56	7.99	8.67	90.8	206.0	11.56	
				7.0	17.56	8.00	8.70	91.1	206.0	11.22	
				8.0	17.54	7.99	8.63	90.5	206.0	11.25	
				9.0	17.53	7.99	8.60	89.9	205.9	11.50	
				10.0	17.53	7.99	8.61	90.0	206.0	11.18	
				11.0	17.52	7.98	8.52	89.1	205.9	11.22	
				12.0	17.49	7.98	8.49	88.8	205.8	11.48	
				13.0	17.46	7.99	8.48	88.6	205.9	11.70	
				14.0	17.43	7.99	8.47	88.5	206.0	11.85	
				15.0	17.39	7.99	8.47	88.4	206.1	11.81	
				16.0	17.38	7.99	8.47	88.4	206.1	11.82	
FF-1	28-Jul-23	8:16	21.8	0.3	17.81	7.98	8.57	90.2	210.9	9.46	1.1
				2.0	17.81	8.00	8.56	90.1	210.9	9.62	
				4.0	17.81	8.00	8.55	90.0	211.0	9.57	
				6.0	17.81	8.00	8.54	89.9	211.1	9.42	
				8.0	17.80	8.00	8.54	89.8	211.1	9.36	
				10.0	17.80	8.00	8.53	89.8	211.2	9.38	
				12.0	17.80	8.00	8.53	89.7	211.2	9.33	
				14.0	17.77	8.00	8.53	89.6	211.4	9.33	
				16.0	17.69	8.00	8.52	89.5	211.7	8.90	
				18.0	17.59	8.01	8.53	89.4	212.1	9.11	
				20.0	17.53	8.01	8.53	89.2	212.5	8.72	
FF-2	28-Jul-23	9:22	13.8	0.3	17.92	8.03	8.62	90.9	209.9	9.70	1.2
				1.0	17.91	8.03	8.61	90.8	209.9	9.64	
				2.0	17.90	8.03	8.61	90.8	210.0	9.67	
				3.0	17.90	8.01	8.60	90.7	209.9	9.90	
				4.0	17.88	8.01	8.59	90.6	209.9	9.98	
				5.0	17.88	8.01	8.59	90.5	209.9	9.88	
				6.0	17.87	8.02	8.59	90.5	209.9	9.79	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued). Values in blue are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				7.0	17.87	8.02	8.58	90.5	209.9	9.73	
				8.0	17.88	8.02	8.58	90.5	209.9	9.72	
				9.0	17.87	8.02	8.59	90.5	209.9	9.93	
				10.0	17.87	8.01	8.59	90.5	209.9	9.81	
				11.0	17.87	8.01	8.58	90.4	209.8	9.82	
				12.0	17.87	8.01	8.58	90.4	209.8	9.79	
				13.0	17.87	8.01	8.58	90.4	209.9	9.82	
FF-3	28-Jul-23	10:15	25.2	0.3	17.96	8.03	8.63	91.1	209.5	10.34	1.2
				2.0	17.93	8.03	8.63	91.1	209.5	10.61	
				4.0	17.86	8.02	8.62	90.8	209.5	10.38	
				6.0	17.84	8.01	8.61	90.7	209.5	10.23	
				8.0	17.83	8.01	8.61	90.7	209.5	10.42	
				10.0	17.83	8.01	8.61	90.7	209.5	10.37	
				12.0	17.82	8.00	8.61	90.7	209.5	10.33	
				14.0	17.82	8.01	8.62	90.7	209.5	10.44	
				16.0	17.82	8.01	8.62	90.7	209.6	10.88	
				18.0	17.82	8.01	8.62	90.8	209.5	10.31	
				20.0	17.83	8.01	8.62	90.8	209.5	10.42	
				22.0	17.83	8.01	8.62	90.8	209.6	10.58	
				24.0	17.80	8.00	8.62	90.8	209.6	10.50	
FF-4	28-Jul-23	9:55	13.2	0.3	17.87	8.01	8.64	91.1	*246.5*	9.74	1.2
				1.0	17.88	8.00	8.64	91.1	*243.3*	9.76	
				2.0	17.87	8.00	8.64	91.0	*241.0*	9.78	
				3.0	17.83	8.00	8.62	90.8	*239.1*	9.86	
				4.0	17.83	8.01	8.62	90.8	*235.4*	9.96	
				5.0	17.82	8.01	8.62	90.8	*234.4*	10.21	
				6.0	17.81	8.01	8.62	90.8	*233.1*	10.06	
				7.0	17.80	8.01	8.62	90.7	*232.4*	9.84	
				8.0	17.80	8.01	8.62	90.7	*231.3*	9.90	
				9.0	17.80	8.01	8.62	90.7	*230.4*	9.92	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued). Values in blue italics are considered suspect.

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				10.0	17.80	8.01	8.62	90.7	*229.9*	9.95	
				11.0	17.80	8.01	8.62	90.7	*229.3*	10.07	
				12.0	17.79	8.01	8.62	90.7	*227.8*	10.11	
				13.0	17.79	8.01	8.62	90.7	*226.8*	9.95	
FF-5	28-Jul-23	8:50	11.4	0.3	17.86	8.03	8.57	90.3	210.8	9.56	1.1
				1.0	17.87	8.07	8.55	90.1	210.9	9.64	
				2.0	17.86	8.06	8.55	90.1	210.9	9.66	
				3.0	17.86	8.05	8.54	90.0	210.8	9.54	
				4.0	17.86	8.05	8.54	90.0	210.8	9.69	
				5.0	17.86	8.05	8.54	90.0	210.9	9.56	
				6.0	17.86	8.03	8.53	89.9	210.9	9.69	
				7.0	17.86	8.03	8.53	89.9	210.9	9.77	
				8.0	17.86	8.03	8.53	89.9	210.9	9.85	
				9.0	17.86	8.04	8.53	89.9	210.8	9.66	
				10.0	17.85	8.03	8.53	89.9	210.9	9.84	
				11.0	17.85	8.03	8.53	89.9	210.9	9.58	
CL-1	25-Aug-23	9:44	13.5	0.3	18.42	8.03	8.43	89.8	217.2	8.51	1.4
				1.0	18.42	8.03	8.42	89.8	217.2	8.50	
				2.0	18.42	8.03	8.42	89.8	217.4	8.48	
				3.0	18.41	8.02	8.41	89.6	217.4	8.60	
				4.0	18.41	8.02	8.41	89.6	217.4	8.48	
				5.0	18.41	8.03	8.40	89.6	217.4	8.67	
				6.0	18.41	8.02	8.41	89.6	217.6	8.43	
				7.0	18.42	8.02	8.40	89.6	217.7	8.54	
				8.0	18.41	8.02	8.40	89.6	217.7	8.50	
CL-2	25-Aug-23	9:23	12.1	0.3	18.40	8.01	8.42	89.7	216.7	8.55	1.4
				1.0	18.40	8.01	8.41	89.7	215.0	8.40	
				2.0	18.40	8.01	8.41	89.7	217.4	8.02	
				3.0	18.40	8.01	8.41	89.7	217.7	8.07	
				4.0	18.40	8.01	8.41	89.7	218.8	8.39	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				5.0	18.40	8.02	8.41	89.7	217.8	8.58	
				6.0	18.40	8.02	8.41	89.6	218.8	8.44	
				7.0	18.40	8.03	8.41	89.6	216.9	8.41	
				8.0	18.40	8.03	8.41	89.6	218.5	8.40	
				9.0	18.40	8.03	8.40	89.6	218.7	8.65	
				10.0	18.40	8.03	8.40	89.6	217.6	8.56	
CL-3	25-Aug-23	10:00	7.4	0.3	18.41	8.03	8.42	89.7	218.0	8.46	1.4
				1.0	18.42	8.02	8.42	89.7	217.9	8.24	
				2.0	18.41	8.03	8.41	89.7	217.7	8.48	
				3.0	18.41	8.02	8.41	89.7	217.8	8.36	
				4.0	18.41	8.02	8.41	89.6	217.8	8.28	
				5.0	18.41	8.01	8.41	89.6	217.7	8.34	
				6.0	18.41	8.01	8.41	89.6	217.8	8.46	
CL-4	25-Aug-23	9:06	6.5	0.3	18.39	8.00	8.42	89.7	214.2	8.30	1.3
				1.0	18.37	8.00	8.42	89.7	213.5	8.51	
				2.0	18.37	8.00	8.42	89.7	213.4	8.44	
				3.0	18.37	8.00	8.42	89.7	213.7	8.42	
				4.0	18.37	8.00	8.42	89.7	214.1	8.39	
				5.0	18.37	8.00	8.42	89.7	214.4	8.49	
				6.0	18.37	8.01	8.41	89.6	214.5	8.60	
CL-5	25-Aug-23	8:45	7.0	0.3	18.40	8.03	8.43	89.8	215.3	8.41	1.4
				1.0	18.41	8.02	8.43	89.8	215.7	8.05	
				2.0	18.40	8.03	8.42	89.8	216.3	8.42	
				3.0	18.41	8.02	8.42	89.8	216.8	8.44	
				4.0	18.43	8.02	8.42	89.8	217.5	8.67	
				5.0	18.42	8.02	8.42	89.8	217.6	8.80	
				6.0	18.43	8.02	8.42	89.8	217.8	8.75	
US-1	23-Aug-23	10:01	16.6	0.3	18.26	7.98	8.46	89.9	215.1	7.88	1.1
				1.0	18.21	7.98	8.42	89.4	215.1	7.98	
				2.0	18.18	7.96	8.40	89.1	215.0	7.96	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	18.17	7.97	8.39	89.0	215.0	7.72	
				4.0	18.17	7.98	8.38	88.9	215.0	7.98	
				5.0	18.16	7.98	8.38	88.9	215.1	8.19	
				6.0	18.16	7.97	8.38	88.9	214.9	8.08	
				7.0	18.16	7.97	8.38	88.8	214.9	8.24	
				8.0	18.16	7.97	8.38	88.8	214.9	8.22	
				9.0	18.15	7.97	8.38	88.8	214.8	8.15	
				10.0	18.15	7.96	8.37	88.8	214.6	8.23	
				11.0	18.15	7.96	8.38	88.8	214.9	8.46	
				12.0	18.15	7.97	8.37	88.8	214.8	8.32	
				13.0	18.15	7.96	8.37	88.8	214.8	8.02	
				14.0	18.15	7.97	8.37	88.7	214.9	8.44	
				15.0	18.15	7.98	8.38	88.8	215.0	8.24	
				16.0	18.15	7.97	8.38	88.8	214.9	8.22	
US-2	23-Aug-23	10:40	12.5	0.3	18.28	8.00	8.45	89.8	214.7	8.10	1.1
				1.0	18.27	8.00	8.45	89.8	214.7	8.23	
				2.0	18.26	8.01	8.44	89.7	214.7	8.48	
				3.0	18.24	8.01	8.44	89.7	214.7	7.96	
				4.0	18.24	8.00	8.44	89.6	214.7	7.93	
				5.0	18.22	8.00	8.43	89.5	214.8	8.67	
				6.0	18.22	8.00	8.43	89.5	214.7	8.42	
				7.0	18.22	8.00	8.43	89.5	214.8	8.28	
				8.0	18.23	8.00	8.44	89.6	214.7	8.04	
				9.0	18.23	8.00	8.44	89.6	214.8	8.16	
				10.0	18.22	8.00	8.43	89.5	214.7	8.23	
				11.0	18.22	8.00	8.43	89.5	214.8	8.77	
				12.0	18.22	8.00	8.43	89.5	214.8	9.89	
US-3	23-Aug-23	11:28	14.0	0.3	18.30	7.99	8.41	89.4	214.6	8.11	1.1
				1.0	18.24	7.98	8.40	89.2	214.6	8.11	
				2.0	18.21	7.98	8.40	89.2	214.5	8.23	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	18.20	7.97	8.40	89.1	214.6	7.61	
				4.0	18.16	7.97	8.39	89.0	214.7	7.71	
				5.0	18.16	7.98	8.39	89.0	214.7	7.92	
				6.0	18.16	7.98	8.39	88.9	214.8	8.06	
				7.0	18.15	7.97	8.39	88.9	214.8	8.34	
				8.0	18.15	7.97	8.39	89.0	214.7	7.77	
				9.0	18.18	7.97	8.39	88.9	214.8	8.12	
				10.0	18.17	7.98	8.39	89.0	214.8	8.80	
				11.0	18.17	7.98	8.39	89.0	214.8	8.41	
				12.0	18.17	7.98	8.39	89.0	214.7	8.28	
				13.0	18.16	7.98	8.39	88.9	214.8	8.45	
US-4	23-Aug-23	11:03	15.4	0.3	18.32	8.00	8.45	89.9	214.5	8.14	1.1
				1.0	18.28	7.99	8.44	89.7	214.5	8.13	
				2.0	18.27	8.00	8.44	89.7	214.7	8.16	
				3.0	18.24	8.00	8.43	89.5	214.6	7.68	
				4.0	18.24	8.00	8.43	89.5	214.5	7.59	
				5.0	18.21	8.00	8.43	89.5	214.5	8.22	
				6.0	18.22	7.99	8.42	89.4	214.6	8.43	
				7.0	18.18	7.98	8.40	89.1	214.6	7.74	
				8.0	18.16	7.98	8.39	89.0	214.7	7.96	
				9.0	18.20	7.98	8.41	89.2	214.7	7.98	
				10.0	18.17	7.98	8.40	89.0	214.7	7.98	
				11.0	18.17	7.98	8.39	89.0	214.6	8.47	
				12.0	18.15	7.97	8.39	89.0	214.7	8.56	
				13.0	18.15	7.97	8.38	88.9	214.7	8.61	
				14.0	18.16	7.97	8.38	88.9	214.6	8.48	
				15.0	18.16	7.97	8.39	88.9	214.6	8.72	
US-5	23-Aug-23	11:52	12.9	0.3	18.38	7.99	8.43	89.7	214.7	8.12	1.1
				1.0	18.36	7.98	8.42	89.6	214.6	8.14	
				2.0	18.35	7.99	8.41	89.5	214.7	8.10	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	18.26	7.99	8.43	89.7	214.8	7.93	
				4.0	18.23	7.99	8.42	89.5	214.7	7.67	
				5.0	18.23	7.99	8.42	89.4	214.7	7.88	
				6.0	18.22	7.99	8.42	89.4	214.7	7.91	
				7.0	18.24	7.99	8.42	89.4	214.7	8.20	
				8.0	18.23	7.99	8.42	89.4	214.7	8.40	
				9.0	18.24	7.99	8.42	89.4	214.7	8.14	
				10.0	18.23	7.98	8.42	89.4	214.7	8.13	
				11.0	18.23	7.98	8.42	89.4	214.7	8.00	
				12.0	18.23	7.99	8.42	89.4	214.7	8.21	
NF-1	28-Aug-23	17:35	20.2	0.3	17.89	8.04	8.56	90.3	208.0	8.02	1.3
				2.0	17.75	8.04	8.52	89.6	207.5	8.31	
				4.0	17.75	8.01	8.49	89.2	207.5	8.40	
				6.0	17.75	8.01	8.48	89.2	207.4	8.37	
				8.0	17.75	8.01	8.48	89.1	207.2	8.64	
				10.0	17.75	8.01	8.47	89.1	207.3	8.71	
				12.0	17.74	8.01	8.47	89.1	207.3	8.22	
				14.0	17.75	8.00	8.48	89.1	207.3	8.45	
				16.0	17.75	8.00	8.48	89.1	207.2	8.56	
				18.0	17.75	8.00	8.48	89.1	207.2	8.43	
NF-2	28-Aug-23	18:05	10.1	0.3	17.97	8.06	8.67	91.6	206.7	8.50	1.3
				1.0	17.82	8.03	8.54	89.9	206.8	8.47	
				2.0	17.80	8.02	8.51	89.6	206.8	8.55	
				3.0	17.80	8.02	8.51	89.5	206.8	8.54	
				4.0	17.80	8.02	8.50	89.4	206.8	8.35	
				5.0	17.81	8.02	8.49	89.4	206.8	8.65	
				6.0	17.80	8.02	8.49	89.4	206.8	8.36	
				7.0	17.81	8.02	8.49	89.4	206.8	8.45	
				8.0	17.80	8.02	8.49	89.4	206.8	8.67	
				9.0	17.80	8.02	8.48	89.3	206.8	8.48	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
NF-3	28-Aug-23	17:49	20.4	0.3	18.15	8.07	8.64	91.6	207.4	7.74	1.2
				2.0	17.90	8.05	8.55	90.2	207.6	7.80	
				4.0	17.77	8.01	8.49	89.3	208.1	7.92	
				6.0	17.76	8.00	8.47	89.0	207.7	8.11	
				8.0	17.76	7.99	8.46	89.0	207.6	8.16	
				10.0	17.76	7.99	8.47	89.0	207.5	8.39	
				12.0	17.76	7.99	8.47	89.0	207.5	8.35	
				14.0	17.76	7.99	8.47	89.0	207.4	8.38	
				16.0	17.76	7.99	8.47	89.1	207.3	8.24	
				18.0	17.76	7.99	8.47	89.1	207.2	8.54	
NF-4	28-Aug-23	18:18	5.3	0.3	17.89	8.03	8.59	90.5	206.7	8.42	1.2
				1.0	17.83	8.02	8.52	89.7	206.7	8.68	
				2.0	17.82	8.02	8.50	89.5	206.8	8.74	
				3.0	17.82	8.02	8.49	89.4	206.8	8.46	
				4.0	17.82	8.02	8.48	89.3	206.8	8.63	
				5.0	17.82	8.02	8.48	89.2	206.8	8.75	
NF-5	28-Aug-23	17:12	17.5	0.3	17.87	8.03	8.53	90.0	207.1	8.10	1.4
				1.0	17.87	8.03	8.53	89.9	207.1	8.23	
				2.0	17.77	8.01	8.51	89.5	207.1	8.22	
				3.0	17.76	8.00	8.48	89.2	207.1	8.16	
				4.0	17.72	8.00	8.48	89.2	207.1	8.26	
				5.0	17.72	8.00	8.48	89.1	207.1	8.59	
				6.0	17.71	8.00	8.48	89.1	206.9	8.40	
				7.0	17.72	8.00	8.48	89.2	207.0	8.64	
				8.0	17.72	8.01	8.48	89.1	207.1	8.44	
				9.0	17.71	8.01	8.48	89.2	207.0	8.41	
				10.0	17.70	8.01	8.48	89.2	207.0	8.58	
				11.0	17.71	8.01	8.48	89.1	207.0	8.39	
				12.0	17.71	8.01	8.48	89.2	206.9	8.33	
				13.0	17.70	8.01	8.48	89.2	206.9	8.49	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				14.0	17.70	8.01	8.48	89.1	206.9	8.40	
				15.0	17.69	8.01	8.48	89.1	206.9	8.50	
				16.0	17.67	8.01	8.48	89.1	206.8	8.62	
FF-1	28-Aug-23	18:53	23.5	0.3	17.59	8.05	8.62	90.3	205.6	7.29	1.3
				2.0	17.46	8.03	8.59	89.8	205.6	7.01	
				4.0	17.42	8.03	8.58	89.6	205.4	7.26	
				6.0	17.40	8.03	8.57	89.5	205.4	7.16	
				8.0	17.40	8.03	8.57	89.5	205.4	7.00	
				10.0	17.38	8.03	8.57	89.4	205.5	7.11	
				12.0	17.37	8.03	8.57	89.4	205.5	7.10	
				14.0	17.36	8.03	8.57	89.4	205.5	7.14	
				16.0	17.36	8.03	8.57	89.4	205.5	7.16	
				18.0	17.36	8.02	8.57	89.4	205.5	7.29	
				20.0	17.35	8.02	8.58	89.4	205.6	7.19	
				22.0	17.35	8.02	8.57	89.4	205.5	7.34	
FF-2	28-Aug-23	19:28	12.4	0.3	17.65	8.06	8.71	91.3	204.7	7.60	1.0
				1.0	17.62	8.05	8.63	90.4	204.7	7.59	
				2.0	17.57	8.03	8.58	89.8	204.7	7.77	
				3.0	17.56	8.03	8.55	89.6	204.7	7.78	
				4.0	17.55	8.02	8.55	89.5	204.7	7.73	
				5.0	17.54	8.02	8.54	89.4	204.7	7.70	
				6.0	17.55	8.02	8.54	89.4	204.8	7.90	
				7.0	17.54	8.02	8.53	89.3	204.7	7.62	
				8.0	17.54	8.02	8.53	89.3	204.7	7.73	
				9.0	17.54	8.02	8.53	89.3	204.7	7.81	
				10.0	17.54	8.02	8.53	89.3	204.7	7.66	
				11.0	17.54	8.01	8.53	89.3	204.7	7.58	
				12.0	17.54	8.02	8.53	89.3	204.8	7.47	
FF-3	28-Aug-23	19:53	21.4	0.3	17.70	8.07	8.71	91.5	204.7	7.96	1.0
				2.0	17.58	8.06	8.61	90.1	204.7	8.02	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				4.0	17.57	8.03	8.56	89.6	204.7	8.10	
				6.0	17.57	8.02	8.54	89.5	204.7	8.06	
				8.0	17.54	8.02	8.53	89.3	204.7	8.18	
				10.0	17.51	8.01	8.52	89.2	204.7	8.05	
				12.0	17.51	8.01	8.52	89.2	204.7	7.78	
				14.0	17.51	8.01	8.52	89.2	204.7	7.95	
				16.0	17.51	8.00	8.52	89.1	204.7	7.79	
				18.0	17.51	8.00	8.52	89.1	204.7	7.89	
				20.0	17.51	8.00	8.52	89.1	204.7	7.87	
FF-4	28-Aug-23	19:40	10.9	0.3	17.61	8.03	8.63	90.4	204.7	7.70	1.0
				1.0	17.61	8.03	8.57	89.8	204.7	7.64	
				2.0	17.61	8.03	8.55	89.7	204.7	7.84	
				3.0	17.61	8.03	8.55	89.6	204.7	7.66	
				4.0	17.58	8.03	8.53	89.4	204.7	7.78	
				5.0	17.58	8.02	8.53	89.4	204.7	7.72	
				6.0	17.58	8.02	8.52	89.3	204.7	7.81	
				7.0	17.58	8.02	8.53	89.3	204.7	7.85	
				8.0	17.58	8.02	8.53	89.3	204.7	7.88	
				9.0	17.58	8.02	8.53	89.3	204.7	7.87	
				10.0	17.57	8.02	8.53	89.3	204.7	7.71	
FF-5	28-Aug-23	19:12	11.1	0.3	17.91	8.06	8.74	91.9	205.2	7.28	1.3
				1.0	17.48	8.07	8.67	90.5	205.5	7.21	
				2.0	17.40	8.04	8.61	89.8	205.5	7.28	
				3.0	17.38	8.03	8.57	89.5	205.3	7.52	
				4.0	17.37	8.03	8.57	89.4	205.1	7.29	
				5.0	17.37	8.03	8.57	89.4	205.1	7.33	
				6.0	17.37	8.03	8.57	89.4	205.1	7.28	
				7.0	17.37	8.03	8.56	89.4	205.1	7.24	
				8.0	17.37	8.03	8.56	89.4	205.1	7.45	
				9.0	17.37	8.03	8.56	89.4	205.1	7.38	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				10.0	17.37	8.03	8.56	89.3	205.1	7.58	
CL-1	23-Sep-23	13:32	10.4	0.3	15.37	8.02	9.16	91.6	231.8	6.92	1.5
				1.0	15.36	8.02	9.16	91.6	231.9	7.43	
				2.0	15.33	8.02	9.15	91.4	232.0	6.87	
				3.0	15.34	8.02	9.15	91.4	231.5	7.18	
				4.0	15.34	8.01	9.15	91.4	231.8	7.23	
				5.0	15.34	8.01	9.15	91.5	231.9	6.98	
				6.0	15.32	8.02	9.15	91.5	231.8	7.12	
				7.0	15.32	8.02	9.15	91.4	231.9	7.27	
				8.0	15.32	8.02	9.15	91.4	232.0	7.08	
				9.0	15.32	8.02	9.14	91.3	231.9	7.03	
				10.0	15.32	8.02	9.14	91.3	232.0	7.51	
CL-2	23-Sep-23	13:15	10.9	0.3	15.36	8.02	9.16	91.6	232.4	7.05	1.6
				1.0	15.34	8.03	9.16	91.5	232.2	7.47	
				2.0	15.33	8.03	9.16	91.5	231.5	7.03	
				3.0	15.33	8.03	9.15	91.5	231.0	7.18	
				4.0	15.33	8.02	9.15	91.5	231.9	7.42	
				5.0	15.32	8.02	9.15	91.5	232.1	7.23	
				6.0	15.32	8.02	9.15	91.5	230.9	7.31	
				7.0	15.32	8.03	9.15	91.4	231.4	7.57	
CL-3	23-Sep-23	13:47	8.1	0.3	15.42	8.02	9.16	91.7	231.6	7.06	1.5
				1.0	15.38	8.01	9.15	91.6	231.6	7.03	
				2.0	15.35	8.01	9.15	91.5	231.6	7.25	
				3.0	15.35	8.00	9.15	91.5	231.7	7.18	
				4.0	15.35	8.01	9.15	91.5	231.6	7.33	
				5.0	15.34	8.01	9.15	91.4	231.6	7.27	
				6.0	15.34	8.01	9.15	91.4	231.7	7.22	
				7.0	15.33	8.01	9.15	91.4	231.6	7.24	
CL-4	23-Sep-23	13:03	6.3	0.3	15.35	8.01	9.16	91.6	228.6	7.53	1.5
				1.0	15.33	8.01	9.16	91.5	229.2	7.64	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				2.0	15.32	8.01	9.16	91.6	229.1	7.41	
				3.0	15.32	8.02	9.16	91.4	228.9	7.34	
				4.0	15.32	8.01	9.15	91.4	228.9	7.42	
				5.0	15.32	8.01	9.15	91.4	228.9	7.65	
CL-5	23-Sep-23	12:48	6.5	0.3	15.32	7.99	9.16	91.5	225.3	7.52	1.5
				1.0	15.30	7.99	9.16	91.4	225.4	7.48	
				2.0	15.29	7.99	9.15	91.4	226.0	7.69	
				3.0	15.29	8.00	9.15	91.4	226.3	7.82	
				4.0	15.29	8.01	9.15	91.3	226.6	7.70	
				5.0	15.29	8.00	9.15	91.3	226.7	8.07	
				6.0	15.30	8.01	9.15	91.3	222.4	7.80	
US-1	24-Sep-23	11:03	16.9	0.3	15.34	8.03	9.16	91.6	241.3	5.71	1.5
				1.0	15.32	8.03	9.15	91.4	241.2	5.80	
				2.0	15.30	8.02	9.14	91.3	241.3	5.87	
				3.0	15.31	8.02	9.14	91.3	241.3	5.88	
				4.0	15.30	8.03	9.14	91.3	241.3	5.86	
				5.0	15.29	8.02	9.14	91.3	241.3	5.83	
				6.0	15.29	8.02	9.14	91.2	241.3	6.06	
				7.0	15.28	8.02	9.14	91.2	241.3	5.97	
				8.0	15.29	8.03	9.14	91.3	241.3	6.00	
				9.0	15.29	8.02	9.14	91.3	241.3	5.77	
				10.0	15.29	8.03	9.14	91.3	241.3	5.90	
				11.0	15.28	8.02	9.14	91.3	241.3	5.89	
				12.0	15.28	8.01	9.14	91.2	241.4	5.88	
				13.0	15.28	8.02	9.14	91.3	241.3	5.87	
				14.0	15.28	8.02	9.14	91.3	241.3	5.80	
				15.0	15.28	8.01	9.14	91.3	241.3	5.96	
US-2	24-Sep-23	10:47	12.8	0.3	15.33	8.02	9.13	91.2	238.9	6.14	1.5
				1.0	15.32	8.03	9.13	91.2	239.0	6.25	
				2.0	15.30	8.03	9.13	91.2	240.1	6.01	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				3.0	15.30	8.03	9.13	91.2	240.2	6.00	
				4.0	15.29	8.02	9.13	91.1	240.2	6.26	
				5.0	15.28	8.02	9.13	91.1	240.3	6.27	
				6.0	15.29	8.03	9.13	91.1	240.0	6.41	
				7.0	15.28	8.03	9.13	91.1	240.3	6.37	
				8.0	15.28	8.03	9.13	91.1	240.4	6.47	
				9.0	15.28	8.02	9.13	91.2	240.3	6.00	
				10.0	15.28	8.03	9.14	91.2	240.5	6.39	
				11.0	15.28	8.03	9.13	91.2	240.3	6.06	
				12.0	15.28	8.02	9.13	91.2	240.3	6.09	
US-3	24-Sep-23	10:10	11.6	0.3	15.28	8.03	9.16	91.5	241.7	5.77	1.4
				1.0	15.28	8.03	9.15	91.3	241.4	5.99	
				2.0	15.29	8.04	9.15	91.3	241.3	5.79	
				3.0	15.26	8.02	9.14	91.2	241.9	5.80	
				4.0	15.26	8.04	9.14	91.3	241.7	6.00	
				5.0	15.26	8.02	9.14	91.3	241.5	5.83	
				6.0	15.27	8.03	9.15	91.3	241.7	5.66	
				7.0	15.25	8.04	9.13	91.1	241.8	6.04	
				8.0	15.26	8.03	9.14	91.2	241.9	5.82	
				9.0	15.24	8.02	9.13	91.1	242.0	5.75	
				10.0	15.24	8.03	9.13	91.1	241.9	6.13	
				11.0	15.25	8.03	9.13	91.1	241.8	6.10	
US-4	24-Sep-23	9:44	15.6	0.3	15.27	8.05	9.16	91.4	241.6	5.72	1.4
				1.0	15.27	8.04	9.16	91.4	241.4	5.77	
				2.0	15.27	8.04	9.15	91.4	241.4	5.87	
				3.0	15.28	8.04	9.15	91.4	241.5	5.75	
				4.0	15.27	8.03	9.15	91.3	241.4	5.72	
				5.0	15.27	8.04	9.14	91.3	241.5	6.20	
				6.0	15.27	8.04	9.14	91.3	241.5	5.84	
				7.0	15.27	8.03	9.15	91.3	241.5	5.77	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				8.0	15.27	8.03	9.15	91.3	241.5	5.73	
				9.0	15.27	8.03	9.14	91.3	241.5	5.84	
				10.0	15.27	8.04	9.14	91.3	241.6	6.07	
				11.0	15.27	8.03	9.15	91.4	241.4	5.80	
				12.0	15.27	8.03	9.15	91.3	241.6	5.76	
				13.0	15.27	8.03	9.15	91.3	241.6	5.69	
				14.0	15.27	8.03	9.15	91.3	241.6	5.77	
				15.0	15.27	8.03	9.14	91.3	241.6	5.84	
US-5	24-Sep-23	10:27	15.1	0.3	15.30	8.02	9.14	91.2	239.7	6.05	1.4
				1.0	15.31	8.04	9.13	91.2	240.2	6.12	
				2.0	15.28	8.04	9.13	91.2	240.5	6.17	
				3.0	15.27	8.03	9.13	91.2	240.3	6.13	
				4.0	15.27	8.03	9.14	91.2	240.9	6.21	
				5.0	15.27	8.02	9.14	91.2	240.8	5.90	
				6.0	15.28	8.02	9.14	91.2	240.8	5.90	
				7.0	15.27	8.02	9.14	91.2	240.8	6.02	
				8.0	15.27	8.03	9.14	91.2	241.1	6.23	
				9.0	15.28	8.03	9.14	91.2	240.8	6.48	
				10.0	15.28	8.03	9.14	91.3	240.8	5.94	
				11.0	15.27	8.03	9.14	91.2	240.9	6.29	
				12.0	15.27	8.03	9.14	91.2	240.7	6.15	
				13.0	15.27	8.03	9.14	91.2	240.7	6.07	
				14.0	15.27	8.02	9.14	91.3	240.7	5.97	
NF-1	25-Sep-23	8:18	20.4	0.3	15.34	8.01	9.15	91.4	241.6	6.04	1.5
				2.0	15.33	8.01	9.15	91.4	241.5	6.09	
				4.0	15.34	8.01	9.15	91.4	241.5	6.01	
				6.0	15.33	8.01	9.15	91.4	241.7	6.04	
				8.0	15.34	8.01	9.14	91.4	241.6	6.08	
				10.0	15.33	8.01	9.15	91.4	241.6	6.11	
				12.0	15.32	8.01	9.15	91.4	241.6	6.15	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				14.0	15.27	8.01	9.15	91.3	241.4	6.09	
				16.0	15.10	8.00	9.10	90.5	240.9	6.32	
				18.0	15.05	7.99	9.09	90.2	240.4	6.39	
NF-2	25-Sep-23	7:41	10.9	0.3	15.29	8.05	9.21	92.0	241.5	5.88	1.5
				1.0	15.29	8.05	9.21	92.0	241.6	5.91	
				2.0	15.29	8.05	9.21	92.0	241.6	5.88	
				3.0	15.29	8.05	9.21	92.0	241.6	5.90	
				4.0	15.29	8.05	9.21	92.0	241.8	5.92	
				5.0	15.29	8.05	9.21	92.0	241.7	5.85	
				6.0	15.29	8.04	9.20	92.0	241.6	5.94	
				7.0	15.29	8.04	9.20	92.0	241.6	5.90	
				8.0	15.27	8.04	9.20	92.0	241.4	5.97	
				9.0	15.27	8.03	9.19	91.8	241.4	5.84	
				10.0	15.24	8.03	9.18	91.5	241.2	5.89	
NF-3	25-Sep-23	8:01	20.2	0.3	15.32	8.03	9.17	91.6	241.8	6.03	1.5
				2.0	15.34	8.03	9.17	91.6	241.9	6.02	
				4.0	15.33	8.03	9.16	91.5	241.9	5.91	
				6.0	15.33	8.02	9.16	91.5	241.8	5.99	
				8.0	15.30	8.02	9.16	91.5	241.8	5.94	
				10.0	15.31	8.01	9.16	91.5	241.7	6.11	
				12.0	15.23	8.01	9.16	91.5	241.6	6.05	
				14.0	15.21	8.00	9.16	91.5	241.1	6.28	
				16.0	15.07	7.99	9.11	90.5	240.6	6.50	
NF-4	25-Sep-23	7:25	6.2	0.3	15.16	8.00	9.22	91.6	241.0	5.70	1.5
				1.0	15.18	8.00	9.22	91.6	241.0	5.77	
				2.0	15.18	8.00	9.22	91.8	241.0	5.85	
				3.0	15.17	7.99	9.22	91.8	241.0	5.80	
				4.0	15.17	7.99	9.22	91.8	241.0	5.68	
				5.0	15.17	7.99	9.22	91.8	241.0	5.77	
				6.0	15.17	7.99	9.21	91.8	241.0	5.72	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
NF-5	25-Sep-23	8:34	18.1	0.3	15.30	8.03	9.23	92.1	241.2	6.14	1.6
				1.0	15.29	8.02	9.22	92.1	241.1	6.19	
				2.0	15.29	8.02	9.22	92.1	241.2	6.09	
				3.0	15.29	8.02	9.22	92.1	241.1	6.26	
				4.0	15.29	8.01	9.22	92.0	241.2	6.13	
				5.0	15.29	8.01	9.22	92.0	241.2	6.25	
				6.0	15.27	8.01	9.20	91.8	241.2	6.21	
				7.0	15.27	8.02	9.21	91.9	241.3	6.24	
				8.0	15.26	8.02	9.19	91.7	241.2	6.10	
				9.0	15.26	8.02	9.20	91.7	241.3	6.14	
				10.0	15.25	8.01	9.19	91.7	241.3	6.03	
				11.0	15.21	8.00	9.18	91.5	241.3	6.11	
				12.0	15.20	8.00	9.16	91.3	241.3	6.34	
				13.0	15.14	7.98	9.11	90.6	241.0	6.38	
				14.0	15.11	7.98	9.08	90.2	240.9	6.55	
FF-1	25-Sep-23	9:58	22.2	0.3	14.81	8.02	9.26	91.5	234.8	5.73	1.9
				2.0	14.81	8.02	9.26	91.5	234.7	5.79	
				4.0	14.78	8.01	9.26	91.5	234.7	5.73	
				6.0	14.78	8.01	9.26	91.5	234.5	5.85	
				8.0	14.78	8.01	9.26	91.5	234.7	5.70	
				10.0	14.76	8.00	9.27	91.5	234.6	5.63	
				12.0	14.75	8.00	9.27	91.5	234.1	5.76	
				14.0	14.69	8.00	9.23	91.0	233.8	5.60	
				16.0	14.61	7.98	9.19	90.4	233.1	5.65	
				18.0	14.50	7.97	9.19	90.2	232.2	5.60	
FF-2	25-Sep-23	10:33	14.6	0.3	14.92	8.01	9.23	91.5	236.3	5.62	1.7
				1.0	14.91	8.01	9.23	91.4	236.4	5.64	
				2.0	14.88	8.01	9.22	91.3	236.3	5.65	
				3.0	14.87	8.01	9.21	91.2	236.3	5.67	
				4.0	14.85	8.00	9.21	91.1	236.2	5.63	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				5.0	14.84	8.00	9.20	90.9	236.2	5.70	
				6.0	14.83	8.00	9.19	90.9	236.1	5.71	
				7.0	14.83	7.99	9.19	90.9	236.2	5.65	
				8.0	14.82	8.00	9.18	90.9	236.0	5.72	
				9.0	14.81	7.99	9.18	90.7	236.1	5.71	
				10.0	14.79	7.99	9.15	90.3	235.8	5.62	
				11.0	14.79	7.98	9.14	90.3	235.8	5.65	
				12.0	14.78	7.97	9.13	90.2	235.8	5.76	
FF-3	25-Sep-23	11:10	26.2	0.3	15.04	8.02	9.24	91.7	236.8	5.69	1.7
				2.0	15.00	8.02	9.24	91.7	236.8	5.64	
				4.0	14.96	8.01	9.23	91.5	236.9	5.65	
				6.0	14.93	8.00	9.22	91.3	236.7	5.66	
				8.0	14.91	7.99	9.21	91.1	236.8	5.71	
				10.0	14.90	7.99	9.20	91.1	236.8	5.83	
				12.0	14.88	7.99	9.20	91.0	236.6	5.75	
				14.0	14.86	7.99	9.19	90.8	236.5	5.91	
				16.0	14.83	7.99	9.18	90.7	236.4	5.96	
				18.0	14.79	7.98	9.14	90.3	236.4	5.90	
				20.0	14.78	7.98	9.14	90.2	236.4	5.85	
				22.0	14.77	7.98	9.14	90.2	236.3	5.86	
				24.0	14.77	7.98	9.13	90.1	236.3	5.87	
FF-4	25-Sep-23	10:49	12.9	0.3	14.98	8.02	9.24	91.6	236.8	5.75	1.6
				1.0	14.96	8.02	9.24	91.6	236.8	5.84	
				2.0	14.94	8.02	9.23	91.5	236.8	5.83	
				3.0	14.94	8.01	9.23	91.5	236.7	5.77	
				4.0	14.92	8.01	9.23	91.5	236.7	5.69	
				5.0	14.91	8.01	9.23	91.5	236.7	5.82	
				6.0	14.89	8.00	9.23	91.5	236.7	5.70	
				7.0	14.88	8.00	9.23	91.3	236.7	5.77	
				8.0	14.87	8.00	9.22	91.3	236.7	5.65	

Table A4-2: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				9.0	14.86	8.00	9.22	91.3	236.5	5.68	
				10.0	14.86	8.00	9.22	91.3	236.5	5.64	
				11.0	14.86	8.00	9.22	91.2	236.5	5.60	
				12.0	14.83	8.00	9.19	90.8	236.2	5.62	
FF-5	25-Sep-23	10:18	12.0	0.3	14.82	8.01	9.23	91.2	235.2	5.79	1.8
				1.0	14.82	8.00	9.23	91.2	235.2	5.79	
				2.0	14.82	7.99	9.23	91.2	235.1	5.71	
				3.0	14.81	8.00	9.22	91.2	235.2	5.80	
				4.0	14.79	8.00	9.22	91.1	235.1	5.76	
				5.0	14.78	8.00	9.22	91.1	235.0	5.85	
				6.0	14.77	8.00	9.22	91.1	234.9	5.79	
				7.0	14.78	8.00	9.22	91.1	234.9	5.76	
				8.0	14.77	8.00	9.22	91.1	234.9	5.71	
				9.0	14.75	8.00	9.22	91.1	234.6	5.73	
				10.0	14.74	8.00	9.22	91.1	234.5	5.77	
				11.0	14.69	8.00	9.22	91.1	234.0	5.80	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023.

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
STL-N	31-Mar-23	8:25	4.5	0.3	0.17	8.05	14.26	98.8	304.9	1.86	N/A
				1.0	0.18	8.05	14.32	98.5	305.9	1.89	
				1.5	0.19	8.04	14.14	97.3	303.6	1.92	
				2.0	0.28	8.02	13.90	95.8	302.2	2.02	
				2.5	0.40	8.00	13.59	94.1	300.1	2.02	
				3.0	0.44	7.99	13.49	93.5	299.7	1.86	
				3.5	0.45	7.98	13.42	93.0	301.9	1.92	
				4.0	0.47	7.97	13.36	92.6	302.1	1.88	
STL-KETTLE	31-Mar-23	12:30	33.7	0.3	-0.01	7.87	14.57	99.7	266.5	12.44	N/A
				2.0	-0.01	7.86	14.57	99.7	266.0	9.94	
				4.0	-0.01	7.86	14.55	99.6	266.3	10.23	
				6.0	-0.01	7.86	14.52	99.4	266.3	9.85	
				8.0	-0.01	7.86	14.50	99.2	266.2	9.35	
				10.0	-0.01	7.87	14.47	99.0	266.1	9.42	
				12.0	-0.01	7.87	14.44	98.8	266.2	11.59	
				14.0	-0.01	7.87	14.42	98.7	266.5	9.62	
				16.0	-0.01	7.86	14.39	98.5	266.5	9.68	
				18.0	-0.01	7.86	14.37	98.3	266.3	10.26	
				20.0	-0.01	7.84	14.34	98.2	267.2	11.46	
				22.0	-0.01	7.84	14.32	98.0	267.4	10.24	
				24.0	-0.01	7.83	14.29	97.8	267.5	9.47	
				26.0	-0.01	7.83	14.27	97.7	267.4	9.82	
				28.0	-0.01	7.83	14.24	97.5	267.7	11.37	
LNR-3	31-Mar-23	13:20	27.0	0.3	-0.02	7.87	14.58	99.8	269.9	11.14	N/A
				2.0	-0.02	7.87	14.57	99.7	269.7	11.08	
				4.0	-0.02	7.87	14.55	99.6	267.6	11.91	

1. In winter, total and sample depth are recorded as effective depth, or total water depth minus ice depth.

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				6.0	-0.02	7.87	14.52	99.3	268.9	9.54	
				8.0	-0.02	7.87	14.50	99.2	268.2	8.99	
				10.0	-0.02	7.87	14.47	99.0	268.2	9.59	
				12.0	-0.02	7.87	14.44	98.8	269.2	10.41	
				14.0	-0.02	7.86	14.42	98.6	267.8	11.16	
				16.0	-0.02	7.86	14.39	98.5	267.5	11.67	
				18.0	-0.02	7.86	14.37	98.3	268.1	9.34	
				20.0	-0.02	7.86	14.34	98.1	268.8	9.43	
				22.0	-0.02	7.86	14.32	97.9	269.1	9.53	
				24.0	-0.02	7.86	14.30	97.8	269.0	10.39	
				26.0	-0.02	7.86	14.27	97.6	268.9	9.48	
LNR-4	31-Mar-23	14:15	26.2	0.3	-0.01	7.89	14.52	99.4	269.1	11.68	N/A
				2.0	-0.01	7.88	14.54	99.5	269.0	9.67	
				4.0	-0.01	7.88	14.54	99.5	269.4	9.45	
				6.0	-0.01	7.89	14.53	99.4	269.3	9.55	
				8.0	-0.01	7.89	14.50	99.2	269.4	9.61	
				10.0	-0.01	7.89	14.47	99.0	269.8	9.71	
				12.0	-0.01	7.89	14.44	98.8	269.4	9.18	
				14.0	-0.01	7.89	14.42	98.7	269.4	9.54	
				16.0	-0.01	7.89	14.39	98.5	269.5	9.48	
				18.0	-0.01	7.89	14.37	98.3	269.8	9.04	
				20.0	-0.01	7.89	14.34	98.1	269.5	11.06	
				22.0	-0.01	7.88	14.32	98.0	269.4	11.65	
				24.0	-0.01	7.88	14.29	97.9	269.4	9.98	
STL-N	23-Jun-23	15:50	6.7	0.3	17.48	8.07	9.16	94.8	247.3	4.57	1.2
				1.0	15.40	8.05	9.14	91.5	246.3	4.69	
				2.0	15.08	8.04	9.07	90.1	246.3	4.94	
				3.0	15.03	8.03	9.04	89.7	246.2	5.42	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				4.0	15.00	8.02	9.03	89.6	246.3	5.33	
				5.0	14.91	8.02	9.03	89.5	246.3	5.09	
				6.0	14.85	8.02	8.89	88.9	246.4	5.49	
STL-KETTLE	23-Jun-23	15:05	33.6	0.3	17.71	7.94	9.15	96.2	214.5	9.24	0.9
				2.0	17.52	7.93	9.16	95.8	214.5	9.69	
				4.0	17.41	7.92	9.13	95.3	214.4	9.63	
				6.0	17.23	7.91	9.11	94.7	214.3	9.72	
				8.0	17.16	7.91	9.10	94.5	214.3	9.64	
				10.0	17.08	7.91	9.12	94.6	214.4	10.07	
				12.0	17.03	7.91	9.12	94.5	214.4	9.93	
				14.0	17.00	7.90	9.12	94.3	214.4	9.96	
				16.0	16.99	7.90	9.11	94.3	214.4	9.97	
				18.0	16.98	7.90	9.11	94.3	214.4	9.91	
				20.0	16.97	7.90	9.11	94.3	214.5	9.89	
LNR-3	23-Jun-23	14:45	7.2	0.3	17.52	7.90	9.03	94.5	212.6	9.40	0.9
				1.0	17.39	7.90	9.03	94.4	212.7	9.73	
				2.0	17.35	7.88	9.03	94.2	212.9	9.72	
				3.0	17.12	7.88	9.03	93.9	212.8	10.22	
				4.0	17.05	7.88	9.01	93.4	212.8	10.01	
				5.0	17.00	7.88	9.02	93.6	212.8	9.77	
				6.0	17.00	7.88	9.02	93.5	212.9	9.91	
LNR-4	23-Jun-23	14:15	25.7	0.3	16.78	7.89	9.05	93.3	212.6	8.29	0.8
				2.0	16.47	7.88	9.04	92.6	212.3	8.29	
				4.0	16.46	7.87	9.04	92.6	212.2	8.67	
				6.0	16.45	7.86	9.03	92.5	212.2	8.59	
				8.0	16.46	7.86	9.03	92.5	212.2	8.57	
				10.0	16.46	7.86	9.03	92.4	212.2	8.52	
				12.0	16.46	7.86	9.03	92.4	212.1	8.77	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				14.0	16.46	7.86	9.03	92.4	212.1	8.57	
				16.0	16.46	7.86	9.03	92.4	212.1	8.51	
				18.0	16.46	7.86	9.03	92.4	212.1	8.94	
				20.0	16.46	7.86	9.02	92.3	212.0	8.83	
				22.0	16.46	7.86	9.02	92.3	212.0	8.89	
				24.0	16.46	7.86	9.02	92.3	212.0	8.86	
LNR-5	23-Jun-23	13:55	N/A	0.3	16.99	7.98	9.20	95.2	205.1	12.41	N/A
LNR-6	23-Jun-23	13:40	4.9	0.3	16.79	7.97	9.22	95.0	211.3	12.41	N/A
LNR-7	23-Jun-23	13:20	4.8	0.3	16.44	7.90	8.96	91.5	212.4	9.37	N/A
LNR-8	23-Jun-23	13:05	2.6	0.3	16.82	8.04	9.22	95.1	212.8	9.26	N/A
STL-N	25-Jul-23	14:23	8.5	0.3	17.68	8.20	8.75	91.9	234.6	7.51	1.2
				1.0	17.67	8.21	8.75	91.9	234.6	7.52	
				2.0	17.65	8.19	8.74	91.7	234.6	7.56	
				3.0	17.66	8.17	8.74	91.7	234.6	7.29	
				4.0	17.61	8.16	8.73	91.6	234.6	7.64	
				5.0	17.61	8.16	8.73	91.5	234.6	7.97	
				6.0	17.60	8.16	8.72	91.5	234.6	7.89	
				7.0	17.60	8.16	8.72	91.3	234.5	7.90	
				8.0	17.46	8.12	8.50	88.2	234.7	7.87	
STL-KETTLE	25-Jul-23	13:40	33.7	0.3	18.12	8.05	8.74	92.6	213.2	8.24	1.3
				2.0	18.13	8.05	8.73	92.6	213.3	8.25	
				4.0	18.05	8.03	8.72	92.3	213.1	8.49	
				6.0	18.02	8.03	8.72	92.2	213.0	8.40	
				8.0	18.02	8.03	8.72	92.2	213.0	8.35	
				10.0	18.00	8.04	8.72	92.2	213.0	8.32	
				12.0	17.77	7.99	8.68	91.3	212.9	8.44	
				14.0	17.73	7.99	8.66	91.0	213.0	8.63	
				16.0	17.66	7.99	8.64	90.6	213.3	8.59	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				18.0	17.60	7.99	8.63	90.6	213.7	8.40	
				20.0	17.60	7.99	8.63	90.6	213.3	8.45	
LNR-3	25-Jul-23	13:07	32.0	0.3	17.68	8.00	8.60	90.3	213.9	7.58	1.4
				2.0	17.66	7.99	8.59	90.1	213.9	7.64	
				4.0	17.68	7.97	8.58	90.1	213.9	7.64	
				6.0	17.65	7.97	8.58	90.1	213.8	7.72	
				8.0	17.66	7.98	8.59	90.1	213.8	7.60	
				10.0	17.66	7.98	8.59	90.2	213.8	7.61	
				12.0	17.67	7.98	8.59	90.2	213.8	7.70	
				14.0	17.67	7.98	8.60	90.2	213.8	7.67	
				16.0	17.67	7.98	8.60	90.2	213.8	7.78	
				18.0	17.67	7.98	8.60	90.3	213.8	7.58	
				20.0	17.67	7.98	8.60	90.3	213.8	7.59	
LNR-4	25-Jul-23	12:30	32.7	0.3	17.79	8.02	8.67	91.2	214.7	7.55	1.4
				2.0	17.75	8.01	8.65	90.9	214.7	7.37	
				4.0	17.71	7.99	8.64	90.8	214.7	7.53	
				6.0	17.71	7.98	8.63	90.7	214.7	7.64	
				8.0	17.64	7.98	8.62	90.5	214.7	7.52	
				10.0	17.65	7.98	8.62	90.5	214.7	7.70	
				12.0	17.64	7.99	8.62	90.4	214.6	7.63	
				14.0	17.65	7.99	8.62	90.4	214.7	7.64	
				16.0	17.65	7.99	8.62	90.4	214.7	7.50	
				18.0	17.65	7.99	8.62	90.5	214.7	7.48	
				20.0	17.67	7.99	8.62	90.5	214.7	7.65	
				22.0	17.65	7.99	8.61	90.4	214.7	7.70	
				24.0	17.65	8.00	8.61	90.3	214.7	7.66	
LNR-5	25-Jul-23	12:05	3.5	0.3	17.78	8.04	8.97	94.3	215.1	7.99	N/A
LNR-6	25-Jul-23	11:48	N/A	0.3	17.52	8.05	8.93	93.5	216.0	7.65	N/A

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
LNR-7	25-Jul-23	11:25	4.7	0.3	17.72	8.01	8.67	91.1	216.1	8.00	N/A
LNR-8	25-Jul-23	11:05	1.2	0.3	18.02	8.07	8.86	93.7	216.3	7.90	N/A
STL-N	21-Aug-23	13:22	9.4	0.3	17.31	8.23	8.83	92.0	243.4	5.37	1.2
				1.0	17.25	8.21	8.82	91.9	243.5	5.25	
				2.0	17.17	8.21	8.79	91.6	243.5	5.42	
				3.0	17.07	8.20	8.76	91.0	243.4	5.86	
				4.0	17.00	8.18	8.71	90.2	243.8	5.37	
				5.0	17.14	8.18	8.79	91.3	243.6	5.55	
				6.0	17.12	8.17	8.71	90.4	243.6	4.99	
				7.0	16.87	8.15	8.62	89.0	243.7	4.80	
				8.0	16.86	8.14	8.60	88.8	243.7	5.15	
STL-KETTLE	21-Aug-23	12:40	32.9	0.3	18.16	8.00	8.51	90.2	209.5	7.55	1.1
				2.0	18.13	7.99	8.49	89.9	209.5	7.52	
				4.0	17.95	7.97	8.43	89.0	209.5	7.64	
				6.0	17.92	7.98	8.43	88.9	209.5	7.62	
				8.0	17.86	7.97	8.40	88.4	209.5	7.49	
				10.0	17.79	7.96	8.37	88.1	209.6	7.49	
				12.0	17.77	7.95	8.37	88.0	209.5	7.59	
				14.0	17.76	7.96	8.37	88.0	209.6	7.73	
				16.0	17.75	7.96	8.37	88.0	209.6	7.60	
LNR-3	21-Aug-23	12:07	20.3	0.3	17.83	7.94	8.38	88.2	208.7	6.81	1.2
				2.0	17.83	7.93	8.34	87.9	208.8	6.69	
				4.0	17.81	7.94	8.33	87.7	208.8	6.43	
				6.0	17.78	7.93	8.32	87.6	208.8	6.61	
				8.0	17.77	7.93	8.31	87.5	209.0	6.82	
				10.0	17.75	7.93	8.31	87.3	208.9	6.96	
				12.0	17.75	7.93	8.30	87.3	208.8	6.95	
				14.0	17.74	7.93	8.30	87.3	208.8	6.95	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				16.0	17.74	7.93	8.30	87.3	208.9	6.81	
				18.0	17.71	7.93	8.30	87.2	208.9	6.89	
LNR-4	21-Aug-23	11:34	25.9	0.3	17.84	7.94	8.45	89.0	208.1	6.72	1.1
				2.0	17.73	7.92	8.43	88.8	208.1	6.54	
				4.0	17.58	7.93	8.41	88.1	208.1	6.96	
				6.0	17.55	7.93	8.41	88.0	208.0	6.73	
				8.0	17.49	7.92	8.40	87.8	208.0	6.88	
				10.0	17.49	7.93	8.39	87.7	208.0	6.78	
				12.0	17.48	7.92	8.38	87.6	208.0	6.81	
				14.0	17.46	7.92	8.37	87.5	208.0	6.96	
				16.0	17.46	7.93	8.40	87.8	207.8	6.80	
				18.0	17.46	7.93	8.40	87.8	207.8	6.74	
				20.0	17.46	7.93	8.41	87.9	207.7	6.73	
LNR-5	21-Aug-23	11:12	4.3	0.3	17.59	8.04	9.03	94.5	207.6	9.94	N/A
LNR-6	21-Aug-23	10:58	7.3	0.3	17.32	8.04	8.84	92.1	209.4	6.58	N/A
LNR-7	21-Aug-23	10:35	9.3	0.3	17.56	7.96	8.69	91.0	208.3	7.16	N/A
LNR-8	21-Aug-23	10:18	2.6	0.3	17.65	8.08	9.00	94.5	208.3	7.30	N/A
STL-N	19-Sep-23	13:01	4.9	0.3	14.50	8.21	9.51	93.4	241.4	5.81	1.2
				1.0	14.04	8.21	9.56	93.0	241.0	5.76	
				2.0	14.04	8.20	9.51	92.5	241.1	6.38	
				3.0	14.03	8.19	9.45	91.8	241.3	5.57	
				4.0	14.02	8.17	9.39	91.2	241.4	5.53	
STL-KETTLE	19-Sep-23	12:17	35.9	0.3	15.21	8.05	9.26	92.0	229.3	5.41	1.3
				2.0	14.77	8.04	9.27	91.4	229.5	6.44	
				4.0	14.74	8.05	9.26	91.4	229.8	5.70	
				6.0	14.70	8.05	9.26	91.2	229.9	5.75	
				8.0	14.69	8.05	9.25	91.1	229.8	5.80	
				10.0	14.69	8.04	9.25	91.1	229.8	5.80	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				12.0	14.68	8.05	9.25	91.2	229.8	5.68	
				14.0	14.65	8.05	9.26	91.2	229.4	5.70	
				16.0	14.66	8.05	9.26	91.2	229.6	5.62	
				18.0	14.61	8.03	9.24	90.8	229.5	5.64	
				20.0	14.57	8.03	9.22	90.6	229.5	5.48	
				22.0	14.53	8.03	9.20	90.3	229.6	5.58	
				24.0	14.56	8.03	9.22	90.7	229.5	5.54	
				26.0	14.57	8.02	9.22	90.7	229.5	5.58	
LNR-3	19-Sep-23	11:33	22.8	0.3	14.86	8.03	9.15	90.4	228.3	5.05	1.1
				2.0	14.75	8.03	9.15	90.3	228.3	5.13	
				4.0	14.68	8.03	9.14	90.1	228.3	5.02	
				6.0	14.68	8.02	9.14	90.1	228.3	5.07	
				8.0	14.68	8.02	9.14	90.0	228.3	5.51	
				10.0	14.66	8.02	9.14	90.0	228.2	5.17	
				12.0	14.65	8.01	9.13	89.9	227.9	5.17	
				14.0	14.63	8.00	9.14	90.0	227.9	5.17	
				16.0	14.64	7.99	9.14	90.0	227.8	5.18	
				18.0	14.65	7.99	9.14	90.0	227.9	5.30	
				20.0	14.64	7.98	9.13	89.9	227.8	5.20	
				22.0	14.65	7.99	9.14	90.0	227.8	5.20	
LNR-4	19-Sep-23	10:48	27.0	0.3	15.01	8.00	9.20	91.4	225.4	4.87	1.1
				2.0	14.85	8.00	9.18	90.8	225.3	5.35	
				4.0	14.80	7.99	9.17	90.6	225.3	5.33	
				6.0	14.80	7.97	9.17	90.6	225.4	4.88	
				8.0	14.79	7.92	9.17	90.5	225.3	5.27	
				10.0	14.79	7.91	9.17	90.6	225.4	5.07	
				12.0	14.79	7.90	9.17	90.6	225.4	4.88	
				14.0	14.80	7.91	9.17	90.6	225.4	5.13	

Table A4-3: *In situ* parameters measured in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Site ID	Sample Date	Sample Time	Total Water Depth[1] (m)	Sample Depth[1] (m)	Temp. (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	Secchi Depth (m)
				16.0	14.80	7.91	9.17	90.6	225.4	4.97	
				18.0	14.80	7.92	9.18	90.7	225.5	4.90	
				20.0	14.80	7.92	9.18	90.7	225.4	4.89	
				22.0	14.80	7.92	9.18	90.7	225.5	4.97	
				24.0	14.80	7.92	9.18	90.7	225.5	4.93	
				26.0	14.81	7.93	9.18	90.7	225.5	4.86	
LNR-5	19-Sep-23	10:32	1.2	0.3	14.79	8.06	9.52	94.0	224.7	5.20	N/A
LNR-6	19-Sep-23	10:18	N/A	0.3	14.60	7.95	9.21	90.6	224.7	5.22	N/A
LNR-7	19-Sep-23	9:50	3.8	0.3	15.01	8.15	9.60	95.2	223.6	5.71	N/A
LNR-8	19-Sep-23	9:32	2.3	0.3	15.08	8.26	9.92	98.7	223.8	5.43	N/A

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010/ 0.0050/ 0.100**	**0.0051**	**0.0050**	**0.0010**	**0.050/ 0.15**		**0.0010/ 0.0020/ 0.0050/ 0.0100**	**0.0010/ 0.0020/ 0.0050/ 0.0100**
Zone 1b	Z1-5A, -5B, -5C	WP2303699-001, -006, -007	27-Mar-23	8:35	89.0	89.0	<1.0	<1.0	<0.010	0.169	0.169	<0.0010	0.41	0.58	0.0434	0.0539
	Z1-6	WP2303699-002	27-Mar-23	9:30	89.7	89.7	<1.0	<1.0	<0.010	0.171	0.171	<0.0010	0.49	0.66	0.0422	0.0616
	Z1-7	WP2303699-003	27-Mar-23	10:05	90.5	90.5	<1.0	<1.0	<0.010	0.174	0.174	<0.0010	0.47	0.64	0.0478	0.0642
	Z1-8	WP2303699-004	27-Mar-23	10:50	89.5	89.5	<1.0	<1.0	<0.010	0.171	0.170	0.0010	0.43	0.60	0.0439	0.0479
	Z1-9	WP2303699-005	27-Mar-23	11:35	88.3	88.3	<1.0	<1.0	0.010	0.170	0.169	0.0011	0.40	0.57	0.0428	0.0651
Zone 4	Z4-3 SURF	WP2303699-008	27-Mar-23	14:35	88.2	88.2	<1.0	<1.0	0.013	0.168	0.166	0.0017	0.39	0.56	0.0403	0.0462
	Z4-5 SURF	WP2303699-009	27-Mar-23	12:25	90.7	90.7	<1.0	<1.0	0.010	0.170	0.170	<0.0010	0.42	0.59	0.0456	0.0564
	Z4-6 SURF	WP2303699-010	27-Mar-23	13:10	89.9	89.9	<1.0	<1.0	<0.010	0.168	0.168	<0.0010	0.61	0.78	0.0444	0.0501
	Z4-7 SURF	WP2303699-011	27-Mar-23	13:55	90.1	90.1	<1.0	<1.0	<0.010	0.169	0.169	<0.0010	0.39	0.56	0.0488	0.0562
Zone 8	Z8-1 SURF	WP2303925-008	30-Mar-23	8:45	137	137	<1.0	<1.0	0.294	<0.0051	<0.0050	<0.0010	1.29	1.29	0.192	0.279
	Z8-4 SURF	WP2303925-009	30-Mar-23	10:45	88.9	88.9	<1.0	<1.0	0.017	0.175	0.175	<0.0010	0.43	0.61	0.0474	0.0583
	Z8-5 SURF	WP2303925-010	30-Mar-23	9:15	102	102	<1.0	<1.0	0.021	0.145	0.143	0.0019	0.48	0.63	0.0502	0.0732
	Z8-6 SURF	WP2303925-011	30-Mar-23	10:05	91.0	91.0	<1.0	<1.0	0.011	0.182	0.181	0.0012	0.50	0.68	0.0459	0.0583
Zone 11	Z11-1 SURF	WP2303849-001	29-Mar-23	10:10	95.6	95.6	<1.0	<1.0	<0.010	0.176	0.176	<0.0010	0.44	0.62	0.0552	0.0617
	Z11-1 BOT	WP2303849-004	29-Mar-23	10:10	95.6	95.6	<1.0	<1.0	<0.010	0.175	0.175	<0.0010	0.43	0.61	0.0487	0.0652
	Z11-3 SURF	WP2303790-007	28-Mar-23	13:55	93.2	93.2	<1.0	<1.0	<0.010	0.177	0.177	<0.0010	0.36	0.54	0.0486	0.0597
	Z11-4 SURF	WP2303790-008	28-Mar-23	14:40	89.9	89.9	<1.0	<1.0	<0.010	0.174	0.174	<0.0010	0.35	0.52	0.0486	0.0582
	Z11-6 SURF	WP2303790-009	28-Mar-23	15:20	89.9	89.9	<1.0	<1.0	<0.010	0.177	0.176	0.0014	0.34	0.52	0.0486	0.0587
	Z11-10 SURF	WP2303849-002	29-Mar-23	8:45	120	120	<1.0	<1.0	0.235	<0.0051	<0.0050	<0.0010	0.93	0.93	0.135	0.192
	Z11-11 SURF	WP2303849-003	29-Mar-23	9:30	113	113	<1.0	<1.0	0.068	0.0681	0.0653	0.0028	0.75	0.82	0.0770	0.117
Zone 12	Z12-6 SURF	WP2303790-001	28-Mar-23	11:50	91.7	91.7	<1.0	<1.0	0.014	0.178	0.176	0.0024	0.39	0.57	0.0506	0.0601
	Z12-8 SURF	WP2303790-002	28-Mar-23	8:45	121	121	<1.0	<1.0	0.092	0.0136	0.0088	0.0048	0.81	0.82	0.109	0.170
	Z12-9 SURF	WP2303790-003	28-Mar-23	9:25	124	124	<1.0	<1.0	0.012	0.157	0.154	0.0026	0.49	0.65	0.0630	0.0936
	Z12-11 SURF	WP2303790-004	28-Mar-23	10:10	91.7	91.7	<1.0	<1.0	0.012	0.180	0.178	0.0017	0.36	0.54	0.0512	0.0620
	Z12-13 SURF	WP2303790-005	28-Mar-23	13:05	91.3	91.3	<1.0	<1.0	<0.010	0.176	0.174	0.0020	0.37	0.55	0.0483	0.0610
	Z12-14 SURF	WP2303790-006	28-Mar-23	12:30	108	108	<1.0	<1.0	1.47	<0.0051	<0.0050	<0.0010	2.28	2.28	0.0529	0.113
Zone 1b	Z1-5	WP2313572-001	26-Jun-23	7:50	80.6	80.6	<1.0	<1.0	0.034	0.0204	0.0190	0.0014	0.44	0.46	0.0236	0.0385
	Z1-6	WP2313572-002	26-Jun-23	8:20	80.5	80.5	<1.0	<1.0	0.027	0.0182	0.0164	0.0018	0.43	0.45	0.0238	0.0384
	Z1-7	WP2313572-003	26-Jun-23	8:05	81.1	81.1	<1.0	<1.0	0.021	0.0201	0.0186	0.0015	0.34	0.36	0.0266	0.0373
	Z1-8A, -8B, -5C	WP2313572-004, -006, -007	26-Jun-23	8:35	80.7	80.7	<1.0	<1.0	0.043	0.0171	0.016	0.0013	0.41	0.43	0.0249	0.0383
	Z1-9	WP2313572-005	26-Jun-23	8:48	81.1	81.1	<1.0	<1.0	0.032	0.0206	0.0190	0.0016	0.42	0.44	0.0124	0.0384
Zone 4	Z4-3 SURF	WP2313201-001	24-Jun-23	13:30	84.3	84.3	<1.0	<1.0	0.012	<0.0051	<0.0050	<0.0010	0.49	0.49	0.0194	0.0390
	Z4-5 SURF	WP2313201-002	24-Jun-23	12:32	83.8	83.8	<1.0	<1.0	0.016	<0.0051	<0.0050	<0.0010	0.48	0.48	0.0208	0.0411
	Z4-6 SURF	WP2313201-003	24-Jun-23	12:34	83.3	83.3	<1.0	<1.0	0.013	<0.0051	<0.0050	<0.0010	0.48	0.48	0.0183	0.0412
	Z4-7 SURF	WP2313201-004	24-Jun-23	13:18	83.3	83.3	<1.0	<1.0	0.031	<0.0051	<0.0050	<0.0010	0.40	0.40	0.0247	0.0457

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

					Alkalinity				Nitrogen						Phosphorus	
Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010/ 0.0050/ 0.100**	**0.0051**	**0.0050**	**0.0010**	**0.050/ 0.15**		**0.0010/ 0.0020/ 0.0050/ 0.0100**	**0.0010/ 0.0020/ 0.0050/ 0.0100**
Zone 8	Z8-1 SURF	WP2313612-001	22-Jun-23	8:35	69.0	69.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.86	0.86	0.0624	0.0882
	Z8-4 SURF	WP2313612-002	22-Jun-23	10:05	79.0	79.0	<1.0	<1.0	0.019	0.0195	0.0195	<0.0010	0.41	0.43	0.0337	0.0386
	Z8-5 SURF	WP2313612-003	22-Jun-23	9:10	77.6	77.6	<1.0	<1.0	0.046	<0.0051	<0.0050	<0.0010	0.57	0.57	0.0519	0.0599
	Z8-6 SURF	WP2313612-004	22-Jun-23	9:30	78.7	78.7	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.50	0.50	0.0478	0.0530
Zone 11	Z11-1 SURF	WP2313572-008	26-Jun-23	9:48	80.3	80.3	<1.0	<1.0	0.022	<0.0051	<0.0050	<0.0010	0.70	0.70	0.0442	0.0661
	Z11-3 SURF	WP2313572-009	26-Jun-23	9:54	80.5	80.5	<1.0	<1.0	0.011	<0.0051	<0.0050	<0.0010	0.54	0.54	0.0325	0.0524
	Z11-4 SURF	WP2313572-010	26-Jun-23	10:06	81.7	81.7	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.60	0.60	0.0280	0.0473
	Z11-6 SURF	WP2313572-011	26-Jun-23	10:30	81.8	81.8	<1.0	<1.0	0.016	0.0175	0.0164	0.0011	0.38	0.40	0.0262	0.0407
	Z11-10 SURF	WP2313572-012	26-Jun-23	9:18	79.9	79.9	<1.0	<1.0	0.010	0.0217	0.0204	0.0013	0.98	1.00	0.0638	0.0736
	Z11-11 SURF	WP2313572-013	26-Jun-23	9:37	79.2	79.2	<1.0	<1.0	0.041	<0.0051	<0.0050	<0.0010	0.73	0.73	0.0630	0.0783
Zone 12	Z12-6 SURF	WP2313575-013	26-Jun-23	13:13	81.3	81.3	<1.0	<1.0	0.014	0.0107	0.0107	<0.0010	0.45	0.46	0.0233	0.0402
	Z12-8 SURF	WP2313575-014	26-Jun-23	12:00	75.2	75.2	<1.0	<1.0	0.014	<0.0051	<0.0050	<0.0010	0.85	0.85	0.0708	0.0651
	Z12-9 SURF	WP2313575-015	26-Jun-23	12:15	81.7	81.7	<1.0	<1.0	0.011	<0.0051	<0.0050	<0.0010	0.55	0.55	0.0314	0.0555
	Z12-11 SURF	WP2313575-016	26-Jun-23	13:43	82.2	82.2	<1.0	<1.0	0.015	0.0125	0.0125	<0.0010	0.40	0.41	0.0259	0.0389
	Z12-13 SURF	WP2313575-017	26-Jun-23	12:28	82.1	82.1	<1.0	<1.0	0.011	<0.0051	<0.0050	<0.0010	0.44	0.44	0.0229	0.0420
	Z12-14 SURF	WP2313575-018	26-Jun-23	12:42	79.5	79.5	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.54	0.54	0.0254	0.0499
	Z12-14 BOT	WP2313575-019	26-Jun-23	12:42	70.9	70.9	<1.0	<1.0	0.039	<0.0051	<0.0050	<0.0010	0.65	0.65	0.0233	0.0429
Zone 1b	Z1-5A, -5B, 5-C	WP2318135-001, -006, -007	2-Aug-23	8:05	78.4	78.4	<1.0	<1.0	0.024	0.0314	0.0314	<0.0010	0.41	0.44	0.0313	0.0450
	Z1-6	WP2318135-002	2-Aug-23	8:51	80.4	80.4	<1.0	<1.0	0.019	0.0439	0.0439	<0.0010	0.42	0.46	0.0253	0.0446
	Z1-7	WP2318135-003	2-Aug-23	7:46	78.2	78.2	<1.0	<1.0	0.044	0.0310	0.0310	<0.0010	0.48	0.51	0.0320	0.0436
	Z1-8	WP2318135-004	2-Aug-23	8:38	79.8	79.8	<1.0	<1.0	0.031	0.0295	0.0295	<0.0010	0.42	0.45	0.0246	0.0461
	Z1-9	WP2318135-005	2-Aug-23	8:52	79.0	79.0	<1.0	<1.0	0.022	0.0297	0.0297	<0.0010	0.37	0.40	0.0311	0.0439
Zone 4	Z4-3 SURF	WP2317397-012	30-Jul-23	12:56	80.1	80.1	<1.0	<1.0	<0.010	0.0130	0.0130	<0.0010	0.44	0.45	0.0300	0.0443
	Z4-5 SURF	WP2317397-013	30-Jul-23	11:21	82.9	82.9	<1.0	<1.0	0.018	<0.0051	<0.0050	<0.0010	0.58	0.58	0.0310	0.0584
	Z4-6 SURF	WP2317397-014	30-Jul-23	11:57	82.3	82.3	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.68	0.68	0.0240	0.0602
	Z4-7 SURF	WP2317397-015	30-Jul-23	12:30	80.1	80.1	<1.0	<1.0	0.015	<0.0051	<0.0050	<0.0010	0.52	0.52	0.0355	0.0497
	Z4-7 BOT	WP2317397-016	30-Jul-23	12:30	80.4	80.4	<1.0	<1.0	0.016	<0.0051	<0.0050	<0.0010	0.53	0.53	0.0381	0.0493
Zone 8	Z8-1 SURF	WP2318135-008	2-Aug-23	9:20	83.5	83.5	<1.0	<1.0	0.022	0.0074	0.0074	<0.0010	0.64	0.65	0.0402	0.0556
	Z8-4 SURF	WP2318135-009	2-Aug-23	10:26	80.7	80.7	<1.0	<1.0	0.016	0.0420	0.0420	<0.0010	0.47	0.51	0.0263	0.0467
	Z8-5 SURF	WP2318135-010	2-Aug-23	9:44	82.5	82.5	<1.0	<1.0	0.017	0.0060	0.0060	<0.0010	0.49	0.50	0.0270	0.0498
	Z8-6 SURF	WP2318135-011	2-Aug-23	9:58	81.2	81.2	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.43	0.43	0.0258	0.0470
Zone 11	Z11-1 SURF	WP2317397-001	29-Jul-23	10:35	82.5	82.5	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.62	0.62	0.0415	0.0454
	Z11-3 SURF	WP2317397-002	29-Jul-23	10:47	81.0	81.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.50	0.50	0.0275	0.0490
	Z11-4 SURF	WP2317397-003	29-Jul-23	11:11	78.5	78.5	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.52	0.52	0.0318	0.0482
	Z11-6 SURF	WP2317397-004	29-Jul-23	12:25	76.7	76.7	<1.0	<1.0	0.012	0.0259	0.0243	0.0016	0.48	0.51	0.0343	0.0457
	Z11-10 SURF	WP2317397-005	29-Jul-23	10:03	83.9	83.9	<1.0	<1.0	0.017	<0.0051	<0.0050	<0.0010	0.75	0.75	0.0482	0.0486
	Z11-11 SURF	WP2317397-006	29-Jul-23	10:20	85.3	85.3	<1.0	<1.0	0.021	<0.0051	<0.0050	<0.0010	0.71	0.71	0.0451	0.0642

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010/ 0.0050/ 0.100**	**0.0051**	**0.0050**	**0.0010**	**0.050/ 0.15**		**0.0010/ 0.0020/ 0.0050/ 0.0100**	**0.0010/ 0.0020/ 0.0050/ 0.0100**
Zone 12	Z12-6 SURF	WP2317762-001	31-Jul-23	10:15	81.4	81.4	<1.0	<1.0	<0.010	0.0105	0.0105	<0.0010	0.48	0.49	0.0293	0.0491
	Z12-8 SURF	WP2317762-002	31-Jul-23	8:20	84.5	84.5	<1.0	<1.0	0.016	<0.0051	<0.0050	<0.0010	1.24	1.24	0.0282	0.0697
	Z12-8 BOT	WP2317762-007	31-Jul-23	8:20	86.1	86.1	<1.0	<1.0	0.060	0.0330	0.0330	<0.0010	1.05	1.08	0.0302	0.0585
	Z12-9 SURF	WP2317762-003	31-Jul-23	8:40	82.4	82.4	<1.0	<1.0	0.015	<0.0051	<0.0050	<0.0010	0.64	0.64	0.0280	0.0540
	Z12-11 SURF	WP2317762-004	31-Jul-23	10:58	80.7	80.7	<1.0	<1.0	<0.010	0.0153	0.0143	0.0010	0.51	0.53	0.0282	0.0467
	Z12-13 SURF	WP2317762-005	31-Jul-23	9:45	80.8	80.8	<1.0	<1.0	0.011	0.0075	0.0062	0.0013	0.50	0.51	0.0273	0.0466
	Z12-14 SURF	WP2317762-006	31-Jul-23	9:18	79.0	79.0	<1.0	<1.0	0.017	0.0085	0.0085	<0.0010	0.63	0.64	0.0188	0.0358
Zone 1b	Z1-5	WP2321378-005	28-Aug-23	10:48	78.5	78.5	<1.0	<1.0	0.021	0.0479	0.0469	0.0010	0.42	0.47	0.0378	0.0478
	Z1-6	WP2321378-006	28-Aug-23	11:44	79.2	79.2	<1.0	<1.0	0.036	0.0361	0.0351	0.0010	0.47	0.51	0.0371	0.0484
	Z1-7A, -7B, -7C	WP2321378-007, -010, -011	28-Aug-23	10:09	79.4	79.4	<1.0	<1.0	0.018	0.0355	0.0348	<0.0010	0.44	0.48	0.0383	0.0488
	Z1-8	WP2321378-008	28-Aug-23	11:28	79.4	79.4	<1.0	<1.0	0.015	0.0420	0.0408	0.0012	0.46	0.50	0.0377	0.0477
	Z1-9	WP2321378-009	28-Aug-23	11:09	79.5	79.5	<1.0	<1.0	0.020	0.0344	0.0333	0.0011	0.44	0.47	0.0375	0.0496
Zone 4	Z4-3 SURF	WP2320928-006	25-Aug-23	11:45	83.0	83.0	<1.0	<1.0	0.016	0.0285	0.0274	0.0011	0.43	0.46	0.0344	0.0496
	Z4-5 SURF	WP2320928-007	25-Aug-23	10:45	86.3	86.3	<1.0	<1.0	0.030	<0.0051	<0.0050	<0.0010	0.66	0.66	0.0430	0.0677
	Z4-6 SURF	WP2320928-008	25-Aug-23	11:11	84.6	84.6	<1.0	<1.0	0.017	<0.0051	<0.0050	<0.0010	0.60	0.60	0.0397	0.0561
	Z4-7 SURF	WP2320928-009	25-Aug-23	11:33	82.6	82.6	<1.0	<1.0	0.052	0.0078	0.0078	<0.0010	0.50	0.51	0.0355	0.0578
Zone 8	Z8-1 SURF	WP2320722-001	23-Aug-23	8:12	76.0	76.0	<1.0	<1.0	0.033	0.0606	0.0579	0.0027	0.72	0.78	0.0395	0.0453
	Z8-4 SURF	WP2320722-002	23-Aug-23	9:38	80.0	80.0	<1.0	<1.0	0.016	0.0341	0.0326	0.0015	0.48	0.51	0.0344	0.0476
	Z8-5 SURF	WP2320722-003	23-Aug-23	8:42	80.1	80.1	<1.0	<1.0	0.034	0.0480	0.0463	0.0017	0.51	0.56	0.0384	0.0458
	Z8-6 SURF	WP2320722-004	23-Aug-23	8:58	79.7	79.7	<1.0	<1.0	0.016	0.0442	0.0427	0.0015	0.46	0.50	0.0354	0.0466
Zone 11	Z11-1 SURF	WP2321378-001	28-Aug-23	8:14	80.4	80.4	<1.0	<1.0	0.016	0.0328	0.0328	<0.0010	0.65	0.68	0.0377	0.0532
	Z11-3 SURF	WP2321378-002	28-Aug-23	8:23	80.3	80.3	<1.0	<1.0	0.016	0.0154	0.0154	<0.0010	0.58	0.60	0.0364	0.0528
	Z11-4 SURF	WP2321378-003	28-Aug-23	8:37	80.2	80.2	<1.0	<1.0	<0.010	0.0695	0.0695	<0.0010	0.50	0.57	0.0357	0.0530
	Z11-6 SURF	WP2321378-004	28-Aug-23	9:42	79.1	79.1	<1.0	<1.0	0.028	0.0354	0.0344	0.0010	0.48	0.52	0.0381	0.0497
	Z11-10 SURF	WP2321052-002	27-Aug-23	8:13	84.8	84.8	<1.0	<1.0	0.019	0.0304	0.0304	<0.0010	0.66	0.69	0.0398	0.0479
	Z11-11 SURF	WP2321052-001	27-Aug-23	8:30	83.8	83.8	<1.0	<1.0	0.013	0.0171	0.0171	<0.0010	0.76	0.78	0.0399	0.0528
Zone 12	Z12-6 SURF	WP2321410-001	28-Aug-23	14:37	77.8	77.8	<1.0	<1.0	0.015	0.0279	0.0268	0.0011	0.51	0.54	0.0369	0.0500
	Z12-8 SURF	WP2321410-002	28-Aug-23	13:15	79.9	79.9	<1.0	<1.0	0.028	0.0212	0.0212	<0.0010	0.72	0.74	0.0360	0.0632
	Z12-9 SURF	WP2321410-003	28-Aug-23	13:27	79.9	79.9	<1.0	<1.0	0.011	0.0069	0.0069	<0.0010	0.60	0.61	0.0333	0.0559
	Z12-11 SURF	WP2321410-004	28-Aug-23	15:22	80.3	80.3	<1.0	<1.0	0.018	0.0360	0.0360	<0.0010	0.52	0.56	0.0398	0.0530
	Z12-13 SURF	WP2321410-005	28-Aug-23	14:51	80.0	80.0	<1.0	<1.0	0.018	<0.0051	<0.0050	<0.0010	0.52	0.52	0.0315	0.0522
	Z12-14 SURF	WP2321410-006	28-Aug-23	14:02	71.1	71.1	<1.0	<1.0	0.033	0.0091	0.0080	0.0011	0.80	0.81	0.0297	0.0501
Zone 1b	Z1-5	WP2324257-001	24-Sep-23	8:43	86.9	86.9	<1.0	<1.0	0.0125	0.0410	0.0410	<0.0010	0.527	0.57	0.0433	0.0495
	Z1-6	WP2324257-002	24-Sep-23	7:50	90.9	90.9	<1.0	<1.0	0.0099	0.0564	0.0553	0.0011	0.417	0.47	0.0422	0.0488
	Z1-7	WP2324257-003	24-Sep-23	9:04	88.9	88.9	<1.0	<1.0	0.0121	0.0365	0.0365	<0.0010	0.374	0.41	0.0436	0.0485
	Z1-8	WP2324257-004	24-Sep-23	8:10	89.4	89.4	<1.0	<1.0	0.0084	0.0330	0.0330	<0.0010	0.369	0.40	0.0425	0.0519
	Z1-9	WP2324257-005	24-Sep-23	8:20	89.6	89.6	<1.0	<1.0	0.0156	0.0380	0.0380	<0.0010	0.363	0.40	0.0432	0.0508

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010/ 0.0050/ 0.100**	**0.0051**	**0.0050**	**0.0010**	**0.050/ 0.15**		**0.0010/ 0.0020/ 0.0050/ 0.0100**	**0.0010/ 0.0020/ 0.0050/ 0.0100**
Zone 4	Z4-3 SURF	WP2324257-016	23-Sep-23	15:20	91.5	91.5	<1.0	<1.0	0.0108	0.0316	0.0316	<0.0010	0.387	0.42	0.0423	0.0507
	Z4-5 SURF	WP2324257-017	23-Sep-23	14:52	88.7	88.7	<1.0	<1.0	0.0082	<0.0051	<0.0050	<0.0010	0.679	0.68	0.0363	0.0506
	Z4-6 SURF	WP2324257-018	23-Sep-23	15:06	88.7	88.7	<1.0	<1.0	0.0117	<0.0051	<0.0050	<0.0010	0.561	0.56	0.0409	0.0522
	Z4-7 SURF	WP2324257-019	23-Sep-23	15:32	91.4	91.4	<1.0	<1.0	0.0106	0.0123	0.0123	<0.0010	0.513	0.53	0.0409	0.0532
Zone 8	Z8-1A SURF, -1B SURF, -1C SURF	WP2324106-001, -005, -006	21-Sep-23	11:40	76.6	76.6	<1.0	<1.0	0.0250	0.0365	0.0360	<0.0010	0.444	0.48	0.0290	0.0424
	Z8-4 SURF	WP2324106-002	21-Sep-23	13:23	83.3	83.3	<1.0	<1.0	0.0114	0.0366	0.0366	<0.0010	0.248	0.28	0.0378	0.0506
	Z8-5 SURF	WP2324106-003	21-Sep-23	12:28	82.6	82.6	<1.0	<1.0	0.0126	0.0263	0.0252	0.0011	0.288	0.31	0.0371	0.0504
	Z8-6 SURF	WP2324106-004	21-Sep-23	13:11	83.1	83.1	<1.0	<1.0	0.0136	0.0362	0.0362	<0.0010	0.258	0.29	0.0380	0.0492
Zone 11	Z11-1 SURF	WP2324173-001	22-Sep-23	10:04	81.8	81.8	<1.0	<1.0	0.0081	0.0159	0.0159	<0.0010	0.618	0.63	0.0338	0.0489
	Z11-3 SURF	WP2324173-002	22-Sep-23	9:29	83.1	83.1	<1.0	<1.0	<0.0050	<0.0051	<0.0050	<0.0010	0.534	0.54	0.0297	0.0518
	Z11-4 SURF	WP2324173-003	22-Sep-23	9:45	83.0	83.0	<1.0	<1.0	0.0802	<0.0051	<0.0050	<0.0010	0.607	0.61	0.0365	0.0528
	Z11-6 SURF	WP2324173-004	22-Sep-23	11:19	84.2	84.2	<1.0	<1.0	0.0129	0.0332	0.0332	<0.0010	0.394	0.43	0.0425	0.0536
	Z11-10 SURF	WP2324173-005	22-Sep-23	8:29	82.4	82.4	<1.0	<1.0	0.0387	0.0488	0.0469	0.0019	0.737	0.79	0.0336	0.0449
	Z11-11 SURF	WP2324173-006	22-Sep-23	9:03	81.0	81.0	<1.0	<1.0	0.0284	0.0486	0.0467	0.0019	0.648	0.70	0.0394	0.0462
Zone 12	Z12-6 SURF	WP2324173-007	22-Sep-23	13:35	82.8	82.8	<1.0	<1.0	0.0092	0.0395	0.0385	0.0010	0.395	0.43	0.0429	0.0576
	Z12-8 SURF	WP2324173-008	22-Sep-23	11:52	77.7	77.7	<1.0	<1.0	0.0241	0.0493	0.0476	0.0017	0.659	0.71	0.0388	0.0509
	Z12-9 SURF	WP2324173-009	22-Sep-23	12:14	82.7	82.7	<1.0	<1.0	0.0129	0.0167	0.0157	0.0010	0.473	0.49	0.0364	0.0540
	Z12-11 SURF	WP2324173-010	22-Sep-23	12:32	83.9	83.9	<1.0	<1.0	0.0064	0.0165	0.0165	<0.0010	0.438	0.45	0.0397	0.0561
	Z12-13 SURF	WP2324173-011	22-Sep-23	12:56	82.2	82.2	<1.0	<1.0	0.0166	0.0233	0.0233	<0.0010	0.493	0.52	0.0418	0.0557
	Z12-14 SURF	WP2324173-012	22-Sep-23	13:23	78.5	78.5	<1.0	<1.0	0.0137	<0.0051	<0.0050	<0.0010	0.694	0.70	0.0248	0.0485

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**10.0/15.0**	**0.010/0.025**	**0.100**
Zone 1b	Z1-5A, -5B, -5C	WP2303699-001, -006, -007	27-Mar-23	8:35	8.67	8.80	2.0	10.2	14.5	7.82	268	167	0.246	0.605
	Z1-6	WP2303699-002	27-Mar-23	9:30	8.51	8.58	2.0	10.3	16.7	7.67	268	162	0.462	0.637
	Z1-7	WP2303699-003	27-Mar-23	10:05	9.50	8.60	1.3	10.0	16.0	7.81	273	177	0.236	0.599
	Z1-8	WP2303699-004	27-Mar-23	10:50	9.57	8.54	2.0	10.3	17.4	7.81	269	167	0.249	0.642
	Z1-9	WP2303699-005	27-Mar-23	11:35	9.14	8.74	1.7	10.2	15.3	7.83	264	168	0.260	0.600
Zone 4	Z4-3 SURF	WP2303699-008	27-Mar-23	14:35	8.62	8.79	<1.0	9.50	14.4	7.82	262	164	0.349	0.610
	Z4-5 SURF	WP2303699-009	27-Mar-23	12:25	8.67	8.58	<1.0	8.87	13.9	7.89	271	164	0.359	0.552
	Z4-6 SURF	WP2303699-010	27-Mar-23	13:10	9.43	8.37	<1.0	8.81	14.3	7.84	269	148	0.551	0.607
	Z4-7 SURF	WP2303699-011	27-Mar-23	13:55	8.61	8.82	<1.0	8.54	14.7	7.86	270	166	0.208	0.514
Zone 8	Z8-1 SURF	WP2303925-008	30-Mar-23	8:45	22.2	18.7	7.6	9.06	88.7	7.00	318	204	2.44	4.20
	Z8-4 SURF	WP2303925-009	30-Mar-23	10:45	9.84	8.73	2.8	9.95	17.6	7.87	271	162	0.235	0.594
	Z8-5 SURF	WP2303925-010	30-Mar-23	9:15	10.5	9.17	3.0	8.16	18.0	7.44	285	170	0.456	0.842
	Z8-6 SURF	WP2303925-011	30-Mar-23	10:05	9.51	8.44	1.7	8.76	12.0	7.86	279	164	0.343	0.568
Zone 11	Z11-1 SURF	WP2303849-001	29-Mar-23	10:10	9.05	8.15	<1.0	8.17	14.9	7.80	294	167	0.269	0.538
	Z11-1 BOT	WP2303849-004	29-Mar-23	10:10	9.05	8.60	<1.0	8.07	14.8	7.81	293	164	0.258	0.530
	Z11-3 SURF	WP2303790-007	28-Mar-23	13:55	9.53	9.45	<1.0	8.16	9.6	7.79	285	168	0.277	0.501
	Z11-4 SURF	WP2303790-008	28-Mar-23	14:40	8.76	8.86	1.6	9.06	10.6	7.85	278	169	0.210	0.540
	Z11-6 SURF	WP2303790-009	28-Mar-23	15:20	8.78	8.82	2.0	9.44	11.8	7.87	280	166	0.213	0.544
	Z11-10 SURF	WP2303849-002	29-Mar-23	8:45	14.7	13.9	4.5	6.93	46.6	7.11	305	172	0.768	1.26
	Z11-11 SURF	WP2303849-003	29-Mar-23	9:30	12.7	12.0	2.2	6.25	31.3	7.24	305	173	0.527	0.932
Zone 12	Z12-6 SURF	WP2303790-001	28-Mar-23	11:50	8.77	8.19	1.8	9.06	12.7	7.81	280	160	0.223	0.574
	Z12-8 SURF	WP2303790-002	28-Mar-23	8:45	14.1	13.6	3.4	5.78	41.0	7.23	316	185	0.851	1.28
	Z12-9 SURF	WP2303790-003	28-Mar-23	9:25	10.5	10.3	<1.0	6.86	24.1	7.71	296	176	0.232	0.568
	Z12-11 SURF	WP2303790-004	28-Mar-23	10:10	9.02	9.06	1.4	8.84	13.2	7.89	284	170	0.223	0.557
	Z12-13 SURF	WP2303790-005	28-Mar-23	13:05	8.81	8.81	1.4	8.90	13.2	7.88	282	153	0.223	0.564
	Z12-14 SURF	WP2303790-006	28-Mar-23	12:30	20.7	18.2	5.6	7.32	49.4	6.92	214	130	1.14	1.17
Zone 1b	Z1-5	WP2313572-001	26-Jun-23	7:50	8.91	10.2	2.2	11.4	19.1	8.06	223	151	1.37	0.814
	Z1-6	WP2313572-002	26-Jun-23	8:20	8.84	10.5	2.1	10.3	14.4	8.02	221	144	1.86	1.05
	Z1-7	WP2313572-003	26-Jun-23	8:05	10.0	10.5	1.9	11.6	15.2	8.06	226	143	1.24	0.745
	Z1-8A, -8B, -5C	WP2313572-004, -006, -007	26-Jun-23	8:35	9.55	10.3	2.2	11.0	14.3	8.06	221	147	1.62	1.04
	Z1-9	WP2313572-005	26-Jun-23	8:48	8.82	9.65	2.0	11.4	13.0	8.07	222	142	1.25	0.750
Zone 4	Z4-3 SURF	WP2313201-001	24-Jun-23	13:30	10.1	9.31	4.2	8.51	23.3	8.06	214	130	6.11	2.11
	Z4-5 SURF	WP2313201-002	24-Jun-23	12:32	10.0	10.0	2.9	4.13	27.4	8.00	208	123	4.74	2.22
	Z4-6 SURF	WP2313201-003	24-Jun-23	12:34	10.4	9.73	3.9	5.36	24.8	7.96	210	120	5.23	2.09
	Z4-7 SURF	WP2313201-004	24-Jun-23	13:18	10.4	10.6	4.2	6.44	28.3	7.96	211	119	5.22	2.24
Zone 8	Z8-1 SURF	WP2313612-001	22-Jun-23	8:35	17.2	18.1	3.8	1.82	73.4	7.69	161	111	10.8	10.0
	Z8-4 SURF	WP2313612-002	22-Jun-23	10:05	9.59	9.91	3.6	11.9	13.7	8.05	216	131	1.25	0.856
	Z8-5 SURF	WP2313612-003	22-Jun-23	9:10	11.0	11.8	4.9	4.98	31.3	7.87	204	128	4.93	3.44
	Z8-6 SURF	WP2313612-004	22-Jun-23	9:30	10.7	10.9	6.1	8.56	21.3	7.92	211	131	5.02	3.13

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**10.0/15.0**	**0.010/0.025**	**0.100**
Zone 11	Z11-1 SURF	WP2313572-008	26-Jun-23	9:48	12.1	13.4	1.6	2.11	37.3	7.93	207	124	7.37	4.30
	Z11-3 SURF	WP2313572-009	26-Jun-23	9:54	10.3	12.2	3.1	5.19	22.0	8.03	217	110	4.55	2.62
	Z11-4 SURF	WP2313572-010	26-Jun-23	10:06	9.70	11.4	3.9	7.03	20.1	8.07	220	141	4.52	2.24
	Z11-6 SURF	WP2313572-011	26-Jun-23	10:30	8.81	10.7	2.5	10.7	17.2	8.08	227	143	1.56	1.08
	Z11-10 SURF	WP2313572-012	26-Jun-23	9:18	17.5	19.5	3.1	1.48	80.5	7.85	176	121	15.9	9.72
	Z11-11 SURF	WP2313572-013	26-Jun-23	9:37	14.8	17.4	2.1	1.12	59.6	7.86	192	123	7.85	5.90
Zone 12	Z12-6 SURF	WP2313575-013	26-Jun-23	13:13	8.75	9.46	2.3	10.8	14.9	8.05	233	134	3.09	1.33
	Z12-8 SURF	WP2313575-014	26-Jun-23	12:00	13.8	14.6	3.7	2.49	56.4	7.80	198	127	15.4	5.25
	Z12-9 SURF	WP2313575-015	26-Jun-23	12:15	11.6	11.2	4.2	10.3	20.6	7.99	228	133	5.73	2.07
	Z12-11 SURF	WP2313575-016	26-Jun-23	13:43	10.4	9.46	1.8	10.7	15.4	8.10	232	136	1.88	0.884
	Z12-13 SURF	WP2313575-017	26-Jun-23	12:28	11.0	9.65	3.2	9.33	17.4	8.04	230	137	4.30	1.47
	Z12-14 SURF	WP2313575-018	26-Jun-23	12:42	12.2	11.5	4.8	4.84	30.5	7.97	211	125	8.12	2.62
	Z12-14 BOT	WP2313575-019	26-Jun-23	12:42	15.2	14.3	2.5	2.69	45.5	7.85	180	114	6.38	3.35
Zone 1b	Z1-5A, -5B, -5C	WP2318135-001, -006, -007	2-Aug-23	8:05	8.38	9.57	1.6	10.6	16.8	8.09	210	145	1.31	1.01
	Z1-6	WP2318135-002	2-Aug-23	8:51	8.53	9.83	2.0	9.32	14.6	8.08	211	149	3.24	1.82
	Z1-7	WP2318135-003	2-Aug-23	7:46	8.45	9.97	1.7	10.4	14.1	8.11	211	146	1.21	0.946
	Z1-8	WP2318135-004	2-Aug-23	8:38	9.37	9.54	2.0	9.70	13.7	8.08	212	143	1.76	1.31
	Z1-9	WP2318135-005	2-Aug-23	8:52	8.45	9.68	1.6	10.2	14.4	8.13	210	141	1.35	1.04
Zone 4	Z4-3 SURF	WP2317397-012	30-Jul-23	12:56	10.2	10.2	2.3	8.88	18.9	8.15	214	129	7.33	1.86
	Z4-5 SURF	WP2317397-013	30-Jul-23	11:21	11.8	11.2	4.0	4.28	26.9	8.00	219	133	15.9	4.54
	Z4-6 SURF	WP2317397-014	30-Jul-23	11:57	12.0	10.9	5.1	5.30	24.8	8.16	218	131	23.9	4.07
	Z4-7 SURF	WP2317397-015	30-Jul-23	12:30	12.0	11.2	2.7	4.68	21.2	8.01	215	134	7.47	2.57
	Z4-7 BOT	WP2317397-016	30-Jul-23	12:30	12.0	11.2	1.9	4.44	22.3	7.95	215	138	6.72	2.78
Zone 8	Z8-1 SURF	WP2318135-008	2-Aug-23	9:20	12.7	13.9	2.2	1.63	52.7	7.92	196	137	6.28	5.50
	Z8-4 SURF	WP2318135-009	2-Aug-23	10:26	8.75	10.1	2.0	8.79	18.3	8.10	213	146	5.43	2.43
	Z8-5 SURF	WP2318135-010	2-Aug-23	9:44	9.40	10.7	2.9	4.48	26.0	8.04	211	145	6.18	4.48
	Z8-6 SURF	WP2318135-011	2-Aug-23	9:58	8.76	10.3	2.6	7.42	18.4	8.12	212	142	5.68	3.34
Zone 11	Z11-1 SURF	WP2317397-001	29-Jul-23	10:35	12.5	12.2	2.9	3.38	37.5	7.73	219	129	7.00	3.95
	Z11-3 SURF	WP2317397-002	29-Jul-23	10:47	11.0	10.8	4.2	7.10	25.1	7.94	220	140	5.41	2.60
	Z11-4 SURF	WP2317397-003	29-Jul-23	11:11	10.6	10.2	3.0	9.40	20.1	8.05	220	141	5.29	2.47
	Z11-6 SURF	WP2317397-004	29-Jul-23	12:25	9.76	9.46	2.4	11.1	18.0	8.16	215	136	2.48	1.41
	Z11-10 SURF	WP2317397-005	29-Jul-23	10:03	19.2	18.1	1.1	0.77	76.0	7.56	189	125	8.02	6.82
	Z11-11 SURF	WP2317397-006	29-Jul-23	10:20	16.4	15.1	1.3	1.02	54.8	7.47	207	138	6.04	4.64
Zone 12	Z12-6 SURF	WP2317762-001	31-Jul-23	10:15	11.5	9.92	2.4	10.2	18.0	8.06	216	145	5.30	2.48
	Z12-8 SURF	WP2317762-002	31-Jul-23	8:20	17.4	16.0	6.0	4.08	66.5	7.92	198	138	44.3	7.71
	Z12-8 BOT	WP2317762-007	31-Jul-23	8:20	17.1	15.7	5.8	3.75	57.6	7.84	201	136	38.8	6.35
	Z12-9 SURF	WP2317762-003	31-Jul-23	8:40	12.1	11.5	5.1	7.19	28.8	7.73	216	166	7.39	3.33
	Z12-11 SURF	WP2317762-004	31-Jul-23	10:58	10.2	9.90	2.6	10.1	16.8	8.04	216	144	4.18	2.08
	Z12-13 SURF	WP2317762-005	31-Jul-23	9:45	9.89	9.93	2.5	10.0	15.4	8.07	216	144	5.81	2.36
	Z12-14 SURF	WP2317762-006	31-Jul-23	9:18	13.4	13.3	2.6	2.81	33.9	8.03	196	130	4.18	2.87

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**10.0/15.0**	**0.010/0.025**	**0.100**
Zone 1b	Z1-5	WP2321378-005	28-Aug-23	10:48	8.62	9.41	1.8	9.08	15.3	8.13	226	139	1.60	0.932
	Z1-6	WP2321378-006	28-Aug-23	11:44	8.79	9.13	1.1	9.08	15.8	8.11	226	145	2.10	1.09
	Z1-7A, -7B, -7C	WP2321378-007, -010, -011	28-Aug-23	10:09	9.12	9.53	1.6	9.05	12.4	8.15	227	134	1.33	0.888
	Z1-8	WP2321378-008	28-Aug-23	11:28	9.48	9.53	1.4	8.85	12.4	8.12	224	155	1.57	0.955
	Z1-9	WP2321378-009	28-Aug-23	11:09	9.23	10.1	1.2	8.94	10.8	8.13	222	135	1.52	0.879
Zone 4	Z4-3 SURF	WP2320928-006	25-Aug-23	11:45	10.0	9.52	2.2	8.68	19.1	8.07	215	148	2.83	1.59
	Z4-5 SURF	WP2320928-007	25-Aug-23	10:45	12.4	11.3	3.2	3.93	38.2	7.97	206	132	11.7	7.12
	Z4-6 SURF	WP2320928-008	25-Aug-23	11:11	11.8	11.8	2.8	4.40	33.4	8.02	206	125	9.31	5.49
	Z4-7 SURF	WP2320928-009	25-Aug-23	11:33	11.4	10.2	3.4	6.08	30.1	7.97	208	127	8.36	4.04
Zone 8	Z8-1 SURF	WP2320722-001	23-Aug-23	8:12	16.9	17.2	1.0	1.83	86.0	7.80	174	141	3.71	3.20
	Z8-4 SURF	WP2320722-002	23-Aug-23	9:38	10.0	10.4	1.6	8.46	18.8	8.08	212	186	4.46	1.47
	Z8-5 SURF	WP2320722-003	23-Aug-23	8:42	10.9	11.0	1.8	6.96	27.1	7.98	208	164	3.35	1.53
	Z8-6 SURF	WP2320722-004	23-Aug-23	8:58	9.84	9.88	2.1	8.33	19.6	8.04	213	164	3.67	1.44
Zone 11	Z11-1 SURF	WP2321378-001	28-Aug-23	8:14	12.2	13.6	2.8	4.47	34.0	7.96	214	108	6.57	4.16
	Z11-3 SURF	WP2321378-002	28-Aug-23	8:23	11.0	11.6	2.4	5.56	25.9	7.85	217	99.8	7.25	4.05
	Z11-4 SURF	WP2321378-003	28-Aug-23	8:37	9.67	9.88	2.2	7.05	21.6	8.07	224	132	5.28	2.77
	Z11-6 SURF	WP2321378-004	28-Aug-23	9:42	8.97	9.26	2.1	8.90	15.2	8.13	229	159	2.22	1.27
	Z11-10 SURF	WP2321052-002	27-Aug-23	8:13	17.7	17.6	1.8	1.14	69.7	7.81	188	133	8.18	5.26
	Z11-11 SURF	WP2321052-001	27-Aug-23	8:30	14.6	14.5	2.6	2.18	53.0	7.88	200	130	16.2	7.38
Zone 12	Z12-6 SURF	WP2321410-001	28-Aug-23	14:37	9.33	9.62	2.0	9.00	13.0	8.09	227	135	5.21	1.97
	Z12-8 SURF	WP2321410-002	28-Aug-23	13:15	15.2	14.4	3.2	3.48	59.8	7.97	207	124	8.69	5.68
	Z12-9 SURF	WP2321410-003	28-Aug-23	13:27	12.2	11.9	3.2	6.80	29.6	8.05	219	135	8.68	3.78
	Z12-11 SURF	WP2321410-004	28-Aug-23	15:22	9.84	9.81	3.2	9.75	15.4	8.15	228	140	4.96	2.06
	Z12-13 SURF	WP2321410-005	28-Aug-23	14:51	10.6	10.1	2.4	7.47	21.6	8.13	224	140	9.30	3.90
	Z12-14 SURF	WP2321410-006	28-Aug-23	14:02	17.5	16.8	2.8	3.16	64.6	7.93	173	109	14.5	8.64
Zone 1b	Z1-5	WP2324257-001	24-Sep-23	8:43	10.6	9.22	<1.0	7.52	14.1	7.52	241	145	1.63	0.876
	Z1-6	WP2324257-002	24-Sep-23	7:50	10.1	9.35	<1.0	6.08	11.2	7.58	241	221	1.99	1.03
	Z1-7	WP2324257-003	24-Sep-23	9:04	9.86	9.14	<1.0	7.45	10.8	7.62	236	145	1.57	0.850
	Z1-8	WP2324257-004	24-Sep-23	8:10	9.97	9.12	<1.0	6.28	13.8	7.59	237	144	1.81	0.909
	Z1-9	WP2324257-005	24-Sep-23	8:20	9.91	8.66	<1.0	7.42	13.9	7.58	236	143	1.59	0.890
Zone 4	Z4-3 SURF	WP2324257-016	23-Sep-23	15:20	8.53	8.57	1.6	6.98	10.6	7.66	241	142	2.69	1.17
	Z4-5 SURF	WP2324257-017	23-Sep-23	14:52	10.6	10.5	2.4	3.42	23.6	7.56	220	133	10.6	4.80
	Z4-6 SURF	WP2324257-018	23-Sep-23	15:06	10.2	10.2	2.4	4.26	20.0	7.58	225	207	8.51	3.66
	Z4-7 SURF	WP2324257-019	23-Sep-23	15:32	9.45	9.37	2.1	5.59	15.0	7.57	235	137	6.46	2.43
Zone 8	Z8-1A SURF, -1B SURF, -1C SURF	WP2324106-001, -005, -006	21-Sep-23	11:40	12.5	13.6	2.3	2.06	49.9	7.89	204	113	8.14	3.30
	Z8-4 SURF	WP2324106-002	21-Sep-23	13:23	8.63	9.17	1.6	6.93	11.7	8.18	239	132	2.70	1.08
	Z8-5 SURF	WP2324106-003	21-Sep-23	12:28	8.41	9.29	<1.0	5.84	15.3	8.11	234	137	4.05	1.55
	Z8-6 SURF	WP2324106-004	21-Sep-23	13:11	8.21	8.96	1.8	6.28	14.0	8.17	237	141	3.09	1.24

Table A4-4: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**10.0/15.0**	**0.010/0.025**	**0.100**
Zone 11	Z11-1 SURF	WP2324173-001	22-Sep-23	10:04	13.0	12.6	2.1	3.21	34.1	7.77	211	137	9.75	4.53
	Z11-3 SURF	WP2324173-002	22-Sep-23	9:29	11.1	10.1	2.9	4.82	20.1	7.98	215	139	10.1	4.38
	Z11-4 SURF	WP2324173-003	22-Sep-23	9:45	10.7	9.71	2.4	5.90	18.5	8.04	216	142	8.75	3.03
	Z11-6 SURF	WP2324173-004	22-Sep-23	11:19	10.0	9.15	1.2	6.68	14.3	8.08	220	134	3.50	1.50
	Z11-10 SURF	WP2324173-005	22-Sep-23	8:29	17.8	17.0	<1.0	0.81	61.3	7.53	181	122	4.86	3.82
	Z11-11 SURF	WP2324173-006	22-Sep-23	9:03	18.0	15.9	<1.0	1.13	53.5	7.60	186	126	7.36	4.36
Zone 12	Z12-6 SURF	WP2324173-007	22-Sep-23	13:35	10.6	9.86	1.2	7.10	14.0	8.12	220	164	5.80	1.84
	Z12-8 SURF	WP2324173-008	22-Sep-23	11:52	16.7	14.4	1.2	1.61	54.4	7.67	188	130	7.38	3.91
	Z12-9 SURF	WP2324173-009	22-Sep-23	12:14	12.0	11.0	3.4	5.76	21.5	7.92	215	152	9.81	3.01
	Z12-11 SURF	WP2324173-010	22-Sep-23	12:32	10.4	9.48	3.2	7.97	12.4	8.10	219	150	7.73	2.24
	Z12-13 SURF	WP2324173-011	22-Sep-23	12:56	10.2	9.39	2.1	7.59	13.2	8.04	227	142	6.22	1.77
	Z12-14 SURF	WP2324173-012	22-Sep-23	13:23	15.0	13.2	4.2	4.28	35.5	7.92	190	130	15.5	5.74

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.0050/ 0.010/ 0.020**	**0.0051**	**0.0050**	**0.0010**	**0.050/0.15**	**-**	**0.0010/ 0.0020**	**0.0010/ 0.0020/ 0.0050**
Split Lake	SPL-10	WP2303626-001	26-Mar-23	11:00	79.1	79.1	<1.0	<1.0	<0.010	0.146	0.146	<0.0010	0.44	0.59	0.0364	0.0499
	SPL-11	WP2303626-002	26-Mar-23	14:25	79.4	79.4	<1.0	<1.0	0.022	0.153	0.152	0.0011	0.39	0.54	0.0396	0.0485
	SPL-12	WP2303626-003	26-Mar-23	12:50	78.7	78.7	<1.0	<1.0	<0.010	0.155	0.154	0.0010	0.37	0.53	0.0383	0.0506
	SPL-13	WP2303626-004	26-Mar-23	13:40	76.8	76.8	<1.0	<1.0	0.062	0.143	0.143	<0.0010	0.48	0.62	0.0390	0.0585
	SPL-14	WP2303626-005	26-Mar-23	12:10	92.3	92.3	<1.0	<1.0	0.011	0.186	0.186	<0.0010	0.45	0.64	0.0495	0.0608
Nelson River - Upstream of the Keeyask GS	US-6	WP2303849-005	29-Mar-23	10:55	91.2	91.2	<1.0	<1.0	<0.010	0.171	0.171	<0.0010	0.43	0.60	0.0500	0.0615
	US-7	WP2303849-006	29-Mar-23	13:35	89.4	89.4	<1.0	<1.0	<0.010	0.171	0.171	<0.0010	0.46	0.63	0.0497	0.0587
	US-8	WP2303849-007	29-Mar-23	12:50	90.1	90.1	<1.0	<1.0	<0.010	0.173	0.172	0.0012	0.45	0.62	0.0496	0.0589
	US-9	WP2303849-008	29-Mar-23	11:35	90.1	90.1	<1.0	<1.0	<0.010	0.171	0.170	0.0012	0.44	0.61	0.0494	0.0607
	US-10	WP2303849-009	29-Mar-23	12:15	91.3	91.3	<1.0	<1.0	<0.010	0.173	0.173	<0.0010	0.40	0.57	0.0494	0.0605
Stephens Lake - Near-field	NF-1	WP2303925-001	30-Mar-23	13:00	88.4	88.4	<1.0	<1.0	<0.010	0.180	0.180	<0.0010	0.47	0.65	0.0488	0.0585
	NF-2	WP2303925-002	30-Mar-23	15:30	89.6	89.6	<1.0	<1.0	<0.010	0.182	0.182	<0.0010	0.41	0.59	0.0461	0.0558
	NF-3A, -3B, -3C	WP2303925-003, -006, -007	30-Mar-23	13:45	90.3	90.3	<1.0	<1.0	<0.010	0.181	0.181	<0.0010	0.43	0.61	0.0487	0.0581
	NF-4	WP2303925-004	30-Mar-23	16:10	90.0	90.0	<1.0	<1.0	<0.010	0.184	0.184	<0.0010	0.41	0.59	0.0474	0.0555
	NF-5	WP2303925-005	30-Mar-23	14:40	90.0	90.0	<1.0	<1.0	<0.010	0.180	0.180	<0.0010	0.40	0.58	0.0474	0.0562
Stephens Lake - Far-field	FF-1	WP2303945-006	31-Mar-23	9:20	89.2	89.2	<1.0	<1.0	0.027	0.176	0.176	<0.0010	0.44	0.62	0.0454	0.0599
	FF-2	WP2303945-007	31-Mar-23	10:00	87.7	87.7	<1.0	<1.0	<0.010	0.178	0.178	<0.0010	0.40	0.58	0.0458	0.0576
	FF-3	WP2303945-008	31-Mar-23	10:30	88.7	88.7	<1.0	<1.0	0.020	0.180	0.180	<0.0010	0.42	0.60	0.0437	0.0588
	FF-4	WP2303945-009	31-Mar-23	11:10	88.5	88.5	<1.0	<1.0	0.045	0.179	0.179	<0.0010	0.43	0.61	0.0424	0.0569
	FF-5	WP2303945-010	31-Mar-23	11:50	88.1	88.1	<1.0	<1.0	0.035	0.177	0.177	<0.0010	0.55	0.73	0.0448	0.0560
Clark Lake	CL-1	WP2313199-001	24-Jun-23	10:45	83.2	83.2	<1.0	<1.0	0.034	<0.0051	<0.0050	<0.0010	0.45	0.45	0.0238	0.0372
	CL-2	WP2313199-002	24-Jun-23	11:18	82.8	82.8	<1.0	<1.0	0.048	<0.0051	<0.0050	<0.0010	0.63	0.63	0.0249	0.0357
	CL-3	WP2313199-003	24-Jun-23	11:04	84.4	84.4	<1.0	<1.0	0.060	<0.0051	<0.0050	<0.0010	0.40	0.40	0.0242	0.0360
	CL-4	WP2313199-004	24-Jun-23	11:31	83.5	83.5	<1.0	<1.0	0.120	<0.0051	<0.0050	<0.0010	0.46	0.46	0.0243	0.0353
	CL-5	WP2313199-005	24-Jun-23	11:45	84.2	84.2	<1.0	<1.0	0.052	<0.0051	<0.0050	<0.0010	0.42	0.42	0.0236	0.0372
Nelson River - Upstream of the Keeyask GS	US-1	WP2313575-008	27-Jun-23	7:34	82.2	82.2	<1.0	<1.0	0.020	0.0197	0.0197	<0.0010	0.41	0.43	0.0268	0.0385
	US-2	WP2313575-009	27-Jun-23	7:54	82.2	82.2	<1.0	<1.0	0.021	0.0193	0.0193	<0.0010	0.40	0.42	0.0278	0.0394
	US-3	WP2313575-010	27-Jun-23	8:08	81.5	81.5	<1.0	<1.0	0.018	0.0190	0.0190	<0.0010	0.38	0.40	0.0270	0.0373
	US-4	WP2313575-011	27-Jun-23	8:20	80.6	80.6	<1.0	<1.0	0.019	0.0190	0.0190	<0.0010	0.38	0.40	0.0255	0.0393
	US-5	WP2313575-012	27-Jun-23	8:35	80.9	80.9	<1.0	<1.0	0.018	0.0198	0.0198	<0.0010	0.28	0.30	0.0263	0.0384
Stephens Lake - Near-field	NF-1	WP2313575-001	27-Jun-23	9:40	80.3	80.3	<1.0	<1.0	0.052	0.0200	0.0187	0.0013	0.44	0.46	0.0266	0.0385
	NF-2	WP2313575-002	27-Jun-23	10:35	80.2	80.2	<1.0	<1.0	0.017	0.0194	0.0181	0.0013	0.39	0.41	0.0256	0.0397
	NF-3	WP2313575-003	27-Jun-23	10:00	80.8	80.8	<1.0	<1.0	0.015	0.0204	0.0188	0.0016	0.36	0.38	0.0273	0.0394
	NF-4	WP2313575-004	27-Jun-23	10:50	81.0	81.0	<1.0	<1.0	0.029	0.0178	0.0178	<0.0010	0.37	0.39	0.0265	0.0392
	NF-5	WP2313575-005	27-Jun-23	10:15	80.9	80.9	<1.0	<1.0	0.018	0.0204	0.0194	0.0010	0.40	0.42	0.0254	0.0415

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.0050/ 0.010/ 0.020**	**0.0051**	**0.0050**	**0.0010**	**0.050/0.15**	**-**	**0.0010/ 0.0020**	**0.0010/ 0.0020/ 0.0050**
Stephens Lake - Far-field	FF-1	WP2313115-001	23-Jun-23	7:30	79.0	79.0	<1.0	<1.0	0.023	0.0166	0.0166	<0.0010	0.37	0.39	0.0300	0.0327
	FF-2	WP2313115-002	23-Jun-23	8:10	78.5	78.5	<1.0	<1.0	0.046	0.0223	0.0223	<0.0010	0.38	0.40	0.0318	0.0341
	FF-3A, -3B, -3C	WP2313115-003, -006, -007	23-Jun-23	8:58	79.2	79.2	<1.0	<1.0	0.049	0.0186	0.0186	<0.0010	0.44	0.46	0.0317	0.0362
	FF-4	WP2313115-004	23-Jun-23	8:32	79.2	79.2	<1.0	<1.0	0.025	0.0189	0.0189	<0.0010	0.37	0.39	0.0206	0.0355
	FF-5	WP2313115-005	23-Jun-23	7:50	80.1	80.1	<1.0	<1.0	0.068	0.0174	0.0174	<0.0010	0.42	0.44	0.0230	0.0348
Clark Lake	CL-1	WP2317397-007	30-Jul-23	10:01	73.6	73.6	<1.0	<1.0	0.016	0.0280	0.0280	<0.0010	0.38	0.41	0.0348	0.0432
	CL-2	WP2317397-008	30-Jul-23	9:41	73.7	73.7	<1.0	<1.0	0.021	0.0290	0.0279	0.0011	0.41	0.44	0.0336	0.0441
	CL-3	WP2317397-009	30-Jul-23	10:27	75.5	75.5	<1.0	<1.0	0.017	0.0299	0.0299	<0.0010	0.40	0.43	0.0372	0.0444
	CL-4	WP2317397-010	30-Jul-23	9:25	73.6	73.6	<1.0	<1.0	0.019	0.0280	0.0280	<0.0010	0.39	0.42	0.0340	0.0450
	CL-5	WP2317397-011	30-Jul-23	9:06	75.4	75.4	<1.0	<1.0	0.021	0.0300	0.0288	0.0012	0.39	0.42	0.0349	0.0463
Nelson River - Upstream of the Keeyask GS	US-1	WP2317751-001	1-Aug-23	9:09	78.6	78.6	<1.0	<1.0	0.012	0.0310	0.0310	<0.0010	0.44	0.47	0.0299	0.0463
	US-2	WP2317751-002	1-Aug-23	8:49	78.7	78.7	<1.0	<1.0	0.018	0.0327	0.0317	0.0010	0.48	0.51	0.0294	0.0466
	US-3	WP2317751-003	1-Aug-23	7:55	78.6	78.6	<1.0	<1.0	0.012	0.0317	0.0317	<0.0010	0.48	0.51	0.0287	0.0459
	US-4	WP2317751-004	1-Aug-23	8:18	78.1	78.1	<1.0	<1.0	0.010	0.0316	0.0316	<0.0010	0.49	0.52	0.0280	0.0459
	US-5	WP2317751-005	1-Aug-23	7:25	79.3	79.3	<1.0	<1.0	<0.010	0.0308	0.0308	<0.0010	0.51	0.54	0.0293	0.0447
Stephens Lake - Near-field	NF-1	WP2317368-008	28-Jul-23	12:25	76.3	76.3	<1.0	<1.0	0.013	0.0487	0.0444	0.0043	0.48	0.53	0.0340	0.0433
	NF-2	WP2317368-009	28-Jul-23	13:24	75.7	75.7	<1.0	<1.0	0.017	0.0260	0.0227	0.0033	0.42	0.45	0.0322	0.0437
	NF-3	WP2317368-010	28-Jul-23	12:54	75.6	75.6	<1.0	<1.0	0.013	0.0202	0.0166	0.0036	0.43	0.45	0.0321	0.0437
	NF-4	WP2317368-011	28-Jul-23	13:46	75.7	75.7	<1.0	<1.0	0.026	0.0176	0.0143	0.0033	0.42	0.44	0.0344	0.0459
	NF-5	WP2317368-012	28-Jul-23	11:50	76.3	76.3	<1.0	<1.0	0.023	0.0250	0.0220	0.0030	0.42	0.45	0.0319	0.0442
Stephens Lake - Far-field	FF-1A, -1B, -1C	WP2317368-001, -006, -007	28-Jul-23	8:16	78.1	78.1	<1.0	<1.0	0.024	0.0257	0.0227	0.0030	0.42	0.44	0.0334	0.0425
	FF-2	WP2317368-002	28-Jul-23	9:22	76.6	76.6	<1.0	<1.0	0.016	0.0302	0.0274	0.0028	0.42	0.45	0.0348	0.0412
	FF-3	WP2317368-003	28-Jul-23	10:15	77.2	77.2	<1.0	<1.0	0.017	0.0323	0.0298	0.0025	0.67	0.70	0.0345	0.0442
	FF-4	WP2317368-004	28-Jul-23	9:55	77.3	77.3	<1.0	<1.0	0.032	0.0310	0.0271	0.0039	0.42	0.45	0.0317	0.0448
	FF-5	WP2317368-005	28-Jul-23	8:50	77.9	77.9	<1.0	<1.0	0.018	0.0112	0.0088	0.0024	0.46	0.47	0.0342	0.0432
Clark Lake	CL-1	WP2320928-001	25-Aug-23	9:44	80.3	80.3	<1.0	<1.0	0.025	0.0318	0.0306	0.0012	0.41	0.44	0.0358	0.0471
	CL-2	WP2320928-002	25-Aug-23	9:23	79.3	79.3	<1.0	<1.0	0.024	0.0362	0.0350	0.0012	0.44	0.48	0.0372	0.0484
	CL-3	WP2320928-003	25-Aug-23	10:00	81.7	81.7	<1.0	<1.0	0.026	0.0313	0.0302	0.0011	0.41	0.44	0.0355	0.0470
	CL-4	WP2320928-004	25-Aug-23	9:06	80.8	80.8	<1.0	<1.0	0.121	0.0336	0.0322	0.0014	0.55	0.58	0.0336	0.0456
	CL-5	WP2320928-005	25-Aug-23	8:45	80.3	80.3	<1.0	<1.0	0.026	0.0321	0.0310	0.0011	0.40	0.43	0.0354	0.0481
Nelson River - Upstream of the Keeyask GS	US-1	WP2320722-005	23-Aug-23	10:01	80.6	80.6	<1.0	<1.0	0.042	0.0387	0.0375	0.0012	0.38	0.42	0.0367	0.0464
	US-2	WP2320722-006	23-Aug-23	10:40	79.4	79.4	<1.0	<1.0	0.026	0.0394	0.0380	0.0014	0.53	0.57	0.0370	0.0471
	US-3	WP2320722-007	23-Aug-23	11:28	78.0	78.0	<1.0	<1.0	0.025	0.0875	0.0861	0.0014	0.45	0.54	0.0396	0.0468
	US-4	WP2320722-008	23-Aug-23	11:03	80.5	80.5	<1.0	<1.0	0.018	0.0381	0.0370	0.0011	0.44	0.48	0.0354	0.0464
	US-5	WP2320722-009	23-Aug-23	11:52	79.7	79.7	<1.0	<1.0	0.020	0.0396	0.0384	0.0012	0.47	0.51	0.0326	0.0465
Stephens Lake - Near-field	NF-1	WP2321410-012	28-Aug-23	17:35	79.3	79.3	<1.0	<1.0	0.026	0.0357	0.0346	0.0011	0.47	0.51	0.0387	0.0493
	NF-2	WP2321410-013	28-Aug-23	18:05	79.0	79.0	<1.0	<1.0	0.024	0.0355	0.0344	0.0011	0.42	0.46	0.0402	0.0493
	NF-3	WP2321410-014	28-Aug-23	17:49	79.2	79.2	<1.0	<1.0	0.014	0.0344	0.0332	0.0012	0.48	0.51	0.0397	0.0510
	NF-4	WP2321410-015	28-Aug-23	18:18	79.1	79.1	<1.0	<1.0	0.014	0.0354	0.0341	0.0013	0.46	0.50	0.0372	0.0497
	NF-5A, -5B, -5C	WP2321410-016, -017, -018	28-Aug-23	17:12	77.7	77.7	<1.0	<1.0	0.017	0.0345	0.0338	0.0011	0.46	0.49	0.0373	0.0491

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L N)	Nitrate (mg/L N)	Nitrite (mg/L N)	Total Kjeldahl Nitrogen (mg/L)	Total N[1] (mg/L)	Dissolved P (mg/L)	Total P (mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.0050/ 0.010/ 0.020**	**0.0051**	**0.0050**	**0.0010**	**0.050/0.15**	**-**	**0.0010/ 0.0020**	**0.0010/ 0.0020/ 0.0050**
Stephens Lake - Far-field	FF-1	WP2321410-007	28-Aug-23	18:53	78.4	78.4	<1.0	<1.0	0.016	0.0434	0.0423	0.0011	0.47	0.51	0.0352	0.0456
	FF-2	WP2321410-008	28-Aug-23	19:28	77.5	77.5	<1.0	<1.0	0.021	0.0358	0.0347	0.0011	0.44	0.48	0.0349	0.0483
	FF-3	WP2321410-009	28-Aug-23	19:53	78.8	78.8	<1.0	<1.0	0.021	0.0362	0.0351	0.0011	0.45	0.49	0.0358	0.0490
	FF-4	WP2321410-010	28-Aug-23	19:40	78.4	78.4	<1.0	<1.0	0.020	0.0372	0.0359	0.0013	0.45	0.49	0.0368	0.0472
	FF-5	WP2321410-011	28-Aug-23	19:12	78.9	78.9	<1.0	<1.0	0.018	0.0349	0.0336	0.0013	0.44	0.47	0.0348	0.0485
Clark Lake	CL-1	WP2324257-011	23-Sep-23	13:32	86.7	86.7	<1.0	<1.0	0.0212	0.0330	0.0330	<0.0010	0.450	0.48	0.0433	0.0505
	CL-2	WP2324257-012	23-Sep-23	13:15	89.1	89.1	<1.0	<1.0	0.0258	0.0339	0.0339	<0.0010	0.448	0.48	0.0420	0.0525
	CL-3	WP2324257-013	23-Sep-23	13:47	88.9	88.9	<1.0	<1.0	0.0173	0.0334	0.0334	<0.0010	0.400	0.43	0.0426	0.0491
	CL-4	WP2324257-014	23-Sep-23	13:03	87.6	87.6	<1.0	<1.0	0.0213	0.0325	0.0325	<0.0010	0.366	0.40	0.0424	0.0514
	CL-5	WP2324257-015	23-Sep-23	12:48	88.5	88.5	<1.0	<1.0	0.0297	0.0318	0.0318	<0.0010	0.368	0.40	0.0405	0.0496
Nelson River - Upstream of the Keeyask GS	US-1	WP2324257-006	24-Sep-23	11:03	91.0	91.0	<1.0	<1.0	0.0131	0.0373	0.0373	<0.0010	0.344	0.38	0.0452	0.0499
	US-2	WP2324257-007	24-Sep-23	10:47	89.5	89.5	<1.0	<1.0	0.0118	0.0370	0.0370	<0.0010	0.360	0.40	0.0438	0.0510
	US-3	WP2324257-008	24-Sep-23	10:10	89.5	89.5	<1.0	<1.0	0.0145	0.0378	0.0378	<0.0010	0.437	0.47	0.0475	0.0516
	US-4	WP2324257-009	24-Sep-23	9:44	90.8	90.8	<1.0	<1.0	0.0133	0.0365	0.0365	<0.0010	0.445	0.48	0.0448	0.0515
	US-5	WP2324257-010	24-Sep-23	10:27	89.5	89.5	<1.0	<1.0	0.0145	0.0375	0.0375	<0.0010	0.436	0.47	0.0454	0.0531
Stephens Lake - Near-field	NF-1	WP2324490-001	25-Sep-23	8:18	84.8	84.8	<1.0	<1.0	0.0142	0.0354	0.0354	<0.0010	0.766	0.80	0.0434	0.0522
	NF-2A, -2B, -2C	WP2324490-002, -006, -007	25-Sep-23	7:41	85.1	85.1	<1.0	<1.0	0.0092	0.0351	0.0351	<0.0010	0.575	0.61	0.0435	0.0510
	NF-3	WP2324490-003	25-Sep-23	8:01	85.2	85.2	<1.0	<1.0	0.0173	0.0353	0.0353	<0.0010	0.658	0.69	0.0429	0.0494
	NF-4	WP2324490-004	25-Sep-23	7:25	85.5	85.5	<1.0	<1.0	0.0105	0.0351	0.0351	<0.0010	0.553	0.59	0.0436	0.0501
	NF-5	WP2324490-005	25-Sep-23	8:34	85.4	85.4	<1.0	<1.0	0.0089	0.0358	0.0358	<0.0010	0.572	0.61	0.0445	0.0509
Stephens Lake - Far-field	FF-1	WP2324490-008	25-Sep-23	9:58	83.0	83.0	<1.0	<1.0	0.0124	0.0537	0.0537	<0.0010	0.486	0.54	0.0420	0.0484
	FF-2	WP2324490-009	25-Sep-23	10:33	83.6	83.6	<1.0	<1.0	0.0124	0.0511	0.0511	<0.0010	0.453	0.50	0.0439	0.0498
	FF-3	WP2324490-010	25-Sep-23	11:10	84.4	84.4	<1.0	<1.0	0.0145	0.0339	0.0339	<0.0010	0.646	0.68	0.0428	0.0493
	FF-4	WP2324490-011	25-Sep-23	10:49	83.8	83.8	<1.0	<1.0	0.0116	0.0344	0.0344	<0.0010	0.515	0.55	0.0443	0.0496
	FF-5	WP2324490-012	25-Sep-23	10:18	84.4	84.4	<1.0	<1.0	0.0119	0.0338	0.0338	<0.0010	0.514	0.55	0.0445	0.0497

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued). Values in blue are considered suspect.

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**3.0/10.0 /15.0**	**0.010**	**0.100**
Split Lake	SPL-10	WP2303626-001	26-Mar-23	11:00	8.52	9.10	3.5	13.1	14.6	7.81	230	142	0.275	0.658
	SPL-11	WP2303626-002	26-Mar-23	14:25	8.97	9.07	2.5	12.0	15.8	7.83	241	151	0.250	0.626
	SPL-12	WP2303626-003	26-Mar-23	12:50	9.08	9.34	2.5	12.2	16.2	7.88	240	160	0.239	0.634
	SPL-13	WP2303626-004	26-Mar-23	13:40	9.16	9.83	3.6	13.1	15.0	7.81	223	134	0.266	0.634
	SPL-14	WP2303626-005	26-Mar-23	12:10	9.29	9.82	3.2	10.0	13.2	7.89	283	181	0.227	0.546
Nelson River - Upstream of the Keeyask GS	US-6	WP2303849-005	29-Mar-23	10:55	8.71	8.39	1.9	9.73	10.5	7.90	280	160	0.252	0.579
	US-7	WP2303849-006	29-Mar-23	1:35	8.83	8.46	2.3	10.1	9.5	7.91	280	159	0.242	0.581
	US-8	WP2303849-007	29-Mar-23	0:50	8.84	9.09	2.3	10.1	11.6	7.91	280	170	0.232	0.577
	US-9	WP2303849-008	29-Mar-23	11:35	9.05	8.69	2.0	9.71	12.2	7.87	279	148	0.252	0.587
	US-10	WP2303849-009	29-Mar-23	0:15	8.97	8.73	2.2	9.67	12.8	7.94	280	151	0.328	0.619
Stephens Lake - Near-field	NF-1	WP2303925-001	30-Mar-23	13:00	8.91	8.86	3.7	10.9	14.0	7.84	276	158	0.840	0.682
	NF-2	WP2303925-002	30-Mar-23	15:30	8.89	8.50	2.5	9.82	14.6	7.85	280	162	0.256	0.608
	NF-3A, -3B, -3C	WP2303925-003, -006, -007	30-Mar-23	13:45	9.38	8.24	3.1	10.1	15.5	7.89	280	168	0.262	0.589
	NF-4	WP2303925-004	30-Mar-23	16:10	8.91	8.36	3.3	9.42	*235*	7.86	278	164	0.235	0.585
	NF-5	WP2303925-005	30-Mar-23	14:40	9.10	8.28	3.4	9.68	15.6	7.90	276	166	0.262	0.620
Stephens Lake - Far-field	FF-1	WP2303945-006	31-Mar-23	9:20	9.23	8.31	1.6	9.94	15.6	7.93	272	150	0.244	0.536
	FF-2	WP2303945-007	31-Mar-23	10:00	9.14	8.29	3.2	10.0	17.2	7.93	274	159	0.236	0.572
	FF-3	WP2303945-008	31-Mar-23	10:30	9.43	8.31	2.5	10.2	15.5	7.96	274	158	0.235	0.588
	FF-4	WP2303945-009	31-Mar-23	11:10	9.16	8.55	3.2	10.1	17.4	7.96	274	157	0.293	0.579
	FF-5	WP2303945-010	31-Mar-23	11:50	9.14	8.48	2.4	10.2	15.6	7.95	271	152	0.231	0.565
Clark Lake	CL-1	WP2313199-001	24-Jun-23	10:45	9.70	10.6	2.9	13.4	15.4	8.06	217	145	1.29	0.756
	CL-2	WP2313199-002	24-Jun-23	11:18	9.89	9.73	2.4	12.8	15.8	8.10	225	139	1.56	0.828
	CL-3	WP2313199-003	24-Jun-23	11:04	9.56	10.4	2.7	12.7	15.9	8.10	225	141	1.38	0.721
	CL-4	WP2313199-004	24-Jun-23	11:31	9.63	10.7	2.7	13.2	18.2	8.09	218	132	1.36	0.753
	CL-5	WP2313199-005	24-Jun-23	11:45	8.68	9.34	2.6	12.6	19.1	8.10	221	143	1.42	0.848
Nelson River - Upstream of the Keeyask GS	US-1	WP2313575-008	27-Jun-23	7:34	8.20	8.93	1.8	11.0	17.6	8.04	235	136	1.16	0.842
	US-2	WP2313575-009	27-Jun-23	7:54	8.58	9.19	1.8	12.1	18.0	8.06	234	131	1.25	0.757
	US-3	WP2313575-010	27-Jun-23	8:08	8.54	9.27	1.9	11.5	13.1	8.06	231	134	1.28	0.773
	US-4	WP2313575-011	27-Jun-23	8:20	8.57	9.31	3.0	11.3	15.4	8.08	232	135	1.36	0.774
	US-5	WP2313575-012	27-Jun-23	8:35	8.56	9.23	2.2	12.0	14.4	8.08	232	130	1.29	0.731
Stephens Lake - Near-field	NF-1	WP2313575-001	27-Jun-23	9:40	8.96	8.75	2.2	10.9	12.5	8.07	235	132	1.75	0.870
	NF-2	WP2313575-002	27-Jun-23	10:35	8.55	8.80	2.1	11.2	14.8	8.08	234	124	1.96	1.03
	NF-3	WP2313575-003	27-Jun-23	10:00	8.71	9.16	1.5	11.1	14.9	8.07	236	131	2.16	0.921
	NF-4	WP2313575-004	27-Jun-23	10:50	8.70	9.13	2.4	11.2	15.3	8.07	233	131	2.89	1.05
	NF-5	WP2313575-005	27-Jun-23	10:15	8.77	9.10	2.0	11.3	15.2	8.07	233	127	1.86	0.905
Stephens Lake - Far-field	FF-1	WP2313115-001	23-Jun-23	7:30	9.63	9.31	2.5	12.1	16.3	8.15	220	115	1.18	0.819
	FF-2	WP2313115-002	23-Jun-23	8:10	9.59	9.40	2.2	11.8	16.5	8.14	220	118	0.979	0.709
	FF-3A, -3B, -3C	WP2313115-003, -006, -007	23-Jun-23	8:58	9.92	9.87	2.4	12.3	18.4	8.14	220	133	1.24	0.869
	FF-4	WP2313115-004	23-Jun-23	8:32	9.63	9.85	1.7	12.2	17.5	8.14	221	124	1.00	0.768
	FF-5	WP2313115-005	23-Jun-23	7:50	9.77	10.3	2.6	12.3	17.3	8.14	221	132	1.09	0.807

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**3.0/10.0 /15.0**	**0.010**	**0.100**
Clark Lake	CL-1	WP2317397-007	30-Jul-23	10:01	9.96	10.0	1.7	12.0	13.8	8.10	212	126	1.40	0.953
	CL-2	WP2317397-008	30-Jul-23	9:41	9.73	9.80	1.5	12.5	14.0	8.11	212	137	1.36	1.04
	CL-3	WP2317397-009	30-Jul-23	10:27	9.67	9.77	1.5	11.4	13.3	8.10	216	139	2.13	1.10
	CL-4	WP2317397-010	30-Jul-23	9:25	9.64	9.57	2.2	12.6	14.2	8.10	207	141	1.40	1.07
	CL-5	WP2317397-011	30-Jul-23	9:06	9.93	9.65	1.7	12.3	14.9	8.12	213	142	1.36	0.970
Nelson River - Upstream of the Keeyask GS	US-1	WP2317751-001	1-Aug-23	9:09	9.53	10.5	1.5	11.2	14.3	8.04	210	130	1.48	1.00
	US-2	WP2317751-002	1-Aug-23	8:49	9.85	10.0	1.9	11.1	15.0	8.07	209	135	1.33	0.983
	US-3	WP2317751-003	1-Aug-23	7:55	9.52	9.84	1.5	11.2	17.8	8.07	210	139	1.32	1.02
	US-4	WP2317751-004	1-Aug-23	8:18	9.72	10.0	1.6	11.3	17.0	8.07	208	139	1.18	1.02
	US-5	WP2317751-005	1-Aug-23	7:25	9.48	10.0	1.5	11.4	16.5	8.08	210	140	1.64	1.03
Stephens Lake - Near-field	NF-1	WP2317368-008	28-Jul-23	12:25	9.48	10.1	2.4	12.8	22.2	8.03	220	137	1.79	0.943
	NF-2	WP2317368-009	28-Jul-23	13:24	9.38	10.2	2.1	12.2	20.7	8.07	220	135	2.83	1.14
	NF-3	WP2317368-010	28-Jul-23	12:54	9.39	11.0	2.4	11.9	16.5	8.08	219	130	2.38	1.05
	NF-4	WP2317368-011	28-Jul-23	13:46	9.31	10.3	2.5	12.1	17.2	8.09	220	130	2.93	1.17
	NF-5	WP2317368-012	28-Jul-23	11:50	9.33	10.4	2.8	12.2	17.0	8.06	218	133	2.86	1.20
Stephens Lake - Far-field	FF-1A, -1B, -1C	WP2317368-001, -006, -007	28-Jul-23	8:16	9.35	9.75	1.5	11.1	26.6	8.06	228	127	1.48	0.832
	FF-2	WP2317368-002	28-Jul-23	9:22	9.73	9.74	1.8	11.4	18.5	8.06	227	140	1.68	0.853
	FF-3	WP2317368-003	28-Jul-23	10:15	9.68	10.1	1.7	10.7	18.2	8.06	227	126	2.00	1.00
	FF-4	WP2317368-004	28-Jul-23	9:55	9.43	9.91	1.5	10.4	19.1	8.07	226	107	1.67	0.855
	FF-5	WP2317368-005	28-Jul-23	8:50	9.73	9.82	1.7	10.6	19.1	8.08	226	113	1.41	0.834
Clark Lake	CL-1	WP2320928-001	25-Aug-23	9:44	9.18	8.50	1.7	9.25	12.1	8.04	220	142	1.28	0.853
	CL-2	WP2320928-002	25-Aug-23	9:23	9.13	9.05	2.2	9.48	12.1	8.04	218	129	1.27	0.839
	CL-3	WP2320928-003	25-Aug-23	10:00	9.12	9.05	1.8	9.34	12.5	8.12	217	123	1.28	0.803
	CL-4	WP2320928-004	25-Aug-23	9:06	9.37	8.39	2.1	9.91	12.8	8.06	213	122	1.17	0.788
	CL-5	WP2320928-005	25-Aug-23	8:45	9.16	8.32	1.8	9.57	13.3	8.07	218	128	1.24	0.790
Nelson River - Upstream of the Keeyask GS	US-1	WP2320722-005	23-Aug-23	10:01	9.51	9.75	1.3	8.87	16.3	8.08	216	127	2.02	0.860
	US-2	WP2320722-006	23-Aug-23	10:40	9.64	9.55	1.9	9.61	15.2	8.09	215	127	1.46	0.742
	US-3	WP2320722-007	23-Aug-23	11:28	9.58	9.69	1.6	9.21	16.2	8.06	216	131	1.70	0.797
	US-4	WP2320722-008	23-Aug-23	11:03	9.82	9.64	1.3	9.67	14.9	8.16	217	132	1.95	0.815
	US-5	WP2320722-009	23-Aug-23	11:52	9.80	9.69	1.7	9.13	16.1	8.08	215	139	1.80	0.828
Stephens Lake - Near-field	NF-1	WP2321410-012	28-Aug-23	17:35	10.2	9.40	1.4	8.99	12.7	8.19	226	150	2.35	0.996
	NF-2	WP2321410-013	28-Aug-23	18:05	9.84	9.34	2.1	9.66	14.8	8.19	224	149	1.69	0.989
	NF-3	WP2321410-014	28-Aug-23	17:49	10.3	9.37	1.4	9.15	15.0	8.20	226	145	7.40	1.71
	NF-4	WP2321410-015	28-Aug-23	18:18	10.2	9.36	1.7	9.54	15.6	8.19	225	151	2.58	1.16
	NF-5A, -5B, -5C	WP2321410-016, -017, -018	28-Aug-23	17:12	9.80	9.55	2.3	9.48	13.6	8.18	225	131	3.00	1.10
Stephens Lake - Far-field	FF-1	WP2321410-007	28-Aug-23	18:53	10.2	10.2	<1.0	7.98	16.1	8.18	223	128	5.41	1.70
	FF-2	WP2321410-008	28-Aug-23	19:28	10.0	9.54	1.3	8.52	15.4	8.18	223	135	3.49	1.41
	FF-3	WP2321410-009	28-Aug-23	19:53	10.2	9.10	1.8	9.07	11.2	8.19	224	142	2.35	1.06
	FF-4	WP2321410-010	28-Aug-23	19:40	10.3	9.72	1.3	8.69	11.6	8.18	221	127	1.86	0.951
	FF-5	WP2321410-011	28-Aug-23	19:12	10.6	9.66	<1.0	8.23	12.9	8.19	223	115	4.17	1.38

Table A4-5: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**3.0/10.0 /15.0**	**0.010**	**0.100**
Clark Lake	CL-1	WP2324257-011	23-Sep-23	13:32	8.34	8.54	1.2	8.05	9.7	7.54	235	140	1.40	0.818
	CL-2	WP2324257-012	23-Sep-23	13:15	8.37	8.47	1.5	8.37	10.2	7.62	235	142	1.52	0.872
	CL-3	WP2324257-013	23-Sep-23	13:47	8.14	8.42	1.4	8.23	9.8	7.67	233	142	1.45	0.753
	CL-4	WP2324257-014	23-Sep-23	13:03	8.22	8.57	1.3	8.45	13.0	7.63	233	148	1.46	0.786
	CL-5	WP2324257-015	23-Sep-23	12:48	8.30	8.73	1.6	8.82	12.4	7.63	229	138	1.31	0.779
Nelson River - Upstream of the Keeyask GS	US-1	WP2324257-006	24-Sep-23	11:03	8.37	9.00	<1.0	6.60	13.7	7.61	244	153	1.60	0.836
	US-2	WP2324257-007	24-Sep-23	10:47	8.47	8.91	<1.0	7.11	13.5	7.61	242	143	1.53	0.897
	US-3	WP2324257-008	24-Sep-23	10:10	8.76	8.70	<1.0	6.63	13.5	7.60	243	145	1.53	0.822
	US-4	WP2324257-009	24-Sep-23	9:44	8.46	9.74	<1.0	6.74	13.1	7.53	244	146	1.37	0.721
	US-5	WP2324257-010	24-Sep-23	10:27	8.42	8.82	<1.0	6.93	12.3	7.56	242	214	1.52	0.813
Stephens Lake - Near-field	NF-1	WP2324490-001	25-Sep-23	8:18	8.78	8.57	1.3	6.66	13.2	8.16	229	149	1.37	0.756
	NF-2A, -2B, -2C	WP2324490-002, -006, -007	25-Sep-23	7:41	8.38	9.09	1.1	6.36	13.9	8.17	233	152	1.49	0.865
	NF-3	WP2324490-003	25-Sep-23	8:01	8.44	9.16	1.1	6.46	13.3	8.15	233	157	1.38	0.743
	NF-4	WP2324490-004	25-Sep-23	7:25	8.50	8.74	1.2	6.44	13.0	8.14	233	153	1.21	0.764
	NF-5	WP2324490-005	25-Sep-23	8:34	8.59	9.09	1.6	6.60	13.2	8.15	233	155	1.72	0.874
Stephens Lake - Far-field	FF-1	WP2324490-008	25-Sep-23	9:58	8.01	9.26	1.2	6.26	14.6	8.14	226	153	1.13	0.687
	FF-2	WP2324490-009	25-Sep-23	10:33	8.28	9.13	1.5	6.15	15.5	8.11	232	148	1.17	0.732
	FF-3	WP2324490-010	25-Sep-23	11:10	8.16	9.17	1.0	6.11	17.2	8.09	231	158	1.44	0.747
	FF-4	WP2324490-011	25-Sep-23	10:49	7.86	9.12	1.3	6.13	13.1	8.14	240	153	1.30	0.759
	FF-5	WP2324490-012	25-Sep-23	10:18	8.01	9.34	1.0	6.10	14.7	8.13	232	158	1.47	0.706

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Hydroxide (OH)	Ammonia	Nitrate/ nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N[1]	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010/ 0.0050**	**0.0051**	**0.0050**	**0.0010**	**0.050/0.15**		**0.0010**	**0.0010/ 0.0020**
Stephens Lake - North Arm	STL-N SURF	WP2303945-001	31-Mar-23	8:45	134	134	<1.0	<1.0	0.022	0.0400	0.0400	<0.0010	0.38	0.42	0.0135	0.0184
Stephens Lake - North Arm	STL-N BOT	WP2303945-002	31-Mar-23	8:45	132	132	<1.0	<1.0	0.014	0.0457	0.0457	<0.0010	0.37	0.42	0.0125	0.0162
Stephens Lake - Kettle GS	STL-KETTLE	WP2303945-003	31-Mar-23	12:30	89.2	89.2	<1.0	<1.0	0.017	0.177	0.177	<0.0010	0.40	0.58	0.0459	0.0571
Long Spruce Forebay	LNR-3	WP2303945-004	31-Mar-23	13:20	90.6	90.6	<1.0	<1.0	0.032	0.178	0.178	<0.0010	0.48	0.66	0.0464	0.0580
Limestone Forebay	LNR-4	WP2303945-005	31-Mar-23	14:15	90.2	90.2	<1.0	<1.0	<0.010	0.179	0.179	<0.0010	0.43	0.61	0.0436	0.0593
Stephens Lake - North Arm	STL-N SURF	WP2313121-001	23-Jun-23	15:50	112	112	<1.0	<1.0	0.010	<0.0051	<0.0050	<0.0010	0.34	0.34	0.0053	0.0104
Stephens Lake - North Arm	STL-N BOT	WP2313121-002	23-Jun-23	15:50	112	112	<1.0	<1.0	0.014	<0.0051	<0.0050	<0.0010	0.30	0.30	0.0050	0.0098
Stephens Lake - Kettle GS	STL-KETTLE	WP2313121-003	23-Jun-23	15:05	78.6	78.6	<1.0	<1.0	0.022	0.0183	0.0183	<0.0010	0.39	0.41	0.0214	0.0367
Long Spruce Forebay	LNR-3	WP2313121-004	23-Jun-23	14:45	79.2	79.2	<1.0	<1.0	0.074	0.0197	0.0197	<0.0010	0.45	0.47	0.0218	0.0334
Limestone Forebay	LNR-4	WP2313121-005	23-Jun-23	14:15	78.5	78.5	<1.0	<1.0	0.026	0.0235	0.0235	<0.0010	0.37	0.39	0.0226	0.0315
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2313121-006	23-Jun-23	13:55	78.3	78.3	<1.0	<1.0	0.029	0.0236	0.0236	<0.0010	0.40	0.42	0.0222	0.0326
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2313121-007	23-Jun-23	13:40	79.0	79.0	<1.0	<1.0	0.044	0.0257	0.0257	<0.0010	0.43	0.46	0.0210	0.0335
Nelson River - downstream of Deer Island	LNR-7	WP2313121-008	23-Jun-23	13:20	76.4	76.4	<1.0	<1.0	0.027	0.0272	0.0272	<0.0010	0.33	0.36	0.0220	0.0304
Nelson River - upstream of Gillam Island	LNR-8	WP2313121-009	23-Jun-23	13:05	80.7	80.7	<1.0	<1.0	0.054	<0.0051	<0.0050	<0.0010	0.38	0.38	0.0202	0.0302
Stephens Lake - North Arm	STL-N SURF	WP2317027-001	25-Jul-23	14:23	109	109	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.30	0.30	0.0081	0.0160
Stephens Lake - North Arm	STL-N BOT	WP2317027-002	25-Jul-23	14:23	109	109	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.33	0.33	0.0092	0.0156
Stephens Lake - Kettle GS	STL-KETTLE	WP2317027-003	25-Jul-23	13:40	79.1	79.1	<1.0	<1.0	0.017	0.0301	0.0301	<0.0010	0.41	0.44	0.0310	0.0391
Long Spruce Forebay	LNR-3	WP2317027-004	25-Jul-23	13:07	79.5	79.5	<1.0	<1.0	0.024	0.0319	0.0319	<0.0010	0.38	0.41	0.0320	0.0390
Limestone Forebay	LNR-4	WP2317027-005	25-Jul-23	12:30	79.9	79.9	<1.0	<1.0	0.022	0.0337	0.0326	0.0011	0.37	0.40	0.0293	0.0375
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2317027-006	25-Jul-23	12:05	80.0	80.0	<1.0	<1.0	0.014	0.0356	0.0356	<0.0010	0.33	0.37	0.0291	0.0379
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2317027-007	25-Jul-23	11:48	81.4	81.4	<1.0	<1.0	0.015	0.0370	0.0370	<0.0010	0.34	0.38	0.0296	0.0363
Nelson River - downstream of Deer Island	LNR-7	WP2317027-008	25-Jul-23	11:25	81.5	81.5	<1.0	<1.0	0.013	0.0366	0.0366	<0.0010	0.36	0.40	0.0275	0.0372
Nelson River - upstream of Gillam Island	LNR-8	WP2317027-009	25-Jul-23	11:05	82.2	82.2	<1.0	<1.0	<0.010	0.0296	0.0296	<0.0010	0.34	0.37	0.0266	0.0365
Stephens Lake - North Arm	STL-N SURF	WP2320368-001	21-Aug-23	13:22	108	108	<1.0	<1.0	0.012	<0.0051	<0.0050	<0.0010	0.30	0.30	0.0085	0.0160
Stephens Lake - North Arm	STL-N BOT	WP2320368-002	21-Aug-23	13:22	109	109	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	0.28	0.28	0.0103	0.0201
Stephens Lake - Kettle GS	STL-KETTLE	WP2320368-003	21-Aug-23	12:40	75.5	75.5	<1.0	<1.0	0.024	0.0412	0.0412	<0.0010	0.37	0.41	0.0336	0.0442
Long Spruce Forebay	LNR-3	WP2320368-004	21-Aug-23	12:07	76.0	76.0	<1.0	<1.0	0.024	0.0403	0.0403	<0.0010	0.36	0.40	0.0353	0.0435
Limestone Forebay	LNR-4	WP2320368-005	21-Aug-23	11:34	75.3	75.3	<1.0	<1.0	0.024	0.0428	0.0428	<0.0010	0.44	0.48	0.0340	0.0433
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2320368-006	21-Aug-23	11:12	75.4	75.4	<1.0	<1.0	0.012	0.0521	0.0521	<0.0010	0.35	0.40	0.0346	0.0424

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Alkalinity				Nitrogen						Phosphorus	
					Total (CaCO3)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Hydroxide (OH)	Ammonia	Nitrate/ nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N[1]	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010/ 0.0050**	**0.0051**	**0.0050**	**0.0010**	**0.050/0.15**		**0.0010**	**0.0010/ 0.0020**
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2320368-007	21-Aug-23	10:58	76.1	76.1	<1.0	<1.0	0.013	0.0582	0.0582	<0.0010	0.34	0.40	0.0323	0.0428
Nelson River - downstream of Deer Island	LNR-7	WP2320368-008	21-Aug-23	10:35	76.0	76.0	<1.0	<1.0	0.010	0.0626	0.0615	0.0011	0.33	0.39	0.0335	0.0422
Nelson River - upstream of Gillam Island	LNR-8	WP2320368-009	21-Aug-23	10:18	77.3	77.3	<1.0	<1.0	<0.010	0.0416	0.0416	<0.0010	0.36	0.40	0.0341	0.0422
Stephens Lake - North Arm	STL-N SURF	WP2323856-001	19-Sep-23	13:01	112	112	<1.0	<1.0	<0.0050	0.0381	0.0381	<0.0010	0.299	0.34	0.0112	0.0170
Stephens Lake - North Arm	STL-N BOT	WP2323856-002	19-Sep-23	13:01	112	112	<1.0	<1.0	<0.0050	<0.0051	<0.0050	<0.0010	0.327	0.33	0.0111	0.0235
Stephens Lake - Kettle GS	STL-KETTLE	WP2323856-003	19-Sep-23	12:17	82.5	82.5	<1.0	<1.0	0.0105	0.0570	0.0570	<0.0010	0.395	0.45	0.0421	0.0488
Long Spruce Forebay	LNR-3	WP2323856-004	19-Sep-23	11:35	81.1	81.1	<1.0	<1.0	0.0108	0.0603	0.0603	<0.0010	0.389	0.45	0.0408	0.0482
Limestone Forebay	LNR-4	WP2323856-005	19-Sep-23	10:48	81.8	81.8	<1.0	<1.0	0.0105	0.0822	0.0822	<0.0010	0.370	0.45	0.0401	0.0459
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2323856-006	19-Sep-23	10:32	81.6	81.6	<1.0	<1.0	<0.0050	0.0442	0.0442	<0.0010	0.387	0.43	0.0382	0.0460
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2323856-007	19-Sep-23	10:18	82.1	82.1	<1.0	<1.0	<0.0050	0.0405	0.0405	<0.0010	0.382	0.42	0.0349	0.0442
Nelson River - downstream of Deer Island	LNR-7	WP2323856-008	19-Sep-23	9:50	82.9	82.9	<1.0	<1.0	<0.0050	0.0398	0.0398	<0.0010	0.371	0.41	0.0337	0.0450
Nelson River - upstream of Gillam Island	LNR-8	WP2323856-009	19-Sep-23	9:32	84.4	84.4	<1.0	<1.0	<0.0050	0.0176	0.0176	<0.0010	0.440	0.46	0.0329	0.0440

1. Total nitrogen calculated as the sum of total Kjeldahl nitrogen and nitrate/nitrite.

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µmhos/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**10.0/15.0**	**0.010**	**0.100**
Stephens Lake - North Arm	STL-N SURF	WP2303945-001	31-Mar-23	8:45	10.6	9.25	<1.0	2.36	15.9	8.10	316	180	2.78	0.446
Stephens Lake - North Arm	STL-N BOT	WP2303945-002	31-Mar-23	8:45	10.1	9.09	<1.0	2.44	15.4	8.08	312	179	0.830	0.207
Stephens Lake - Kettle GS	STL-KETTLE	WP2303945-003	31-Mar-23	12:30	9.19	8.47	2.1	9.84	16.3	7.95	272	158	0.245	0.564
Long Spruce Forebay	LNR-3	WP2303945-004	31-Mar-23	13:20	9.55	8.17	1.2	10.0	15.7	7.97	274	161	0.244	0.555
Limestone Forebay	LNR-4	WP2303945-005	31-Mar-23	14:15	9.02	8.13	2.1	10.0	15.7	7.98	276	144	1.46	0.718
Stephens Lake - North Arm	STL-N SURF	WP2313121-001	23-Jun-23	15:50	9.52	9.48	2.5	5.82	14.9	8.29	252	148	0.989	0.296
Stephens Lake - North Arm	STL-N BOT	WP2313121-002	23-Jun-23	15:50	9.46	9.54	2.9	5.47	16.4	8.28	253	150	0.740	0.324
Stephens Lake - Kettle GS	STL-KETTLE	WP2313121-003	23-Jun-23	15:05	9.93	9.76	2.7	10.9	17.4	8.15	219	125	1.76	0.892
Long Spruce Forebay	LNR-3	WP2313121-004	23-Jun-23	14:45	10.0	9.90	2.3	10.7	18.1	8.12	218	130	0.834	0.674
Limestone Forebay	LNR-4	WP2313121-005	23-Jun-23	14:15	9.75	10.2	1.3	9.02	18.2	8.15	218	126	1.14	0.598
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2313121-006	23-Jun-23	13:55	9.77	9.89	2.3	10.2	18.9	8.17	217	129	1.54	0.912
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2313121-007	23-Jun-23	13:40	9.82	9.89	4.0	10.4	18.6	8.16	218	114	2.20	1.09
Nelson River - downstream of Deer Island	LNR-7	WP2313121-008	23-Jun-23	13:20	9.74	9.96	4.0	10.4	19.4	8.17	219	123	1.40	0.933
Nelson River - upstream of Gillam Island	LNR-8	WP2313121-009	23-Jun-23	13:05	9.96	10.3	4.8	9.19	24.6	8.20	219	127	1.99	0.970
Stephens Lake - North Arm	STL-N SURF	WP2317027-001	25-Jul-23	14:23	8.78	9.30	1.8	8.97	15.8	8.21	239	147	3.13	0.890
Stephens Lake - North Arm	STL-N BOT	WP2317027-002	25-Jul-23	14:23	8.84	9.50	1.9	9.10	15.4	8.23	244	155	2.02	0.722
Stephens Lake - Kettle GS	STL-KETTLE	WP2317027-003	25-Jul-23	13:40	8.56	9.41	1.0	9.32	16.1	8.10	222	102	2.32	1.05
Long Spruce Forebay	LNR-3	WP2317027-004	25-Jul-23	13:07	8.81	9.19	<1.0	8.41	16.6	8.09	225	141	0.877	0.584
Limestone Forebay	LNR-4	WP2317027-005	25-Jul-23	12:30	8.77	9.24	<1.0	8.23	18.0	8.11	227	138	1.38	0.692
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2317027-006	25-Jul-23	12:05	8.74	9.08	<1.0	8.16	19.9	8.13	226	137	1.72	0.880
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2317027-007	25-Jul-23	11:48	8.68	9.18	1.7	7.83	20.3	8.14	226	136	1.32	0.824
Nelson River - downstream of Deer Island	LNR-7	WP2317027-008	25-Jul-23	11:25	8.59	8.98	1.5	8.66	20.2	8.12	226	142	1.59	0.864
Nelson River - upstream of Gillam Island	LNR-8	WP2317027-009	25-Jul-23	11:05	8.74	9.42	3.3	8.56	17.9	8.14	226	144	2.26	1.11
Stephens Lake - North Arm	STL-N-SURF	WP2320368-001	21-Aug-23	13:22	8.85	9.94	2.2	6.67	16.6	8.16	234	160	3.89	1.02
Stephens Lake - North Arm	STL-N-BOT	WP2320368-002	21-Aug-23	13:22	9.31	10.8	2.2	6.34	15.9	8.22	229	151	4.44	1.15
Stephens Lake - Kettle GS	STL-KETTLE	WP2320368-003	21-Aug-23	12:40	9.52	10.8	2.4	8.68	18.9	8.06	198	145	2.50	0.988
Long Spruce Forebay	LNR-3	WP2320368-004	21-Aug-23	12:07	9.54	10.7	1.1	7.87	18.4	8.06	197	135	0.645	0.570
Limestone Forebay	LNR-4	WP2320368-005	21-Aug-23	11:34	9.56	10.5	1.6	7.35	13.9	8.14	203	133	1.15	0.588
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2320368-006	21-Aug-23	11:12	9.52	10.5	1.6	7.54	14.9	8.09	202	134	1.59	1.02

Table A4-6: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µmhos/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**10.0/15.0**	**0.010**	**0.100**
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2320368-007	21-Aug-23	10:58	9.79	10.6	2.0	7.60	16.0	8.11	205	144	1.18	0.849
Nelson River - downstream of Deer Island	LNR-7	WP2320368-008	21-Aug-23	10:35	9.67	10.6	2.6	7.87	15.6	8.10	203	152	1.61	1.06
Nelson River - upstream of Gillam Island	LNR-8	WP2320368-009	21-Aug-23	10:18	10.1	10.4	3.0	7.97	16.4	8.13	202	143	2.28	1.38
Stephens Lake - North Arm	STL-N SURF	WP2323856-001	19-Sep-23	13:01	8.04	9.14	2.4	7.04	14.4	8.21	247	164	1.47	0.557
Stephens Lake - North Arm	STL-N BOT	WP2323856-002	19-Sep-23	13:01	8.05	9.32	2.5	6.67	14.8	8.29	245	162	1.77	0.645
Stephens Lake - Kettle GS	STL-KETTLE	WP2323856-003	19-Sep-23	12:17	8.18	9.14	1.4	5.92	13.9	8.17	233	153	1.58	0.670
Long Spruce Forebay	LNR-3	WP2323856-004	19-Sep-23	11:35	7.75	8.89	1.3	5.51	13.8	8.15	232	138	0.601	0.416
Limestone Forebay	LNR-4	WP2323856-005	19-Sep-23	10:48	7.87	8.93	<1.0	5.40	13.8	8.16	231	158	0.604	0.400
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2323856-006	19-Sep-23	10:32	8.41	9.05	2.0	5.15	10.3	8.17	228	140	3.32	1.54
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2323856-007	19-Sep-23	10:18	9.67	9.56	1.3	5.45	12.0	8.16	228	154	1.92	1.23
Nelson River - downstream of Deer Island	LNR-7	WP2323856-008	19-Sep-23	9:50	8.09	9.15	<1.0	5.62	14.4	8.19	225	165	2.41	1.50
Nelson River - upstream of Gillam Island	LNR-8	WP2323856-009	19-Sep-23	9:32	8.40	10.2	2.8	5.44	13.9	8.19	224	158	5.08	2.64

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Zone 1b	Z1-5A, -5B, -5C	WP2303699-001, -006, -007	27-Mar-23	8:35	112	0.445	0.00010	0.00128	0.0307	<0.000020	<0.000050	0.022	0.0000075	25.5	0.000049	10.6	0.00072	0.00018	0.00483
	Z1-6	WP2303699-002	27-Mar-23	9:30	111	0.495	0.00012	0.00127	0.0303	<0.000020	<0.000050	0.022	0.0000109	24.8	0.000056	10.4	0.00119	0.00020	0.0124
	Z1-7	WP2303699-003	27-Mar-23	10:05	112	0.476	0.00014	0.00132	0.0310	<0.000020	<0.000050	0.022	0.0000085	25.9	0.000051	10.8	0.00088	0.00019	0.00212
	Z1-8	WP2303699-004	27-Mar-23	10:50	112	0.507	0.00012	0.00128	0.0288	<0.000020	<0.000050	0.021	0.0000065	25.4	0.000050	10.3	0.00117	0.00018	0.00334
	Z1-9	WP2303699-005	27-Mar-23	11:35	113	0.424	0.00010	0.00125	0.0305	<0.000020	<0.000050	0.021	0.0000070	26.8	0.000045	10.3	0.00093	0.00017	0.00517
Zone 4	Z4-3 SURF	WP2303699-008	27-Mar-23	14:35	114	0.502	<0.00010	0.00126	0.0306	0.000022	<0.000050	0.020	<0.0000050	26.0	0.000054	10.2	0.00093	0.00019	0.00164
	Z4-5 SURF	WP2303699-009	27-Mar-23	12:25	118	0.426	<0.00010	0.00129	0.0309	<0.000020	<0.000050	0.020	0.0000056	27.0	0.000046	10.7	0.00092	0.00017	0.0100
	Z4-6 SURF	WP2303699-010	27-Mar-23	13:10	113	0.458	<0.00010	0.00128	0.0298	<0.000020	<0.000050	0.019	0.0000050	25.3	0.000049	10.5	0.00082	0.00018	0.00481
	Z4-7 SURF	WP2303699-011	27-Mar-23	13:55	116	0.430	<0.00010	0.00130	0.0306	<0.000020	<0.000050	0.020	<0.0000050	26.6	0.000047	10.8	0.00074	0.00016	0.00189
Zone 8	Z8-1 SURF	WP2303925-008	30-Mar-23	8:45	141	0.121	<0.00010	0.00153	0.0283	<0.000020	<0.000050	0.012	0.0000056	35.4	0.000014	9.43	0.00038	0.00041	0.00127
	Z8-4 SURF	WP2303925-009	30-Mar-23	10:45	107	0.388	<0.00010	0.00124	0.0301	<0.000020	<0.000050	0.020	0.0000056	24.0	0.000048	10.3	0.00207	0.00020	0.00202
	Z8-5 SURF	WP2303925-010	30-Mar-23	9:15	115	0.349	<0.00010	0.00129	0.0302	<0.000020	<0.000050	0.020	<0.0000050	25.6	0.000041	10.7	0.00061	0.00016	0.00809
	Z8-6 SURF	WP2303925-011	30-Mar-23	10:05	113	0.372	0.00011	0.00133	0.0315	<0.000020	<0.000050	0.022	0.0000133	25.1	0.000043	10.8	0.00130	0.00017	0.00698
Zone 11	Z11-1 SURF	WP2303849-001	29-Mar-23	10:10	119	0.366	<0.00010	0.00141	0.0322	<0.000020	<0.000050	0.024	0.000188	26.3	0.000036	11.3	0.00056	0.00014	0.00579
	Z11-1 BOT	WP2303849-004	29-Mar-23	10:10	114	0.348	<0.00010	0.00140	0.0312	<0.000020	<0.000050	0.020	0.00134	24.8	0.000034	11.3	0.00064	0.00015	0.00164
	Z11-3 SURF	WP2303790-007	28-Mar-23	13:55	120	0.409	<0.00010	0.00141	0.0326	<0.000020	<0.000050	0.024	0.0000075	27.0	0.000038	11.2	0.00064	0.00015	0.00322
	Z11-4 SURF	WP2303790-008	28-Mar-23	14:40	118	0.432	<0.00010	0.00135	0.0315	<0.000020	<0.000050	0.022	0.0000077	26.2	0.000036	10.7	0.00064	0.00014	0.00346
	Z11-6 SURF	WP2303790-009	28-Mar-23	15:20	119	0.456	0.00014	0.00136	0.0331	0.000021	<0.000050	0.023	0.0000065	26.7	0.000049	10.6	0.00074	0.00019	0.00172
	Z11-10 SURF	WP2303849-002	29-Mar-23	8:45	131	0.155	<0.00010	0.00119	0.0238	<0.000020	<0.000050	0.015	0.000272	31.4	0.000013	10.4	0.00025	0.00028	0.00218
	Z11-11 SURF	WP2303849-003	29-Mar-23	9:30	126	0.228	<0.00010	0.00122	0.0270	<0.000020	<0.000050	0.018	0.000159	29.0	0.000019	11.0	0.00047	0.00018	0.00259
Zone 12	Z12-6 SURF	WP2303790-001	28-Mar-23	11:50	118	0.274	0.00011	0.00136	0.0316	<0.000020	<0.000050	0.023	0.0000310	26.6	0.000030	10.9	0.00056	0.00013	0.00337
	Z12-8 SURF	WP2303790-002	28-Mar-23	8:45	133	0.185	<0.00010	0.00131	0.0280	<0.000020	<0.000050	0.018	0.0000062	31.4	0.000017	12.4	0.00035	0.00027	0.00399
	Z12-9 SURF	WP2303790-003	28-Mar-23	9:25	125	0.265	<0.00010	0.00136	0.0306	<0.000020	<0.000050	0.022	0.0000065	28.0	0.000026	11.8	0.00046	0.00011	0.00309
	Z12-11 SURF	WP2303790-004	28-Mar-23	10:10	121	0.343	0.00010	0.00138	0.0321	<0.000020	<0.000050	0.023	0.0000114	26.6	0.000037	11.0	0.00064	0.00014	0.00354
	Z12-13 SURF	WP2303790-005	28-Mar-23	13:05	119	0.434	<0.00010	0.00140	0.0328	<0.000020	<0.000050	0.022	0.0000057	26.6	0.000042	10.9	0.00079	0.00017	0.00316
	Z12-14 SURF	WP2303790-006	28-Mar-23	12:30	104	0.0253	<0.00010	0.00087	0.0133	<0.000020	<0.000050	<0.010	0.0000092	28.3	<0.000010	1.85	0.00018	0.00031	0.00176
Zone 1b	Z1-5	WP2313572-001	26-Jun-23	7:50	98.4	0.582	<0.00010	0.00110	0.0276	0.000021	<0.000050	0.018	<0.0000050	22.9	0.000054	7.90	0.00097	0.00023	0.00170
	Z1-6	WP2313572-002	26-Jun-23	8:20	98.0	0.544	<0.00010	0.00114	0.0262	0.000026	<0.000050	0.017	<0.0000050	22.6	0.000054	7.80	0.00096	0.00021	0.00161
	Z1-7	WP2313572-003	26-Jun-23	8:05	100	0.558	<0.00010	0.00117	0.0277	<0.000020	<0.000050	0.018	<0.0000050	23.3	0.000058	8.23	0.00107	0.00023	0.00169
	Z1-8A, -8B, -5C	WP2313572-004, -006, -007	26-Jun-23	8:35	99.5	0.537	<0.00010	0.00114	0.0266	<0.000020	<0.000050	0.017	<0.0000050	23.2	0.000053	7.85	0.00097	0.00022	0.00166
	Z1-9	WP2313572-005	26-Jun-23	8:48	99.3	0.557	<0.00010	0.00113	0.0266	<0.000020	<0.000050	0.017	0.0000060	23.1	0.000056	7.96	0.00098	0.00022	0.00170
Zone 4	Z4-3 SURF	WP2313201-001	24-Jun-23	13:30	98.0	0.448	<0.00010	0.00108	0.0255	<0.000020	<0.000050	0.022	<0.0000050	23.4	0.000046	7.26	0.00074	0.00018	0.00147
	Z4-5 SURF	WP2313201-002	24-Jun-23	12:32	95.9	0.183	<0.00010	0.00102	0.0229	<0.000020	<0.000050	0.022	<0.0000050	23.0	0.000012	7.01	0.00028	<0.00010	0.00109
	Z4-6 SURF	WP2313201-003	24-Jun-23	12:34	97.2	0.281	<0.00010	0.00105	0.0234	<0.000020	<0.000050	0.022	<0.0000050	23.2	0.000024	7.15	0.00041	0.00012	0.00122
	Z4-7 SURF	WP2313201-004	24-Jun-23	13:18	96.6	0.248	<0.00010	0.00104	0.0230	<0.000020	<0.000050	0.020	<0.0000050	23.4	0.000021	6.82	0.00043	0.00012	0.00121
Zone 8	Z8-1 SURF	WP2313612-001	22-Jun-23	8:35	76.7	0.0460	<0.00010	0.00131	0.0138	<0.000020	<0.000050	<0.010	<0.0000050	19.5	<0.000010	4.00	0.00013	0.00013	<0.00050
	Z8-4 SURF	WP2313612-002	22-Jun-23	10:05	98.8	0.535	<0.00010	0.00112	0.0265	<0.000020	<0.000050	0.016	0.0000066	22.4	0.000058	7.38	0.00106	0.00025	0.00164
	Z8-5 SURF	WP2313612-003	22-Jun-23	9:10	91.5	0.303	<0.00010	0.00114	0.0214	<0.000020	<0.000050	0.014	<0.0000050	21.2	0.000033	6.63	0.00047	0.00014	0.00107
	Z8-6 SURF	WP2313612-004	22-Jun-23	9:30	93.7	0.450	<0.00010	0.00108	0.0243	<0.000020	<0.000050	0.015	<0.0000050	21.8	0.000047	7.21	0.00081	0.00019	0.00133

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Zone 11	Z11-1 SURF	WP2313572-008	26-Jun-23	9:48	93.9	0.0812	<0.00010	0.00108	0.0186	<0.000020	<0.000050	0.015	<0.0000050	22.7	<0.000010	6.91	0.00025	<0.00010	0.00067
	Z11-3 SURF	WP2313572-009	26-Jun-23	9:54	96.4	0.278	<0.00010	0.00109	0.0230	<0.000020	<0.000050	0.017	<0.0000050	22.6	0.000024	7.61	0.00048	0.00011	0.00113
	Z11-4 SURF	WP2313572-010	26-Jun-23	10:06	98.6	0.368	<0.00010	0.00116	0.0242	<0.000020	<0.000050	0.017	<0.0000050	23.1	0.000032	7.82	0.00066	0.00015	0.00131
	Z11-6 SURF	WP2313572-011	26-Jun-23	10:30	101	0.546	<0.00010	0.00116	0.0273	<0.000020	<0.000050	0.017	0.0000052	23.2	0.000052	8.30	0.00090	0.00021	0.00166
	Z11-10 SURF	WP2313572-012	26-Jun-23	9:18	89.8	0.0190	<0.00010	0.00109	0.0127	<0.000020	<0.000050	0.011	<0.0000050	23.6	<0.000010	4.18	0.00021	0.00017	<0.00050
	Z11-11 SURF	WP2313572-013	26-Jun-23	9:37	88.5	0.0277	<0.00010	0.00102	0.0159	<0.000020	<0.000050	0.013	<0.0000050	21.6	<0.000010	5.82	0.00020	0.00011	<0.00050
Zone 12	Z12-6 SURF	WP2313575-013	26-Jun-23	13:13	97.3	0.448	<0.00010	0.00108	0.0254	<0.000020	<0.000050	0.017	0.0000051	22.3	0.000050	8.19	0.00085	0.00019	0.00162
	Z12-8 SURF	WP2313575-014	26-Jun-23	12:00	86.0	0.0868	<0.00010	0.00113	0.0172	<0.000020	<0.000050	0.013	<0.0000050	20.4	0.000010	6.61	0.00018	0.00010	0.00059
	Z12-9 SURF	WP2313575-015	26-Jun-23	12:15	96.9	0.347	<0.00010	0.00109	0.0240	<0.000020	<0.000050	0.016	<0.0000050	22.6	0.000034	7.98	0.00070	0.00017	0.00136
	Z12-11 SURF	WP2313575-016	26-Jun-23	13:43	97.4	0.385	<0.00010	0.00108	0.0267	<0.000020	<0.000050	0.017	<0.0000050	22.8	0.000040	8.08	0.00078	0.00018	0.00158
	Z12-13 SURF	WP2313575-017	26-Jun-23	12:28	98.5	0.472	<0.00010	0.00108	0.0260	0.000022	<0.000050	0.017	0.0000051	22.8	0.000046	8.02	0.00174	0.00019	0.00155
	Z12-14 SURF	WP2313575-018	26-Jun-23	12:42	91.5	0.232	<0.00010	0.00099	0.0216	<0.000020	<0.000050	0.013	<0.0000050	21.7	0.000025	6.70	0.00032	0.00010	0.00105
	Z12-14 BOT	WP2313575-019	26-Jun-23	12:42	81.1	0.124	<0.00010	0.00096	0.0162	<0.000020	<0.000050	<0.010	<0.0000050	20.0	0.000012	4.66	0.00024	<0.00010	0.00120
Zone 1b	Z1-5A, -5B, -5C	WP2318135-001, -006, -007	2-Aug-23	8:05	87.8	0.564	<0.00010	0.00134	0.0242	<0.000020	<0.000050	0.017	<0.0000050	19.6	0.000052	7.42	0.00085	0.00021	0.00170
	Z1-6	WP2318135-002	2-Aug-23	8:51	90.8	0.538	<0.00010	0.00131	0.0236	<0.000020	<0.000050	0.019	<0.0000050	20.8	0.000045	7.49	0.00080	0.00019	0.00165
	Z1-7	WP2318135-003	2-Aug-23	7:46	90.9	0.565	<0.00010	0.00133	0.0243	0.000026	<0.000050	0.018	<0.0000050	20.6	0.000050	7.59	0.00086	0.00020	0.00180
	Z1-8	WP2318135-004	2-Aug-23	8:38	89.3	0.555	0.00011	0.00133	0.0238	0.000024	<0.000050	0.018	<0.0000050	19.7	0.000052	7.47	0.00083	0.00021	0.00170
	Z1-9	WP2318135-005	2-Aug-23	8:52	88.3	0.551	<0.00010	0.00130	0.0237	0.000024	<0.000050	0.018	0.0000051	19.7	0.000048	7.37	0.00080	0.00021	0.00172
Zone 4	Z4-3 SURF	WP2317397-012	30-Jul-23	12:56	92.2	0.450	<0.00010	0.00127	0.0232	<0.000020	<0.000050	0.016	<0.0000050	21.8	0.000052	7.42	0.00072	0.00016	0.00157
	Z4-5 SURF	WP2317397-013	30-Jul-23	11:21	90.3	0.145	<0.00010	0.00109	0.0208	<0.000020	<0.000050	0.016	<0.0000050	21.0	<0.000010	7.51	0.00022	<0.00010	0.00100
	Z4-6 SURF	WP2317397-014	30-Jul-23	11:57	92.7	0.168	<0.00010	0.00118	0.0220	<0.000020	<0.000050	0.018	<0.0000050	21.6	<0.000010	7.57	0.00033	<0.00010	0.00115
	Z4-7 SURF	WP2317397-015	30-Jul-23	12:30	89.7	0.242	<0.00010	0.00111	0.0194	<0.000020	<0.000050	0.014	<0.0000050	19.9	0.000020	7.16	0.00039	0.00010	0.00119
	Z4-7 BOT	WP2317397-016	30-Jul-23	12:30	89.1	0.255	<0.00010	0.00118	0.0213	<0.000020	<0.000050	0.015	<0.0000050	20.7	0.000019	7.20	0.00043	<0.00010	0.00145
Zone 8	Z8-1 SURF	WP2318135-008	2-Aug-23	9:20	90.3	0.109	<0.00010	0.00106	0.0142	<0.000020	<0.000050	0.014	<0.0000050	22.2	<0.000010	6.42	0.00021	<0.00010	0.00061
	Z8-4 SURF	WP2318135-009	2-Aug-23	10:26	91.1	0.514	<0.00010	0.00127	0.0237	<0.000020	<0.000050	0.019	<0.0000050	21.4	0.000044	7.45	0.00074	0.00018	0.00160
	Z8-5 SURF	WP2318135-010	2-Aug-23	9:44	90.1	0.315	<0.00010	0.00122	0.0207	<0.000020	<0.000050	0.016	<0.0000050	20.5	0.000028	7.60	0.00046	0.00012	0.00121
	Z8-6 SURF	WP2318135-011	2-Aug-23	9:58	90.0	0.456	<0.00010	0.00129	0.0241	<0.000020	<0.000050	0.018	<0.0000050	20.0	0.000037	7.64	0.00068	0.00015	0.00154
Zone 11	Z11-1 SURF	WP2317397-001	29-Jul-23	10:35	92.7	0.196	<0.00010	0.00112	0.0172	<0.000020	<0.000050	0.014	<0.0000050	21.1	0.000020	7.65	0.00030	<0.00010	0.00086
	Z11-3 SURF	WP2317397-002	29-Jul-23	10:47	92.5	0.354	<0.00010	0.00129	0.0222	<0.000020	<0.000050	0.017	<0.0000050	21.7	0.000036	7.93	0.00056	0.00013	0.00122
	Z11-4 SURF	WP2317397-003	29-Jul-23	11:11	90.5	0.419	<0.00010	0.00127	0.0224	<0.000020	<0.000050	0.016	<0.0000050	20.8	0.000046	7.91	0.00070	0.00016	0.00151
	Z11-6 SURF	WP2317397-004	29-Jul-23	12:25	81.8	0.553	<0.00010	0.00128	0.0237	<0.000020	<0.000050	0.014	0.0000067	17.5	0.000042	7.73	0.00091	0.00020	0.00168
	Z11-10 SURF	WP2317397-005	29-Jul-23	10:03	87.8	0.0157	<0.00010	0.00081	0.00943	<0.000020	<0.000050	0.011	<0.0000050	22.6	<0.000010	4.60	0.00017	<0.00010	<0.00050
	Z11-11 SURF	WP2317397-006	29-Jul-23	10:20	89.2	0.0307	<0.00010	0.00097	0.0131	<0.000020	<0.000050	0.013	<0.0000050	22.1	<0.000010	6.62	0.00017	<0.00010	<0.00050
Zone 12	Z12-6 SURF	WP2317762-001	31-Jul-23	10:15	96.6	0.495	<0.00010	0.00128	0.0250	<0.000020	<0.000050	0.017	<0.0000050	22.2	0.000048	7.86	0.00078	0.00019	0.00163
	Z12-8 SURF	WP2317762-002	31-Jul-23	8:20	95.1	0.0566	<0.00010	0.00101	0.0143	<0.000020	<0.000050	0.012	<0.0000050	22.9	<0.000010	6.87	0.00024	<0.00010	<0.00050
	Z12-8 BOT	WP2317762-007	31-Jul-23	8:20	94.5	0.0651	<0.00010	0.00098	0.0146	<0.000020	<0.000050	0.012	<0.0000050	23.3	<0.000010	7.01	0.00014	<0.00010	0.00098
	Z12-9 SURF	WP2317762-003	31-Jul-23	8:40	98.2	0.336	<0.00010	0.00120	0.0226	<0.000020	<0.000050	0.016	<0.0000050	22.9	0.000030	7.90	0.00049	0.00014	0.00123
	Z12-11 SURF	WP2317762-004	31-Jul-23	10:58	97.4	0.466	<0.00010	0.00135	0.0251	0.000023	<0.000050	0.017	<0.0000050	22.2	0.000044	7.82	0.00074	0.00020	0.00163
	Z12-13 SURF	WP2317762-005	31-Jul-23	9:45	97.7	0.491	<0.00010	0.00134	0.0248	0.000030	<0.000050	0.016	0.0000074	21.8	0.000047	7.88	0.00075	0.00018	0.00162
	Z12-14 SURF	WP2317762-006	31-Jul-23	9:18	95.0	0.180	<0.00010	0.00094	0.0176	<0.000020	<0.000050	0.011	<0.0000050	22.4	0.000014	6.13	0.00031	<0.00010	0.00095

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Zone 1b	Z1-5	WP2321378-005	28-Aug-23	10:48	93.8	0.431	<0.00010	0.00147	0.0240	<0.000020	<0.000050	0.015	<0.0000050	22.1	0.000046	7.83	0.00061	0.00017	0.00164
	Z1-6	WP2321378-006	28-Aug-23	11:44	90.4	0.444	<0.00010	0.00146	0.0237	0.000022	<0.000050	0.014	<0.0000050	20.9	0.000044	7.74	0.00080	0.00017	0.00158
	Z1-7A, -7B, -7C	WP2321378-007, -010, -011	28-Aug-23	10:09	91.6	0.426	<0.00010	0.00150	0.0243	<0.000020	<0.000050	0.016	<0.0000050	20.8	0.000045	8.14	0.00064	0.00016	0.00169
	Z1-8	WP2321378-008	28-Aug-23	11:28	93.0	0.494	<0.00010	0.00150	0.0254	0.000021	<0.000050	0.019	<0.0000050	21.5	0.000050	7.81	0.00069	0.00018	0.00169
	Z1-9	WP2321378-009	28-Aug-23	11:09	92.3	0.440	<0.00010	0.00148	0.0239	<0.000020	<0.000050	0.016	0.0000051	21.3	0.000045	7.90	0.00075	0.00017	0.00180
Zone 4	Z4-3 SURF	WP2320928-006	25-Aug-23	11:45	92.6	0.465	0.00012	0.00146	0.0240	0.000021	<0.000050	0.017	0.0000051	20.7	0.000044	7.68	0.00065	0.00016	0.00178
	Z4-5 SURF	WP2320928-007	25-Aug-23	10:45	93.5	0.200	<0.00010	0.00120	0.0214	<0.000020	<0.000050	0.017	<0.0000050	21.4	0.000013	6.70	0.00026	<0.00010	0.00097
	Z4-6 SURF	WP2320928-008	25-Aug-23	11:11	92.6	0.221	<0.00010	0.00130	0.0217	<0.000020	<0.000050	0.018	<0.0000050	20.6	0.000014	6.84	0.00046	<0.00010	0.00105
	Z4-7 SURF	WP2320928-009	25-Aug-23	11:33	94.4	0.341	<0.00010	0.00135	0.0227	<0.000020	<0.000050	0.019	<0.0000050	21.6	0.000026	6.95	0.00046	0.00013	0.00131
Zone 8	Z8-1 SURF	WP2320722-001	23-Aug-23	8:12	83.2	0.0973	<0.00010	0.00104	0.0154	<0.000020	<0.000050	0.016	<0.0000050	21.0	0.000011	4.57	0.00020	<0.00010	<0.00050
	Z8-4 SURF	WP2320722-002	23-Aug-23	9:38	95.3	0.468	<0.00010	0.00146	0.0250	0.000021	<0.000050	0.020	<0.0000050	22.1	0.000045	7.58	0.00066	0.00017	0.00160
	Z8-5 SURF	WP2320722-003	23-Aug-23	8:42	91.9	0.371	<0.00010	0.00132	0.0234	<0.000020	<0.000050	0.017	<0.0000050	21.5	0.000034	7.10	0.00050	0.00014	0.00135
	Z8-6 SURF	WP2320722-004	23-Aug-23	8:58	92.5	0.468	<0.00010	0.00140	0.0249	<0.000020	<0.000050	0.017	<0.0000050	21.6	0.000045	7.54	0.00078	0.00016	0.00154
Zone 11	Z11-1 SURF	WP2321378-001	28-Aug-23	8:14	87.9	0.195	<0.00010	0.00111	0.0181	<0.000020	<0.000050	0.012	0.0000100	20.4	0.000021	6.96	0.00030	0.00010	0.00099
	Z11-3 SURF	WP2321378-002	28-Aug-23	8:23	86.2	0.278	<0.00010	0.00126	0.0207	<0.000020	<0.000050	0.013	0.0000062	19.4	0.000024	7.32	0.00038	0.00011	0.00121
	Z11-4 SURF	WP2321378-003	28-Aug-23	8:37	88.8	0.305	<0.00010	0.00132	0.0231	<0.000020	<0.000050	0.013	0.0000073	20.5	0.000034	7.66	0.00042	0.00012	0.00129
	Z11-6 SURF	WP2321378-004	28-Aug-23	9:42	96.7	0.430	<0.00010	0.00149	0.0245	0.000021	<0.000050	0.016	0.0000068	22.7	0.000049	8.28	0.00062	0.00016	0.00163
	Z11-10 SURF	WP2321052-002	27-Aug-23	8:13	87.6	0.0370	<0.00010	0.00091	0.0136	<0.000020	<0.000050	0.012	<0.0000050	22.6	<0.000010	5.32	0.00012	<0.00010	<0.00050
	Z11-11 SURF	WP2321052-001	27-Aug-23	8:30	90.1	0.0997	<0.00010	0.00104	0.0163	<0.000020	<0.000050	0.014	<0.0000050	22.5	<0.000010	6.28	0.00020	<0.00010	0.00056
Zone 12	Z12-6 SURF	WP2321410-001	28-Aug-23	14:37	88.9	0.398	<0.00010	0.00149	0.0252	<0.000020	<0.000050	0.014	<0.0000050	20.2	0.000044	8.01	0.00064	0.00016	0.00163
	Z12-8 SURF	WP2321410-002	28-Aug-23	13:15	80.6	0.135	<0.00010	0.00104	0.0171	<0.000020	<0.000050	<0.010	<0.0000050	18.8	0.000015	6.94	0.00024	<0.00010	0.00061
	Z12-9 SURF	WP2321410-003	28-Aug-23	13:27	92.8	0.362	<0.00010	0.00129	0.0224	<0.000020	<0.000050	0.013	<0.0000050	21.4	0.000038	7.61	0.00055	0.00013	0.00150
	Z12-11 SURF	WP2321410-004	28-Aug-23	15:22	92.3	0.484	<0.00010	0.00148	0.0248	<0.000020	<0.000050	0.014	<0.0000050	20.9	0.000051	8.03	0.00074	0.00018	0.00165
	Z12-13 SURF	WP2321410-005	28-Aug-23	14:51	91.9	0.333	<0.00010	0.00135	0.0227	<0.000020	<0.000050	0.013	<0.0000050	21.1	0.000032	7.73	0.00049	0.00014	0.00136
	Z12-14 SURF	WP2321410-006	28-Aug-23	14:02	74.9	0.115	<0.00010	0.00092	0.0149	<0.000020	<0.000050	<0.010	<0.0000050	18.8	<0.000010	3.85	0.00020	<0.00010	<0.00050
Zone 1b	Z1-5	WP2324257-001	24-Sep-23	8:43	103	0.390	<0.00010	0.00198	0.0241	<0.000020	<0.000050	0.020	0.0000068	23.0	0.000037	10.0	0.00071	0.00016	0.00155
	Z1-6	WP2324257-002	24-Sep-23	7:50	104	0.311	<0.00010	0.00201	0.0233	<0.000020	<0.000050	0.020	<0.0000050	23.6	0.000028	10.3	0.00055	0.00013	0.00146
	Z1-7	WP2324257-003	24-Sep-23	9:04	103	0.388	<0.00010	0.00200	0.0242	<0.000020	<0.000050	0.019	0.0000052	22.9	0.000038	10.0	0.00062	0.00015	0.00147
	Z1-8	WP2324257-004	24-Sep-23	8:10	104	0.351	<0.00010	0.00210	0.0238	<0.000020	<0.000050	0.019	<0.0000050	23.4	0.000031	10.2	0.00052	0.00013	0.00148
	Z1-9	WP2324257-005	24-Sep-23	8:20	102	0.362	<0.00010	0.00192	0.0238	<0.000020	<0.000050	0.020	0.0000059	23.5	0.000034	9.96	0.00058	0.00014	0.00156
Zone 4	Z4-3 SURF	WP2324257-016	23-Sep-23	15:20	104	0.385	<0.00010	0.00158	0.0253	<0.000020	<0.000050	0.022	<0.0000050	24.2	0.000040	10.1	0.00060	0.00013	0.00159
	Z4-5 SURF	WP2324257-017	23-Sep-23	14:52	94.4	0.162	<0.00010	0.00118	0.0212	<0.000020	<0.000050	0.020	<0.0000050	22.0	0.000013	8.52	0.00022	<0.00010	0.00102
	Z4-6 SURF	WP2324257-018	23-Sep-23	15:06	97.1	0.293	<0.00010	0.00132	0.0221	<0.000020	<0.000050	0.020	<0.0000050	22.4	0.000024	8.97	0.00042	0.00013	0.00135
	Z4-7 SURF	WP2324257-019	23-Sep-23	15:32	101	0.224	<0.00010	0.00140	0.0217	<0.000020	<0.000050	0.020	<0.0000050	23.4	0.000020	9.60	0.00032	0.00011	0.00130
Zone 8	Z8-1A SURF, -1B SURF, -1C SURF	WP2324106-001, -005, -006	21-Sep-23	11:40	85.7	0.11	<0.00010	0.00105	0.0164	<0.000020	<0.000050	0.011	<0.0000050	20.7	<0.000010	7.05	0.00017	<0.00010	0.00067
	Z8-4 SURF	WP2324106-002	21-Sep-23	13:23	98.3	0.385	<0.00010	0.00161	0.0247	<0.000020	<0.000050	0.018	<0.0000050	22.7	0.000036	9.40	0.00057	0.00014	0.00152
	Z8-5 SURF	WP2324106-003	21-Sep-23	12:28	95.9	0.313	<0.00010	0.00148	0.0220	<0.000020	<0.000050	0.016	<0.0000050	22.1	0.000028	9.16	0.00046	0.00011	0.00134
	Z8-6 SURF	WP2324106-004	21-Sep-23	13:11	96.0	0.369	<0.00010	0.00157	0.0249	<0.000020	<0.000050	0.017	<0.0000050	21.8	0.000032	9.33	0.00053	0.00012	0.00139

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Zone 11	Z11-1 SURF	WP2324173-001	22-Sep-23	10:04	97.4	0.150	<0.00010	0.00112	0.0180	<0.000020	<0.000050	0.016	<0.0000050	22.6	0.000010	8.04	0.00021	<0.00010	0.00075
	Z11-3 SURF	WP2324173-002	22-Sep-23	9:29	92.0	0.245	0.00011	0.00144	0.0229	<0.000020	<0.000050	0.015	<0.0000050	19.7	0.000023	8.94	0.00036	0.00010	0.00124
	Z11-4 SURF	WP2324173-003	22-Sep-23	9:45	103	0.281	<0.00010	0.00143	0.0227	<0.000020	<0.000050	0.019	<0.0000050	22.8	0.000022	9.25	0.00038	0.00011	0.00136
	Z11-6 SURF	WP2324173-004	22-Sep-23	11:19	101	0.266	<0.00010	0.00153	0.0226	<0.000020	<0.000050	0.020	<0.0000050	22.4	0.000025	9.72	0.00038	0.00011	0.00152
	Z11-10 SURF	WP2324173-005	22-Sep-23	8:29	89.6	0.0230	<0.00010	0.00076	0.0126	<0.000020	<0.000050	0.011	<0.0000050	22.3	<0.000010	5.86	<0.00010	<0.00010	<0.00050
	Z11-11 SURF	WP2324173-006	22-Sep-23	9:03	90.4	0.0488	<0.00010	0.00084	0.0144	<0.000020	<0.000050	0.012	<0.0000050	21.6	<0.000010	6.50	0.00010	<0.00010	<0.00050
Zone 12	Z12-6 SURF	WP2324173-007	22-Sep-23	13:35	101	0.356	<0.00010	0.00159	0.0232	<0.000020	<0.000050	0.019	<0.0000050	22.1	0.000030	9.74	0.00088	0.00014	0.00158
	Z12-8 SURF	WP2324173-008	22-Sep-23	11:52	88.8	0.0730	<0.00010	0.00096	0.0149	<0.000020	<0.000050	0.013	<0.0000050	20.8	<0.000010	7.67	0.00015	<0.00010	<0.00050
	Z12-9 SURF	WP2324173-009	22-Sep-23	12:14	100	0.307	<0.00010	0.00144	0.0211	<0.000020	<0.000050	0.018	<0.0000050	22.2	0.000026	9.08	0.00043	0.00011	0.00121
	Z12-11 SURF	WP2324173-010	22-Sep-23	12:32	102	0.427	<0.00010	0.00159	0.0234	<0.000020	<0.000050	0.020	<0.0000050	22.6	0.000030	9.44	0.00061	0.00015	0.00162
	Z12-13 SURF	WP2324173-011	22-Sep-23	12:56	99.1	0.364	<0.00010	0.00160	0.0234	<0.000020	<0.000050	0.020	<0.0000050	21.7	0.000034	9.46	0.00056	0.00014	0.00143
	Z12-14 SURF	WP2324173-012	22-Sep-23	13:23	92.8	0.198	<0.00010	0.00109	0.0165	<0.000020	<0.000050	<0.010	<0.0000050	21.8	0.000015	7.18	0.00026	<0.00010	0.00072

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Zone 1b	Z1-5A, -5B, -5C	WP2303699-001, -006, -007	27-Mar-23	8:35	0.414	0.000182	0.0085	11.8	0.0102	0.95	0.025	0.000522	0.00130	0.056	2.52	0.00216	0.000119	3.84	<0.000010	12.2
	Z1-6	WP2303699-002	27-Mar-23	9:30	0.474	0.000230	0.0083	11.9	0.0106	1.30	0.031	0.000563	0.00139	0.062	2.56	0.00228	0.000135	3.81	<0.000010	12.2
	Z1-7	WP2303699-003	27-Mar-23	10:05	0.441	0.000190	0.0090	11.5	0.0102	0.70	<0.020	0.000551	0.00131	<0.050	2.55	0.00221	0.000144	3.90	<0.000010	12.4
	Z1-8	WP2303699-004	27-Mar-23	10:50	0.455	0.000184	0.0084	11.7	0.0103	0.73	0.024	0.000522	0.00128	0.076	2.58	0.00223	0.000118	3.95	<0.000010	12.2
	Z1-9	WP2303699-005	27-Mar-23	11:35	0.383	0.000174	0.0083	11.3	0.00990	0.62	0.020	0.000534	0.00130	0.054	2.48	0.00210	0.000165	3.70	<0.000010	11.9
Zone 4	Z4-3 SURF	WP2303699-008	27-Mar-23	14:35	0.470	0.000174	0.0082	11.9	0.0104	0.73	0.031	0.000556	0.00137	<0.050	2.52	0.00230	0.000163	3.96	<0.000010	12.5
	Z4-5 SURF	WP2303699-009	27-Mar-23	12:25	0.406	0.000173	0.0085	12.4	0.00793	0.64	0.029	0.000572	0.00137	0.059	2.56	0.00214	0.000120	3.75	<0.000010	13.2
	Z4-6 SURF	WP2303699-010	27-Mar-23	13:10	0.416	0.000168	0.0081	12.2	0.00872	0.60	0.033	0.000560	0.00138	0.057	2.58	0.00216	0.000154	3.88	<0.000010	12.9
	Z4-7 SURF	WP2303699-011	27-Mar-23	13:55	0.392	0.000156	0.0086	12.1	0.00721	0.60	0.035	0.000565	0.00130	<0.050	2.54	0.00215	0.000153	3.82	<0.000010	13.0
Zone 8	Z8-1 SURF	WP2303925-008	30-Mar-23	8:45	2.11	0.000076	0.0072	12.7	0.382	1.69	0.355	0.000158	0.00077	0.238	2.61	0.00219	<0.000050	4.72	<0.000010	11.7
	Z8-4 SURF	WP2303925-009	30-Mar-23	10:45	0.417	0.000178	0.0080	11.4	0.0103	0.60	0.075	0.000516	0.00136	<0.050	2.40	0.00212	0.000139	3.81	<0.000010	11.7
	Z8-5 SURF	WP2303925-010	30-Mar-23	9:15	0.426	0.000148	0.0083	12.5	0.0371	1.07	0.375	0.000508	0.00119	0.064	2.60	0.00197	0.000097	4.07	<0.000010	12.5
	Z8-6 SURF	WP2303925-011	30-Mar-23	10:05	0.373	0.000197	0.0086	12.3	0.00862	0.85	0.049	0.000599	0.00160	0.052	2.57	0.00207	0.000147	3.87	<0.000010	12.7
Zone 11	Z11-1 SURF	WP2303849-001	29-Mar-23	10:10	0.312	0.000151	0.0093	13.0	0.00778	0.69	0.043	0.000588	0.00130	0.053	2.76	0.00205	0.000136	4.01	<0.000010	13.7
	Z11-1 BOT	WP2303849-004	29-Mar-23	10:10	0.327	0.000151	0.0089	12.6	0.00883	0.62	0.064	0.000554	0.00128	0.052	2.64	0.00197	0.000258	3.75	<0.000010	13.4
	Z11-3 SURF	WP2303790-007	28-Mar-23	13:55	0.336	0.000190	0.0094	12.9	0.00694	5.56	0.025	0.000595	0.00129	<0.050	2.62	0.00205	0.000147	4.04	<0.000010	13.6
	Z11-4 SURF	WP2303790-008	28-Mar-23	14:40	0.401	0.000188	0.0090	12.8	0.00774	1.38	<0.020	0.000581	0.00127	0.055	2.58	0.00199	0.000129	3.84	<0.000010	13.5
	Z11-6 SURF	WP2303790-009	28-Mar-23	15:20	0.425	0.000193	0.0091	12.8	0.00954	2.46	0.024	0.000592	0.00140	0.065	2.62	0.00229	0.000171	4.11	<0.000010	13.3
	Z11-10 SURF	WP2303849-002	29-Mar-23	8:45	0.868	0.000069	0.0081	12.8	0.212	3.74	<0.020	0.000278	0.00084	0.159	2.69	0.00170	0.000165	4.36	<0.000010	12.8
	Z11-11 SURF	WP2303849-003	29-Mar-23	9:30	0.500	0.000129	0.0086	13.0	0.110	2.79	0.902	0.000415	0.00142	0.109	2.72	0.00183	0.000115	4.18	<0.000010	13.5
Zone 12	Z12-6 SURF	WP2303790-001	28-Mar-23	11:50	0.255	0.000224	0.0092	12.6	0.00786	11.0	0.059	0.000576	0.00122	0.063	2.52	0.00184	0.000204	3.62	<0.000010	13.2
	Z12-8 SURF	WP2303790-002	28-Mar-23	8:45	0.658	0.000091	0.0091	13.3	0.300	4.95	1.690	0.000392	0.00084	0.154	2.76	0.00203	0.000174	4.06	<0.000010	14.2
	Z12-9 SURF	WP2303790-003	28-Mar-23	9:25	0.331	0.000128	0.0094	13.4	0.0192	1.30	0.320	0.000566	0.00108	0.070	2.73	0.00192	0.000143	3.98	<0.000010	14.3
	Z12-11 SURF	WP2303790-004	28-Mar-23	10:10	0.304	0.000245	0.0091	13.2	0.00849	1.86	0.049	0.000586	0.00129	0.059	2.60	0.00202	0.000198	3.93	<0.000010	13.7
	Z12-13 SURF	WP2303790-005	28-Mar-23	13:05	0.379	0.000194	0.0091	12.7	0.00967	5.70	0.039	0.000590	0.00136	0.054	2.58	0.00212	0.000193	4.07	<0.000010	13.7
	Z12-14 SURF	WP2303790-006	28-Mar-23	12:30	1.93	0.000090	0.0023	8.05	0.242	11.8	0.676	<0.000050	<0.00050	0.097	1.25	0.00178	0.000074	3.78	<0.000010	3.18
Zone 1b	Z1-5	WP2313572-001	26-Jun-23	7:50	0.520	0.000256	0.0068	10.0	0.0106	0.84	0.033	0.000440	0.00152	<0.050	2.26	0.00236	0.000089	2.93	<0.000010	9.90
	Z1-6	WP2313572-002	26-Jun-23	8:20	0.477	0.000228	0.0066	10.1	0.0105	0.80	0.088	0.000526	0.00144	0.053	2.22	0.00228	0.000106	2.82	<0.000010	9.95
	Z1-7	WP2313572-003	26-Jun-23	8:05	0.506	0.000223	0.0072	10.3	0.0102	0.79	0.028	0.000454	0.00153	<0.050	2.30	0.00230	0.000118	2.84	<0.000010	10.5
	Z1-8A, -8B, -5C	WP2313572-004, -006, -007	26-Jun-23	8:35	0.489	0.000228	0.0069	10.2	0.0104	0.86	0.057	0.000458	0.00147	<0.050	2.23	0.00225	0.000106	2.80	<0.000010	9.89
	Z1-9	WP2313572-005	26-Jun-23	8:48	0.503	0.000239	0.0070	10.1	0.0100	0.85	0.030	0.000482	0.00147	<0.050	2.24	0.00227	0.000095	2.81	<0.000010	10.2
Zone 4	Z4-3 SURF	WP2313201-001	24-Jun-23	13:30	0.432	0.000188	0.0062	9.62	0.0111	1.04	0.113	0.000523	0.00130	<0.050	1.98	0.00197	0.000110	2.60	<0.000010	9.59
	Z4-5 SURF	WP2313201-002	24-Jun-23	12:32	0.176	0.000079	0.0055	9.35	0.0110	1.01	0.278	0.000404	0.00089	<0.050	1.86	0.00146	0.000118	1.83	<0.000010	9.06
	Z4-6 SURF	WP2313201-003	24-Jun-23	12:34	0.253	0.000105	0.0059	9.54	0.0102	1.48	0.239	0.000431	0.00097	<0.050	1.92	0.00163	0.000092	2.10	<0.000010	9.35
	Z4-7 SURF	WP2313201-004	24-Jun-23	13:18	0.249	0.000116	0.0056	9.28	0.0140	1.16	0.230	0.000398	0.00102	<0.050	1.82	0.00155	0.000072	1.93	<0.000010	8.92
Zone 8	Z8-1 SURF	WP2313612-001	22-Jun-23	8:35	0.400	<0.000050	0.0032	6.81	0.0622	3.00	1.390	0.000200	0.00059	0.083	1.45	0.00138	0.000070	0.72	<0.000010	6.19
	Z8-4 SURF	WP2313612-002	22-Jun-23	10:05	0.516	0.000241	0.0061	10.4	0.0116	1.37	0.054	0.000473	0.00153	<0.050	2.20	0.00239	0.000095	2.67	<0.000010	10.1
	Z8-5 SURF	WP2313612-003	22-Jun-23	9:10	0.308	0.000123	0.0052	9.36	0.0201	2.15	0.489	0.000390	0.00104	0.051	1.95	0.00176	0.000127	2.00	<0.000010	9.18
	Z8-6 SURF	WP2313612-004	22-Jun-23	9:30	0.410	0.000197	0.0057	9.54	0.0206	1.44	0.297	0.000425	0.00126	0.053	2.04	0.00201	0.000104	2.39	<0.000010	9.37

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Zone 11	Z11-1 SURF	WP2313572-008	26-Jun-23	9:48	0.142	<0.000050	0.0056	9.04	0.0246	1.95	1.080	0.000355	0.00069	0.078	1.86	0.00127	0.000110	1.56	<0.000010	8.85
	Z11-3 SURF	WP2313572-009	26-Jun-23	9:54	0.243	0.000107	0.0062	9.70	0.0191	1.36	0.491	0.000425	0.00102	<0.050	2.05	0.00166	0.000127	2.09	<0.000010	9.63
	Z11-4 SURF	WP2313572-010	26-Jun-23	10:06	0.324	0.000144	0.0066	9.93	0.0179	1.18	0.355	0.000447	0.00119	<0.050	2.17	0.00184	0.000100	2.26	<0.000010	9.80
	Z11-6 SURF	WP2313572-011	26-Jun-23	10:30	0.477	0.000219	0.0071	10.5	0.0102	0.82	0.085	0.000486	0.00146	<0.050	2.33	0.00234	0.000118	2.78	<0.000010	10.4
	Z11-10 SURF	WP2313572-012	26-Jun-23	9:18	0.435	<0.000050	0.0041	7.50	0.0663	1.89	1.060	0.000190	0.00057	0.083	1.53	0.00125	0.000069	0.95	<0.000010	6.33
	Z11-11 SURF	WP2313572-013	26-Jun-23	9:37	0.244	<0.000050	0.0045	8.40	0.0613	2.22	1.500	0.000260	0.00061	0.087	1.72	0.00128	0.000082	1.19	<0.000010	7.76
Zone 12	Z12-6 SURF	WP2313575-013	26-Jun-23	13:13	0.417	0.000200	0.0061	10.1	0.0100	0.89	0.074	0.000478	0.00138	0.053	2.27	0.00214	0.000145	2.55	<0.000010	10.4
	Z12-8 SURF	WP2313575-014	26-Jun-23	12:00	0.254	<0.000050	0.0046	8.52	0.0444	2.81	1.600	0.000341	0.00072	0.087	1.93	0.00154	0.000090	1.10	<0.000010	8.93
	Z12-9 SURF	WP2313575-015	26-Jun-23	12:15	0.340	0.000176	0.0058	9.82	0.0150	1.44	0.422	0.000427	0.00121	<0.050	2.14	0.00181	0.000123	2.16	<0.000010	9.76
	Z12-11 SURF	WP2313575-016	26-Jun-23	13:43	0.375	0.000204	0.0062	9.84	0.00895	0.93	0.055	0.000466	0.00134	<0.050	2.17	0.00211	0.000094	2.28	<0.000010	10.2
	Z12-13 SURF	WP2313575-017	26-Jun-23	12:28	0.427	0.000197	0.0062	10.1	0.0131	1.11	0.206	0.000448	0.00254	<0.050	2.22	0.00210	0.000138	2.58	<0.000010	10.3
	Z12-14 SURF	WP2313575-018	26-Jun-23	12:42	0.245	0.000104	0.0051	9.06	0.0151	1.44	0.460	0.000395	0.00095	<0.050	1.84	0.00146	0.000087	1.88	<0.000010	8.82
	Z12-14 BOT	WP2313575-019	26-Jun-23	12:42	0.217	0.000159	0.0038	7.57	0.0151	2.21	0.545	0.000248	0.00066	<0.050	1.35	0.00117	0.000063	1.68	<0.000010	6.68
Zone 1b	Z1-5A, -5B, -5C	WP2318135-001, -006, -007	2-Aug-23	8:05	0.474	0.000255	0.0068	9.45	0.00908	1.14	0.090	0.000419	0.00129	<0.050	2.09	0.00228	0.000108	3.42	<0.000010	8.72
	Z1-6	WP2318135-002	2-Aug-23	8:51	0.456	0.000228	0.0071	9.43	0.0103	0.78	0.110	0.000440	0.00125	0.061	2.11	0.00227	0.000139	3.47	<0.000010	9.07
	Z1-7	WP2318135-003	2-Aug-23	7:46	0.468	0.000242	0.0069	9.59	0.00892	0.69	0.052	0.000462	0.00129	<0.050	2.10	0.00227	0.000078	3.47	<0.000010	9.00
	Z1-8	WP2318135-004	2-Aug-23	8:38	0.478	0.000225	0.0067	9.75	0.00965	0.77	0.062	0.000408	0.00130	0.052	2.08	0.00232	0.000097	3.47	<0.000010	8.91
	Z1-9	WP2318135-005	2-Aug-23	8:52	0.451	0.000230	0.0069	9.50	0.00838	0.70	0.094	0.000446	0.00124	<0.050	2.04	0.00232	0.000086	3.48	<0.000010	8.62
Zone 4	Z4-3 SURF	WP2317397-012	30-Jul-23	12:56	0.382	0.000169	0.0067	9.16	0.00880	1.50	0.103	0.000493	0.00126	<0.050	2.06	0.00204	0.000098	2.99	<0.000010	8.60
	Z4-5 SURF	WP2317397-013	30-Jul-23	11:21	0.138	<0.000050	0.0059	9.19	0.0107	1.05	0.358	0.000426	0.00076	<0.050	1.91	0.00141	0.000115	1.78	<0.000010	8.38
	Z4-6 SURF	WP2317397-014	30-Jul-23	11:57	0.134	0.000072	0.0065	9.41	0.00813	1.44	0.291	0.000422	0.00085	0.051	1.92	0.00147	0.000100	1.74	<0.000010	8.50
	Z4-7 SURF	WP2317397-015	30-Jul-23	12:30	0.203	0.000089	0.0053	9.71	0.0115	1.21	0.444	0.000390	0.00086	<0.050	1.95	0.00161	0.000121	2.49	<0.000010	8.50
	Z4-7 BOT	WP2317397-016	30-Jul-23	12:30	0.221	0.000110	0.0059	9.08	0.0147	1.35	0.406	0.000388	0.00093	<0.050	1.94	0.00160	0.000098	2.55	<0.000010	7.98
Zone 8	Z8-1 SURF	WP2318135-008	2-Aug-23	9:20	0.239	<0.000050	0.0057	8.46	0.0234	-[1]	0.031	0.000292	0.00056	0.056	1.66	0.00142	0.000067	1.90	<0.000010	8.11
	Z8-4 SURF	WP2318135-009	2-Aug-23	10:26	0.420	0.000198	0.0069	9.14	0.0100	0.74	0.043	0.000448	0.00127	<0.050	2.07	0.00204	0.000101	3.30	<0.000010	8.94
	Z8-5 SURF	WP2318135-010	2-Aug-23	9:44	0.272	0.000122	0.0064	9.46	0.0131	1.14	0.023	0.000418	0.00092	0.051	1.99	0.00175	0.000096	2.72	<0.000010	8.60
	Z8-6 SURF	WP2318135-011	2-Aug-23	9:58	0.373	0.000184	0.0069	9.72	0.0116	0.95	1.970	0.000460	0.00114	0.052	2.12	0.00204	0.000099	3.16	<0.000010	8.96
Zone 11	Z11-1 SURF	WP2317397-001	29-Jul-23	10:35	0.194	0.000072	0.0059	9.72	0.0162	2.19	0.762	0.000384	0.00078	0.052	1.98	0.00162	0.000102	2.46	<0.000010	8.85
	Z11-3 SURF	WP2317397-002	29-Jul-23	10:47	0.279	0.000130	0.0068	9.30	0.0120	1.37	0.395	0.000501	0.00104	<0.050	2.02	0.00183	0.000098	2.82	<0.000010	8.64
	Z11-4 SURF	WP2317397-003	29-Jul-23	11:11	0.358	0.000167	0.0065	9.36	0.00965	1.08	0.237	0.000511	0.00113	<0.050	2.11	0.00202	0.000116	3.00	<0.000010	8.61
	Z11-6 SURF	WP2317397-004	29-Jul-23	12:25	0.462	0.000238	0.0055	9.26	0.00983	1.01	0.079	0.000373	0.00139	0.054	2.08	0.00239	0.000100	3.25	<0.000010	8.63
	Z11-10 SURF	WP2317397-005	29-Jul-23	10:03	0.288	<0.000050	0.0044	7.61	0.0198	1.95	0.713	0.000139	<0.00050	0.061	1.30	0.00109	0.000052	1.28	<0.000010	6.17
	Z11-11 SURF	WP2317397-006	29-Jul-23	10:20	0.188	<0.000050	0.0054	8.26	0.0202	2.43	1.020	0.000240	0.00054	0.066	1.72	0.00125	0.000084	2.07	<0.000010	7.62
Zone 12	Z12-6 SURF	WP2317762-001	31-Jul-23	10:15	0.396	0.000201	0.0071	10.0	0.00946	0.80	0.024	0.000474	0.00130	<0.050	2.14	0.00207	0.000088	3.24	0.000032	9.25
	Z12-8 SURF	WP2317762-002	31-Jul-23	8:20	0.192	<0.000050	0.0059	9.22	0.0262	2.63	0.360	0.000278	0.00057	0.065	1.86	0.00140	0.000099	0.76	0.000027	8.99
	Z12-8 BOT	WP2317762-007	31-Jul-23	8:20	0.198	<0.000050	0.0055	8.82	0.0272	3.01	1.040	0.000288	0.00052	0.060	1.81	0.00139	0.000110	0.83	0.000038	8.40
	Z12-9 SURF	WP2317762-003	31-Jul-23	8:40	0.331	0.000135	0.0071	9.97	0.0149	1.59	0.344	0.000438	0.00098	<0.050	2.07	0.00189	0.000071	2.75	0.000018	9.58
	Z12-11 SURF	WP2317762-004	31-Jul-23	10:58	0.380	0.000206	0.0072	10.2	0.00996	0.86	<0.020	0.000461	0.00130	<0.050	2.17	0.00208	0.000151	3.20	0.000016	9.16
	Z12-13 SURF	WP2317762-005	31-Jul-23	9:45	0.412	0.000208	0.0074	10.5	0.00896	0.76	0.102	0.000446	0.00124	<0.050	2.15	0.00208	0.000132	3.10	0.000021	9.56
	Z12-14 SURF	WP2317762-006	31-Jul-23	9:18	0.169	0.000067	0.0051	9.50	0.00633	1.37	0.338	0.000321	0.00075	<0.050	1.62	0.00134	0.000146	1.86	0.000075	8.12

1.Sample bottle broken in transit.

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Zone 1b	Z1-5	WP2321378-005	28-Aug-23	10:48	0.340	0.000182	0.0076	9.38	0.00791	0.56	0.030	0.00106	0.00128	<0.050	2.10	0.00212	0.000116	3.25	<0.000010	9.42
	Z1-6	WP2321378-006	28-Aug-23	11:44	0.353	0.000187	0.0073	9.29	0.00839	0.64	0.061	0.000485	0.00118	<0.050	2.10	0.00212	0.000106	3.28	<0.000010	8.92
	Z1-7A, -7B, -7C	WP2321378-007, -010, -011	28-Aug-23	10:09	0.345	0.000185	0.0073	9.62	0.00774	0.56	0.025	0.000559	0.00126	<0.050	2.12	0.00204	0.000102	3.30	<0.000010	9.24
	Z1-8	WP2321378-008	28-Aug-23	11:28	0.378	0.000200	0.0077	9.56	0.00865	0.58	0.054	0.000509	0.00131	<0.050	2.12	0.00224	0.000104	3.47	<0.000010	8.80
	Z1-9	WP2321378-009	28-Aug-23	11:09	0.447	0.000192	0.0074	9.49	0.00844	0.60	0.030	0.000972	0.00130	<0.050	2.13	0.00207	0.000125	3.28	<0.000010	9.09
Zone 4	Z4-3 SURF	WP2320928-006	25-Aug-23	11:45	0.372	0.000189	0.0070	9.93	0.00969	0.70	0.071	0.000448	0.00118	0.051	2.35	0.00200	0.000124	3.46	<0.000010	9.66
	Z4-5 SURF	WP2320928-007	25-Aug-23	10:45	0.216	0.000076	0.0061	9.72	0.0182	1.22	0.419	0.000365	0.00080	0.072	2.15	0.00145	0.000086	2.68	<0.000010	9.11
	Z4-6 SURF	WP2320928-008	25-Aug-23	11:11	0.211	0.000085	0.0065	10.0	0.0132	1.00	0.295	0.000373	0.00084	0.062	2.15	0.00151	0.000101	2.54	<0.000010	9.42
	Z4-7 SURF	WP2320928-009	25-Aug-23	11:33	0.284	0.000124	0.0067	9.83	0.0144	0.91	0.262	0.000414	0.00100	0.069	2.23	0.00177	0.000091	3.19	<0.000010	9.36
Zone 8	Z8-1 SURF	WP2320722-001	23-Aug-23	8:12	0.272	<0.000050	0.0050	7.47	0.0214	1.88	0.449	0.000509	0.00051	0.055	1.36	0.00121	0.000076	2.57	<0.000010	6.02
	Z8-4 SURF	WP2320722-002	23-Aug-23	9:38	0.344	0.000177	0.0079	9.74	0.00846	0.71	0.072	0.000481	0.00118	<0.050	2.08	0.00213	0.000106	3.04	<0.000010	8.98
	Z8-5 SURF	WP2320722-003	23-Aug-23	8:42	0.289	0.000146	0.0075	9.28	0.0115	0.94	0.220	0.000960	0.00102	<0.050	1.98	0.00188	0.000095	2.89	<0.000010	8.44
	Z8-6 SURF	WP2320722-004	23-Aug-23	8:58	0.345	0.000169	0.0078	9.37	0.00890	0.86	0.119	0.000446	0.00121	<0.050	2.06	0.00207	0.000093	3.02	<0.000010	8.55
Zone 11	Z11-1 SURF	WP2321378-001	28-Aug-23	8:14	0.188	0.000103	0.0068	8.97	0.0132	1.27	0.598	0.000378	0.00092	<0.050	1.95	0.00158	0.000108	2.95	<0.000010	8.33
	Z11-3 SURF	WP2321378-002	28-Aug-23	8:23	0.223	0.000134	0.0069	9.18	0.0148	1.12	0.472	0.000404	0.00100	<0.050	2.08	0.00167	0.000114	3.00	<0.000010	8.67
	Z11-4 SURF	WP2321378-003	28-Aug-23	8:37	0.254	0.000150	0.0071	9.14	0.0108	0.88	0.274	0.000399	0.00111	<0.050	2.05	0.00182	0.000107	3.03	<0.000010	8.69
	Z11-6 SURF	WP2321378-004	28-Aug-23	9:42	0.358	0.000195	0.0080	9.71	0.00840	0.62	0.064	0.000494	0.00122	0.054	2.16	0.00207	0.000128	3.29	<0.000010	9.52
	Z11-10 SURF	WP2321052-002	27-Aug-23	8:13	0.172	<0.000050	0.0052	7.56	0.0187	1.20	0.575	0.000654	<0.00050	<0.050	1.63	0.00118	0.000074	2.78	<0.000010	6.84
	Z11-11 SURF	WP2321052-001	27-Aug-23	8:30	0.156	<0.000050	0.0060	8.23	0.0174	1.49	0.637	0.000290	0.00057	0.050	1.90	0.00132	0.000067	2.99	<0.000010	8.01
Zone 12	Z12-6 SURF	WP2321410-001	28-Aug-23	14:37	0.339	0.000180	0.0062	9.33	0.00839	0.62	0.028	0.000545	0.00121	0.051	2.17	0.00200	0.000131	3.20	<0.000010	9.46
	Z12-8 SURF	WP2321410-002	28-Aug-23	13:15	0.249	0.000068	0.0050	8.17	0.0224	2.18	1.010	0.000920	0.00063	0.057	1.92	0.00152	0.000085	2.53	<0.000010	8.28
	Z12-9 SURF	WP2321410-003	28-Aug-23	13:27	0.330	0.000138	0.0064	9.57	0.0123	1.24	0.463	0.000486	0.00098	0.050	2.10	0.00190	0.000155	2.96	<0.000010	9.04
	Z12-11 SURF	WP2321410-004	28-Aug-23	15:22	0.425	0.000196	0.0068	9.75	0.00900	0.77	0.090	0.00114	0.00128	<0.050	2.16	0.00218	0.000131	3.35	<0.000010	9.47
	Z12-13 SURF	WP2321410-005	28-Aug-23	14:51	0.289	0.000155	0.0065	9.53	0.00946	0.88	0.207	0.000510	0.00102	<0.050	2.12	0.00185	0.000130	2.95	<0.000010	9.24
	Z12-14 SURF	WP2321410-006	28-Aug-23	14:02	0.265	0.000060	0.0035	6.80	0.0212	1.67	0.696	0.000212	0.00054	<0.050	1.38	0.00130	0.000080	2.67	<0.000010	5.46
Zone 1b	Z1-5	WP2324257-001	24-Sep-23	8:43	0.341	0.000189	0.0081	11.0	0.00659	0.93	0.028	0.000536	0.00124	<0.050	2.39	0.00204	0.000100	3.70	<0.000010	11.0
	Z1-6	WP2324257-002	24-Sep-23	7:50	0.236	0.000149	0.0081	11.0	0.00628	0.57	0.055	0.000578	0.00105	0.052	2.35	0.00180	0.000095	3.46	<0.000010	11.0
	Z1-7	WP2324257-003	24-Sep-23	9:04	0.319	0.000171	0.0074	11.1	0.00638	<0.50	0.025	0.000519	0.00117	0.052	2.35	0.00204	0.000102	3.54	<0.000010	10.8
	Z1-8	WP2324257-004	24-Sep-23	8:10	0.253	0.000141	0.0073	11.0	0.00624	0.63	0.045	0.000536	0.00110	0.051	2.42	0.00195	0.000128	3.50	<0.000010	11.2
	Z1-9	WP2324257-005	24-Sep-23	8:20	0.305	0.000164	0.0081	10.5	0.00625	0.58	0.020	0.000521	0.00114	0.053	2.33	0.00196	0.000100	3.54	<0.000010	10.6
Zone 4	Z4-3 SURF	WP2324257-016	23-Sep-23	15:20	0.277	0.000140	0.0087	10.6	0.00673	0.50	0.034	0.000579	0.00112	0.056	2.33	0.00199	0.000120	3.48	<0.000010	10.4
	Z4-5 SURF	WP2324257-017	23-Sep-23	14:52	0.135	0.000068	0.0076	9.58	0.00801	0.70	0.196	0.000443	0.00077	0.059	2.02	0.00137	0.000096	2.59	<0.000010	8.79
	Z4-6 SURF	WP2324257-018	23-Sep-23	15:06	0.257	0.000106	0.0078	10.0	0.0216	0.63	0.147	0.000604	0.00098	0.068	2.07	0.00169	0.000111	2.90	<0.000010	9.53
	Z4-7 SURF	WP2324257-019	23-Sep-23	15:32	0.182	0.000095	0.0081	10.3	0.00844	0.56	0.096	0.000459	0.00091	0.056	2.12	0.00170	0.000095	2.92	<0.000010	9.82
Zone 8	Z8-1A SURF, -1B SURF, -1C SURF	WP2324106-001, -005, -006	21-Sep-23	11:40	0.159	0.000069	0.0061	8.23	0.0109	1.05	0.424	0.000338	0.00053	<0.050	1.69	0.00134	0.000096	2.73	<0.000010	7.89
	Z8-4 SURF	WP2324106-002	21-Sep-23	13:23	0.292	0.000153	0.0080	10.1	0.00675	0.56	0.046	0.000489	0.00106	<0.050	2.19	0.00187	0.000093	3.34	<0.000010	9.89
	Z8-5 SURF	WP2324106-003	21-Sep-23	12:28	0.239	0.000132	0.0078	9.88	0.00791	0.60	0.104	0.00139	0.00096	0.053	2.12	0.00171	0.000084	3.22	<0.000010	9.69
	Z8-6 SURF	WP2324106-004	21-Sep-23	13:11	0.266	0.000149	0.0078	10.1	0.00834	0.69	0.071	0.000480	0.00106	0.050	2.22	0.00188	0.000114	3.33	<0.000010	9.88

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Zone 11	Z11-1 SURF	WP2324173-001	22-Sep-23	10:04	0.153	0.000060	0.0068	9.94	0.0120	1.26	0.593	0.000380	0.00065	<0.050	2.14	0.00144	0.000096	2.88	<0.000010	9.40
	Z11-3 SURF	WP2324173-002	22-Sep-23	9:29	0.210	0.000107	0.0050	10.4	0.0168	0.82	0.328	0.000700	0.00091	<0.050	2.28	0.00173	0.000142	2.90	<0.000010	10.1
	Z11-4 SURF	WP2324173-003	22-Sep-23	9:45	0.212	0.000118	0.0078	11.2	0.00937	0.80	0.187	0.000622	0.00090	0.050	2.36	0.00162	0.000095	3.27	<0.000010	10.5
	Z11-6 SURF	WP2324173-004	22-Sep-23	11:19	0.216	0.000124	0.0076	11.0	0.00694	0.59	0.094	0.000588	0.00100	<0.050	2.38	0.00174	0.000122	3.17	<0.000010	10.9
	Z11-10 SURF	WP2324173-005	22-Sep-23	8:29	0.142	<0.000050	0.0051	8.24	0.0158	1.64	0.675	0.000201	<0.00050	<0.050	1.68	0.00116	0.000080	1.88	<0.000010	7.54
	Z11-11 SURF	WP2324173-006	22-Sep-23	9:03	0.134	<0.000050	0.0058	8.86	0.0142	1.44	0.665	0.000268	<0.00050	0.053	1.84	0.00125	<0.000050	2.26	<0.000010	8.17
Zone 12	Z12-6 SURF	WP2324173-007	22-Sep-23	13:35	0.279	0.000145	0.0079	11.2	0.00667	0.74	0.079	0.000518	0.00125	<0.050	2.41	0.00190	0.000115	3.38	<0.000010	11.2
	Z12-8 SURF	WP2324173-008	22-Sep-23	11:52	0.163	<0.000050	0.0063	8.96	0.0124	1.90	0.921	0.000311	<0.00050	<0.050	2.09	0.00147	0.000082	2.81	<0.000010	9.25
	Z12-9 SURF	WP2324173-009	22-Sep-23	12:14	0.252	0.000124	0.0076	10.9	0.00983	1.03	0.334	0.000494	0.00090	0.052	2.31	0.00163	0.000113	3.20	<0.000010	10.4
	Z12-11 SURF	WP2324173-010	22-Sep-23	12:32	0.301	0.000157	0.0080	11.1	0.00789	0.69	0.101	0.000476	0.00106	0.051	2.36	0.00181	0.000119	3.39	<0.000010	10.7
	Z12-13 SURF	WP2324173-011	22-Sep-23	12:56	0.276	0.000146	0.0078	10.9	0.00790	1.34	0.116	0.000517	0.00105	<0.050	2.42	0.00188	0.000108	3.43	<0.000010	10.7
	Z12-14 SURF	WP2324173-012	22-Sep-23	13:23	0.199	0.000073	0.0062	9.31	0.0127	1.06	0.494	0.000869	0.00062	<0.050	1.98	0.00147	0.000080	2.80	<0.000010	8.56

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Zone 1b	Z1-5A, -5B, -5C	WP2303699-001, -006, -007	27-Mar-23	8:35	0.0951	27.9	9.91	<0.00020	<0.000010	0.00013	<0.00010	0.0170	<0.00010	0.000713	0.00159	<0.0030	0.00044
	Z1-6	WP2303699-002	27-Mar-23	9:30	0.0971	27.2	9.80	<0.00020	<0.000010	0.00014	<0.00010	0.0193	<0.00010	0.000701	0.00165	<0.0030	0.00047
	Z1-7	WP2303699-003	27-Mar-23	10:05	0.0946	28.3	10.0	<0.00020	<0.000010	0.00014	<0.00010	0.0173	<0.00010	0.000737	0.00161	<0.0030	0.00042
	Z1-8	WP2303699-004	27-Mar-23	10:50	0.0944	27.2	9.66	<0.00020	<0.000010	0.00014	<0.00010	0.0179	<0.00010	0.000653	0.00163	<0.0030	0.00053
	Z1-9	WP2303699-005	27-Mar-23	11:35	0.0994	27.2	9.54	<0.00020	<0.000010	0.00012	<0.00010	0.0157	<0.00010	0.000684	0.00154	<0.0030	0.00045
Zone 4	Z4-3 SURF	WP2303699-008	27-Mar-23	14:35	0.0871	26.7	10.1	<0.00020	<0.000010	0.00013	<0.00010	0.0191	<0.00010	0.000600	0.00161	<0.0030	0.00048
	Z4-5 SURF	WP2303699-009	27-Mar-23	12:25	0.0926	28.3	10.7	<0.00020	<0.000010	0.00011	<0.00010	0.0162	<0.00010	0.000634	0.00158	<0.0030	0.00041
	Z4-6 SURF	WP2303699-010	27-Mar-23	13:10	0.0950	27.9	9.94	<0.00020	<0.000010	0.00012	<0.00010	0.0170	<0.00010	0.000615	0.00160	<0.0030	0.00043
	Z4-7 SURF	WP2303699-011	27-Mar-23	13:55	0.0920	28.2	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0161	<0.00010	0.000628	0.00160	<0.0030	0.00042
Zone 8	Z8-1 SURF	WP2303925-008	30-Mar-23	8:45	0.0964	14.0	5.42	<0.00020	<0.000010	<0.00010	<0.00010	0.00416	<0.00010	0.000171	0.00071	<0.0030	0.00025
	Z8-4 SURF	WP2303925-009	30-Mar-23	10:45	0.0926	27.1	10.1	<0.00020	<0.000010	0.00011	<0.00010	0.0164	<0.00010	0.000620	0.00156	<0.0030	0.00040
	Z8-5 SURF	WP2303925-010	30-Mar-23	9:15	0.0983	26.4	9.90	<0.00020	<0.000010	<0.00010	<0.00010	0.0130	<0.00010	0.000560	0.00138	<0.0030	0.00038
	Z8-6 SURF	WP2303925-011	30-Mar-23	10:05	0.0986	28.5	10.5	<0.00020	<0.000010	0.00011	<0.00010	0.0142	<0.00010	0.000662	0.00158	0.0046	0.00042
Zone 11	Z11-1 SURF	WP2303849-001	29-Mar-23	10:10	0.103	29.9	11.3	<0.00020	<0.000010	<0.00010	<0.00010	0.0122	<0.00010	0.000692	0.00158	<0.0030	0.00039
	Z11-1 BOT	WP2303849-004	29-Mar-23	10:10	0.101	29.9	10.8	<0.00020	<0.000010	0.00012	<0.00010	0.0125	<0.00010	0.000700	0.00155	<0.0030	0.00036
	Z11-3 SURF	WP2303790-007	28-Mar-23	13:55	0.103	29.9	10.9	<0.00020	<0.000010	0.00011	<0.00010	0.0144	<0.00010	0.000756	0.00162	0.0049	0.00042
	Z11-4 SURF	WP2303790-008	28-Mar-23	14:40	0.101	28.4	10.7	<0.00020	<0.000010	0.00013	<0.00010	0.0168	<0.00010	0.000701	0.00159	<0.0030	0.00046
	Z11-6 SURF	WP2303790-009	28-Mar-23	15:20	0.101	28.2	11.2	0.00030	<0.000010	0.00014	<0.00010	0.0176	<0.00010	0.000735	0.00172	<0.0030	0.00046
	Z11-10 SURF	WP2303849-002	29-Mar-23	8:45	0.0956	20.1	7.50	<0.00020	<0.000010	<0.00010	<0.00010	0.00474	<0.00010	0.000208	0.00070	<0.0030	0.00024
	Z11-11 SURF	WP2303849-003	29-Mar-23	9:30	0.0990	24.3	9.27	<0.00020	<0.000010	<0.00010	<0.00010	0.00699	<0.00010	0.000363	0.00092	<0.0030	0.00028
Zone 12	Z12-6 SURF	WP2303790-001	28-Mar-23	11:50	0.101	28.7	10.7	<0.00020	<0.000010	0.00010	<0.00010	0.0103	<0.00010	0.000721	0.00146	0.0041	0.00038
	Z12-8 SURF	WP2303790-002	28-Mar-23	8:45	0.103	23.4	8.45	<0.00020	<0.000010	<0.00010	<0.00010	0.00571	<0.00010	0.000305	0.00077	<0.0030	0.00024
	Z12-9 SURF	WP2303790-003	28-Mar-23	9:25	0.108	28.9	11.2	<0.00020	<0.000010	<0.00010	<0.00010	0.00878	<0.00010	0.000520	0.00121	<0.0030	0.00033
	Z12-11 SURF	WP2303790-004	28-Mar-23	10:10	0.104	29.1	10.6	<0.00020	<0.000010	<0.00010	<0.00010	0.0130	<0.00010	0.000705	0.00156	0.0051	0.00043
	Z12-13 SURF	WP2303790-005	28-Mar-23	13:05	0.100	29.0	10.7	<0.00020	<0.000010	0.00013	<0.00010	0.0161	<0.00010	0.000735	0.00165	<0.0030	0.00046
	Z12-14 SURF	WP2303790-006	28-Mar-23	12:30	0.0445	1.80	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	0.00089	<0.00010	0.000032	<0.00050	0.0049	<0.00020
Zone 1b	Z1-5	WP2313572-001	26-Jun-23	7:50	0.0819	20.8	8.15	<0.00020	0.000010	0.00018	<0.00010	0.0211	<0.00010	0.000554	0.00183	<0.0030	0.00056
	Z1-6	WP2313572-002	26-Jun-23	8:20	0.0827	20.4	7.78	<0.00020	<0.000010	0.00017	<0.00010	0.0186	<0.00010	0.000503	0.00176	<0.0030	0.00055
	Z1-7	WP2313572-003	26-Jun-23	8:05	0.0810	21.7	8.14	<0.00020	<0.000010	0.00017	<0.00010	0.0207	<0.00010	0.000535	0.00185	<0.0030	0.00055
	Z1-8A, -8B, -5C	WP2313572-004, -006, -007	26-Jun-23	8:35	0.0812	20.5	7.64	<0.00020	<0.000010	0.00016	<0.00010	0.0195	<0.00010	0.000517	0.00173	<0.0030	0.00055
	Z1-9	WP2313572-005	26-Jun-23	8:48	0.0815	20.9	7.90	<0.00020	<0.000010	0.00018	<0.00010	0.0198	<0.00010	0.000568	0.00179	<0.0030	0.00054
Zone 4	Z4-3 SURF	WP2313201-001	24-Jun-23	13:30	0.0781	18.6	6.69	<0.00020	<0.000010	0.00013	<0.00010	0.0152	<0.00010	0.000440	0.00152	<0.0030	0.00042
	Z4-5 SURF	WP2313201-002	24-Jun-23	12:32	0.0783	16.8	6.24	<0.00020	<0.000010	<0.00010	<0.00010	0.00527	<0.00010	0.000325	0.00099	<0.0030	0.00023
	Z4-6 SURF	WP2313201-003	24-Jun-23	12:34	0.0769	17.6	6.53	<0.00020	<0.000010	<0.00010	<0.00010	0.00833	<0.00010	0.000363	0.00120	<0.0030	0.00028
	Z4-7 SURF	WP2313201-004	24-Jun-23	13:18	0.0773	17.1	6.22	<0.00020	<0.000010	<0.00010	<0.00010	0.00806	<0.00010	0.000364	0.00115	<0.0030	0.00032
Zone 8	Z8-1 SURF	WP2313612-001	22-Jun-23	8:35	0.0503	6.08	2.78	<0.00020	<0.000010	<0.00010	<0.00010	0.00133	<0.00010	0.000083	<0.00050	<0.0030	<0.00020
	Z8-4 SURF	WP2313612-002	22-Jun-23	10:05	0.0807	19.1	7.31	<0.00020	<0.000010	0.00016	<0.00010	0.0198	<0.00010	0.000509	0.00176	<0.0030	0.00054
	Z8-5 SURF	WP2313612-003	22-Jun-23	9:10	0.0713	15.5	6.19	<0.00020	<0.000010	<0.00010	<0.00010	0.00987	<0.00010	0.000276	0.00113	<0.0030	0.00052
	Z8-6 SURF	WP2313612-004	22-Jun-23	9:30	0.0792	17.4	6.72	<0.00020	<0.000010	0.00013	<0.00010	0.0157	<0.00010	0.000361	0.00147	<0.0030	0.00043

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Zone 11	Z11-1 SURF	WP2313572-008	26-Jun-23	9:48	0.0743	14.7	5.70	<0.00020	<0.000010	<0.00010	<0.00010	0.00198	<0.00010	0.000156	0.00065	<0.0030	<0.00020
	Z11-3 SURF	WP2313572-009	26-Jun-23	9:54	0.0797	18.2	6.95	<0.00020	<0.000010	<0.00010	<0.00010	0.00829	<0.00010	0.000308	0.00112	<0.0030	0.00032
	Z11-4 SURF	WP2313572-010	26-Jun-23	10:06	0.0788	19.2	7.22	<0.00020	<0.000010	0.00010	<0.00010	0.0119	<0.00010	0.000357	0.00136	<0.0030	0.00039
	Z11-6 SURF	WP2313572-011	26-Jun-23	10:30	0.0849	21.6	8.12	<0.00020	<0.000010	0.00016	<0.00010	0.0190	<0.00010	0.000543	0.00177	<0.0030	0.00056
	Z11-10 SURF	WP2313572-012	26-Jun-23	9:18	0.0560	5.05	2.23	<0.00020	<0.000010	<0.00010	<0.00010	0.00069	<0.00010	0.000045	<0.00050	<0.0030	<0.00020
	Z11-11 SURF	WP2313572-013	26-Jun-23	9:37	0.0660	10.4	4.46	<0.00020	<0.000010	<0.00010	<0.00010	0.00081	<0.00010	0.000078	<0.00050	<0.0030	<0.00020
Zone 12	Z12-6 SURF	WP2313575-013	26-Jun-23	13:13	0.0824	21.4	7.82	<0.00020	<0.000010	0.00013	<0.00010	0.0159	<0.00010	0.000522	0.00166	<0.0030	0.00048
	Z12-8 SURF	WP2313575-014	26-Jun-23	12:00	0.0662	12.6	4.78	<0.00020	<0.000010	<0.00010	<0.00010	0.00242	<0.00010	0.000110	0.00059	<0.0030	<0.00020
	Z12-9 SURF	WP2313575-015	26-Jun-23	12:15	0.0797	20.0	7.40	<0.00020	<0.000010	<0.00010	<0.00010	0.0119	<0.00010	0.000430	0.00142	<0.0030	0.00038
	Z12-11 SURF	WP2313575-016	26-Jun-23	13:43	0.0843	20.8	7.92	<0.00020	<0.000010	0.00013	<0.00010	0.0141	<0.00010	0.000551	0.00161	<0.0030	0.00051
	Z12-13 SURF	WP2313575-017	26-Jun-23	12:28	0.0787	20.0	7.56	<0.00020	<0.000010	0.00014	<0.00010	0.0165	<0.00010	0.000456	0.00164	<0.0030	0.00057
	Z12-14 SURF	WP2313575-018	26-Jun-23	12:42	0.0766	16.0	6.48	<0.00020	<0.000010	<0.00010	<0.00010	0.00677	<0.00010	0.000311	0.00104	<0.0030	0.00028
	Z12-14 BOT	WP2313575-019	26-Jun-23	12:42	0.0590	10.3	4.33	<0.00020	<0.000010	<0.00010	<0.00010	0.00366	<0.00010	0.000176	0.00066	<0.0030	<0.00020
Zone 1b	Z1-5A, -5B, -5C	WP2318135-001, -006, -007	2-Aug-23	8:05	0.0689	19.9	6.67	<0.00020	<0.000010	0.00016	<0.00010	0.0192	<0.00010	0.000446	0.00194	<0.0030	0.00052
	Z1-6	WP2318135-002	2-Aug-23	8:51	0.0682	19.8	6.88	<0.00020	<0.000010	0.00015	<0.00010	0.0176	<0.00010	0.000412	0.00181	<0.0030	0.00049
	Z1-7	WP2318135-003	2-Aug-23	7:46	0.0703	20.4	6.80	<0.00020	<0.000010	0.00016	<0.00010	0.0191	<0.00010	0.000476	0.00197	<0.0030	0.00053
	Z1-8	WP2318135-004	2-Aug-23	8:38	0.0696	20.4	6.94	<0.00020	<0.000010	0.00016	<0.00010	0.0185	<0.00010	0.000433	0.00193	<0.0030	0.00052
	Z1-9	WP2318135-005	2-Aug-23	8:52	0.0677	19.6	6.69	<0.00020	<0.000010	0.00017	<0.00010	0.0180	<0.00010	0.000442	0.00189	<0.0030	0.00053
Zone 4	Z4-3 SURF	WP2317397-012	30-Jul-23	12:56	0.0765	19.9	6.57	<0.00020	<0.000010	0.00014	<0.00010	0.0146	<0.00010	0.000375	0.00162	<0.0030	0.00050
	Z4-5 SURF	WP2317397-013	30-Jul-23	11:21	0.0783	18.0	5.86	<0.00020	<0.000010	<0.00010	<0.00010	0.00312	<0.00010	0.000284	0.00094	<0.0030	<0.00020
	Z4-6 SURF	WP2317397-014	30-Jul-23	11:57	0.0747	18.6	6.02	<0.00020	<0.000010	<0.00010	<0.00010	0.00398	<0.00010	0.000346	0.00100	<0.0030	<0.00020
	Z4-7 SURF	WP2317397-015	30-Jul-23	12:30	0.0761	18.0	6.02	<0.00020	<0.000010	<0.00010	<0.00010	0.00677	<0.00010	0.000329	0.00116	<0.0030	0.00030
	Z4-7 BOT	WP2317397-016	30-Jul-23	12:30	0.0729	18.0	6.11	<0.00020	<0.000010	<0.00010	<0.00010	0.00726	<0.00010	0.000370	0.00113	<0.0030	0.00033
Zone 8	Z8-1 SURF	WP2318135-008	2-Aug-23	9:20	0.0629	12.7	4.59	<0.00020	<0.000010	<0.00010	<0.00010	0.00288	<0.00010	0.000140	0.00063	<0.0030	<0.00020
	Z8-4 SURF	WP2318135-009	2-Aug-23	10:26	0.0682	19.6	6.72	<0.00020	<0.000010	0.00014	<0.00010	0.0166	<0.00010	0.000408	0.00179	<0.0030	0.00048
	Z8-5 SURF	WP2318135-010	2-Aug-23	9:44	0.0681	18.6	6.58	<0.00020	<0.000010	<0.00010	<0.00010	0.00950	<0.00010	0.000302	0.00132	<0.0030	0.00030
	Z8-6 SURF	WP2318135-011	2-Aug-23	9:58	0.0706	19.7	7.01	<0.00020	<0.000010	0.00013	<0.00010	0.0142	<0.00010	0.000405	0.00164	<0.0030	0.00047
Zone 11	Z11-1 SURF	WP2317397-001	29-Jul-23	10:35	0.0733	17.6	5.85	<0.00020	<0.000010	<0.00010	<0.00010	0.00549	<0.00010	0.000208	0.00093	<0.0030	0.00026
	Z11-3 SURF	WP2317397-002	29-Jul-23	10:47	0.0771	20.0	6.74	<0.00020	<0.000010	<0.00010	<0.00010	0.0106	<0.00010	0.000310	0.00130	<0.0030	0.00035
	Z11-4 SURF	WP2317397-003	29-Jul-23	11:11	0.0818	21.1	6.60	<0.00020	<0.000010	0.00012	<0.00010	0.0136	<0.00010	0.000393	0.00158	<0.0030	0.00047
	Z11-6 SURF	WP2317397-004	29-Jul-23	12:25	0.0761	21.1	6.85	<0.00020	<0.000010	0.00016	<0.00010	0.0183	<0.00010	0.000487	0.00182	<0.0030	0.00053
	Z11-10 SURF	WP2317397-005	29-Jul-23	10:03	0.0616	6.03	2.26	<0.00020	<0.000010	<0.00010	<0.00010	0.00067	<0.00010	0.000048	<0.00050	<0.0030	<0.00020
	Z11-11 SURF	WP2317397-006	29-Jul-23	10:20	0.0640	12.3	4.10	<0.00020	<0.000010	<0.00010	<0.00010	0.00076	<0.00010	0.000089	<0.00050	<0.0030	<0.00020
Zone 12	Z12-6 SURF	WP2317762-001	31-Jul-23	10:15	0.0728	21.2	6.90	<0.00020	<0.000010	0.00014	<0.00010	0.0161	<0.00010	0.000446	0.00175	<0.0030	0.00050
	Z12-8 SURF	WP2317762-002	31-Jul-23	8:20	0.0654	11.7	4.07	<0.00020	<0.000010	<0.00010	<0.00010	0.00179	<0.00010	0.000096	<0.00050	<0.0030	<0.00020
	Z12-8 BOT	WP2317762-007	31-Jul-23	8:20	0.0660	12.1	4.44	<0.00020	<0.000010	<0.00010	<0.00010	0.00176	<0.00010	0.000102	<0.00050	<0.0030	<0.00020
	Z12-9 SURF	WP2317762-003	31-Jul-23	8:40	0.0726	19.6	6.56	<0.00020	<0.000010	<0.00010	<0.00010	0.0109	<0.00010	0.000306	0.00137	<0.0030	0.00034
	Z12-11 SURF	WP2317762-004	31-Jul-23	10:58	0.0741	21.3	6.93	<0.00020	<0.000010	0.00015	<0.00010	0.0163	<0.00010	0.000466	0.00176	<0.0030	0.00048
	Z12-13 SURF	WP2317762-005	31-Jul-23	9:45	0.0732	21.2	7.27	<0.00020	<0.000010	0.00016	<0.00010	0.0159	<0.00010	0.000435	0.00172	<0.0030	0.00048
	Z12-14 SURF	WP2317762-006	31-Jul-23	9:18	0.0659	14.8	4.62	0.00034	<0.000010	<0.00010	<0.00010	0.00525	<0.00010	0.000222	0.00088	<0.0030	0.00020

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Zone 1b	Z1-5	WP2321378-005	28-Aug-23	10:48	0.0789	21.2	7.48	<0.00020	<0.000010	0.00013	<0.00010	0.0135	<0.00010	0.000497	0.00176	<0.0030	0.00047
	Z1-6	WP2321378-006	28-Aug-23	11:44	0.0760	21.1	7.33	<0.00020	<0.000010	0.00013	<0.00010	0.0139	<0.00010	0.000472	0.00174	<0.0030	0.00046
	Z1-7A, -7B, -7C	WP2321378-007, -010, -011	28-Aug-23	10:09	0.0794	21.9	7.77	<0.00020	<0.000010	0.00014	<0.00010	0.0135	<0.00010	0.000530	0.00178	<0.0030	0.00047
	Z1-8	WP2321378-008	28-Aug-23	11:28	0.0779	21.2	7.19	<0.00020	<0.000010	0.00014	<0.00010	0.0156	<0.00010	0.000506	0.00185	<0.0030	0.00049
	Z1-9	WP2321378-009	28-Aug-23	11:09	0.0763	21.4	7.35	<0.00020	<0.000010	0.00013	<0.00010	0.0140	<0.00010	0.000510	0.00182	<0.0030	0.00051
Zone 4	Z4-3 SURF	WP2320928-006	25-Aug-23	11:45	0.0763	20.9	7.39	<0.00020	<0.000010	0.00012	<0.00010	0.0147	<0.00010	0.000442	0.00200	0.0072	0.00043
	Z4-5 SURF	WP2320928-007	25-Aug-23	10:45	0.0794	15.8	6.18	<0.00020	<0.000010	<0.00010	<0.00010	0.00488	<0.00010	0.000260	0.00127	<0.0030	0.00024
	Z4-6 SURF	WP2320928-008	25-Aug-23	11:11	0.0782	16.7	6.35	<0.00020	<0.000010	<0.00010	<0.00010	0.00530	<0.00010	0.000292	0.00139	<0.0030	0.00025
	Z4-7 SURF	WP2320928-009	25-Aug-23	11:33	0.0775	17.9	6.92	<0.00020	<0.000010	<0.00010	<0.00010	0.00959	<0.00010	0.000338	0.00168	<0.0030	0.00033
Zone 8	Z8-1 SURF	WP2320722-001	23-Aug-23	8:12	0.0579	9.56	3.48	<0.00020	<0.000010	<0.00010	<0.00010	0.00247	<0.00010	0.000116	0.00067	<0.0030	<0.00020
	Z8-4 SURF	WP2320722-002	23-Aug-23	9:38	0.0772	20.8	6.80	<0.00020	<0.000010	0.00012	<0.00010	0.0142	<0.00010	0.000472	0.00185	<0.0030	0.00046
	Z8-5 SURF	WP2320722-003	23-Aug-23	8:42	0.0706	18.9	6.31	<0.00020	<0.000010	<0.00010	<0.00010	0.0110	<0.00010	0.000379	0.00157	<0.0030	0.00036
	Z8-6 SURF	WP2320722-004	23-Aug-23	8:58	0.0752	21.1	6.90	<0.00020	<0.000010	0.00012	<0.00010	0.0136	<0.00010	0.000459	0.00179	<0.0030	0.00045
Zone 11	Z11-1 SURF	WP2321378-001	28-Aug-23	8:14	0.0707	16.8	5.69	<0.00020	<0.000010	<0.00010	<0.00010	0.00540	<0.00010	0.000242	0.00101	<0.0030	0.00023
	Z11-3 SURF	WP2321378-002	28-Aug-23	8:23	0.0755	18.6	6.35	<0.00020	<0.000010	<0.00010	<0.00010	0.00785	<0.00010	0.000331	0.00124	<0.0030	0.00028
	Z11-4 SURF	WP2321378-003	28-Aug-23	8:37	0.0743	20.2	6.98	<0.00020	<0.000010	<0.00010	<0.00010	0.00943	<0.00010	0.000405	0.00142	<0.0030	0.00033
	Z11-6 SURF	WP2321378-004	28-Aug-23	9:42	0.0799	22.4	7.64	<0.00020	0.000011	0.00013	<0.00010	0.0141	<0.00010	0.000508	0.00181	<0.0030	0.00054
	Z11-10 SURF	WP2321052-002	27-Aug-23	8:13	0.0649	9.90	4.05	<0.00020	<0.000010	<0.00010	<0.00010	0.00108	<0.00010	0.000068	0.00074	<0.0030	<0.00020
	Z11-11 SURF	WP2321052-001	27-Aug-23	8:30	0.0684	13.9	5.43	<0.00020	<0.000010	<0.00010	<0.00010	0.00234	<0.00010	0.000127	0.00102	<0.0030	<0.00020
Zone 12	Z12-6 SURF	WP2321410-001	28-Aug-23	14:37	0.0760	21.7	7.41	<0.00020	<0.000010	0.00013	<0.00010	0.0126	<0.00010	0.000495	0.00180	<0.0030	0.00046
	Z12-8 SURF	WP2321410-002	28-Aug-23	13:15	0.0659	13.9	4.82	<0.00020	<0.000010	<0.00010	<0.00010	0.00375	<0.00010	0.000120	0.00074	<0.0030	<0.00020
	Z12-9 SURF	WP2321410-003	28-Aug-23	13:27	0.0743	19.3	6.65	<0.00020	<0.000010	<0.00010	<0.00010	0.0102	<0.00010	0.000292	0.00140	<0.0030	0.00031
	Z12-11 SURF	WP2321410-004	28-Aug-23	15:22	0.0782	21.8	7.56	<0.00020	<0.000010	0.00013	<0.00010	0.0153	<0.00010	0.000481	0.00190	<0.0030	0.00050
	Z12-13 SURF	WP2321410-005	28-Aug-23	14:51	0.0764	20.4	7.23	<0.00020	<0.000010	<0.00010	<0.00010	0.0101	<0.00010	0.000381	0.00150	<0.0030	0.00049
	Z12-14 SURF	WP2321410-006	28-Aug-23	14:02	0.0533	8.65	3.05	<0.00020	<0.000010	<0.00010	<0.00010	0.00380	<0.00010	0.000108	0.00062	<0.0030	<0.00020
Zone 1b	Z1-5	WP2324257-001	24-Sep-23	8:43	0.0865	24.9	8.86	<0.00020	<0.000010	0.00010	<0.00010	0.0129	<0.00010	0.000510	0.00214	<0.0030	0.00059
	Z1-6	WP2324257-002	24-Sep-23	7:50	0.0846	25.5	9.19	<0.00020	<0.000010	<0.00010	<0.00010	0.0101	<0.00010	0.000488	0.00194	<0.0030	0.00035
	Z1-7	WP2324257-003	24-Sep-23	9:04	0.0863	25.1	8.54	<0.00020	<0.000010	0.00011	<0.00010	0.0129	<0.00010	0.000507	0.00206	<0.0030	0.00046
	Z1-8	WP2324257-004	24-Sep-23	8:10	0.0854	25.6	8.83	<0.00020	<0.000010	<0.00010	<0.00010	0.0109	<0.00010	0.000497	0.00200	<0.0030	0.00036
	Z1-9	WP2324257-005	24-Sep-23	8:20	0.0830	24.7	8.54	<0.00020	<0.000010	<0.00010	<0.00010	0.0123	<0.00010	0.000496	0.00199	<0.0030	0.00040
Zone 4	Z4-3 SURF	WP2324257-016	23-Sep-23	15:20	0.0894	25.2	8.47	<0.00020	<0.000010	0.00010	<0.00010	0.0122	<0.00010	0.000503	0.00175	<0.0030	0.00046
	Z4-5 SURF	WP2324257-017	23-Sep-23	14:52	0.0813	19.9	6.60	<0.00020	<0.000010	<0.00010	<0.00010	0.00378	<0.00010	0.000305	0.00109	<0.0030	<0.00020
	Z4-6 SURF	WP2324257-018	23-Sep-23	15:06	0.0831	21.4	7.32	<0.00020	<0.000010	<0.00010	<0.00010	0.00901	<0.00010	0.000416	0.00145	<0.0030	0.00032
	Z4-7 SURF	WP2324257-019	23-Sep-23	15:32	0.0826	23.3	7.70	<0.00020	<0.000010	<0.00010	<0.00010	0.00702	<0.00010	0.000424	0.00145	<0.0030	0.00028
Zone 8	Z8-1A SURF, -1B SURF, -1C SURF	WP2324106-001, -005, -006	21-Sep-23	11:40	0.0614	15.8	5.27	<0.00020	<0.000010	<0.00010	<0.00010	0.0030	<0.00010	0.000170	0.00078	<0.0030	<0.00020
	Z8-4 SURF	WP2324106-002	21-Sep-23	13:23	0.0843	24.0	8.01	<0.00020	<0.000010	0.00012	<0.00010	0.0118	<0.00010	0.000541	0.00176	<0.0030	0.00037
	Z8-5 SURF	WP2324106-003	21-Sep-23	12:28	0.0792	23.0	7.61	<0.00020	<0.000010	<0.00010	<0.00010	0.00972	<0.00010	0.000470	0.00158	<0.0030	0.00033
	Z8-6 SURF	WP2324106-004	21-Sep-23	13:11	0.0839	23.5	7.73	<0.00020	<0.000010	0.00010	<0.00010	0.0116	<0.00010	0.000526	0.00171	<0.0030	0.00049

Table A4-7: Metals and major ions measured in the laboratory for sites monitored in the Keeyask reservoir mainstem and backbays during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Zone 11	Z11-1 SURF	WP2324173-001	22-Sep-23	10:04	0.0715	18.7	6.49	<0.00020	<0.000010	<0.00010	<0.00010	0.00412	<0.00010	0.000198	0.00100	<0.0030	<0.00020
	Z11-3 SURF	WP2324173-002	22-Sep-23	9:29	0.0781	22.3	7.33	<0.00020	<0.000010	<0.00010	<0.00010	0.00660	<0.00010	0.000367	0.00127	<0.0030	0.00023
	Z11-4 SURF	WP2324173-003	22-Sep-23	9:45	0.0807	23.7	8.44	<0.00020	<0.000010	<0.00010	<0.00010	0.00832	<0.00010	0.000444	0.00154	<0.0030	0.00031
	Z11-6 SURF	WP2324173-004	22-Sep-23	11:19	0.0797	25.1	8.44	<0.00020	<0.000010	<0.00010	<0.00010	0.00848	<0.00010	0.000522	0.00161	<0.0030	0.00031
	Z11-10 SURF	WP2324173-005	22-Sep-23	8:29	0.0558	10.1	3.52	<0.00020	<0.000010	<0.00010	<0.00010	0.00066	<0.00010	0.000047	<0.00050	<0.0030	<0.00020
	Z11-11 SURF	WP2324173-006	22-Sep-23	9:03	0.0615	12.6	4.51	<0.00020	<0.000010	<0.00010	<0.00010	0.00129	<0.00010	0.000079	0.00052	<0.0030	<0.00020
Zone 12	Z12-6 SURF	WP2324173-007	22-Sep-23	13:35	0.0842	25.3	8.70	<0.00020	<0.000010	<0.00010	<0.00010	0.0114	<0.00010	0.000556	0.00171	<0.0030	0.00037
	Z12-8 SURF	WP2324173-008	22-Sep-23	11:52	0.0627	15.2	5.28	<0.00020	<0.000010	<0.00010	<0.00010	0.00183	<0.00010	0.000096	0.00060	<0.0030	<0.00020
	Z12-9 SURF	WP2324173-009	22-Sep-23	12:14	0.0767	22.8	7.94	<0.00020	<0.000010	<0.00010	<0.00010	0.00923	<0.00010	0.000387	0.00142	<0.0030	0.00030
	Z12-11 SURF	WP2324173-010	22-Sep-23	12:32	0.0800	24.6	8.55	<0.00020	<0.000010	0.00010	<0.00010	0.0126	<0.00010	0.000528	0.00176	<0.0030	0.00036
	Z12-13 SURF	WP2324173-011	22-Sep-23	12:56	0.0839	24.5	8.62	<0.00020	<0.000010	<0.00010	<0.00010	0.0116	<0.00010	0.000504	0.00171	<0.0030	0.00035
	Z12-14 SURF	WP2324173-012	22-Sep-23	13:23	0.0651	16.8	5.98	<0.00020	<0.000010	<0.00010	<0.00010	0.00608	<0.00010	0.000185	0.00086	<0.0030	<0.00020

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Split Lake	SPL-10	WP2303626-001	26-Mar-23	11:00	95.0	0.418	0.00012	0.00108	0.0255	<0.000020	<0.000050	0.019	0.0000190	21.4	0.000047	7.99	0.00081	0.00019	0.00658
	SPL-11	WP2303626-002	26-Mar-23	14:25	102	0.597	0.00011	0.00116	0.0277	0.000028	<0.000050	0.021	0.0000107	23.0	0.000066	8.59	0.00117	0.00024	0.0155
	SPL-12	WP2303626-003	26-Mar-23	12:50	104	0.567	<0.00010	0.00118	0.0278	0.000022	<0.000050	0.020	0.0000088	23.2	0.000063	8.66	0.00104	0.00024	0.0199
	SPL-13	WP2303626-004	26-Mar-23	13:40	92.0	0.452	0.00011	0.00105	0.0250	0.000026	0.000094	0.017	<0.0000050	21.0	0.000066	7.40	0.00098	0.00025	0.00512
	SPL-14	WP2303626-005	26-Mar-23	12:10	113	0.392	0.00021	0.00138	0.0314	<0.000020	<0.000050	0.023	0.0000210	25.2	0.000044	11.4	0.00073	0.00017	0.00607
Nelson River - Upstream of the Keeyask GS	US-6	WP2303849-005	29-Mar-23	10:55	116	0.381	0.00013	0.00138	0.0321	<0.000020	<0.000050	0.021	0.0000759	26.1	0.000042	10.4	0.00066	0.00016	0.00170
	US-7	WP2303849-006	29-Mar-23	13:35	114	0.431	<0.00010	0.00133	0.0320	<0.000020	<0.000050	0.020	0.0000053	25.4	0.000048	10.6	0.00073	0.00019	0.00230
	US-8	WP2303849-007	29-Mar-23	12:50	114	0.427	0.00010	0.00135	0.0326	<0.000020	<0.000050	0.021	0.0000078	25.5	0.000048	10.6	0.00075	0.00019	0.00249
	US-9	WP2303849-008	29-Mar-23	11:35	110	0.428	0.00011	0.00131	0.0319	<0.000020	<0.000050	0.019	0.0000449	24.1	0.000047	10.6	0.00101	0.00018	0.00526
	US-10	WP2303849-009	29-Mar-23	12:15	108	0.410	0.00010	0.00127	0.0312	<0.000020	<0.000050	0.019	0.0000378	24.0	0.000042	10.6	0.00092	0.00018	0.00443
Stephens Lake - Near-field	NF-1	WP2303925-001	30-Mar-23	13:00	112	0.481	0.00011	0.00130	0.0323	<0.000020	<0.000050	0.020	0.0000137	24.7	0.000055	10.5	0.00103	0.00020	0.00301
	NF-2	WP2303925-002	30-Mar-23	15:30	112	0.342	<0.00010	0.00132	0.0312	<0.000020	<0.000050	0.020	0.0000054	25.1	0.000038	10.7	0.00066	0.00016	0.00493
	NF-3A, -3B, -3C	WP2303925-003, -006, -007	30-Mar-23	13:45	112	0.435	<0.00010	0.00132	0.0318	<0.000020	<0.000050	0.021	<0.0000050	24.9	0.000050	10.8	0.00081	0.00019	0.00836
	NF-4	WP2303925-004	30-Mar-23	16:10	114	0.424	0.00011	0.00135	0.0318	<0.000020	<0.000050	0.021	0.0000070	25.4	0.000047	10.7	0.00075	0.00019	0.00776
	NF-5	WP2303925-005	30-Mar-23	14:40	110	0.413	<0.00010	0.00129	0.0349	0.000022	<0.000050	0.021	0.0000081	24.7	0.000047	10.5	0.00090	0.00019	0.00174
Stephens Lake - Far-field	FF-1	WP2303945-006	31-Mar-23	9:20	114	0.304	<0.00010	0.00126	0.0305	<0.000020	<0.000050	0.019	<0.0000050	25.3	0.000031	10.6	0.00059	0.00016	0.00164
	FF-2	WP2303945-007	31-Mar-23	10:00	114	0.381	<0.00010	0.00129	0.0313	<0.000020	<0.000050	0.019	<0.0000050	25.2	0.000042	10.7	0.00065	0.00018	0.00189
	FF-3	WP2303945-008	31-Mar-23	10:30	113	0.412	<0.00010	0.00128	0.0316	<0.000020	<0.000050	0.019	<0.0000050	24.9	0.000043	10.7	0.00072	0.00018	0.00166
	FF-4	WP2303945-009	31-Mar-23	11:10	112	0.318	<0.00010	0.00126	0.0306	<0.000020	<0.000050	0.019	<0.0000050	25.0	0.000035	10.7	0.00058	0.00017	0.00178
	FF-5	WP2303945-010	31-Mar-23	11:50	116	0.336	<0.00010	0.00126	0.0302	<0.000020	<0.000050	0.020	<0.0000050	26.4	0.000035	10.6	0.00061	0.00017	0.00271
Clark Lake	CL-1	WP2313199-001	24-Jun-23	10:45	100	0.534	<0.00010	0.00110	0.0274	0.000021	<0.000050	0.024	<0.0000050	23.8	0.000060	7.68	0.00088	0.00023	0.00172
	CL-2	WP2313199-002	24-Jun-23	11:18	100	0.505	<0.00010	0.00113	0.0273	0.000027	<0.000050	0.023	<0.0000050	23.4	0.000055	7.93	0.00087	0.00022	0.00171
	CL-3	WP2313199-003	24-Jun-23	11:04	100	0.488	<0.00010	0.00116	0.0273	0.000022	<0.000050	0.023	<0.0000050	23.5	0.000051	8.05	0.00093	0.00021	0.00169
	CL-4	WP2313199-004	24-Jun-23	11:31	101	0.528	<0.00010	0.00106	0.0271	0.000023	<0.000050	0.022	<0.0000050	23.9	0.000057	7.56	0.00092	0.00022	0.00171
	CL-5	WP2313199-005	24-Jun-23	11:45	99.5	0.483	<0.00010	0.00110	0.0262	0.000025	<0.000050	0.021	0.0000055	23.9	0.000052	7.85	0.00085	0.00022	0.00169
Nelson River - Upstream of the Keeyask GS	US-1	WP2313575-008	27-Jun-23	7:34	98.1	0.558	<0.00010	0.00114	0.0260	<0.000020	<0.000050	0.016	<0.0000050	23.0	0.000047	8.25	0.00091	0.00020	0.00161
	US-2	WP2313575-009	27-Jun-23	7:54	98.7	0.526	<0.00010	0.00113	0.0265	0.000029	<0.000050	0.017	<0.0000050	22.7	0.000057	8.16	0.00098	0.00022	0.00164
	US-3	WP2313575-010	27-Jun-23	8:08	98.5	0.494	<0.00010	0.00114	0.0267	0.000020	<0.000050	0.017	<0.0000050	22.8	0.000058	8.22	0.00096	0.00020	0.00168
	US-4	WP2313575-011	27-Jun-23	8:20	98.6	0.508	<0.00010	0.00110	0.0272	0.000021	<0.000050	0.017	0.0000050	23.0	0.000060	8.18	0.00093	0.00020	0.00165
	US-5	WP2313575-012	27-Jun-23	8:35	99.5	0.524	<0.00010	0.00110	0.0261	0.000022	<0.000050	0.017	<0.0000050	22.7	0.000059	8.17	0.00101	0.00022	0.00176
Stephens Lake - Near-field	NF-1	WP2313575-001	27-Jun-23	9:40	99.9	0.470	<0.00010	0.00110	0.0259	0.000020	<0.000050	0.018	<0.0000050	23.2	0.000052	8.09	0.00093	0.00021	0.00166
	NF-2	WP2313575-002	27-Jun-23	10:35	99.1	0.546	<0.00010	0.00113	0.0261	0.000026	<0.000050	0.017	0.0000062	22.7	0.000059	8.06	0.00144	0.00023	0.00166
	NF-3	WP2313575-003	27-Jun-23	10:00	98.9	0.525	<0.00010	0.00116	0.0268	<0.000020	<0.000050	0.017	0.0000051	22.8	0.000056	8.11	0.00094	0.00022	0.00165
	NF-4	WP2313575-004	27-Jun-23	10:50	100	0.578	<0.00010	0.00117	0.0274	0.000020	<0.000050	0.017	<0.0000050	22.9	0.000054	8.03	0.00111	0.00023	0.00172
	NF-5	WP2313575-005	27-Jun-23	10:15	99.5	0.461	<0.00010	0.00119	0.0261	<0.000020	<0.000050	0.017	0.0000057	23.2	0.000054	8.08	0.00088	0.00021	0.00161
Stephens Lake - Far-field	FF-1	WP2313115-001	23-Jun-23	7:30	97.1	0.469	<0.00010	0.00104	0.0247	0.000021	<0.000050	0.018	<0.0000050	23.0	0.000047	7.39	0.00079	0.00020	0.00157
	FF-2	WP2313115-002	23-Jun-23	8:10	96.2	0.526	<0.00010	0.00109	0.0249	<0.000020	<0.000050	0.018	0.0000054	22.7	0.000058	7.42	0.00081	0.00021	0.00159
	FF-3A, -3B, -3C	WP2313115-003, -006, -007	23-Jun-23	8:58	97.4	0.547	<0.00010	0.00106	0.0259	0.00002	<0.000050	0.018	<0.0000050	23.0	0.000056	7.48	0.00087	0.00023	0.00163
	FF-4	WP2313115-004	23-Jun-23	8:32	96.5	0.518	<0.00010	0.00109	0.0258	<0.000020	<0.000050	0.018	<0.0000050	22.6	0.000051	7.44	0.00077	0.00020	0.00156
	FF-5	WP2313115-005	23-Jun-23	7:50	95.0	0.549	<0.00010	0.00107	0.0251	<0.000020	<0.000050	0.019	<0.0000050	22.6	0.000052	7.42	0.00089	0.00022	0.00160
Clark Lake	CL-1	WP2317397-007	30-Jul-23	10:01	88.5	0.596	<0.00010	0.00137	0.0247	0.000020	<0.000050	0.015	<0.0000050	20.4	0.000066	7.42	0.00099	0.00022	0.00180
	CL-2	WP2317397-008	30-Jul-23	9:41	85.4	0.594	<0.00010	0.00133	0.0243	<0.000020	<0.000050	0.016	<0.0000050	19.0	0.000055	7.45	0.00110	0.00021	0.00171
	CL-3	WP2317397-009	30-Jul-23	10:27	89.3	0.583	<0.00010	0.00140	0.0248	<0.000020	<0.000050	0.017	<0.0000050	20.0	0.000053	7.82	0.00089	0.00020	0.00176
	CL-4	WP2317397-010	30-Jul-23	9:25	91.1	0.621	<0.00010	0.00126	0.0244	0.000027	<0.000050	0.018	<0.0000050	21.5	0.000072	7.23	0.00102	0.00022	0.00174
	CL-5	WP2317397-011	30-Jul-23	9:06	85.4	0.595	<0.00010	0.00134	0.0247	0.000021	<0.000050	0.016	<0.0000050	18.8	0.000049	7.56	0.00094	0.00022	0.00179

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Nelson River - Upstream of the Keeyask GS	US-1	WP2317751-001	1-Aug-23	9:09	93.1	0.544	<0.00010	0.00126	0.0248	0.000028	<0.000050	0.019	<0.0000050	21.3	0.000053	7.34	0.00084	0.00020	0.00177
	US-2	WP2317751-002	1-Aug-23	8:49	94.1	0.576	<0.00010	0.00130	0.0251	<0.000020	<0.000050	0.017	<0.0000050	21.2	0.000053	7.34	0.00089	0.00022	0.00179
	US-3	WP2317751-003	1-Aug-23	7:55	97.0	0.527	0.00011	0.00132	0.0249	0.000025	<0.000050	0.017	<0.0000050	21.7	0.000047	7.38	0.00082	0.00021	0.00183
	US-4	WP2317751-004	1-Aug-23	8:18	96.4	0.464	<0.00010	0.00129	0.0243	0.000021	<0.000050	0.017	0.0000070	21.6	0.000043	7.28	0.00071	0.00019	0.00172
	US-5	WP2317751-005	1-Aug-23	7:25	96.6	0.567	<0.00010	0.00128	0.0255	<0.000020	<0.000050	0.017	0.0000051	21.7	0.000056	7.43	0.00087	0.00021	0.00182
Stephens Lake - Near-field	NF-1	WP2317368-008	28-Jul-23	12:25	89.9	0.556	<0.00010	0.00134	0.0248	<0.000020	<0.000050	0.016	<0.0000050	20.4	0.000053	7.86	0.00081	0.00022	0.00174
	NF-2	WP2317368-009	28-Jul-23	13:24	86.1	0.613	<0.00010	0.00134	0.0257	0.000026	<0.000050	0.015	<0.0000050	18.8	0.000054	7.84	0.00105	0.00023	0.00185
	NF-3	WP2317368-010	28-Jul-23	12:54	98.0	0.575	<0.00010	0.00134	0.0243	<0.000020	<0.000050	0.018	<0.0000050	22.6	0.000060	7.84	0.00094	0.00021	0.00180
	NF-4	WP2317368-011	28-Jul-23	13:46	94.8	0.568	<0.00010	0.00141	0.0245	0.000023	<0.000050	0.017	<0.0000050	20.8	0.000052	7.83	0.00086	0.00023	0.00183
	NF-5	WP2317368-012	28-Jul-23	11:50	94.1	0.576	<0.00010	0.00137	0.0254	0.000022	<0.000050	0.016	<0.0000050	21.7	0.000068	7.78	0.00092	0.00022	0.00179
Stephens Lake - Far-field	FF-1A, -1B, -1C	WP2317368-001, -006, -007	28-Jul-23	8:16	92.9	0.505	<0.00010	0.00130	0.0240	0.000020	<0.000050	0.018	<0.0000050	20.7	0.000043	8.02	0.00083	0.00018	0.00175
	FF-2	WP2317368-002	28-Jul-23	9:22	95.3	0.587	<0.00010	0.00136	0.0249	0.000022	<0.000050	0.018	<0.0000050	21.5	0.000055	7.96	0.00094	0.00020	0.00178
	FF-3	WP2317368-003	28-Jul-23	10:15	89.3	0.540	<0.00010	0.00133	0.0247	0.000021	<0.000050	0.016	<0.0000050	19.9	0.000046	7.97	0.00085	0.00021	0.00178
	FF-4	WP2317368-004	28-Jul-23	9:55	92.3	0.517	<0.00010	0.00132	0.0247	0.000022	<0.000050	0.016	<0.0000050	20.9	0.000055	8.09	0.00083	0.00020	0.00176
	FF-5	WP2317368-005	28-Jul-23	8:50	93.9	0.471	<0.00010	0.00138	0.0243	<0.000020	<0.000050	0.017	<0.0000050	21.1	0.000041	8.08	0.00068	0.00019	0.00178
Clark Lake	CL-1	WP2320928-001	25-Aug-23	9:44	92.1	0.498	<0.00010	0.00153	0.0248	<0.000020	<0.000050	0.018	<0.0000050	20.4	0.000048	8.11	0.00071	0.00018	0.00166
	CL-2	WP2320928-002	25-Aug-23	9:23	90.0	0.508	<0.00010	0.00149	0.0247	<0.000020	<0.000050	0.022	<0.0000050	20.2	0.000046	8.07	0.00072	0.00017	0.00164
	CL-3	WP2320928-003	25-Aug-23	10:00	93.8	0.525	<0.00010	0.00154	0.0250	0.000023	<0.000050	0.020	<0.0000050	20.6	0.000046	8.08	0.00076	0.00018	0.00166
	CL-4	WP2320928-004	25-Aug-23	9:06	94.4	0.544	<0.00010	0.00151	0.0250	0.000022	<0.000050	0.019	<0.0000050	21.0	0.000050	7.84	0.00074	0.00018	0.00162
	CL-5	WP2320928-005	25-Aug-23	8:45	93.8	0.490	<0.00010	0.00150	0.0250	<0.000020	<0.000050	0.020	<0.0000050	20.6	0.000045	8.09	0.00070	0.00017	0.00171
Nelson River - Upstream of the Keeyask GS	US-1	WP2320722-005	23-Aug-23	10:01	92.2	0.494	<0.00010	0.00143	0.0254	<0.000020	<0.000050	0.018	<0.0000050	21.4	0.000047	7.79	0.00067	0.00018	0.00163
	US-2	WP2320722-006	23-Aug-23	10:40	96.8	0.526	<0.00010	0.00144	0.0252	0.000024	<0.000050	0.017	<0.0000050	22.8	0.000051	7.70	0.00082	0.00019	0.00170
	US-3	WP2320722-007	23-Aug-23	11:28	98.9	0.476	0.00012	0.00145	0.0242	0.000029	<0.000050	0.018	<0.0000050	23.4	0.000046	7.68	0.00076	0.00017	0.00167
	US-4	WP2320722-008	23-Aug-23	11:03	99.6	0.486	<0.00010	0.00149	0.0248	<0.000020	<0.000050	0.018	<0.0000050	23.4	0.000045	7.67	0.00076	0.00018	0.00172
	US-5	WP2320722-009	23-Aug-23	11:52	101	0.480	0.00010	0.00147	0.0248	0.000023	<0.000050	0.019	<0.0000050	24.1	0.000046	7.72	0.00076	0.00018	0.00168
Stephens Lake - Near-field	NF-1	WP2321410-012	28-Aug-23	17:35	92.6	0.360	<0.00010	0.00140	0.0230	<0.000020	<0.000050	0.014	<0.0000050	21.2	0.000059	7.92	0.00054	0.00014	0.00164
	NF-2	WP2321410-013	28-Aug-23	18:05	88.0	0.348	<0.00010	0.00146	0.0242	<0.000020	<0.000050	0.014	<0.0000050	20.1	0.000032	7.82	0.00052	0.00015	0.00156
	NF-3	WP2321410-014	28-Aug-23	17:49	89.0	0.261	<0.00010	0.00141	0.0228	<0.000020	<0.000050	0.013	<0.0000050	20.2	0.000027	7.82	0.00042	0.00012	0.00155
	NF-4	WP2321410-015	28-Aug-23	18:18	90.7	0.241	<0.00010	0.00140	0.0231	<0.000020	<0.000050	0.012	<0.0000050	20.5	0.000027	7.82	0.00043	0.00012	0.00156
	NF-5A, -5B, -5C	WP2321410-016, -017, -018	28-Aug-23	17:12	87.7	0.369	<0.00010	0.00142	0.0235	<0.000020	<0.000050	0.013	<0.0000050	19.7	0.000036	7.77	0.00057	0.00015	0.00161
Stephens Lake - Far-field	FF-1	WP2321410-007	28-Aug-23	18:53	92.3	0.515	0.00010	0.00147	0.0250	0.000029	<0.000050	0.019	<0.0000050	21.5	0.000043	7.46	0.00069	0.00016	0.00176
	FF-2	WP2321410-008	28-Aug-23	19:28	91.8	0.512	<0.00010	0.00148	0.0251	0.000022	<0.000050	0.018	<0.0000050	21.0	0.000044	7.56	0.00070	0.00017	0.00175
	FF-3	WP2321410-009	28-Aug-23	19:53	93.5	0.540	<0.00010	0.00146	0.0248	0.000023	<0.000050	0.019	<0.0000050	21.8	0.000049	7.56	0.00075	0.00018	0.00173
	FF-4	WP2321410-010	28-Aug-23	19:40	91.5	0.404	<0.00010	0.00148	0.0239	<0.000020	<0.000050	0.014	<0.0000050	21.2	0.000044	7.58	0.00060	0.00014	0.00166
	FF-5	WP2321410-011	28-Aug-23	19:12	90.6	0.528	<0.00010	0.00143	0.0246	<0.000020	<0.000050	0.015	<0.0000050	20.8	0.000048	7.52	0.00071	0.00017	0.00166
Clark Lake	CL-1	WP2324257-011	23-Sep-23	13:32	101	0.364	<0.00010	0.00160	0.0242	<0.000020	<0.000050	0.020	<0.0000050	22.4	0.000036	9.85	0.00057	0.00015	0.00160
	CL-2	WP2324257-012	23-Sep-23	13:15	100	0.436	<0.00010	0.00156	0.0242	<0.000020	<0.000050	0.022	<0.0000050	22.2	0.000044	9.70	0.00066	0.00016	0.00164
	CL-3	WP2324257-013	23-Sep-23	13:47	98.4	0.405	<0.00010	0.00159	0.0252	<0.000020	<0.000050	0.022	<0.0000050	22.1	0.000042	9.76	0.00063	0.00016	0.00163
	CL-4	WP2324257-014	23-Sep-23	13:03	98.6	0.401	<0.00010	0.00152	0.0237	<0.000020	<0.000050	0.021	<0.0000050	22.0	0.000042	9.64	0.00064	0.00016	0.00201
	CL-5	WP2324257-015	23-Sep-23	12:48	98.7	0.454	<0.00010	0.00146	0.0248	<0.000020	<0.000050	0.021	<0.0000050	22.7	0.000046	9.31	0.00070	0.00017	0.00166
Nelson River - Upstream of the Keeyask GS	US-1	WP2324257-006	24-Sep-23	11:03	104	0.332	<0.00010	0.00202	0.0241	<0.000020	<0.000050	0.018	0.0000056	23.3	0.000028	10.6	0.00050	0.00013	0.00149
	US-2	WP2324257-007	24-Sep-23	10:47	103	0.408	<0.00010	0.00169	0.0248	<0.000020	<0.000050	0.022	0.0000063	22.6	0.000042	10.4	0.00060	0.00015	0.00160
	US-3	WP2324257-008	24-Sep-23	10:10	108	0.386	0.00011	0.00160	0.0243	<0.000020	<0.000050	0.022	<0.0000050	24.4	0.000038	10.6	0.00055	0.00015	0.00161
	US-4	WP2324257-009	24-Sep-23	9:44	104	0.377	<0.00010	0.00166	0.0242	<0.000020	<0.000050	0.022	0.0000055	23.4	0.000038	10.6	0.00053	0.00014	0.00164
	US-5	WP2324257-010	24-Sep-23	10:27	99.9	0.380	<0.00010	0.00156	0.0242	<0.000020	<0.000050	0.021	<0.0000050	22.2	0.000033	10.5	0.00085	0.00014	0.00154

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Stephens Lake - Near-field	NF-1	WP2324490-001	25-Sep-23	8:18	97.4	0.349	<0.00010	0.00160	0.0242	<0.000020	<0.000050	0.019	<0.0000050	21.7	0.000032	9.84	0.00056	0.00014	0.00156
	NF-2A, -2B, -2C	WP2324490-002, -006, -007	25-Sep-23	7:41	101	0.349	<0.00010	0.00158	0.0243	<0.000020	<0.000050	0.019	<0.0000050	23.0	0.000033	9.79	0.00052	0.00013	0.00153
	NF-3	WP2324490-003	25-Sep-23	8:01	94.7	0.366	<0.00010	0.00161	0.0240	<0.000020	<0.000050	0.016	0.0000062	20.6	0.000034	9.92	0.00051	0.00013	0.00168
	NF-4	WP2324490-004	25-Sep-23	7:25	103	0.384	<0.00010	0.00161	0.0248	<0.000020	<0.000050	0.020	0.0000057	23.3	0.000032	9.79	0.00057	0.00013	0.00166
	NF-5	WP2324490-005	25-Sep-23	8:34	97.0	0.369	<0.00010	0.00159	0.0261	<0.000020	<0.000050	0.018	0.0000080	21.7	0.000030	9.78	0.00057	0.00014	0.00155
Stephens Lake - Far-field	FF-1	WP2324490-008	25-Sep-23	9:58	97.5	0.343	<0.00010	0.00154	0.0242	<0.000020	<0.000050	0.019	<0.0000050	21.9	0.000029	9.19	0.00068	0.00012	0.00156
	FF-2	WP2324490-009	25-Sep-23	10:33	95.0	0.328	<0.00010	0.00153	0.0226	<0.000020	<0.000050	0.018	0.0000099	21.4	0.000026	9.31	0.00050	0.00012	0.00152
	FF-3	WP2324490-010	25-Sep-23	11:10	97.1	0.337	<0.00010	0.00154	0.0236	<0.000020	<0.000050	0.018	<0.0000050	21.4	0.000029	9.37	0.00053	0.00014	0.00159
	FF-4	WP2324490-011	25-Sep-23	10:49	96.3	0.378	<0.00010	0.00162	0.0235	<0.000020	<0.000050	0.018	0.0000055	21.4	0.000032	9.19	0.00059	0.00013	0.00162
	FF-5	WP2324490-012	25-Sep-23	10:18	102	0.304	<0.00010	0.00162	0.0234	<0.000020	<0.000050	0.019	<0.0000050	24.2	0.000030	8.97	0.00048	0.00011	0.00162

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Split Lake	SPL-10	WP2303626-001	26-Mar-23	11:00	0.433	0.000231	0.0074	10.1	0.0114	0.86	<0.020	0.000429	0.00132	0.052	2.14	0.00207	0.000127	3.40	<0.000010	9.64
	SPL-11	WP2303626-002	26-Mar-23	14:25	0.566	0.000239	0.0083	10.8	0.0121	0.69	0.021	0.000500	0.00156	<0.050	2.37	0.00244	0.000125	4.09	<0.000010	10.7
	SPL-12	WP2303626-003	26-Mar-23	12:50	0.552	0.000230	0.0082	11.1	0.0124	0.80	0.020	0.000491	0.00144	<0.050	2.38	0.00237	0.000123	3.91	<0.000010	11.1
	SPL-13	WP2303626-004	26-Mar-23	13:40	0.551	0.000229	0.0070	9.60	0.0126	0.91	0.022	0.000420	0.00168	0.054	2.12	0.00235	0.000116	3.31	<0.000010	9.57
	SPL-14	WP2303626-005	26-Mar-23	12:10	0.353	0.000239	0.0094	12.1	0.00991	0.64	<0.020	0.000598	0.00131	0.063	2.67	0.00196	0.000127	3.79	<0.000010	13.4
Nelson River - Upstream of the Keeyask GS	US-6	WP2303849-005	29-Mar-23	10:55	0.362	0.000180	0.0087	12.4	0.00948	0.61	<0.020	0.000585	0.00134	0.070	2.64	0.00209	0.000155	3.88	<0.000010	13.0
	US-7	WP2303849-006	29-Mar-23	13:35	0.403	0.000190	0.0085	12.2	0.00968	4.62	0.033	0.000588	0.00137	0.066	2.60	0.00211	0.000118	4.02	<0.000010	13.0
	US-8	WP2303849-007	29-Mar-23	12:50	0.405	0.000347	0.0089	12.2	0.00992	13.8	0.055	0.000633	0.00137	0.055	2.65	0.00224	0.000177	4.05	<0.000010	12.9
	US-9	WP2303849-008	29-Mar-23	11:35	0.408	0.000196	0.0081	12.2	0.00946	0.90	0.022	0.000578	0.00141	0.056	2.55	0.00218	0.000145	3.95	<0.000010	12.7
	US-10	WP2303849-009	29-Mar-23	12:15	0.400	0.000177	0.0083	11.8	0.00939	0.53	0.022	0.000531	0.00134	<0.050	2.50	0.00209	0.000113	3.73	<0.000010	12.6
Stephens Lake - Near-field	NF-1	WP2303925-001	30-Mar-23	13:00	0.468	0.000224	0.0084	12.1	0.0107	0.66	0.025	0.000552	0.00145	0.057	2.57	0.00240	0.000122	4.05	<0.000010	12.4
	NF-2	WP2303925-002	30-Mar-23	15:30	0.348	0.000168	0.0085	12.1	0.00925	0.56	0.022	0.000558	0.00131	0.053	2.53	0.00194	0.000120	3.78	<0.000010	12.4
	NF-3A, -3B, -3C	WP2303925-003, -006, -007	30-Mar-23	13:45	0.427	0.000185	0.0086	12.0	0.00989	0.69	0.027	0.000568	0.00141	<0.050	2.52	0.00213	0.000123	4.02	<0.000010	12.5
	NF-4	WP2303925-004	30-Mar-23	16:10	0.414	0.000184	0.0087	12.2	0.00978	0.58	0.024	0.000555	0.00136	<0.050	2.53	0.00216	0.000154	3.93	<0.000010	12.7
	NF-5	WP2303925-005	30-Mar-23	14:40	0.414	0.000190	0.0084	11.7	0.0101	-[1]	0.022	0.000543	0.00138	0.052	2.52	0.00212	0.000151	3.95	<0.000010	12.2
Stephens Lake - Far-field	FF-1	WP2303945-006	31-Mar-23	9:20	0.316	0.000156	0.0091	12.3	0.00845	0.52	0.023	0.000513	0.00129	0.069	2.48	0.00185	0.000111	3.76	<0.000010	12.8
	FF-2	WP2303945-007	31-Mar-23	10:00	0.384	0.000167	0.0092	12.4	0.00922	0.64	<0.020	0.000550	0.00136	0.077	2.55	0.00209	0.000102	3.98	<0.000010	13.2
	FF-3	WP2303945-008	31-Mar-23	10:30	0.403	0.000172	0.0088	12.3	0.00953	<0.50	<0.020	0.000555	0.00140	0.076	2.58	0.00215	0.000136	3.96	<0.000010	13.1
	FF-4	WP2303945-009	31-Mar-23	11:10	0.339	0.000158	0.0087	12.0	0.00877	<0.50	<0.020	0.000521	0.00130	0.066	2.50	0.00185	0.000116	3.83	<0.000010	12.8
	FF-5	WP2303945-010	31-Mar-23	11:50	0.338	0.000162	0.0090	12.1	0.00898	<0.50	0.025	0.000524	0.00125	0.065	2.51	0.00194	0.000115	3.85	<0.000010	12.6
Clark Lake	CL-1	WP2313199-001	24-Jun-23	10:45	0.519	0.000236	0.0064	9.94	0.0104	0.86	0.030	0.000486	0.00146	0.051	2.12	0.00222	0.000105	2.79	<0.000010	10.2
	CL-2	WP2313199-002	24-Jun-23	11:18	0.478	0.000224	0.0065	10.1	0.00984	0.85	0.030	0.000454	0.00138	<0.050	2.14	0.00215	0.000127	2.76	<0.000010	10.7
	CL-3	WP2313199-003	24-Jun-23	11:04	0.464	0.000232	0.0064	10.1	0.00975	0.92	0.035	0.000457	0.00156	<0.050	2.15	0.00214	0.000162	2.83	<0.000010	10.4
	CL-4	WP2313199-004	24-Jun-23	11:31	0.521	0.000243	0.0066	9.97	0.0106	0.85	0.028	0.000448	0.00138	<0.050	2.06	0.00228	0.000104	2.74	<0.000010	9.95
	CL-5	WP2313199-005	24-Jun-23	11:45	0.481	0.000236	0.0061	9.68	0.0111	0.73	0.020	0.000437	0.00137	<0.050	2.02	0.00217	0.000071	2.82	<0.000010	9.59
Nelson River - Upstream of the Keeyask GS	US-1	WP2313575-008	27-Jun-23	7:34	0.506	0.000208	0.0068	9.87	0.00930	1.11	0.033	0.000507	0.00139	<0.050	2.19	0.00205	0.000134	2.64	<0.000010	9.89
	US-2	WP2313575-009	27-Jun-23	7:54	0.495	0.000237	0.0065	10.2	0.00978	0.97	0.036	0.000463	0.00148	<0.050	2.24	0.00221	0.000124	2.80	<0.000010	10.4
	US-3	WP2313575-010	27-Jun-23	8:08	0.477	0.000227	0.0063	10.1	0.00983	0.87	0.042	0.000480	0.00144	<0.050	2.25	0.00222	0.000120	2.69	<0.000010	10.1
	US-4	WP2313575-011	27-Jun-23	8:20	0.486	0.000222	0.0065	10.0	0.00960	0.84	<0.020	0.000481	0.00149	<0.050	2.22	0.00226	0.000143	2.74	<0.000010	10.3
	US-5	WP2313575-012	27-Jun-23	8:35	0.482	0.000237	0.0065	10.4	0.0100	1.10	<0.020	0.000476	0.00155	<0.050	2.22	0.00229	0.000090	2.74	<0.000010	10.5
Stephens Lake - Near-field	NF-1	WP2313575-001	27-Jun-23	9:40	0.484	0.000213	0.0070	10.2	0.0100	0.94	0.039	0.000483	0.00150	<0.050	2.23	0.00209	0.000130	2.66	<0.000010	10.0
	NF-2	WP2313575-002	27-Jun-23	10:35	0.500	0.000231	0.0068	10.3	0.00996	1.01	0.051	0.000757	0.00152	<0.050	2.23	0.00239	0.000117	2.83	<0.000010	10.1
	NF-3	WP2313575-003	27-Jun-23	10:00	0.472	0.000221	0.0068	10.2	0.00964	1.05	0.043	0.000484	0.00144	<0.050	2.23	0.00226	0.000099	2.75	<0.000010	10.0
	NF-4	WP2313575-004	27-Jun-23	10:50	0.519	0.000249	0.0068	10.4	0.0103	1.17	0.059	0.000476	0.00156	<0.050	2.28	0.00228	0.000122	2.87	<0.000010	10.4
	NF-5	WP2313575-005	27-Jun-23	10:15	0.448	0.000216	0.0068	10.1	0.00965	1.04	0.039	0.000482	0.00143	<0.050	2.26	0.00206	0.000123	2.64	<0.000010	10.4
Stephens Lake - Far-field	FF-1	WP2313115-001	23-Jun-23	7:30	0.448	0.000214	0.0070	9.64	0.00923	0.95	0.045	0.000424	0.00133	<0.050	2.00	0.00191	0.000136	2.61	<0.000010	9.33
	FF-2	WP2313115-002	23-Jun-23	8:10	0.496	0.000223	0.0071	9.59	0.00996	1.00	0.037	0.000423	0.00130	<0.050	2.07	0.00223	0.000096	2.72	<0.000010	9.48
	FF-3A, -3B, -3C	WP2313115-003, -006, -007	23-Jun-23	8:58	0.516	0.000237	0.0072	9.73	0.0102	0.90	0.039	0.000441	0.00152	<0.050	2.06	0.00216	0.000108	2.79	<0.000010	9.53
	FF-4	WP2313115-004	23-Jun-23	8:32	0.482	0.000219	0.0069	9.73	0.00950	1.02	0.038	0.000428	0.00128	<0.050	2.02	0.00204	0.000083	2.63	<0.000010	9.44
	FF-5	WP2313115-005	23-Jun-23	7:50	0.508	0.000230	0.0067	9.37	0.0102	0.91	0.035	0.000427	0.00140	<0.050	2.00	0.00214	0.000101	2.73	<0.000010	9.14
Clark Lake	CL-1	WP2317397-007	30-Jul-23	10:01	0.523	0.000224	0.0064	9.13	0.00960	0.61	0.024	0.000491	0.00148	<0.050	2.15	0.00246	0.000110	3.38	<0.000010	8.58
	CL-2	WP2317397-008	30-Jul-23	9:41	0.522	0.000264	0.0063	9.21	0.00961	1.11	0.028	0.000466	0.00138	<0.050	2.14	0.00251	0.000095	3.42	<0.000010	8.42
	CL-3	WP2317397-009	30-Jul-23	10:27	0.472	0.000222	0.0067	9.55	0.00869	<5.00	0.029	0.000466	0.00137	<0.050	2.16	0.00238	0.000152	3.42	<0.000010	8.95
	CL-4	WP2317397-010	30-Jul-23	9:25	0.547	0.000255	0.0072	9.09	0.0104	0.84	0.026	0.000482	0.00147	<0.050	2.10	0.00250	0.000141	3.40	<0.000010	8.16
	CL-5	WP2317397-011	30-Jul-23	9:06	0.490	0.000252	0.0063	9.35	0.00923	0.89	0.032	0.000387	0.00137	<0.050	2.11	0.00238	0.000125	3.38	<0.000010	8.80

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Nelson River - Upstream of the Keeyask GS	US-1	WP2317751-001	1-Aug-23	9:09	0.440	0.000220	0.0071	9.69	0.00905	0.78	0.029	0.000484	0.00132	<0.050	2.12	0.00232	0.000082	3.33	0.000016	8.85
	US-2	WP2317751-002	1-Aug-23	8:49	0.460	0.000236	0.0073	9.99	0.00930	0.68	0.028	0.000445	0.00138	<0.050	2.16	0.00212	0.000113	3.46	<0.000010	8.90
	US-3	WP2317751-003	1-Aug-23	7:55	0.420	0.000219	0.0070	10.4	0.00898	0.68	0.037	0.000460	0.00141	<0.050	2.15	0.00213	0.000072	3.35	0.000033	9.22
	US-4	WP2317751-004	1-Aug-23	8:18	0.375	0.000213	0.0071	10.3	0.00860	0.65	0.024	0.000450	0.00137	0.063	2.13	0.00200	0.000106	3.29	0.000026	9.22
	US-5	WP2317751-005	1-Aug-23	7:25	0.449	0.000224	0.0072	10.3	0.00953	0.70	0.026	0.000429	0.00146	<0.050	2.19	0.00237	0.000126	3.46	0.000023	9.39
Stephens Lake - Near-Field	NF-1	WP2317368-008	28-Jul-23	12:25	0.479	0.000227	0.0066	9.47	0.00979	0.70	0.041	0.000460	0.00129	0.050	2.11	0.00215	0.000126	3.33	<0.000010	8.96
	NF-2	WP2317368-009	28-Jul-23	13:24	0.524	0.000245	0.0061	9.52	0.0102	0.68	0.053	0.000377	0.00152	<0.050	2.17	0.00250	0.000120	3.41	<0.000010	8.77
	NF-3	WP2317368-010	28-Jul-23	12:54	0.511	0.000237	0.0074	10.1	0.00963	0.68	0.042	0.000514	0.00138	<0.050	2.17	0.00228	0.000117	3.38	<0.000010	8.92
	NF-4	WP2317368-011	28-Jul-23	13:46	0.472	0.000239	0.0069	10.4	0.00933	0.67	0.043	0.000457	0.00144	<0.050	2.25	0.00232	0.000094	3.24	<0.000010	9.30
	NF-5	WP2317368-012	28-Jul-23	11:50	0.490	0.000208	0.0068	9.69	0.00975	0.76	0.041	0.000455	0.00137	<0.050	2.14	0.00242	0.000118	3.48	<0.000010	8.67
Stephens Lake - Far-field	FF-1A, -1B, -1C	WP2317368-001, -006, -007	28-Jul-23	8:16	0.409	0.000218	0.0068	9.99	0.00861	0.73	0.040	0.000441	0.00135	<0.050	2.17	0.00215	0.000104	3.14	<0.000010	9.36
	FF-2	WP2317368-002	28-Jul-23	9:22	0.470	0.000220	0.0072	10.1	0.00943	0.72	0.049	0.000513	0.00142	<0.050	2.18	0.00227	0.000102	3.39	<0.000010	9.21
	FF-3	WP2317368-003	28-Jul-23	10:15	0.463	0.000229	0.0063	9.61	0.00918	0.74	0.029	0.000429	0.00136	<0.050	2.13	0.00222	0.000149	3.33	<0.000010	9.07
	FF-4	WP2317368-004	28-Jul-23	9:55	0.441	0.000210	0.0067	9.75	0.00853	0.70	0.044	0.000454	0.00126	<0.050	2.17	0.00221	0.000133	3.30	<0.000010	9.14
	FF-5	WP2317368-005	28-Jul-23	8:50	0.405	0.000225	0.0068	10.0	0.00815	1.58	0.042	0.000465	0.00132	<0.050	2.12	0.00213	0.000097	3.23	<0.000010	9.32
Clark Lake	CL-1	WP2320928-001	25-Aug-23	9:44	0.387	0.000191	0.0073	10.0	0.00785	0.65	0.024	0.000462	0.00121	0.051	2.34	0.00209	0.000123	3.40	<0.000010	9.98
	CL-2	WP2320928-002	25-Aug-23	9:23	0.396	0.000203	0.0074	9.62	0.00820	0.55	0.025	0.000506	0.00125	<0.050	2.32	0.00211	0.000118	3.56	<0.000010	9.60
	CL-3	WP2320928-003	25-Aug-23	10:00	0.400	0.000201	0.0077	10.3	0.00821	0.64	0.022	0.00135	0.00130	0.053	2.47	0.00219	0.000081	3.72	<0.000010	10.1
	CL-4	WP2320928-004	25-Aug-23	9:06	0.422	0.000211	0.0073	10.2	0.00848	0.72	0.032	0.000450	0.00124	<0.050	2.43	0.00223	0.000087	3.73	<0.000010	10.0
	CL-5	WP2320928-005	25-Aug-23	8:45	0.367	0.000191	0.0076	10.3	0.00794	0.66	0.025	0.000480	0.00119	0.055	2.45	0.00215	0.000115	3.61	<0.000010	10.4
Nelson River - Upstream of the Keeyask GS	US-1	WP2320722-005	23-Aug-23	10:01	0.382	0.000188	0.0078	9.42	0.00793	0.67	0.046	0.000446	0.00118	<0.050	2.08	0.00204	0.000137	3.08	<0.000010	8.87
	US-2	WP2320722-006	23-Aug-23	10:40	0.419	0.000205	0.0072	9.68	0.00840	0.70	0.025	0.000475	0.00126	0.053	2.22	0.00220	0.000132	3.57	<0.000010	8.83
	US-3	WP2320722-007	23-Aug-23	11:28	0.383	0.000197	0.0074	9.82	0.00815	0.71	0.038	0.000487	0.00126	0.051	2.20	0.00214	0.000115	3.35	<0.000010	8.81
	US-4	WP2320722-008	23-Aug-23	11:03	0.389	0.000203	0.0073	10.0	0.00826	0.66	0.034	0.000480	0.00124	0.052	2.27	0.00218	0.000159	3.45	<0.000010	8.82
	US-5	WP2320722-009	23-Aug-23	11:52	0.382	0.000193	0.0080	9.87	0.00815	0.69	0.040	0.000842	0.00123	0.056	2.21	0.00207	0.000138	3.37	<0.000010	8.89
Stephens Lake - Near-field	NF-1	WP2321410-012	28-Aug-23	17:35	0.303	0.000172	0.0068	9.63	0.00704	0.59	0.041	0.000489	0.00120	<0.050	2.07	0.00195	0.000119	3.06	<0.000010	9.03
	NF-2	WP2321410-013	28-Aug-23	18:05	0.294	0.000190	0.0066	9.19	0.00770	0.56	0.041	0.000436	0.00114	<0.050	2.14	0.00186	0.000111	3.00	<0.000010	8.90
	NF-3	WP2321410-014	28-Aug-23	17:49	0.228	0.000150	0.0067	9.36	0.00678	0.63	0.053	0.000651	0.00108	<0.050	2.06	0.00168	0.000140	2.93	<0.000010	9.07
	NF-4	WP2321410-015	28-Aug-23	18:18	0.222	0.000150	0.0064	9.59	0.00716	0.63	0.039	0.000932	0.00107	<0.050	2.04	0.00179	0.000118	2.88	<0.000010	9.11
	NF-5A, -5B, -5C	WP2321410-016, -017, -018	28-Aug-23	17:12	0.308	0.000185	0.0066	9.36	0.00747	0.65	0.039	0.00126	0.00117	<0.050	2.07	0.00193	0.000096	3.08	<0.000010	9.04
Stephens Lake - Far-field	FF-1	WP2321410-007	28-Aug-23	18:53	0.371	0.000206	0.0071	9.38	0.00647	0.65	0.046	0.000496	0.00119	<0.050	2.27	0.00211	0.000122	3.52	0.000010	9.21
	FF-2	WP2321410-008	28-Aug-23	19:28	0.386	0.000204	0.0071	9.55	0.00742	0.58	0.048	0.000478	0.00125	0.056	2.24	0.00215	0.000144	3.59	<0.000010	9.33
	FF-3	WP2321410-009	28-Aug-23	19:53	0.409	0.000218	0.0073	9.48	0.00760	0.64	0.039	0.000477	0.00126	0.050	2.24	0.00221	0.000135	3.83	<0.000010	9.26
	FF-4	WP2321410-010	28-Aug-23	19:40	0.348	0.000187	0.0069	9.36	0.00712	0.60	0.042	0.000522	0.00120	<0.050	2.10	0.00197	0.000117	3.25	<0.000010	9.03
	FF-5	WP2321410-011	28-Aug-23	19:12	0.416	0.000210	0.0069	9.39	0.00730	0.62	0.043	0.000492	0.00122	<0.050	2.10	0.00221	0.000113	3.40	<0.000010	8.89
Clark Lake	CL-1	WP2324257-011	23-Sep-23	13:32	0.291	0.000149	0.0078	11.0	0.00656	<0.50	0.022	0.000531	0.00115	<0.050	2.21	0.00194	0.000109	3.30	<0.000010	10.2
	CL-2	WP2324257-012	23-Sep-23	13:15	0.337	0.000165	0.0082	10.9	0.00711	<0.50	0.021	0.000517	0.00120	<0.050	2.28	0.00206	0.000107	3.57	<0.000010	10.6
	CL-3	WP2324257-013	23-Sep-23	13:47	0.318	0.000160	0.0084	10.5	0.00694	0.50	0.021	0.000572	0.00116	0.054	2.26	0.00200	0.000111	3.44	<0.000010	10.3
	CL-4	WP2324257-014	23-Sep-23	13:03	0.314	0.000173	0.0080	10.6	0.00674	<0.50	0.023	0.00119	0.00116	0.056	2.13	0.00204	0.000098	3.43	<0.000010	9.92
	CL-5	WP2324257-015	23-Sep-23	12:48	0.356	0.000178	0.0081	10.2	0.00778	<0.50	0.021	0.000503	0.00116	<0.050	2.16	0.00204	0.000121	3.60	<0.000010	9.81
Nelson River - Upstream of the Keeyask GS	US-1	WP2324257-006	24-Sep-23	11:03	0.253	0.000152	0.0064	11.2	0.00595	0.52	0.028	0.000541	0.00109	0.051	2.43	0.00188	0.000096	3.58	<0.000010	11.4
	US-2	WP2324257-007	24-Sep-23	10:47	0.290	0.000156	0.0084	11.4	0.00659	0.52	0.025	0.000543	0.00122	0.052	2.38	0.00201	0.000116	3.58	<0.000010	11.4
	US-3	WP2324257-008	24-Sep-23	10:10	0.293	0.000150	0.0081	11.4	0.00623	<0.50	<0.020	0.000599	0.00113	0.050	2.28	0.00199	0.000108	3.51	<0.000010	11.0
	US-4	WP2324257-009	24-Sep-23	9:44	0.277	0.000148	0.0081	11.0	0.00608	0.73	<0.020	0.000532	0.00108	0.052	2.31	0.00191	0.000104	3.48	<0.000010	10.9
	US-5	WP2324257-010	24-Sep-23	10:27	0.275	0.000136	0.0080	10.8	0.00632	<0.50	0.026	0.000503	0.00110	0.061	2.29	0.00193	0.000094	3.46	<0.000010	10.6

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Stephens Lake - Near-field	NF-1	WP2324490-001	25-Sep-23	8:18	0.292	0.000172	0.0084	10.5	0.00608	<0.50	0.027	0.000632	0.00106	<0.050	2.34	0.00201	0.000132	3.52	<0.000010	11.2
	NF-2A, -2B, -2C	WP2324490-002, -006, -007	25-Sep-23	7:41	0.290	0.000153	0.0079	10.5	0.00599	<0.50	0.031	0.000525	0.00103	<0.050	2.35	0.00192	0.000111	3.44	<0.000010	11.3
	NF-3	WP2324490-003	25-Sep-23	8:01	0.290	0.000159	0.0071	10.5	0.00637	<0.50	0.029	0.000468	0.00111	0.057	2.38	0.00192	0.000127	3.46	<0.000010	11.4
	NF-4	WP2324490-004	25-Sep-23	7:25	0.277	0.000172	0.0082	11.0	0.00597	<0.50	0.030	0.000530	0.00116	<0.050	2.42	0.00198	0.000148	3.55	<0.000010	11.8
	NF-5	WP2324490-005	25-Sep-23	8:34	0.296	0.000166	0.0079	10.4	0.00651	<0.50	0.031	0.000516	0.00106	<0.050	2.33	0.00201	0.000118	3.58	<0.000010	11.4
Stephens Lake - Far-field	FF-1	WP2324490-008	25-Sep-23	9:58	0.280	0.000157	0.0076	10.4	0.00545	<0.50	0.026	0.000567	0.00111	0.052	2.33	0.00190	0.000088	3.39	<0.000010	11.1
	FF-2	WP2324490-009	25-Sep-23	10:33	0.277	0.000200	0.0075	10.1	0.00546	<0.50	0.031	0.000469	0.00110	<0.050	2.28	0.00181	0.000094	3.40	<0.000010	10.8
	FF-3	WP2324490-010	25-Sep-23	11:10	0.276	0.000171	0.0076	10.6	0.00586	<0.50	0.030	0.000496	0.00109	0.063	2.38	0.00189	0.000110	3.43	<0.000010	11.3
	FF-4	WP2324490-011	25-Sep-23	10:49	0.274	0.000167	0.0075	10.4	0.00621	0.74	0.031	0.000487	0.00111	0.059	2.25	0.00182	0.000106	3.35	<0.000010	10.8
	FF-5	WP2324490-012	25-Sep-23	10:18	0.257	0.000154	0.0078	10.1	0.00588	<0.50	0.030	0.000617	0.00107	0.051	2.26	0.00179	0.000080	3.35	<0.000010	10.8

1.Sample bottle broken in transit.

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Split Lake	SPL-10	WP2303626-001	26-Mar-23	11:00	0.0770	20.8	7.44	<0.00020	<0.000010	0.00013	<0.00010	0.0163	<0.00010	0.000481	0.00140	0.0033	0.00054
	SPL-11	WP2303626-002	26-Mar-23	14:25	0.0843	22.7	8.33	<0.00020	<0.000010	0.00017	<0.00010	0.0238	<0.00010	0.000556	0.00172	<0.0030	0.00054
	SPL-12	WP2303626-003	26-Mar-23	12:50	0.0808	22.8	8.48	<0.00020	<0.000010	0.00017	<0.00010	0.0221	<0.00010	0.000560	0.00169	<0.0030	0.00046
	SPL-13	WP2303626-004	26-Mar-23	13:40	0.0706	19.6	6.96	<0.00020	0.000025	0.00020	0.00019	0.0227	<0.00010	0.000483	0.00154	0.0032	0.00055
	SPL-14	WP2303626-005	26-Mar-23	12:10	0.0999	29.7	10.3	<0.00020	<0.000010	0.00011	<0.00010	0.0149	<0.00010	0.000692	0.00157	0.0038	0.00046
Nelson River - Upstream of the Keeyask GS	US-6	WP2303849-005	29-Mar-23	10:55	0.104	27.8	10.6	0.00022	<0.000010	0.00012	<0.00010	0.0141	<0.00010	0.000706	0.00161	<0.0030	0.00037
	US-7	WP2303849-006	29-Mar-23	13:35	0.102	28.0	10.4	<0.00020	<0.000010	0.00012	<0.00010	0.0167	<0.00010	0.000698	0.00171	<0.0030	0.00039
	US-8	WP2303849-007	29-Mar-23	12:50	0.101	28.0	10.4	<0.00020	<0.000010	0.00013	0.00020	0.0166	<0.00010	0.000683	0.00167	0.0033	0.00040
	US-9	WP2303849-008	29-Mar-23	11:35	0.0992	28.0	10.4	<0.00020	<0.000010	0.00011	<0.00010	0.0168	<0.00010	0.000674	0.00172	<0.0030	0.00036
	US-10	WP2303849-009	29-Mar-23	12:15	0.0924	28.1	9.33	<0.00020	<0.000010	0.00012	<0.00010	0.0158	<0.00010	0.000645	0.00166	<0.0030	0.00043
Stephens Lake - Near-field	NF-1	WP2303925-001	30-Mar-23	13:00	0.0983	27.9	10.4	<0.00020	<0.000010	0.00014	<0.00010	0.0196	<0.00010	0.000690	0.00179	<0.0030	0.00047
	NF-2	WP2303925-002	30-Mar-23	15:30	0.0994	28.4	10.5	<0.00020	<0.000010	0.00011	<0.00010	0.0139	<0.00010	0.000693	0.00159	<0.0030	0.00037
	NF-3A, -3B, -3C	WP2303925-003, -006, -007	30-Mar-23	13:45	0.100	28.5	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0172	<0.00010	0.000689	0.00172	<0.0030	0.00046
	NF-4	WP2303925-004	30-Mar-23	16:10	0.0988	28.5	10.2	<0.00020	<0.000010	0.00012	<0.00010	0.0167	<0.00010	0.000696	0.00168	<0.0030	0.00043
	NF-5	WP2303925-005	30-Mar-23	14:40	0.0960	27.8	10.4	<0.00020	<0.000010	0.00012	<0.00010	0.0165	<0.00010	0.000663	0.00164	<0.0030	0.00046
Stephens Lake - Far-field	FF-1	WP2303945-006	31-Mar-23	9:20	0.0926	27.8	10.7	<0.00020	<0.000010	0.00010	<0.00010	0.0124	<0.00010	0.000653	0.00148	<0.0030	0.00052
	FF-2	WP2303945-007	31-Mar-23	10:00	0.0934	28.0	10.6	<0.00020	<0.000010	0.00011	<0.00010	0.0156	<0.00010	0.000676	0.00165	<0.0030	0.00054
	FF-3	WP2303945-008	31-Mar-23	10:30	0.0935	28.2	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0169	<0.00010	0.000691	0.00169	<0.0030	0.00048
	FF-4	WP2303945-009	31-Mar-23	11:10	0.0923	28.1	10.8	<0.00020	<0.000010	0.00011	<0.00010	0.0128	<0.00010	0.000674	0.00155	<0.0030	0.00050
	FF-5	WP2303945-010	31-Mar-23	11:50	0.0903	27.8	10.5	<0.00020	<0.000010	0.00010	<0.00010	0.0135	<0.00010	0.000648	0.00161	<0.0030	0.00048
Clark Lake	CL-1	WP2313199-001	24-Jun-23	10:45	0.0853	20.4	7.23	<0.00020	<0.000010	0.00018	<0.00010	0.0206	<0.00010	0.000537	0.00174	<0.0030	0.00044
	CL-2	WP2313199-002	24-Jun-23	11:18	0.0819	21.0	7.71	<0.00020	<0.000010	0.00017	<0.00010	0.0186	<0.00010	0.000531	0.00171	<0.0030	0.00043
	CL-3	WP2313199-003	24-Jun-23	11:04	0.0840	21.4	7.85	<0.00020	<0.000010	0.00017	<0.00010	0.0179	<0.00010	0.000541	0.00176	<0.0030	0.00041
	CL-4	WP2313199-004	24-Jun-23	11:31	0.0795	19.9	6.94	<0.00020	<0.000010	0.00017	<0.00010	0.0200	<0.00010	0.000520	0.00177	<0.0030	0.00048
	CL-5	WP2313199-005	24-Jun-23	11:45	0.0818	20.6	7.30	<0.00020	<0.000010	0.00018	<0.00010	0.0181	<0.00010	0.000494	0.00167	<0.0030	0.00045
Nelson River - Upstream of the Keeyask GS	US-1	WP2313575-008	27-Jun-23	7:34	0.0812	21.6	8.02	<0.00020	<0.000010	0.00016	<0.00010	0.0197	<0.00010	0.000548	0.00170	<0.0030	0.00054
	US-2	WP2313575-009	27-Jun-23	7:54	0.0844	21.4	8.38	<0.00020	<0.000010	0.00017	<0.00010	0.0192	<0.00010	0.000540	0.00175	<0.0030	0.00053
	US-3	WP2313575-010	27-Jun-23	8:08	0.0823	21.4	8.15	<0.00020	<0.000010	0.00016	<0.00010	0.0188	<0.00010	0.000533	0.00174	<0.0030	0.00042
	US-4	WP2313575-011	27-Jun-23	8:20	0.0826	21.4	8.37	<0.00020	<0.000010	0.00017	<0.00010	0.0181	<0.00010	0.000521	0.00179	<0.0030	0.00040
	US-5	WP2313575-012	27-Jun-23	8:35	0.0840	21.3	8.00	<0.00020	<0.000010	0.00017	<0.00010	0.0189	<0.00010	0.000557	0.00178	<0.0030	0.00050
Stephens Lake - Near-field	NF-1	WP2313575-001	27-Jun-23	9:40	0.0834	21.1	8.28	<0.00020	<0.000010	0.00016	<0.00010	0.0173	<0.00010	0.000541	0.00169	<0.0030	0.00039
	NF-2	WP2313575-002	27-Jun-23	10:35	0.0834	21.2	7.68	<0.00020	<0.000010	0.00018	<0.00010	0.0192	<0.00010	0.000534	0.00185	<0.0030	0.00039
	NF-3	WP2313575-003	27-Jun-23	10:00	0.0860	21.2	7.40	<0.00020	<0.000010	0.00016	<0.00010	0.0188	<0.00010	0.000532	0.00171	<0.0030	0.00040
	NF-4	WP2313575-004	27-Jun-23	10:50	0.0848	21.1	7.67	<0.00020	<0.000010	0.00018	<0.00010	0.0206	<0.00010	0.000553	0.00184	<0.0030	0.00038
	NF-5	WP2313575-005	27-Jun-23	10:15	0.0823	21.3	7.97	<0.00020	<0.000010	0.00015	<0.00010	0.0171	<0.00010	0.000545	0.00166	<0.0030	0.00038
Stephens Lake - Far-field	FF-1	WP2313115-001	23-Jun-23	7:30	0.0795	18.7	7.00	<0.00020	<0.000010	0.00016	<0.00010	0.0171	<0.00010	0.000514	0.00162	<0.0030	0.00036
	FF-2	WP2313115-002	23-Jun-23	8:10	0.0788	19.1	7.30	<0.00020	<0.000010	0.00017	<0.00010	0.0193	<0.00010	0.000490	0.00167	<0.0030	0.00036
	FF-3A, -3B, -3C	WP2313115-003, -006, -007	23-Jun-23	8:58	0.0803	19.2	7.35	<0.00020	<0.000010	0.00018	<0.00010	0.0198	<0.00010	0.000514	0.00171	<0.0030	0.00041
	FF-4	WP2313115-004	23-Jun-23	8:32	0.0774	19.2	7.12	<0.00020	<0.000010	0.00016	<0.00010	0.0187	<0.00010	0.000492	0.00164	<0.0030	0.00034
	FF-5	WP2313115-005	23-Jun-23	7:50	0.0760	19.0	6.99	<0.00020	<0.000010	0.00018	<0.00010	0.0200	<0.00010	0.000510	0.00170	<0.0030	0.00033
Clark Lake	CL-1	WP2317397-007	30-Jul-23	10:01	0.0753	20.6	6.70	<0.00020	<0.000010	0.00019	<0.00010	0.0208	<0.00010	0.000442	0.00190	<0.0030	0.00031
	CL-2	WP2317397-008	30-Jul-23	9:41	0.0695	20.6	6.65	<0.00020	<0.000010	0.00020	<0.00010	0.0209	<0.00010	0.000500	0.00196	0.0039	0.00033
	CL-3	WP2317397-009	30-Jul-23	10:27	0.0742	21.6	6.95	<0.00020	<0.000010	0.00018	<0.00010	0.0190	<0.00010	0.000485	0.00195	<0.0030	0.00030
	CL-4	WP2317397-010	30-Jul-23	9:25	0.0657	20.1	6.46	<0.00020	<0.000010	0.00021	<0.00010	0.0215	<0.00010	0.000427	0.00193	<0.0030	0.00033
	CL-5	WP2317397-011	30-Jul-23	9:06	0.0740	20.9	6.84	<0.00020	<0.000010	0.00017	<0.00010	0.0202	<0.00010	0.000522	0.00197	0.0078	0.00040

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Nelson River - Upstream of the Keeyask GS	US-1	WP2317751-001	1-Aug-23	9:09	0.0719	20.1	6.61	<0.00020	<0.000010	0.00017	<0.00010	0.0184	<0.00010	0.000496	0.00189	<0.0030	0.00054
	US-2	WP2317751-002	1-Aug-23	8:49	0.0704	20.2	6.94	<0.00020	0.000011	0.00020	<0.00010	0.0199	<0.00010	0.000494	0.00193	<0.0030	0.00059
	US-3	WP2317751-003	1-Aug-23	7:55	0.0712	20.3	6.91	0.00034	<0.000010	0.00017	<0.00010	0.0171	<0.00010	0.000475	0.00187	<0.0030	0.00054
	US-4	WP2317751-004	1-Aug-23	8:18	0.0716	20.1	6.98	<0.00020	<0.000010	0.00015	<0.00010	0.0148	<0.00010	0.000490	0.00181	<0.0030	0.00052
	US-5	WP2317751-005	1-Aug-23	7:25	0.0711	20.4	6.69	<0.00020	<0.000010	0.00017	<0.00010	0.0188	<0.00010	0.000492	0.00196	<0.0030	0.00056
Stephens Lake - Near-field	NF-1	WP2317368-008	28-Jul-23	12:25	0.0752	21.5	7.22	<0.00020	<0.000010	0.00018	<0.00010	0.0185	<0.00010	0.000473	0.00188	<0.0030	0.00051
	NF-2	WP2317368-009	28-Jul-23	13:24	0.0754	21.4	6.94	<0.00020	<0.000010	0.00029	<0.00010	0.0210	<0.00010	0.000506	0.00201	0.0382	0.00057
	NF-3	WP2317368-010	28-Jul-23	12:54	0.0728	21.3	6.77	<0.00020	<0.000010	0.00018	<0.00010	0.0200	<0.00010	0.000455	0.00195	<0.0030	0.00054
	NF-4	WP2317368-011	28-Jul-23	13:46	0.0756	21.3	7.04	<0.00020	<0.000010	0.00017	<0.00010	0.0188	<0.00010	0.000495	0.00196	<0.0030	0.00087
	NF-5	WP2317368-012	28-Jul-23	11:50	0.0771	21.2	7.29	<0.00020	<0.000010	0.00018	<0.00010	0.0198	<0.00010	0.000438	0.00189	<0.0030	0.00054
Stephens Lake - Far-field	FF-1A, -1B, -1C	WP2317368-001, -006, -007	28-Jul-23	8:16	0.0755	21.7	7.18	<0.00020	<0.000010	0.00016	<0.00010	0.0162	<0.00010	0.000517	0.00185	<0.0030	0.00052
	FF-2	WP2317368-002	28-Jul-23	9:22	0.0795	21.6	7.29	<0.00020	<0.000010	0.00017	<0.00010	0.0190	<0.00010	0.000490	0.00191	0.0032	0.00056
	FF-3	WP2317368-003	28-Jul-23	10:15	0.0769	21.6	7.14	<0.00020	<0.000010	0.00017	<0.00010	0.0184	<0.00010	0.000496	0.00182	<0.0030	0.00052
	FF-4	WP2317368-004	28-Jul-23	9:55	0.0782	21.9	7.08	<0.00020	<0.000010	0.00016	<0.00010	0.0181	<0.00010	0.000480	0.00185	<0.0030	0.00051
	FF-5	WP2317368-005	28-Jul-23	8:50	0.0757	21.8	7.22	<0.00020	0.000014	0.00016	<0.00010	0.0159	<0.00010	0.000511	0.00179	<0.0030	0.00049
Clark Lake	CL-1	WP2320928-001	25-Aug-23	9:44	0.0792	22.1	7.77	<0.00020	<0.000010	0.00014	<0.00010	0.0159	<0.00010	0.000476	0.00210	<0.0030	0.00049
	CL-2	WP2320928-002	25-Aug-23	9:23	0.0768	21.9	7.74	<0.00020	<0.000010	0.00014	<0.00010	0.0164	<0.00010	0.000468	0.00203	<0.0030	0.00048
	CL-3	WP2320928-003	25-Aug-23	10:00	0.0784	22.1	7.93	<0.00020	<0.000010	0.00013	<0.00010	0.0168	<0.00010	0.000480	0.00216	<0.0030	0.00048
	CL-4	WP2320928-004	25-Aug-23	9:06	0.0769	21.4	7.90	<0.00020	<0.000010	0.00014	<0.00010	0.0179	<0.00010	0.000476	0.00218	<0.0030	0.00052
	CL-5	WP2320928-005	25-Aug-23	8:45	0.0794	22.1	8.03	<0.00020	<0.000010	0.00014	<0.00010	0.0156	<0.00010	0.000470	0.00217	<0.0030	0.00049
Nelson River - Upstream of the Keeyask GS	US-1	WP2320722-005	23-Aug-23	10:01	0.0752	21.3	6.88	<0.00020	<0.000010	0.00013	<0.00010	0.0156	<0.00010	0.000513	0.00192	<0.0030	0.00050
	US-2	WP2320722-006	23-Aug-23	10:40	0.0743	21.3	7.72	<0.00020	<0.000010	0.00018	<0.00010	0.0170	<0.00010	0.000480	0.00203	<0.0030	0.00050
	US-3	WP2320722-007	23-Aug-23	11:28	0.0706	21.2	7.59	0.00028	<0.000010	0.00015	<0.00010	0.0156	<0.00010	0.000487	0.00196	<0.0030	0.00042
	US-4	WP2320722-008	23-Aug-23	11:03	0.0737	21.2	7.78	<0.00020	<0.000010	0.00015	<0.00010	0.0159	<0.00010	0.000504	0.00198	<0.0030	0.00046
	US-5	WP2320722-009	23-Aug-23	11:52	0.0700	21.7	7.55	<0.00020	<0.000010	0.00014	<0.00010	0.0152	<0.00010	0.000487	0.00194	<0.0030	0.00045
Stephens Lake - Near-field	NF-1	WP2321410-012	28-Aug-23	17:35	0.0787	21.6	7.40	<0.00020	<0.000010	0.00012	<0.00010	0.0115	<0.00010	0.000513	0.00169	<0.0030	0.00041
	NF-2	WP2321410-013	28-Aug-23	18:05	0.0758	21.2	7.21	<0.00020	<0.000010	0.00012	<0.00010	0.0110	<0.00010	0.000546	0.00171	<0.0030	0.00046
	NF-3	WP2321410-014	28-Aug-23	17:49	0.0767	21.3	7.24	<0.00020	<0.000010	<0.00010	<0.00010	0.00829	<0.00010	0.000497	0.00161	<0.0030	0.00041
	NF-4	WP2321410-015	28-Aug-23	18:18	0.0764	21.3	7.45	<0.00020	<0.000010	0.00010	<0.00010	0.00749	<0.00010	0.000470	0.00159	<0.0030	0.00040
	NF-5A, -5B, -5C	WP2321410-016, -017, -018	28-Aug-23	17:12	0.0756	21.1	7.32	<0.00020	<0.000010	0.00013	0.00012	0.0114	<0.00010	0.00052	0.00170	<0.0030	0.00045
Stephens Lake - Far-field	FF-1	WP2321410-007	28-Aug-23	18:53	0.0755	20.5	7.39	<0.00020	<0.000010	0.00015	<0.00010	0.0145	<0.00010	0.000510	0.00194	<0.0030	0.00048
	FF-2	WP2321410-008	28-Aug-23	19:28	0.0751	20.6	7.38	<0.00020	<0.000010	0.00014	<0.00010	0.0155	<0.00010	0.000528	0.00199	<0.0030	0.00049
	FF-3	WP2321410-009	28-Aug-23	19:53	0.0735	20.7	7.49	<0.00020	<0.000010	0.00018	<0.00010	0.0159	<0.00010	0.000510	0.00196	<0.0030	0.00067
	FF-4	WP2321410-010	28-Aug-23	19:40	0.0788	20.7	7.52	<0.00020	<0.000010	0.00012	<0.00010	0.0123	<0.00010	0.000514	0.00173	<0.0030	0.00048
	FF-5	WP2321410-011	28-Aug-23	19:12	0.0742	20.5	7.18	<0.00020	<0.000010	0.00015	<0.00010	0.0157	<0.00010	0.000532	0.00188	<0.0030	0.00048
Clark Lake	CL-1	WP2324257-011	23-Sep-23	13:32	0.0857	24.4	8.08	<0.00020	<0.000010	<0.00010	<0.00010	0.0121	<0.00010	0.000497	0.00180	<0.0030	0.00043
	CL-2	WP2324257-012	23-Sep-23	13:15	0.0869	24.2	8.34	<0.00020	<0.000010	0.00012	<0.00010	0.0147	<0.00010	0.000512	0.00192	<0.0030	0.00045
	CL-3	WP2324257-013	23-Sep-23	13:47	0.0879	24.3	8.02	<0.00020	<0.000010	0.00011	<0.00010	0.0134	<0.00010	0.000495	0.00186	<0.0030	0.00047
	CL-4	WP2324257-014	23-Sep-23	13:03	0.0806	24.0	7.98	<0.00020	<0.000010	0.00012	<0.00010	0.0131	<0.00010	0.000487	0.00182	<0.0030	0.00043
	CL-5	WP2324257-015	23-Sep-23	12:48	0.0792	23.1	8.00	<0.00020	<0.000010	0.00013	<0.00010	0.0148	<0.00010	0.000480	0.00185	<0.0030	0.00047
Nelson River - Upstream of the Keeyask GS	US-1	WP2324257-006	24-Sep-23	11:03	0.0877	26.2	9.12	<0.00020	<0.000010	<0.00010	<0.00010	0.0110	<0.00010	0.000534	0.00206	<0.0030	0.00037
	US-2	WP2324257-007	24-Sep-23	10:47	0.0938	26.2	8.47	<0.00020	<0.000010	0.00010	<0.00010	0.0131	<0.00010	0.000535	0.00191	<0.0030	0.00042
	US-3	WP2324257-008	24-Sep-23	10:10	0.0879	26.4	8.80	<0.00020	<0.000010	0.00012	<0.00010	0.0122	<0.00010	0.000536	0.00180	<0.0030	0.00043
	US-4	WP2324257-009	24-Sep-23	9:44	0.0869	26.4	8.88	<0.00020	<0.000010	0.00011	<0.00010	0.0119	<0.00010	0.000546	0.00180	<0.0030	0.00039
	US-5	WP2324257-010	24-Sep-23	10:27	0.0825	26.1	8.61	<0.00020	<0.000010	0.00011	<0.00010	0.0117	<0.00010	0.000522	0.00182	<0.0030	0.00038

Table A4-8: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Stephens Lake - Near-field	NF-1	WP2324490-001	25-Sep-23	8:18	0.0800	25.2	9.24	<0.00020	<0.000010	0.00011	<0.00010	0.0114	<0.00010	0.000603	0.00168	<0.0030	0.00037
	NF-2A, -2B, -2C	WP2324490-002, -006, -007	25-Sep-23	7:41	0.0829	25.2	9.03	<0.00020	<0.000010	0.00012	<0.00010	0.0110	<0.00010	0.000604	0.00170	<0.0030	0.00036
	NF-3	WP2324490-003	25-Sep-23	8:01	0.0859	25.4	8.97	<0.00020	<0.000010	0.00012	<0.00010	0.0114	<0.00010	0.000607	0.00171	<0.0030	0.00037
	NF-4	WP2324490-004	25-Sep-23	7:25	0.0825	25.2	8.80	<0.00020	<0.000010	0.00012	<0.00010	0.0120	<0.00010	0.000612	0.00176	<0.0030	0.00036
	NF-5	WP2324490-005	25-Sep-23	8:34	0.0814	25.1	9.26	<0.00020	<0.000010	0.00012	<0.00010	0.0117	<0.00010	0.000613	0.00176	<0.0030	0.00038
Stephens Lake - Far-field	FF-1	WP2324490-008	25-Sep-23	9:58	0.0836	24.0	8.65	<0.00020	<0.000010	0.00011	<0.00010	0.0108	<0.00010	0.000594	0.00170	<0.0030	0.00036
	FF-2	WP2324490-009	25-Sep-23	10:33	0.0810	24.2	8.79	<0.00020	<0.000010	0.00011	<0.00010	0.0105	<0.00010	0.000632	0.00159	<0.0030	0.00039
	FF-3	WP2324490-010	25-Sep-23	11:10	0.0806	24.4	9.23	<0.00020	<0.000010	0.00012	<0.00010	0.0110	<0.00010	0.000660	0.00170	<0.0030	0.00035
	FF-4	WP2324490-011	25-Sep-23	10:49	0.0811	24.2	8.59	<0.00020	<0.000010	0.00011	<0.00010	0.0112	<0.00010	0.000576	0.00169	<0.0030	0.00045
	FF-5	WP2324490-012	25-Sep-23	10:18	0.0855	23.9	8.93	<0.00020	<0.000010	0.00010	<0.00010	0.0101	<0.00010	0.000564	0.00165	<0.0030	0.00037

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Stephens Lake - North Arm	STL-N SURF	WP2303945-001	31-Mar-23	8:45	147	0.113	<0.00010	0.00101	0.0211	<0.000020	<0.000050	0.016	<0.0000050	38.2	<0.000010	8.99	0.00021	<0.00010	0.00164
Stephens Lake - North Arm	STL-N BOT	WP2303945-002	31-Mar-23	8:45	147	0.127	<0.00010	0.00098	0.0212	<0.000020	<0.000050	0.018	<0.0000050	38.4	<0.000010	8.88	0.00023	<0.00010	0.00160
Stephens Lake - Kettle GS	STL-KETTLE	WP2303945-003	31-Mar-23	12:30	114	0.408	<0.00010	0.00131	0.0314	<0.000020	<0.000050	0.020	<0.0000050	25.1	0.000045	10.6	0.00070	0.00019	0.00171
Long Spruce Forebay	LNR-3	WP2303945-004	31-Mar-23	13:20	114	0.361	<0.00010	0.00123	0.0309	<0.000020	<0.000050	0.020	<0.0000050	25.1	0.000040	10.8	0.00061	0.00017	0.00165
Limestone Forebay	LNR-4	WP2303945-005	31-Mar-23	14:15	115	0.350	0.00011	0.00128	0.0310	<0.000020	<0.000050	0.019	<0.0000050	25.0	0.000038	10.8	0.00064	0.00016	0.00169
Stephens Lake - North Arm	STL-N SURF	WP2313121-001	23-Jun-23	15:50	119	0.182	<0.00010	0.00075	0.0170	<0.000020	<0.000050	0.017	<0.0000050	31.1	0.000013	6.46	0.00025	<0.00010	0.00117
Stephens Lake - North Arm	STL-N BOT	WP2313121-002	23-Jun-23	15:50	120	0.190	<0.00010	0.00075	0.0172	<0.000020	<0.000050	0.017	<0.0000050	32.0	0.000036	6.66	0.00071	<0.00010	0.00131
Stephens Lake - Kettle GS	STL-KETTLE	WP2313121-003	23-Jun-23	15:05	97.0	0.498	<0.00010	0.00104	0.0256	<0.000020	<0.000050	0.020	<0.0000050	22.9	0.000051	7.38	0.00080	0.00020	0.00148
Long Spruce Forebay	LNR-3	WP2313121-004	23-Jun-23	14:45	96.5	0.504	<0.00010	0.00104	0.0246	0.000022	<0.000050	0.019	0.0000100	22.9	0.000047	7.26	0.00280	0.00024	0.00156
Limestone Forebay	LNR-4	WP2313121-005	23-Jun-23	14:15	95.0	0.383	<0.00010	0.00100	0.0241	<0.000020	<0.000050	0.019	<0.0000050	22.7	0.000036	7.27	0.00053	0.00016	0.00142
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2313121-006	23-Jun-23	13:55	96.0	0.463	<0.00010	0.00098	0.0242	<0.000020	<0.000050	0.019	0.0000057	22.8	0.000042	7.18	0.00072	0.00017	0.00148
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2313121-007	23-Jun-23	13:40	95.6	0.452	<0.00010	0.00102	0.0245	<0.000020	<0.000050	0.019	<0.0000050	22.9	0.000041	7.26	0.00067	0.00017	0.00150
Nelson River - downstream of Deer Island	LNR-7	WP2313121-008	23-Jun-23	13:20	97.0	0.454	<0.00010	0.00102	0.0237	<0.000020	<0.000050	0.018	<0.0000050	22.9	0.000047	7.25	0.00066	0.00017	0.00146
Nelson River - upstream of Gillam Island	LNR-8	WP2313121-009	23-Jun-23	13:05	96.9	0.462	<0.00010	0.00102	0.0245	<0.000020	<0.000050	0.018	0.0000050	23.5	0.000042	7.18	0.00062	0.00018	0.00145
Stephens Lake - North Arm	STL-N SURF	WP2317027-001	25-Jul-23	14:23	116	0.325	<0.00010	0.00099	0.0207	0.000021	<0.000050	0.020	0.0000125	30.8	0.000029	6.52	0.00053	0.00014	0.00151
Stephens Lake - North Arm	STL-N BOT	WP2317027-002	25-Jul-23	14:23	114	0.324	<0.00010	0.00107	0.0205	<0.000020	<0.000050	0.019	0.0000050	30.4	0.000043	6.60	0.00057	0.00016	0.00465
Stephens Lake - Kettle GS	STL-KETTLE	WP2317027-003	25-Jul-23	13:40	94.4	0.445	<0.00010	0.00154	0.0284	0.000022	<0.000050	0.023	0.0000056	22.0	0.000043	8.08	0.00070	0.00017	0.00178
Long Spruce Forebay	LNR-3	WP2317027-004	25-Jul-23	13:07	96.8	0.449	<0.00010	0.00131	0.0253	<0.000020	<0.000050	0.018	0.0000071	22.3	0.000036	8.06	0.00066	0.00016	0.00174
Limestone Forebay	LNR-4	WP2317027-005	25-Jul-23	12:30	100	0.441	0.00011	0.00131	0.0260	0.000020	<0.000050	0.020	0.0000069	22.9	0.000036	8.14	0.00070	0.00015	0.00172
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2317027-006	25-Jul-23	12:05	101	0.424	<0.00010	0.00129	0.0256	<0.000020	<0.000050	0.019	0.0000091	23.2	0.000037	8.06	0.00067	0.00017	0.00166
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2317027-007	25-Jul-23	11:48	105	0.425	<0.00010	0.00132	0.0260	<0.000020	<0.000050	0.020	0.0000053	24.3	0.000035	8.06	0.00095	0.00015	0.00170
Nelson River - downstream of Deer Island	LNR-7	WP2317027-008	25-Jul-23	11:25	104	0.457	<0.00010	0.00133	0.0262	<0.000020	<0.000050	0.019	<0.0000050	23.9	0.000037	8.18	0.00070	0.00016	0.00169
Nelson River - upstream of Gillam Island	LNR-8	WP2317027-009	25-Jul-23	11:05	105	0.342	<0.00010	0.00127	0.0250	<0.000020	<0.000050	0.019	<0.0000050	24.4	0.000028	8.11	0.00053	0.00013	0.00163
Stephens Lake - North Arm	STL-N-SURF	WP2320368-001	21-Aug-23	13:22	115	0.275	<0.00010	0.00090	0.0183	<0.000020	<0.000050	0.014	<0.0000050	30.7	0.000022	6.47	0.00038	0.00010	0.00136
Stephens Lake - North Arm	STL-N-BOT	WP2320368-002	21-Aug-23	13:22	115	0.317	<0.00010	0.00094	0.0187	<0.000020	<0.000050	0.014	<0.0000050	30.7	0.000036	6.41	0.00053	0.00013	0.00320
Stephens Lake - Kettle GS	STL-KETTLE	WP2320368-003	21-Aug-23	12:40	88.4	0.441	<0.00010	0.00147	0.0247	<0.000020	<0.000050	0.016	0.0000064	19.9	0.000037	7.18	0.00070	0.00016	0.00174
Long Spruce Forebay	LNR-3	WP2320368-004	21-Aug-23	12:07	86.6	0.441	<0.00010	0.00142	0.0245	<0.000020	<0.000050	0.016	<0.0000050	19.2	0.000039	7.13	0.00073	0.00015	0.00168
Limestone Forebay	LNR-4	WP2320368-005	21-Aug-23	11:34	87.9	0.420	<0.00010	0.00144	0.0245	<0.000020	<0.000050	0.016	<0.0000050	20.1	0.000036	7.20	0.00066	0.00013	0.00167
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2320368-006	21-Aug-23	11:12	89.9	0.418	<0.00010	0.00138	0.0246	<0.000020	<0.000050	0.016	<0.0000050	20.7	0.000038	7.07	0.00063	0.00014	0.00164

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2320368-007	21-Aug-23	10:58	88.1	0.310	<0.00010	0.00144	0.0234	<0.000020	<0.000050	0.016	<0.0000050	20.6	0.000027	7.04	0.00046	0.00011	0.00156
Nelson River - downstream of Deer Island	LNR-7	WP2320368-008	21-Aug-23	10:35	88.0	0.408	<0.00010	0.00136	0.0236	<0.000020	<0.000050	0.016	<0.0000050	20.3	0.000033	7.13	0.00055	0.00014	0.00158
Nelson River - upstream of Gillam Island	LNR-8	WP2320368-009	21-Aug-23	10:18	89.8	0.425	<0.00010	0.00139	0.0231	<0.000020	<0.000050	0.016	<0.0000050	21.0	0.000036	6.94	0.00062	0.00014	0.00156
Stephens Lake - North Arm	STL-N SURF	WP2323856-001	19-Sep-23	13:01	118	0.248	<0.00010	0.00092	0.0179	<0.000020	<0.000050	0.019	0.0000096	31.5	0.000023	6.50	0.00049	0.00010	0.00142
Stephens Lake - North Arm	STL-N BOT	WP2323856-002	19-Sep-23	13:01	118	0.275	<0.00010	0.00092	0.0174	<0.000020	<0.000050	0.016	<0.0000050	32.3	0.000030	6.48	0.00045	0.00010	0.00162
Stephens Lake - Kettle GS	STL-KETTLE	WP2323856-003	19-Sep-23	12:17	95.9	0.318	<0.00010	0.00154	0.0222	<0.000020	<0.000050	0.020	0.0000056	21.9	0.000030	9.06	0.00042	0.00011	0.00148
Long Spruce Forebay	LNR-3	WP2323856-004	19-Sep-23	11:35	99.4	0.344	<0.00010	0.00158	0.0232	<0.000020	<0.000050	0.021	0.0000180	23.3	0.000031	8.99	0.00047	0.00010	0.00152
Limestone Forebay	LNR-4	WP2323856-005	19-Sep-23	10:48	98.4	0.294	<0.00010	0.00146	0.0226	<0.000020	<0.000050	0.021	<0.0000050	23.2	0.000029	8.78	0.00041	<0.00010	0.00147
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2323856-006	19-Sep-23	10:32	100	0.292	<0.00010	0.00144	0.0223	<0.000020	<0.000050	0.021	0.0000070	24.2	0.000028	8.63	0.00043	0.00010	0.00143
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2323856-007	19-Sep-23	10:18	95.6	0.311	<0.00010	0.00147	0.0232	<0.000020	<0.000050	0.020	0.0000052	22.6	0.000028	8.68	0.00063	<0.00010	0.00150
Nelson River - downstream of Deer Island	LNR-7	WP2323856-008	19-Sep-23	9:50	97.2	0.297	<0.00010	0.00147	0.0209	<0.000020	<0.000050	0.020	0.0000063	23.3	0.000030	8.52	0.00043	<0.00010	0.00146
Nelson River - upstream of Gillam Island	LNR-8	WP2323856-009	19-Sep-23	9:32	98.5	0.306	<0.00010	0.00142	0.0215	<0.000020	<0.000050	0.020	0.0000070	23.5	0.000032	8.55	0.00042	0.00011	0.00143

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Stephens Lake - North Arm	STL-N SURF	WP2303945-001	31-Mar-23	8:45	0.067	0.000084	0.0067	12.6	0.00268	0.68	<0.020	0.000491	0.00078	<0.050	1.94	0.00080	0.000065	3.23	<0.000010	10.9
Stephens Lake - North Arm	STL-N BOT	WP2303945-002	31-Mar-23	8:45	0.076	<0.000050	0.0066	12.4	0.00297	<0.50	<0.020	0.000491	0.00080	<0.050	1.92	0.00084	0.000070	3.22	<0.000010	11.0
Stephens Lake - Kettle GS	STL-KETTLE	WP2303945-003	31-Mar-23	12:30	0.403	0.000168	0.0092	12.5	0.00924	<0.50	<0.020	0.000559	0.00138	0.074	2.51	0.00213	0.000106	4.03	<0.000010	13.5
Long Spruce Forebay	LNR-3	WP2303945-004	31-Mar-23	13:20	0.356	0.000162	0.0091	12.4	0.00853	<0.50	<0.020	0.000562	0.00133	0.079	2.51	0.00201	0.000120	3.99	<0.000010	13.5
Limestone Forebay	LNR-4	WP2303945-005	31-Mar-23	14:15	0.348	0.000162	0.0092	12.7	0.00844	0.70	<0.020	0.000535	0.00130	0.073	2.57	0.00189	0.000120	3.87	<0.000010	13.4
Stephens Lake - North Arm	STL-N SURF	WP2313121-001	23-Jun-23	15:50	0.155	0.000083	0.0052	10.0	0.00353	0.56	<0.020	0.000382	0.00065	<0.050	1.58	0.00080	0.000083	2.61	<0.000010	7.79
Stephens Lake - North Arm	STL-N BOT	WP2313121-002	23-Jun-23	15:50	0.159	0.000093	0.0052	9.76	0.00317	0.97	0.022	0.000372	0.00079	<0.050	1.58	0.00084	0.000072	2.64	<0.000010	8.02
Stephens Lake - Kettle GS	STL-KETTLE	WP2313121-003	23-Jun-23	15:05	0.442	0.000208	0.0071	9.66	0.00888	0.95	<0.020	0.000435	0.00126	<0.050	2.03	0.00206	0.000100	2.67	<0.000010	9.51
Long Spruce Forebay	LNR-3	WP2313121-004	23-Jun-23	14:45	0.480	0.000212	0.0068	9.55	0.00917	0.89	0.028	0.000391	0.00211	<0.050	2.01	0.00201	0.000123	2.68	<0.000010	9.29
Limestone Forebay	LNR-4	WP2313121-005	23-Jun-23	14:15	0.348	0.000169	0.0066	9.31	0.00664	0.75	0.041	0.000401	0.00108	<0.050	1.95	0.00178	0.000087	2.42	<0.000010	9.06
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2313121-006	23-Jun-23	13:55	0.413	0.000200	0.0067	9.49	0.00776	0.86	<0.020	0.000417	0.00122	<0.050	1.96	0.00198	0.000106	2.57	<0.000010	8.96
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2313121-007	23-Jun-23	13:40	0.430	0.000200	0.0069	9.34	0.00797	0.91	0.029	0.000425	0.00199	<0.050	1.98	0.00186	0.000103	2.56	<0.000010	9.18
Nelson River - downstream of Deer Island	LNR-7	WP2313121-008	23-Jun-23	13:20	0.413	0.000186	0.0068	9.68	0.00775	0.95	0.032	0.000400	0.00119	<0.050	1.95	0.00186	0.000116	2.53	<0.000010	8.98
Nelson River - upstream of Gillam Island	LNR-8	WP2313121-009	23-Jun-23	13:05	0.410	0.000197	0.0068	9.29	0.00773	0.84	0.025	0.000419	0.00118	<0.050	1.94	0.00185	0.000084	2.60	<0.000010	8.84
Stephens Lake - North Arm	STL-N SURF	WP2317027-001	25-Jul-23	14:23	0.241	0.000156	0.0079	9.41	0.00552	0.90	0.027	0.000411	0.00087	<0.050	1.64	0.00111	0.000070	2.68	<0.000010	7.28
Stephens Lake - North Arm	STL-N BOT	WP2317027-002	25-Jul-23	14:23	0.246	0.000223	0.0080	9.35	0.00590	1.03	0.025	0.000380	0.00099	<0.050	1.64	0.00120	<0.000050	2.67	<0.000010	7.49
Stephens Lake - Kettle GS	STL-KETTLE	WP2317027-003	25-Jul-23	13:40	0.343	0.000219	0.0108	9.58	0.00764	0.91	0.047	0.000520	0.00123	<0.050	2.15	0.00216	0.000086	3.03	<0.000010	9.20
Long Spruce Forebay	LNR-3	WP2317027-004	25-Jul-23	13:07	0.323	0.000188	0.0071	9.98	0.00646	0.71	0.043	0.000515	0.00126	<0.050	2.10	0.00193	0.000122	3.16	<0.000010	9.88
Limestone Forebay	LNR-4	WP2317027-005	25-Jul-23	12:30	0.322	0.000206	0.0073	10.5	0.00635	0.89	0.034	0.000508	0.00123	<0.050	2.14	0.00207	0.000113	3.15	<0.000010	10.1
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2317027-006	25-Jul-23	12:05	0.320	0.000198	0.0071	10.4	0.00659	0.73	0.037	0.000492	0.00121	<0.050	2.11	0.00199	0.000110	3.13	<0.000010	9.96
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2317027-007	25-Jul-23	11:48	0.304	0.000198	0.0080	10.8	0.00570	0.70	0.038	0.000473	0.00137	<0.050	2.12	0.00187	0.000120	3.18	<0.000010	10.4
Nelson River - downstream of Deer Island	LNR-7	WP2317027-008	25-Jul-23	11:25	0.338	0.000251	0.0075	10.7	0.00645	0.67	0.039	0.000474	0.00120	<0.050	2.12	0.00200	0.000096	3.16	<0.000010	10.3
Nelson River - upstream of Gillam Island	LNR-8	WP2317027-009	25-Jul-23	11:05	0.273	0.000173	0.0074	10.7	0.00660	0.70	0.040	0.000464	0.00113	<0.050	2.06	0.00185	0.000108	2.93	<0.000010	10.3
Stephens Lake - North Arm	STL-N-SURF	WP2320368-001	21-Aug-23	13:22	0.186	0.000112	0.0047	9.39	0.00416	0.57	<0.020	0.000409	0.00079	<0.050	1.70	0.00105	0.000066	2.80	<0.000010	7.42
Stephens Lake - North Arm	STL-N-BOT	WP2320368-002	21-Aug-23	13:22	0.225	0.000194	0.0047	9.34	0.00481	0.58	<0.020	0.000388	0.00091	<0.050	1.70	0.00112	0.000070	2.83	<0.000010	7.44
Stephens Lake - Kettle GS	STL-KETTLE	WP2320368-003	21-Aug-23	12:40	0.328	0.000210	0.0063	9.40	0.00683	0.64	0.038	0.00155	0.00120	0.051	2.16	0.00204	0.000122	3.13	<0.000010	8.69
Long Spruce Forebay	LNR-3	WP2320368-004	21-Aug-23	12:07	0.323	0.000178	0.0063	9.40	0.00560	0.64	0.034	0.000462	0.00118	<0.050	2.19	0.00204	0.000110	3.23	<0.000010	8.55
Limestone Forebay	LNR-4	WP2320368-005	21-Aug-23	11:34	0.314	0.000176	0.0062	9.15	0.00542	0.66	0.034	0.000499	0.00115	<0.050	2.17	0.00201	0.000104	3.17	<0.000010	8.73
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2320368-006	21-Aug-23	11:12	0.302	0.000190	0.0062	9.27	0.00530	0.64	0.034	0.000466	0.00116	<0.050	2.16	0.00200	0.000109	3.01	<0.000010	8.94

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2320368-007	21-Aug-23	10:58	0.242	0.000164	0.0060	8.90	0.00500	0.62	0.033	0.00125	0.00103	<0.050	2.09	0.00182	0.000118	2.82	<0.000010	8.33
Nelson River - downstream of Deer Island	LNR-7	WP2320368-008	21-Aug-23	10:35	0.311	0.000187	0.0060	9.06	0.00604	0.66	<0.020	0.000430	0.00113	0.058	2.12	0.00202	0.000124	3.06	<0.000010	8.70
Nelson River - upstream of Gillam Island	LNR-8	WP2320368-009	21-Aug-23	10:18	0.324	0.000183	0.0059	9.08	0.00652	0.73	0.035	0.000428	0.00113	<0.050	2.10	0.00189	0.000123	3.12	<0.000010	8.18
Stephens Lake - North Arm	STL-N SURF	WP2323856-001	19-Sep-23	13:01	0.187	0.000192	0.0051	9.67	0.00380	<0.50	0.035	0.000465	0.00080	<0.050	1.66	0.00093	0.000065	2.66	<0.000010	7.21
Stephens Lake - North Arm	STL-N BOT	WP2323856-002	19-Sep-23	13:01	0.204	0.000136	0.0053	9.07	0.00411	<0.50	0.090	0.000398	0.00075	<0.050	1.60	0.00101	0.000061	2.74	<0.000010	6.96
Stephens Lake - Kettle GS	STL-KETTLE	WP2323856-003	19-Sep-23	12:17	0.234	0.000145	0.0077	10.0	0.00451	<0.50	0.044	0.000536	0.00096	<0.050	2.21	0.00184	0.000102	3.11	<0.000010	9.64
Long Spruce Forebay	LNR-3	WP2323856-004	19-Sep-23	11:35	0.234	0.000180	0.0080	10.0	0.00402	1.26	0.052	0.000536	0.00103	<0.050	2.21	0.00185	0.000132	3.10	<0.000010	9.72
Limestone Forebay	LNR-4	WP2323856-005	19-Sep-23	10:48	0.214	0.000137	0.0083	9.82	0.00362	0.51	0.045	0.000522	0.00095	<0.050	2.14	0.00178	0.000090	3.03	<0.000010	9.21
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2323856-006	19-Sep-23	10:32	0.216	0.000136	0.0083	9.75	0.00425	<0.50	0.039	0.000514	0.00095	<0.050	2.14	0.00176	0.000110	2.91	<0.000010	8.89
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2323856-007	19-Sep-23	10:18	0.223	0.000223	0.0080	9.50	0.00388	0.85	0.041	0.000527	0.00094	<0.050	2.06	0.00176	0.000116	2.93	<0.000010	8.92
Nelson River - downstream of Deer Island	LNR-7	WP2323856-008	19-Sep-23	9:50	0.225	0.000141	0.0077	9.47	0.00446	0.50	0.072	0.000578	0.00087	<0.050	2.07	0.00164	0.000104	2.81	0.000016	9.03
Nelson River - upstream of Gillam Island	LNR-8	WP2323856-009	19-Sep-23	9:32	0.233	0.000138	0.0079	9.67	0.00486	<0.50	0.037	0.000506	0.00093	<0.050	2.07	0.00171	0.000128	2.78	<0.000010	9.13

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Stephens Lake - North Arm	STL-N SURF	WP2303945-001	31-Mar-23	8:45	0.0949	18.9	7.39	<0.00020	<0.000010	<0.00010	<0.00010	0.00343	<0.00010	0.000536	0.00110	<0.0030	0.00033
Stephens Lake - North Arm	STL-N BOT	WP2303945-002	31-Mar-23	8:45	0.0942	18.8	7.56	0.00026	<0.000010	<0.00010	<0.00010	0.00386	<0.00010	0.000546	0.00103	<0.0030	0.00021
Stephens Lake - Kettle GS	STL-KETTLE	WP2303945-003	31-Mar-23	12:30	0.0934	28.1	11.1	<0.00020	<0.000010	0.00012	<0.00010	0.0162	<0.00010	0.000663	0.00170	<0.0030	0.00038
Long Spruce Forebay	LNR-3	WP2303945-004	31-Mar-23	13:20	0.0931	28.4	11.0	<0.00020	<0.000010	0.00011	<0.00010	0.0145	<0.00010	0.000672	0.00159	<0.0030	0.00036
Limestone Forebay	LNR-4	WP2303945-005	31-Mar-23	14:15	0.0932	28.6	10.8	<0.00020	<0.000010	0.00012	<0.00010	0.0142	<0.00010	0.000687	0.00161	<0.0030	0.00037
Stephens Lake - North Arm	STL-N SURF	WP2313121-001	23-Jun-23	15:50	0.0785	13.0	4.87	<0.00020	<0.000010	<0.00010	<0.00010	0.00676	<0.00010	0.000423	0.00094	<0.0030	0.00031
Stephens Lake - North Arm	STL-N BOT	WP2313121-002	23-Jun-23	15:50	0.0805	13.2	4.95	<0.00020	<0.000010	<0.00010	<0.00010	0.00689	<0.00010	0.000432	0.00089	<0.0030	0.00029
Stephens Lake - Kettle GS	STL-KETTLE	WP2313121-003	23-Jun-23	15:05	0.0801	18.9	7.37	<0.00020	<0.000010	0.00016	<0.00010	0.0172	<0.00010	0.000493	0.00159	<0.0030	0.00054
Long Spruce Forebay	LNR-3	WP2313121-004	23-Jun-23	14:45	0.0749	18.8	7.10	<0.00020	<0.000010	0.00016	<0.00010	0.0177	<0.00010	0.000484	0.00159	<0.0030	0.00054
Limestone Forebay	LNR-4	WP2313121-005	23-Jun-23	14:15	0.0784	18.5	7.12	<0.00020	<0.000010	0.00013	<0.00010	0.0129	<0.00010	0.000487	0.00138	<0.0030	0.00048
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2313121-006	23-Jun-23	13:55	0.0750	18.3	6.93	<0.00020	<0.000010	0.00015	<0.00010	0.0164	<0.00010	0.000484	0.00149	<0.0030	0.00051
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2313121-007	23-Jun-23	13:40	0.0752	18.4	7.22	<0.00020	<0.000010	0.00015	<0.00010	0.0162	<0.00010	0.000481	0.00149	<0.0030	0.00051
Nelson River - downstream of Deer Island	LNR-7	WP2313121-008	23-Jun-23	13:20	0.0791	18.3	7.06	<0.00020	<0.000010	0.00014	<0.00010	0.0158	<0.00010	0.000476	0.00145	<0.0030	0.00049
Nelson River - upstream of Gillam Island	LNR-8	WP2313121-009	23-Jun-23	13:05	0.0765	18.2	6.80	<0.00020	<0.000010	0.00016	<0.00010	0.0164	<0.00010	0.000487	0.00153	<0.0030	0.00052
Stephens Lake - North Arm	STL-N SURF	WP2317027-001	25-Jul-23	14:23	0.0810	14.0	4.85	<0.00020	<0.000010	<0.00010	<0.00010	0.0116	<0.00010	0.000445	0.00153	<0.0030	0.00044
Stephens Lake - North Arm	STL-N BOT	WP2317027-002	25-Jul-23	14:23	0.0827	14.0	4.76	<0.00020	<0.000010	0.00010	0.00011	0.0117	<0.00010	0.000441	0.00152	<0.0030	0.00043
Stephens Lake - Kettle GS	STL-KETTLE	WP2317027-003	25-Jul-23	13:40	0.0805	21.7	6.98	<0.00020	<0.000010	0.00014	<0.00010	0.0155	<0.00010	0.000529	0.00194	<0.0030	0.00051
Long Spruce Forebay	LNR-3	WP2317027-004	25-Jul-23	13:07	0.0764	21.6	7.31	<0.00020	<0.000010	0.00015	<0.00010	0.0135	<0.00010	0.000487	0.00181	<0.0030	0.00047
Limestone Forebay	LNR-4	WP2317027-005	25-Jul-23	12:30	0.0762	21.8	7.70	0.00036	<0.000010	0.00014	<0.00010	0.0137	<0.00010	0.000520	0.00174	<0.0030	0.00045
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2317027-006	25-Jul-23	12:05	0.0792	21.5	7.68	<0.00020	<0.000010	0.00014	<0.00010	0.0135	<0.00010	0.000504	0.00178	<0.0030	0.00043
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2317027-007	25-Jul-23	11:48	0.0789	21.4	7.80	<0.00020	<0.000010	0.00013	<0.00010	0.0127	<0.00010	0.000516	0.00171	<0.0030	0.00041
Nelson River - downstream of Deer Island	LNR-7	WP2317027-008	25-Jul-23	11:25	0.0786	21.6	7.68	<0.00020	<0.000010	0.00023	<0.00010	0.0140	<0.00010	0.000502	0.00180	<0.0030	0.00045
Nelson River - upstream of Gillam Island	LNR-8	WP2317027-009	25-Jul-23	11:05	0.0790	21.3	7.59	<0.00020	<0.000010	0.00012	<0.00010	0.0111	<0.00010	0.000494	0.00166	<0.0030	0.00039
Stephens Lake - North Arm	STL-N-SURF	WP2320368-001	21-Aug-23	13:22	0.0750	13.2	4.73	<0.00020	<0.000010	<0.00010	<0.00010	0.00902	<0.00010	0.000431	0.00126	<0.0030	0.00031
Stephens Lake - North Arm	STL-N-BOT	WP2320368-002	21-Aug-23	13:22	0.0760	13.1	4.81	<0.00020	<0.000010	0.00011	<0.00010	0.0106	<0.00010	0.000434	0.00142	<0.0030	0.00037
Stephens Lake - Kettle GS	STL-KETTLE	WP2320368-003	21-Aug-23	12:40	0.0728	19.4	6.86	<0.00020	<0.000010	0.00014	<0.00010	0.0137	<0.00010	0.000490	0.00177	<0.0030	0.00046
Long Spruce Forebay	LNR-3	WP2320368-004	21-Aug-23	12:07	0.0702	19.3	6.95	<0.00020	<0.000010	0.00014	<0.00010	0.0133	<0.00010	0.000474	0.00175	<0.0030	0.00049
Limestone Forebay	LNR-4	WP2320368-005	21-Aug-23	11:34	0.0720	19.2	6.83	<0.00020	<0.000010	0.00013	<0.00010	0.0126	<0.00010	0.000475	0.00176	<0.0030	0.00048
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2320368-006	21-Aug-23	11:12	0.0733	19.1	6.86	<0.00020	<0.000010	0.00013	<0.00010	0.0127	<0.00010	0.000510	0.00172	<0.0030	0.00056

Table A4-9: Metals and major ions measured in the laboratory for sites monitored in the Keeyask regional study area during the ice-cover and open-water seasons of 2023 (continued).

Sample Location	Site ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2320368-007	21-Aug-23	10:58	0.0698	19.0	6.65	<0.00020	<0.000010	0.00010	<0.00010	0.0100	<0.00010	0.000480	0.00154	<0.0030	0.00037
Nelson River - downstream of Deer Island	LNR-7	WP2320368-008	21-Aug-23	10:35	0.0695	18.9	6.82	<0.00020	<0.000010	0.00013	<0.00010	0.0125	<0.00010	0.000460	0.00169	<0.0030	0.00044
Nelson River - upstream of Gillam Island	LNR-8	WP2320368-009	21-Aug-23	10:18	0.0697	18.3	6.45	<0.00020	<0.000010	0.00013	<0.00010	0.0128	<0.00010	0.000468	0.00164	<0.0030	0.00041
Stephens Lake - North Arm	STL-N SURF	WP2323856-001	19-Sep-23	13:01	0.0816	13.4	4.26	<0.00020	<0.000010	<0.00010	<0.00010	0.00799	<0.00010	0.000419	0.00129	<0.0030	0.00032
Stephens Lake - North Arm	STL-N BOT	WP2323856-002	19-Sep-23	13:01	0.0792	13.5	4.52	<0.00020	<0.000010	<0.00010	<0.00010	0.00868	<0.00010	0.000416	0.00127	<0.0030	0.00034
Stephens Lake - Kettle GS	STL-KETTLE	WP2323856-003	19-Sep-23	12:17	0.0835	23.6	8.42	<0.00020	<0.000010	0.00011	<0.00010	0.00928	<0.00010	0.000501	0.00159	<0.0030	0.00040
Long Spruce Forebay	LNR-3	WP2323856-004	19-Sep-23	11:35	0.0839	23.6	7.90	<0.00020	<0.000010	<0.00010	<0.00010	0.0100	<0.00010	0.000507	0.00164	<0.0030	0.00036
Limestone Forebay	LNR-4	WP2323856-005	19-Sep-23	10:48	0.0828	23.0	7.64	<0.00020	<0.000010	<0.00010	<0.00010	0.00831	<0.00010	0.000510	0.00153	<0.0030	0.00035
Nelson River - upstream of the proposed Conawapa Generating Station	LNR-5	WP2323856-006	19-Sep-23	10:32	0.0796	22.4	7.43	<0.00020	<0.000010	<0.00010	<0.00010	0.00839	<0.00010	0.000468	0.00148	<0.0030	0.00035
Nelson River - downstream of the proposed Conawapa Generating Station (near Frank's Island)	LNR-6	WP2323856-007	19-Sep-23	10:18	0.0813	22.6	7.72	<0.00020	<0.000010	<0.00010	<0.00010	0.00876	<0.00010	0.000504	0.00148	<0.0030	0.00034
Nelson River - downstream of Deer Island	LNR-7	WP2323856-008	19-Sep-23	9:50	0.0849	21.9	7.37	<0.00020	<0.000010	<0.00010	<0.00010	0.00903	<0.00010	0.000471	0.00146	<0.0030	0.00034
Nelson River - upstream of Gillam Island	LNR-8	WP2323856-009	19-Sep-23	9:32	0.0847	21.5	7.54	<0.00020	<0.000010	<0.00010	<0.00010	0.00883	<0.00010	0.000481	0.00148	<0.0030	0.00036

APPENDIX 5: RESULTS OF QUALITY ASSURANCE/QUALITY CONTROL SAMPLES, 2023

Table A5-1: Quality assurance/quality control results for routine water chemistry parameters measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Alkalinity				Nitrogen						Phosphorus	
						Total (CaCO3)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Hydroxide (OH)	Ammonia	Nitrate/ nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N[1]	Dissolved P	Total P
						(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2023						**1.0**	**1.0**	**1.0**	**1.0**	**0.010 /0.0050**	**0.0051**	**0.0050**	**0.0010**	**0.050 /0.15**	**-**	**0.0010**	**0.0010 /0.0020 /0.0050**
Zone 1b	Z1-5A	WP2303699-001	27-Mar-23	8:35		88.6	88.6	<1.0	<1.0	<0.010	0.169	0.169	<0.0010	0.42	0.59	0.0406	0.0602
	Z1-5B	WP2303699-006				89.2	89.2	<1.0	<1.0	0.013	0.172	0.172	<0.0010	0.41	0.58	0.0439	0.0539
	Z1-5C	WP2303699-007				89.1	89.1	<1.0	<1.0	<0.010	0.165	0.165	<0.0010	0.39	0.56	0.0458	0.0477
					Mean	89.0	89.0	<1.0	<1.0	<0.010	0.169	0.169	<0.0010	0.41	0.58	0.0434	0.0539
					SD	0.32	0.32	-	-	-	0.0035	0.0035	-	0.015	0.018	0.00263	0.00625
					PRSD	0	0	-	-	-	2	2	-	-	-	6	12
Stephens Lake - Near-field	NF-3A	WP2303925-003	30-Mar-23	13:45		89.8	89.8	<1.0	<1.0	<0.010	0.180	0.180	<0.0010	0.40	0.58	0.0493	0.0564
	NF-3B	WP2303925-006				90.3	90.3	<1.0	<1.0	<0.010	0.180	0.180	<0.0010	0.42	0.60	0.0472	0.0593
	NF-3C	WP2303925-007				90.9	90.9	<1.0	<1.0	<0.010	0.183	0.183	<0.0010	0.47	0.65	0.0496	0.0585
					Mean	90.3	90.3	<1.0	<1.0	<0.010	0.181	0.181	<0.0010	0.43	0.61	0.0487	0.0581
					SD	0.55	0.55	-	-	-	0.0017	0.0017	-	0.036	0.038	0.00131	0.00150
					PRSD	1	1	-	-	-	1	1	-	8	6	3	3
Zone 1b	Z1-8A	WP2313572-004	26-Jun-23	8:35		81.1	81.1	<1.0	<1.0	0.015	0.0180	0.0162	0.0018	0.39	0.41	0.0258	0.0389
	Z1-8B	WP2313572-006				80.6	80.6	<1.0	<1.0	0.080	0.0162	0.0162	<0.0010	0.40	0.42	0.0245	0.0375
	Z1-8C	WP2313572-007				80.3	80.3	<1.0	<1.0	0.034	0.0171	0.0156	0.0015	0.44	0.46	0.0245	0.0385
					Mean	80.7	80.7	<1.0	<1.0	0.043	0.0171	0.0160	0.0013	0.41	0.43	0.0249	0.0383
					SD	0.40	0.40	-	-	0.0334	0.00090	0.00035	0.00068	0.027	0.026	0.00075	0.00072
					PRSD	1	1	-	-	-	-	-	-	-	-	3	2
Stephens Lake - Far-field	FF-3A	WP2313115-003	23-Jun-23	8:58		78.0	78.0	<1.0	<1.0	0.025	0.0177	0.0177	<0.0010	0.40	0.42	0.0308	0.0361
	FF-3B	WP2313115-006				79.4	79.4	<1.0	<1.0	0.029	0.0181	0.0181	<0.0010	0.36	0.38	0.0320	0.0360
	FF-3C	WP2313115-007				80.1	80.1	<1.0	<1.0	0.092	0.0200	0.0200	<0.0010	0.55	0.57	0.0323	0.0366
					Mean	79.2	79.2	<1.0	<1.0	0.049	0.0186	0.0186	<0.0010	0.44	0.46	0.0317	0.0362
					SD	1.1	1.1	-	-	0.0376	0.00123	0.00123	-	0.100	0.101	0.00079	0.00032
					PRSD	1	1	-	-	-	-	-	-	-	-	3	1
Zone 1b	Z1-5A	WP2318135-001	2-Aug-23	8:05		79.8	79.8	<1.0	<1.0	0.024	0.0321	0.0321	<0.0010	0.40	0.43	0.0303	0.0444
	Z1-5B	WP2318135-006				78.2	78.2	<1.0	<1.0	0.027	0.0312	0.0312	<0.0010	0.38	0.41	0.0322	0.0468
	Z1-5C	WP2318135-007				77.2	77.2	<1.0	<1.0	0.020	0.0308	0.0308	<0.0010	0.44	0.47	0.0314	0.0437
					Mean	78.4	78.4	<1.0	<1.0	0.024	0.0314	0.0314	<0.0010	0.41	0.44	0.0313	0.0450
					SD	1.3	1.3	-	-	0.0035	0.00067	0.00067	-	0.031	0.030	0.00095	0.00163
					PRSD	2	2	-	-	-	2	2	-	-	-	3	4
Stephens Lake - Far-field	FF-1A	WP2317368-001	28-Jul-23	8:16		77.1	77.1	<1.0	<1.0	0.038	0.0242	0.0212	0.0030	0.44	0.46	0.0336	0.0428
	FF-1B	WP2317368-006				78.6	78.6	<1.0	<1.0	0.018	0.0290	0.0265	0.0025	0.42	0.45	0.0341	0.0423
	FF-1C	WP2317368-007				78.7	78.7	<1.0	<1.0	0.015	0.0238	0.0204	0.0034	0.39	0.41	0.0326	0.0424
					Mean	78.1	78.1	<1.0	<1.0	0.024	0.0257	0.0227	0.0030	0.42	0.44	0.0334	0.0425
					SD	0.90	0.90	-	-	0.0125	0.00289	0.00332	0.00045	0.025	0.026	0.00076	0.00027
					PRSD	1	1	-	-	-	-	-	-	-	6	2	1

Table A5-1: Quality assurance/quality control results for routine water chemistry parameters measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Alkalinity				Nitrogen						Phosphorus	
						Total (CaCO3)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Hydroxide (OH)	Ammonia	Nitrate/ nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N[1]	Dissolved P	Total P
						(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2023						**1.0**	**1.0**	**1.0**	**1.0**	**0.010 /0.0050**	**0.0051**	**0.0050**	**0.0010**	**0.050 /0.15**	**-**	**0.0010**	**0.0010 /0.0020 /0.0050**
Zone 1b	Z1-7A	WP2321378-007	28-Aug-23	10:09		79.5	79.5	<1.0	<1.0	0.017	0.0329	0.0329	<0.0010	0.44	0.47	0.0380	0.0469
	Z1-7B	WP2321378-010				79.2	79.2	<1.0	<1.0	0.020	0.0363	0.0353	0.0010	0.44	0.48	0.0373	0.0499
	Z1-7C	WP2321378-011				79.4	79.4	<1.0	<1.0	0.017	0.0373	0.0362	0.0011	0.44	0.48	0.0395	0.0496
					Mean	79.4	79.4	<1.0	<1.0	0.018	0.0355	0.0348	<0.0010	0.44	0.48	0.0383	0.0488
					SD	0.15	0.15	-	-	0.0017	0.00231	0.00171	-	0.000	0.002	0.00112	0.00165
					PRSD	0	0	-	-	-	6	5	-	-	-	3	3
Stephens Lake - Near-field	NF-5A	WP2321410-016	28-Aug-23	17:12		78.2	78.2	<1.0	<1.0	0.018	0.0340	0.0340	<0.0010	0.46	0.49	0.0370	0.0488
	NF-5B	WP2321410-017				77.4	77.4	<1.0	<1.0	0.013	0.0348	0.0337	0.0011	0.40	0.43	0.0396	0.0493
	NF-5C	WP2321410-018				77.5	77.5	<1.0	<1.0	0.020	0.0348	0.0337	0.0011	0.52	0.55	0.0352	0.0491
					Mean	77.7	77.7	<1.0	<1.0	0.017	0.0345	0.0338	<0.0010	0.46	0.49	0.0373	0.0491
					SD	0.44	0.44	-	-	0.0036	0.00046	0.00017	-	0.060	0.060	0.00221	0.00025
					PRSD	1	1	-	-	-	1	1	-	-	-	6	1
Zone 8	Z8-1A SURF	WP2324106-001	21-Sep-23	11:40		77.3	77.3	<1.0	<1.0	0.0186	0.0243	0.0243	<0.0010	0.428	0.452	0.0291	0.0417
	Z8-1B SURF	WP2324106-005				76.3	76.3	<1.0	<1.0	0.0369	0.0301	0.0288	0.0013	0.470	0.500	0.0293	0.0436
	Z8-1C SURF	WP2324106-006				76.2	76.2	<1.0	<1.0	0.0194	0.0550	0.0550	<0.0010	0.434	0.489	0.0285	0.0418
					Mean	76.6	76.6	<1.0	<1.0	0.0250	0.0365	0.0360	<0.0010	0.444	0.480	0.0290	0.0424
					SD	0.61	0.61	-	-	0.0103	0.0163	0.0166	-	0.0227	0.0250	0.00042	0.00107
					PRSD	1	1	-	-	-	-	-	-	5	5	1	3
Stephens Lake - Near-field	NF-2A	WP2324490-002	25-Sep-23	7:41		85.0	85.0	<1.0	<1.0	0.0105	0.0344	0.0344	<0.0010	0.617	0.651	0.0431	0.0500
	NF-2B	WP2324490-006				85.1	85.1	<1.0	<1.0	0.0098	0.0346	0.0346	<0.0010	0.540	0.575	0.0440	0.0510
	NF-2C	WP2324490-007				85.1	85.1	<1.0	<1.0	0.0072	0.0362	0.0362	<0.0010	0.568	0.604	0.0433	0.0521
					Mean	85.1	85.1	<1.0	<1.0	0.0092	0.0351	0.0351	<0.0010	0.575	0.610	0.0435	0.0510
					SD	0.06	0.06	-	-	0.00174	0.00099	0.00099	-	0.0390	0.0387	0.00047	0.00105
					PRSD	0	0	-	-	-	3	3	-	7	6	1	2

Table A5-1: Quality assurance/quality control results for routine water chemistry parameters measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

					Alkalinity				Nitrogen						Phosphorus	
Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Total (CaCO3)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Hydroxide (OH)	Ammonia	Nitrate/ nitrite	Nitrate	Nitrite	Total Kjeldahl Nitrogen	Total N[1]	Dissolved P	Total P
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L N)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Detection Limit 2023					**1.0**	**1.0**	**1.0**	**1.0**	**0.010 /0.0050**	**0.0051**	**0.0050**	**0.0010**	**0.050 /0.15**	**-**	**0.0010**	**0.0010**
Field Blank	FB-1	WP2303626-007	26-Mar-23	11:30	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-2	WP2303849-010	29-Mar-23	14:00	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-1	WP2313612-005	22-Jun-23	10:30	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-2	WP2313575-006	27-Jun-23	12:00	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-1	WP2317027-011	25-Jul-23	17:00	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-2	WP2318135-012	2-Aug-23	12:00	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-1	WP2320368-010	21-Aug-23	13:22	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-2	WP2321052-004	27-Aug-23	10:15	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Field Blank	FB-1	WP2323856-011	19-Sep-23	15:00	<1.0	<1.0	<1.0	<1.0	<0.0050	<0.0051	<0.0050	<0.0010	<0.050	<0.050	<0.0010	<0.0010
Field Blank	FB-2	WP2324490-014	25-Sep-23	12:30	<1.0	<1.0	<1.0	<1.0	0.0056	<0.0051	<0.0050	<0.0010	<0.050	<0.050	<0.0010	<0.0010
Trip Blank	TB-1	WP2303626-006	26-Mar-23	11:30	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-2	WP2303849-011	29-Mar-23	14:00	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-1	WP2313612-006	22-Jun-23	10:30	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-2	WP2313575-007	27-Jun-23	12:00	<1.0	<1.0	<1.0	<1.0	0.048	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-1	WP2317027-010	25-Jul-23	17:00	1.1	1.1	<1.0	<1.0	0.040	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-2	WP2318135-013	2-Aug-23	12:00	<1.0	<1.0	<1.0	<1.0	0.022	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-1	WP2320368-011	21-Aug-23	13:22	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-2	WP2321052-003	27-Aug-23	10:15	<1.0	<1.0	<1.0	<1.0	<0.010	<0.0051	<0.0050	<0.0010	<0.15	<0.15	<0.0010	<0.0010
Trip Blank	TB-1	WP2323856-010	19-Sep-23	15:00	<1.0	<1.0	<1.0	<1.0	<0.0050	<0.0051	<0.0050	<0.0010	<0.050	<0.050	<0.0010	<0.0010
Trip Blank	TB-2	WP2324490-013	25-Sep-23	12:30	<1.0	<1.0	<1.0	<1.0	<0.0050	<0.0051	<0.0050	<0.0010	<0.050	<0.050	<0.0010	<0.0010

Table A5-1: Quality assurance/quality control results for routine water chemistry parameters measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
						Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
						(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023						**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**3.0/10.0 /15.0**	**0.010**	**0.100**
Zone 1b	Z1-5A	WP2303699-001	27-Mar-23	8:35		8.28	8.77	2.1	10.2	16.6	7.71	271	183	0.244	0.615
	Z1-5B	WP2303699-006				9.14	8.78	2.3	10.1	13.3	7.85	267	165	0.251	0.593
	Z1-5C	WP2303699-007				8.60	8.85	1.6	10.4	13.5	7.91	267	167	0.244	0.608
					Mean	8.67	8.80	2.0	10.2	14.5	7.82	268	167	0.246	0.605
					SD	0.435	0.044	0.36	0.15	1.85	0.103	2.3	9.9	0.0040	0.0112
					PRSD	5	1	-	1	-	1	1	6	2	2
Stephens Lake - Near-field	NF-3A	WP2303925-003	30-Mar-23	13:45		9.00	8.17	3.1	10.3	15.7	7.87	281	169	0.262	0.605
	NF-3B	WP2303925-006				9.69	8.32	3.1	10.1	16.0	7.90	280	164	0.276	0.569
	NF-3C	WP2303925-007				9.46	8.24	3.0	10.0	14.9	7.91	279	170	0.249	0.594
					Mean	9.38	8.24	3.1	10.1	15.5	7.89	280	168	0.262	0.589
					SD	0.351	0.075	0.06	0.15	0.57	0.021	1.0	3.2	0.0135	0.0184
					PRSD	4	1	-	2	-	0	0	2	5	3
Zone 1b	Z1-8A	WP2313572-004	26-Jun-23	8:35		9.09	9.72	1.9	11.0	15.1	8.05	222	150	1.60	1.08
	Z1-8B	WP2313572-006				8.77	10.3	2.3	10.9	14.3	8.07	221	146	1.61	1.03
	Z1-8C	WP2313572-007				10.8	10.9	2.4	11.0	13.5	8.07	221	145	1.65	1.00
					Mean	9.55	10.3	2.2	11.0	14.3	8.06	221	147	1.62	1.04
					SD	1.09	0.590	0.27	0.06	0.80	0.012	0.6	2.7	0.0265	0.0404
					PRSD	11	6	-	1	-	0	0	2	2	4
Stephens Lake - Far-field	FF-3A	WP2313115-003	23-Jun-23	8:58		10.0	9.81	1.4	12.4	16.7	8.13	221	127	1.27	0.856
	FF-3B	WP2313115-006				9.87	9.60	3.1	12.3	18.4	8.12	220	139	1.24	0.901
	FF-3C	WP2313115-007				9.88	10.2	2.6	12.1	20.2	8.16	220	132	1.22	0.851
					Mean	9.92	9.87	2.4	12.3	18.4	8.14	220	133	1.24	0.869
					SD	0.072	0.304	0.87	0.15	1.75	0.021	0.6	6.0	0.0252	0.0275
					PRSD	1	3	-	1	-	0	0	5	2	3
Zone 1b	Z1-5A	WP2318135-001	2-Aug-23	8:05		8.21	9.91	2.0	10.2	18.1	8.06	212	150	1.30	1.00
	Z1-5B	WP2318135-006				8.42	9.34	1.4	10.7	14.8	8.13	209	140	1.33	0.998
	Z1-5C	WP2318135-007				8.52	9.47	1.4	10.8	17.4	8.09	209	144	1.30	1.02
					Mean	8.38	9.57	1.6	10.6	16.8	8.09	210	145	1.31	1.01
					SD	0.158	0.299	0.35	0.32	1.74	0.035	1.7	5.0	0.0173	0.0122
					PRSD	2	3	-	3	-	0	1	3	1	1
Stephens Lake - Far-field	FF-1A	WP2317368-001	28-Jul-23	8:16		9.34	9.51	1.5	10.4	37.5	8.05	231	126	1.41	0.828
	FF-1B	WP2317368-006				9.32	9.77	1.7	10.3	21.2	8.06	227	126	1.46	0.820
	FF-1C	WP2317368-007				9.38	9.98	1.3	12.5	21.2	8.08	226	129	1.56	0.847
					Mean	9.35	9.75	1.5	11.1	26.6	8.06	228	127	1.48	0.832
					SD	0.031	0.235	0.20	1.24	9.41	0.015	2.7	1.7	0.0764	0.0139
					PRSD	0	2	-	11	-	0	1	1	5	2

Table A5-1: Quality assurance/quality control results for routine water chemistry parameters measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
						Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
						(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023						**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**3.0/10.0 /15.0**	**0.010**	**0.100**
Zone 1b	Z1-7A	WP2321378-007	28-Aug-23	10:09		8.62	9.74	1.7	9.02	14.3	8.15	227	140	1.30	0.881
	Z1-7B	WP2321378-010				9.54	8.66	1.6	9.15	11.4	8.15	227	140	1.37	0.929
	Z1-7C	WP2321378-011				9.20	10.2	1.4	8.98	11.5	8.14	227	123	1.33	0.854
					Mean	9.12	9.53	1.6	9.05	12.4	8.15	227	134	1.33	0.888
					SD	0.465	0.791	0.15	0.089	1.65	0.006	0.0	9.8	0.0351	0.0380
					PRSD	5	8	-	1	-	0	0	7	3	4
Stephens Lake - Near-field	NF-5A	WP2321410-016	28-Aug-23	17:12		10.3	9.45	2.9	9.70	15.8	8.19	225	131	3.01	1.11
	NF-5B	WP2321410-017				10.2	9.76	1.7	9.29	14.0	8.17	225	136	2.97	1.10
	NF-5C	WP2321410-018				8.91	9.44	2.2	9.44	11.1	8.18	226	126	3.02	1.10
					Mean	9.80	9.55	2.3	9.48	13.6	8.18	225	131	3.00	1.10
					SD	0.775	0.182	0.60	0.207	2.37	0.010	0.6	5.0	0.0265	0.0058
					PRSD	8	2	-	2	-	0	0	4	1	1
Zone 8	Z8-1A SURF	WP2324106-001	21-Sep-23	11:40		11.6	13.3	2.2	2.08	49.9	7.89	203	96.8	8.10	3.32
	Z8-1B SURF	WP2324106-005				13.1	13.7	2.4	2.12	49.6	7.89	204	118	8.07	3.41
	Z8-1C SURF	WP2324106-006				12.9	13.9	2.2	1.97	50.3	7.90	204	125	8.24	3.16
					Mean	12.5	13.6	2.3	2.06	49.9	7.89	204	113	8.14	3.30
					SD	0.814	0.306	0.12	0.078	0.35	0.006	0.6	14.7	0.907	0.127
					PRSD	6	2	-	4	1	0	0	13	1	4
Stephens Lake - Near-field	NF-2A	WP2324490-002	25-Sep-23	7:41		8.35	8.74	1.0	6.36	14.6	8.14	232	146	1.55	0.876
	NF-2B	WP2324490-006				8.57	9.00	1.3	6.23	13.1	8.15	234	157	1.50	0.859
	NF-2C	WP2324490-007				8.23	9.54	1.1	6.48	14.1	8.22	233	153	1.42	0.859
					Mean	8.38	9.09	1.1	6.36	13.9	8.17	233	152	1.49	0.865
					SD	0.172	0.408	0.15	0.125	0.76	0.044	1.0	5.6	0.0656	0.0098
					PRSD	2	4	-	2	-	1	0	4	4	1

Table A5-1: Quality assurance/quality control results for routine water chemistry parameters measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Carbon		Water Clarity			Lab pH	Laboratory Conductivity	Total Dissolved Solids	Productivity	
					Total Organic C	Dissolved Organic C	Total Suspended Solids	Turbidity	True Colour				Chlorophyll *a*	Phaeophytin *a*
					(mg/L)	(mg/L)	(mg/L)	(NTU)	(CU)		(µS/cm)	(mg/L)	(µg/L)	(µg/L)
Detection Limit 2023					**0.50**	**0.50**	**1.0**	**0.10**	**5.0**	**0.10**	**1.0**	**3.0**	**0.010**	**0.100**
Field Blank	FB-1	WP2303626-007	26-Mar-23	11:30	0.73	1.03	<1.0	0.10	<5.0	5.51	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-2	WP2303849-010	29-Mar-23	14:00	<0.50	0.56	<1.0	<0.10	<5.0	5.57	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-1	WP2313612-005	22-Jun-23	10:30	<0.50	<0.50	<1.0	<0.10	<5.0	5.39	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-2	WP2313575-006	27-Jun-23	12:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.46	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-1	WP2317027-011	25-Jul-23	17:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.32	1.3	<3.0	<0.010	<0.100
Field Blank	FB-2	WP2318135-012	2-Aug-23	12:00	<0.50	0.54	<1.0	<0.10	<5.0	5.58	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-1	WP2320368-010	21-Aug-23	13:22	<0.50	<0.50	<1.0	<0.10	<5.0	5.19	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-2	WP2321052-004	27-Aug-23	10:15	<0.50	<0.50	<1.0	<0.10	<5.0	5.29	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-1	WP2323856-011	19-Sep-23	15:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.37	<1.0	<3.0	<0.010	<0.100
Field Blank	FB-2	WP2324490-014	25-Sep-23	12:30	<0.50	0.79	<1.0	<0.10	<5.0	5.33	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-1	WP2303626-006	26-Mar-23	11:30	0.61	0.83	<1.0	<0.10	<5.0	5.61	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-2	WP2303849-011	29-Mar-23	14:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.51	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-1	WP2313612-006	22-Jun-23	10:30	<0.50	<0.50	<1.0	<0.10	<5.0	5.34	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-2	WP2313575-007	27-Jun-23	12:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.35	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-1	WP2317027-010	25-Jul-23	17:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.99	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-2	WP2318135-013	2-Aug-23	12:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.49	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-1	WP2320368-011	21-Aug-23	13:22	<0.50	<0.50	<1.0	<0.10	<5.0	5.18	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-2	WP2321052-003	27-Aug-23	10:15	<0.50	<0.50	<1.0	<0.10	<5.0	5.44	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-1	WP2323856-010	19-Sep-23	15:00	<0.50	<0.50	<1.0	<0.10	<5.0	5.45	<1.0	<3.0	<0.010	<0.100
Trip Blank	TB-2	WP2324490-013	25-Sep-23	12:30	<0.50	0.60	<1.0	<0.10	<5.0	5.37	<1.0	<3.0	<0.010	<0.100

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red.

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023						**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Zone 1b	Z1-5A	WP2303699-001	27-Mar-23	8:35		110	0.472	0.00013	0.00128	0.0311	<0.000020	<0.000050	0.023	0.0000060	24.9	0.000054	10.7	0.00075	0.00019	0.00253
	Z1-5B	WP2303699-006	27-Mar-23	8:35		111	0.442	0.00012	0.00127	0.0306	<0.000020	<0.000050	0.022	0.0000090	25.0	0.000048	10.6	0.00074	0.00017	0.00920
	Z1-5C	WP2303699-007	27-Mar-23	8:35		116	0.422	<0.00010	0.00128	0.0304	<0.000020	<0.000050	0.020	<0.0000050	26.5	0.000044	10.4	0.00068	0.00017	0.00275
					Mean	112	0.445	0.00010	0.00128	0.0307	<0.000020	<0.000050	0.022	0.0000058	25.5	0.000049	10.6	0.00072	0.00018	0.00483
					SD	3.2	0.0252	0.000007	0.000006	0.00036	-	-	0.0015	0.00000325	0.90	0.0000050	0.15	0.000038	0.000012	0.00379
					PRSD	3	6	-	0.5	1	-	-	-	-	4	-	1	5	-	**79**
Stephens Lake - Near-field	NF-3A	WP2303925-003	30-Mar-23	13:45		112	0.489	<0.00010	0.00134	0.0324	0.000020	<0.000050	0.020	<0.0000050	25.0	0.000054	10.8	0.00097	0.00021	0.00495
	NF-3B	WP2303925-006	30-Mar-23	13:45		111	0.385	<0.00010	0.00133	0.0312	<0.000020	<0.000050	0.021	<0.0000050	24.9	0.000046	10.7	0.00073	0.00018	0.00164
	NF-3C	WP2303925-007	30-Mar-23	13:45		112	0.431	<0.00010	0.00128	0.0317	0.000021	<0.000050	0.021	0.0000070	24.8	0.000050	10.8	0.00074	0.00019	0.0185
					Mean	112	0.435	<0.00010	0.00132	0.0318	<0.000020	<0.000050	0.021	<0.0000050	24.9	0.000050	10.8	0.00081	0.00019	0.00836
					SD	0.6	0.0521	-	0.000032	0.00060	-	-	0.0006	-	0.10	0.0000040	0.06	0.000136	0.000015	0.00893
					PRSD	1	12	-	2	2	-	-	-	-	0	-	1	17	-	-
Zone 1b	Z1-8A	WP2313572-004	26-Jun-23	8:35		98.4	0.563	<0.00010	0.00111	0.0267	0.000025	<0.000050	0.017	0.0000074	23.0	0.000053	7.83	0.00104	0.00023	0.00168
	Z1-8B	WP2313572-006	26-Jun-23	8:35		100	0.515	<0.00010	0.00113	0.0265	0.000022	<0.000050	0.017	<0.0000050	23.3	0.000053	7.84	0.00096	0.00022	0.00167
	Z1-8C	WP2313572-007	26-Jun-23	8:35		100	0.532	<0.00010	0.00117	0.0265	<0.000020	<0.000050	0.017	<0.0000050	23.3	0.000054	7.87	0.00091	0.00022	0.00162
					Mean	99.5	0.537	<0.00010	0.00114	0.0266	<0.000020	<0.000050	0.017	<0.0000050	23.2	0.000053	7.85	0.00097	0.00022	0.00166
					SD	0.92	0.0243	-	0.000031	0.00012	-	-	0.0000	-	0.17	0.0000006	0.021	0.000066	0.000006	0.000032
					PRSD	1	5	-	3	0	-	-	-	-	1	1	0.3	7	-	-
Stephens Lake - Far-field	FF-3A	WP2313115-003	23-Jun-23	8:58		97.3	0.496	<0.00010	0.00106	0.0255	<0.000020	<0.000050	0.018	<0.0000050	22.9	0.000049	7.47	0.00078	0.00022	0.00159
	FF-3B	WP2313115-006	23-Jun-23	8:58		97.3	0.570	<0.00010	0.00109	0.0258	0.000020	<0.000050	0.018	<0.0000050	22.8	0.000058	7.46	0.00091	0.00024	0.00169
	FF-3C	WP2313115-007	23-Jun-23	8:58		97.5	0.576	<0.00010	0.00102	0.0264	<0.000020	<0.000050	0.018	0.0000059	23.2	0.000060	7.52	0.00092	0.00022	0.00162
					Mean	97.4	0.547	<0.00010	0.00106	0.0259	<0.000020	<0.000050	0.018	<0.0000050	23.0	0.000056	7.48	0.00087	0.00023	0.00163
					SD	0.12	0.0446	-	0.000035	0.00046	-	-	0.0000	-	0.21	0.0000059	0.032	0.000078	0.000012	0.000051
					PRSD	0	8	-	3	2	-	-	-	-	1	-	0.4	9	-	-
Zone 1b	Z1-5A	WP2318135-001	2-Aug-23	8:05		92.0	0.565	<0.00010	0.00130	0.0239	0.000024	<0.000050	0.018	<0.0000050	20.9	0.000050	7.47	0.00084	0.00020	0.00170
	Z1-5B	WP2318135-006	2-Aug-23	8:05		85.4	0.558	<0.00010	0.00139	0.0237	<0.000020	<0.000050	0.017	<0.0000050	19.0	0.000052	7.47	0.00084	0.00021	0.00171
	Z1-5C	WP2318135-007	2-Aug-23	8:05		85.9	0.569	<0.00010	0.00133	0.0249	0.000022	<0.000050	0.016	<0.0000050	18.8	0.000055	7.33	0.00086	0.00022	0.00168
					Mean	87.8	0.564	<0.00010	0.00134	0.0242	0.000023	<0.000050	0.017	<0.0000050	19.6	0.000052	7.42	0.00085	0.00021	0.00170
					SD	3.67	0.0056	-	0.000046	0.00064	0.0000014	-	0.0010	-	1.16	0.0000025	0.081	0.000012	0.000010	0.000015
					PRSD	4	1	-	3	3	-	-	-	-	6	5	1	1	-	-
Stephens Lake - Far-field	FF-1A	WP2317368-001	28-Jul-23	8:16		93.9	0.554	<0.00010	0.00130	0.0246	<0.000020	<0.000050	0.018	<0.0000050	21.1	0.000048	8.02	0.00091	0.00020	0.00182
	FF-1B	WP2317368-006	28-Jul-23	8:16		91.4	0.482	<0.00010	0.00128	0.0231	<0.000020	<0.000050	0.017	<0.0000050	19.8	0.000042	7.97	0.00080	0.00018	0.00171
	FF-1C	WP2317368-007	28-Jul-23	8:16		93.4	0.480	0.00011	0.00131	0.0242	0.000020	<0.000050	0.018	<0.0000050	21.3	0.000038	8.06	0.00077	0.00017	0.00171
					Mean	92.9	0.505	<0.00010	0.00130	0.0240	<0.000020	<0.000050	0.018	<0.0000050	20.7	0.000043	8.02	0.00083	0.00018	0.00175
					SD	1.32	0.0422	-	0.000015	0.00078	-	-	0.0006	-	0.81	0.0000050	0.045	0.000074	0.000015	0.000064
					PRSD	1	8	-	1	3	-	-	-	-	4	-	1	9	-	-

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023						**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.000020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Zone 1b	Z1-7A	WP2321378-007	28-Aug-23	10:09		96.6	0.395	<0.00010	0.00147	0.0239	<0.000020	<0.000050	0.019	<0.0000050	22.6	0.000043	8.32	0.00062	0.00016	0.00163
	Z1-7B	WP2321378-010				90.8	0.428	<0.00010	0.00153	0.0244	<0.000020	<0.000050	0.014	<0.0000050	20.2	0.000045	7.99	0.00062	0.00016	0.00177
	Z1-7C	WP2321378-011				87.3	0.454	<0.00010	0.00151	0.0247	<0.000020	<0.000050	0.015	<0.0000050	19.6	0.000046	8.11	0.00069	0.00017	0.00166
					Mean	91.6	0.426	<0.00010	0.00150	0.0243	<0.000020	<0.000050	0.016	<0.0000050	20.8	0.000045	8.14	0.00064	0.00016	0.00169
					SD	4.70	0.0296	-	0.000031	0.00040	-	-	0.0027	-	1.59	0.0000015	0.167	0.000040	0.000006	0.000074
					PRSD	5	7	-	2	2	-	-	-	-	8	-	2	6	-	-
Stephens Lake - Near-field	NF-5A	WP2321410-016	28-Aug-23	17:12		88.8	0.363	<0.00010	0.00141	0.0234	<0.000020	<0.000050	0.014	<0.0000050	20.1	0.000034	7.78	0.00054	0.00014	0.00171
	NF-5B	WP2321410-017				85.1	0.381	<0.00010	0.00143	0.0238	<0.000020	<0.000050	0.012	<0.0000050	19.1	0.000036	7.78	0.00059	0.00015	0.00152
	NF-5C	WP2321410-018				89.2	0.363	<0.00010	0.00143	0.0233	<0.000020	<0.000050	0.014	<0.0000050	19.9	0.000038	7.75	0.00058	0.00015	0.00160
					Mean	87.7	0.369	<0.00010	0.00142	0.0235	<0.000020	<0.000050	0.013	<0.0000050	19.7	0.000036	7.77	0.00057	0.00015	0.00161
					SD	2.26	0.0104	-	0.000012	0.00027	-	-	0.0012	-	0.53	0.0000020	0.017	0.000027	0.000006	0.000095
					PRSD	3	3	-	1	1	-	-	-	-	3	-	0	5	-	-
Zone 8	Z8-1A SURF	WP2324106-001	21-Sep-23	11:40		85.9	0.112	<0.00010	0.00105	0.0162	<0.000020	<0.000050	0.012	<0.0000050	21.0	0.000010	7.13	0.00018	<0.00010	0.00064
	Z8-1B SURF	WP2324106-005				85.7	0.110	<0.00010	0.00108	0.0166	<0.000020	<0.000050	0.011	<0.0000050	20.7	<0.000010	7.01	0.00016	<0.00010	0.00068
	Z8-1C SURF	WP2324106-006				85.4	0.108	<0.00010	0.00102	0.0163	<0.000020	<0.000050	0.011	<0.0000050	20.5	<0.000010	7.01	0.00016	<0.00010	0.00068
					Mean	85.7	0.110	<0.00010	0.00105	0.0164	<0.000020	<0.000050	0.011	<0.0000050	20.7	<0.000010	7.05	0.00017	<0.00010	0.00067
					SD	0.25	0.0020	-	0.000030	0.00021	-	-	0.0006	-	0.25	-	0.069	0.000012	-	0.000023
					PRSD	0	2	-	3	1	-	-	-	-	1	-	1	-	-	-
Stephens Lake - Near-field	NF-2A	WP2324490-002	25-Sep-23	7:41		99.6	0.343	<0.00010	0.00158	0.0241	<0.000020	<0.000050	0.019	<0.0000050	22.9	0.000035	9.78	0.00051	0.00013	0.00149
	NF-2B	WP2324490-006				101	0.336	<0.00010	0.00158	0.0242	<0.000020	<0.000050	0.020	<0.0000050	23.1	0.000031	9.82	0.00052	0.00013	0.00148
	NF-2C	WP2324490-007				101	0.367	<0.00010	0.00157	0.0246	<0.000020	<0.000050	0.018	<0.0000050	23.0	0.000034	9.76	0.00054	0.00014	0.00161
					Mean	101	0.349	<0.00010	0.00158	0.0243	<0.000020	<0.000050	0.019	<0.0000050	23.0	0.000033	9.79	0.00052	0.00013	0.00153
					SD	0.8	0.0163	-	0.000006	0.00027	-	-	0.0010	-	0.10	0.0000021	0.031	0.000015	0.000006	0.000072
					PRSD	1	5	-	0	1	-	-	-	-	0	-	0	-	-	-

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Hardness (as $CaCO_3$) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)
Detection Limit 2023					**0.50**	**0.0030**	**0.00010**	**0.00010**	**0.00010**	**0.00020**	**0.000050**	**0.010**	**0.0000050**	**0.050**	**0.000010**	**0.10**	**0.00010**	**0.00010**	**0.00050**
Field Blank	FB-1	WP2303626-007	26-Mar-23	11:30	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	WP2303849-010	29-Mar-23	14:00	<0.50	0.0031	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-1	WP2313612-005	22-Jun-23	10:30	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	WP2313575-006	27-Jun-23	12:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	0.00022	<0.00010	<0.00050
Field Blank	FB-1	WP2317027-011	25-Jul-23	17:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	WP2318135-012	2-Aug-23	12:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-1	WP2320368-010	21-Aug-23	13:22	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	WP2321052-004	27-Aug-23	10:15	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-1	WP2323856-011	19-Sep-23	15:00	<0.50	0.0033	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Field Blank	FB-2	WP2324490-014	25-Sep-23	12:30	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-1	WP2303626-006	26-Mar-23	11:30	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-2	WP2303849-011	29-Mar-23	14:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-1	WP2313612-006	22-Jun-23	10:30	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-2	WP2313575-007	27-Jun-23	12:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	0.00014	<0.00010	<0.00050
Trip Blank	TB-1	WP2317027-010	25-Jul-23	17:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-2	WP2318135-013	2-Aug-23	12:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	0.00073
Trip Blank	TB-1	WP2320368-011	21-Aug-23	13:22	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-2	WP2321052-003	27-Aug-23	10:15	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-1	WP2323856-010	19-Sep-23	15:00	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	0.014	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050
Trip Blank	TB-2	WP2324490-013	25-Sep-23	12:30	<0.50	<0.0030	<0.00010	<0.00010	<0.00010	<0.000020	<0.000050	<0.010	<0.0000050	<0.050	<0.000010	<0.10	<0.00010	<0.00010	<0.00050

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023						**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Zone 1b	Z1-5A	WP2303699-001	27-Mar-23	8:35		0.432	0.000183	0.0084	11.6	0.0103	0.78	0.024	0.000554	0.00131	0.064	2.52	0.00224	0.000146	3.87	<0.000010	12.2
	Z1-5B	WP2303699-006				0.401	0.000186	0.0086	11.7	0.0101	1.45	0.027	0.000558	0.00126	0.052	2.50	0.00216	0.000107	3.93	<0.000010	11.9
	Z1-5C	WP2303699-007				0.408	0.000176	0.0085	12.2	0.0101	0.62	0.023	0.000545	0.00132	0.053	2.53	0.00208	0.000104	3.73	<0.000010	12.5
					Mean	0.414	0.000182	0.0085	11.8	0.0102	0.95	0.025	0.000522	0.00130	0.056	2.52	0.00216	0.000119	3.84	<0.000010	12.2
					SD	0.0163	0.0000051	0.00010	0.32	0.00012	0.440	0.0021	0.0000067	0.000032	0.0067	0.015	0.000080	0.0000234	0.103	-	0.30
					PRSD	4	-	1	3	1	-	-	1	-	-	0.6	4	-	3	-	2
Stephens Lake - Near-field	NF-3A	WP2303925-003	30-Mar-23	13:45		0.461	0.000187	0.0086	12.0	0.0102	0.57	0.026	0.000568	0.00142	0.056	2.56	0.00218	0.000146	4.15	<0.000010	12.6
	NF-3B	WP2303925-006				0.392	0.000180	0.0086	11.9	0.00967	0.62	0.025	0.000571	0.00141	<0.050	2.49	0.00208	0.000110	3.85	<0.000010	12.5
	NF-3C	WP2303925-007				0.428	0.000188	0.0085	12.2	0.00979	0.89	0.029	0.000566	0.00140	0.055	2.52	0.00213	0.000112	4.06	<0.000010	12.5
					Mean	0.427	0.000185	0.0086	12.0	0.00989	0.69	0.027	0.000568	0.00141	<0.050	2.52	0.00213	0.000123	4.02	<0.00010	12.5
					SD	0.0345	0.0000044	0.00006	0.15	0.000278	0.172	0.0021	0.0000025	0.000010	-	0.035	0.000050	0.0000202	0.154	-	0.06
					PRSD	8	-	1	1	3	-	-	0	-	-	1	2	-	4	-	1
Zone 1b	Z1-8A	WP2313572-004	26-Jun-23	8:35		0.505	0.000234	0.0068	9.95	0.0103	0.88	0.062	0.000474	0.00152	<0.050	2.23	0.00237	0.000092	2.86	<0.000010	9.72
	Z1-8B	WP2313572-006				0.479	0.000227	0.0069	10.3	0.0103	0.88	0.054	0.000438	0.00145	<0.050	2.24	0.00219	0.000113	2.75	<0.000010	10.0
	Z1-8C	WP2313572-007				0.482	0.000223	0.0069	10.2	0.0105	0.86	0.055	0.000463	0.00144	<0.050	2.22	0.00220	0.000113	2.79	<0.000010	9.95
					Mean	0.489	0.000228	0.0069	10.2	0.0104	0.86	0.057	0.000458	0.00147	<0.050	2.23	0.00225	0.000106	2.80	<0.000010	9.89
					SD	0.0142	0.0000056	0.00006	0.18	0.00012	0.012	0.0044	0.0000184	0.000044	-	0.010	0.000101	0.0000121	0.058	-	0.149
					PRSD	3	-	1	2	1	-	-	4	-	-	0	4	-	2	-	2
Stephens Lake - Far-field	FF-3A	WP2313115-003	23-Jun-23	8:58		0.488	0.000230	0.0074	9.75	0.0101	0.89	0.039	0.000441	0.00137	<0.050	2.07	0.00204	0.000121	2.68	<0.000010	9.50
	FF-3B	WP2313115-006				0.539	0.000247	0.0068	9.81	0.0103	0.94	0.038	0.000438	0.00182	<0.050	2.07	0.00225	0.000116	2.83	<0.000010	9.59
	FF-3C	WP2313115-007				0.522	0.000234	0.0074	9.62	0.0102	0.88	<0.020	0.000443	0.00137	<0.050	2.05	0.00219	0.000087	2.86	<0.000010	9.51
					Mean	0.516	0.000237	0.0072	9.73	0.0102	0.90	0.029	0.000441	0.00152	<0.050	2.06	0.00216	0.000108	2.79	<0.000010	9.53
					SD	0.0260	0.0000089	0.00035	0.097	0.00010	0.032	0.0165	0.0000025	0.000260	-	0.012	0.000108	0.0000184	0.096	-	0.049
					PRSD	5	-	5	1	1	-	-	1	-	-	1	5	-	3	-	1
Zone 1b	Z1-5A	WP2318135-001	2-Aug-23	8:05		0.468	0.000222	0.0074	9.66	0.00891	-[1]	0.061	0.000438	0.00128	0.056	2.08	0.00229	0.000107	3.42	<0.000010	8.82
	Z1-5B	WP2318135-006				0.475	0.000234	0.0068	9.23	0.00897	1.55	0.088	0.000421	0.00131	<0.050	2.09	0.00226	0.000107	3.40	<0.000010	8.82
	Z1-5C	WP2318135-007				0.478	0.000220	0.0063	9.46	0.00937	0.72	0.120	0.000398	0.00129	<0.050	2.11	0.00230	0.000109	3.44	<0.000010	8.52
					Mean	0.474	0.000255	0.0068	9.45	0.00908	1.14	0.090	0.000419	0.00129	<0.050	2.09	0.00228	0.000108	3.42	<0.000010	8.72
					SD	0.0051	0.0000076	0.00055	0.215	0.000250	0.587	0.0295	0.0000201	0.000015	-	0.015	0.000021	0.0000012	0.020	-	0.173
					PRSD	1	-	8	2	3	-	-	5	-	-	1	1	-	1	-	2
Stephens Lake - Far-field	FF-1A	WP2317368-001	28-Jul-23	8:16		0.432	0.000224	0.0070	10.0	0.00889	0.84	0.041	0.000483	0.00139	0.052	2.17	0.00221	0.000093	3.25	<0.000010	9.17
	FF-1B	WP2317368-006				0.399	0.000206	0.0064	10.2	0.00816	0.70	0.040	0.000422	0.00130	<0.050	2.21	0.00220	0.000108	3.09	<0.000010	9.65
	FF-1C	WP2317368-007				0.396	0.000223	0.0071	9.76	0.00877	0.65	0.040	0.000417	0.00137	<0.050	2.14	0.00204	0.000112	3.08	<0.000010	9.27
					Mean	0.409	0.000218	0.0068	9.99	0.00861	0.73	0.040	0.000441	0.00135	<0.050	2.17	0.00215	0.000104	3.14	<0.000010	9.36
					SD	0.2000	0.0000101	0.00038	0.220	0.000391	0.099	0.0006	0.0000367	0.000047	-	0.035	0.000095	0.0000100	0.095	-	0.253
					PRSD	5	-	6	2	5	-	-	8	-	-	2	4	-	3	-	3

1. Sample bottle broken in transit.

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2022. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023						**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Zone 1b	Z1-7A	WP2321378-007	28-Aug-23	10:09		0.322	0.000184	0.0081	9.75	0.00750	0.55	0.027	0.000512	0.00127	<0.050	2.11	0.00199	0.000098	3.23	<0.000010	9.21
	Z1-7B	WP2321378-010				0.336	0.000182	0.0068	9.80	0.00786	0.56	0.022	0.000490	0.00125	<0.050	2.14	0.00208	0.000087	3.29	<0.000010	9.54
	Z1-7C	WP2321378-011				0.377	0.000189	0.0070	9.32	0.00785	0.56	<0.020	0.000676	0.00126	<0.050	2.12	0.00205	0.000120	3.38	<0.000010	8.96
					Mean	0.345	0.000185	0.0073	9.62	0.00774	0.56	0.020	0.000559	0.00126	<0.050	2.12	0.00204	0.000102	3.30	<0.000010	9.24
					SD	0.0286	0.0000036	0.00070	0.264	0.000205	0.006	0.0087	0.000102	0.000010	-	0.015	0.000046	0.0000168	0.076	-	0.291
					PRSD	8	-	10	3	3	-	-	**18**	-	-	1	2	-	2	-	3
Stephens Lake - Near-field	NF-5A	WP2321410-016	28-Aug-23	17:12		0.289	0.000181	0.0068	9.39	0.00725	0.68	0.039	0.00146	0.00115	<0.050	2.10	0.00184	0.000116	3.00	<0.000010	9.03
	NF-5B	WP2321410-017				0.322	0.000183	0.0061	9.08	0.00784	0.60	<0.020	0.00109	0.00120	<0.050	2.03	0.00205	0.000075	3.15	<0.000010	9.06
	NF-5C	WP2321410-018				0.314	0.000190	0.0068	9.60	0.00732	0.68	0.039	0.00122	0.00116	<0.050	2.09	0.00191	0.000098	3.10	<0.000010	9.04
					Mean	0.308	0.000185	0.0066	9.36	0.00747	0.65	0.029	0.00126	0.00117	<0.050	2.07	0.00193	0.000096	3.08	<0.000010	9.04
					SD	0.0172	0.0000047	0.000404	0.262	0.000322	0.046	0.0167	0.000188	0.000027	-	0.038	0.000107	0.0000206	0.076	-	0.015
					PRSD	6	-	6	3	4	-	-	15	-	-	2	6	-	2	-	0.2
Zone 1b	Z8-1A SURF	WP2324106-001	21-Sep-23	11:40		0.160	0.000072	0.0064	8.13	0.0110	1.02	0.347	0.000322	0.00053	<0.050	1.68	0.00134	0.000101	2.73	<0.000010	8.01
	Z8-1B SURF	WP2324106-005				0.158	0.000058	0.0060	8.25	0.0106	1.08	0.458	0.000356	0.00054	<0.050	1.69	0.00138	0.000082	2.70	<0.000010	7.81
	Z8-1C SURF	WP2324106-006				0.159	0.000076	0.0059	8.32	0.0110	1.06	0.468	0.000336	0.00052	<0.050	1.69	0.00130	0.000104	2.76	<0.000010	7.85
					Mean	0.159	0.000069	0.0061	8.23	0.0109	1.05	0.424	0.000338	0.00053	<0.050	1.69	0.00134	0.000096	2.73	<0.000010	7.89
					SD	0.0010	0.0000095	0.000265	0.096	0.00023	0.031	0.0672	0.0000171	0.000010	-	0.006	0.000040	0.0000119	0.030	-	0.106
					PRSD	1	-	4	1	2	-	16	5	-	-	0.3	3	-	1	-	1
Stephens Lake - Near-field	NF-2A	WP2324490-002	25-Sep-23	7:41		0.288	0.000145	0.0077	10.3	0.00596	0.59	0.029	0.000527	0.00103	<0.050	2.33	0.00191	0.000114	3.43	<0.000010	11.4
	NF-2B	WP2324490-006				0.282	0.000162	0.0081	10.5	0.00597	<0.50	0.034	0.000512	0.00098	<0.050	2.31	0.00188	0.000096	3.44	<0.000010	11.1
	NF-2C	WP2324490-007				0.300	0.000153	0.0078	10.6	0.00603	<0.50	0.030	0.000537	0.00109	0.051	2.40	0.00197	0.000124	3.45	<0.000010	11.4
					Mean	0.290	0.000153	0.0079	10.5	0.00599	<0.50	0.031	0.000525	0.00103	<0.050	2.35	0.00192	0.000111	3.44	<0.000010	11.3
					SD	0.0092	0.0000085	0.000208	0.15	0.000038	-	0.0026	0.0000126	0.000055	-	0.047	0.000046	0.0000142	0.010	-	0.173
					PRSD	3	-	3	1	1	-	-	2	-	-	2	2	-	0	-	2

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (ng/L)	Methyl-mercury (ng/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)
Detection Limit 2023					**0.010**	**0.000050**	**0.0010**	**0.0050**	**0.00010**	**0.50**	**0.020**	**0.000050**	**0.00050**	**0.050**	**0.050**	**0.00020**	**0.000050**	**0.10**	**0.000010**	**0.050**
Field Blank	FB-1	WP2303626-007	26-Mar-23	11:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	WP2303849-010	29-Mar-23	14:00	<0.010	<0.000050	<0.0010	0.0092	0.00015	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	WP2313612-005	22-Jun-23	10:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	WP2313575-006	27-Jun-23	12:00	<0.010	<0.000050	<0.0010	0.0094	0.00018	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	WP2317027-011	25-Jul-23	17:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	WP2318135-012	2-Aug-23	12:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	WP2320368-010	21-Aug-23	13:22	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	WP2321052-004	27-Aug-23	10:15	<0.010	<0.000050	<0.0010	<0.0050	0.00012	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-1	WP2323856-011	19-Sep-23	15:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Field Blank	FB-2	WP2324490-014	25-Sep-23	12:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	0.000060	<0.10	<0.000010	<0.050
Trip Blank	TB-1	WP2303626-006	26-Mar-23	11:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	WP2303849-011	29-Mar-23	14:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	WP2313612-006	22-Jun-23	10:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	WP2313575-007	27-Jun-23	12:00	<0.010	<0.000050	<0.0010	<0.0050	0.00017	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	WP2317027-010	25-Jul-23	17:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	WP2318135-013	2-Aug-23	12:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	WP2320368-011	21-Aug-23	13:22	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	WP2321052-003	27-Aug-23	10:15	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-1	WP2323856-010	19-Sep-23	15:00	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050
Trip Blank	TB-2	WP2324490-013	25-Sep-23	12:30	<0.010	<0.000050	<0.0010	<0.0050	<0.00010	<0.50	<0.020	<0.000050	<0.00050	<0.050	<0.050	<0.00020	<0.000050	<0.10	<0.000010	<0.050

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023						**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Zone 1b	Z1-5A	WP2303699-001	27-Mar-23	8:35		0.0963	28.1	9.86	<0.00020	<0.000010	0.00014	<0.00010	0.0176	<0.00010	0.000728	0.00164	<0.0030	0.00046
	Z1-5B	WP2303699-006				0.0978	27.8	9.76	<0.00020	<0.000010	0.00013	<0.00010	0.0162	<0.00010	0.000764	0.00154	0.0030	0.00045
	Z1-5C	WP2303699-007				0.0913	27.7	10.1	<0.00020	<0.000010	0.00012	<0.00010	0.0171	<0.00010	0.000648	0.00159	<0.0030	0.00042
					Mean	0.0951	27.9	9.91	<0.00020	<0.000010	0.00013	<0.00010	0.0170	<0.00010	0.000713	0.00159	<0.0030	0.00044
					SD	0.00340	0.21	0.175	-	-	0.000010	-	0.00071	-	0.0000594	0.000050	-	0.000021
					PRSD	4	1	2	-	-	-	-	4	-	8	-	-	-
Stephens Lake - Near-field	NF-3A	WP2303925-003	30-Mar-23	13:45		0.100	28.5	10.5	<0.00020	<0.000010	0.00012	<0.00010	0.0191	<0.00010	0.000691	0.00180	<0.0030	0.00043
	NF-3B	WP2303925-006				0.100	28.5	10.8	<0.00020	<0.000010	0.00012	<0.00010	0.0153	<0.00010	0.000691	0.00168	<0.0030	0.00043
	NF-3C	WP2303925-007				0.0988	28.6	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0171	<0.00010	0.000686	0.00168	0.0031	0.00042
					Mean	0.100	28.5	10.7	<0.00020	<0.000010	0.00012	<0.00010	0.0172	<0.00010	0.000689	0.00172	<0.0030	0.00043
					SD	0.0007	0.06	0.15	-	-	0.00000	-	0.00190	-	0.0000029	0.000069	-	0.000006
					PRSD	1	0	1	-	-	-	-	11	-	0	-	-	-
Zone 1b	Z1-8A	WP2313572-004	26-Jun-23	8:35		0.0814	20.5	7.62	<0.00020	<0.000010	0.00017	<0.00010	0.0208	<0.00010	0.000517	0.00174	<0.0030	0.00058
	Z1-8B	WP2313572-006				0.0804	20.5	7.80	<0.00020	<0.000010	0.00016	<0.00010	0.0189	<0.00010	0.000526	0.00173	<0.0030	0.00051
	Z1-8C	WP2313572-007				0.0818	20.5	7.51	<0.00020	<0.000010	0.00016	<0.00010	0.0189	<0.00010	0.000507	0.00172	<0.0030	0.00055
					Mean	0.0812	20.5	7.64	<0.00020	<0.000010	0.00016	<0.00010	0.0195	<0.00010	0.000517	0.00173	<0.0030	0.00055
					SD	0.00072	0.00	0.146	-	-	0.000006	-	0.00110	-	0.0000095	0.000010	-	0.000035
					PRSD	1	0	2	-	-	-	-	6	-	2	-	-	6
Stephens Lake - Far-field	FF-3A	WP2313115-003	23-Jun-23	8:58		0.0800	19.2	7.36	<0.00020	<0.000010	0.00017	<0.00010	0.0181	<0.00010	0.000512	0.00166	<0.0030	0.00056
	FF-3B	WP2313115-006				0.0790	19.2	7.43	<0.00020	<0.000010	0.00020	<0.00010	0.0205	<0.00010	0.000528	0.00174	<0.0030	0.00058
	FF-3C	WP2313115-007				0.0818	19.3	7.27	<0.00020	<0.000010	0.00018	<0.00010	0.0208	<0.00010	0.000501	0.00174	<0.0030	0.00057
					Mean	0.0803	19.2	7.35	<0.00020	<0.000010	0.00018	<0.00010	0.0198	<0.00010	0.000514	0.00171	<0.0030	0.00057
					SD	0.00142	0.06	0.080	-	-	0.000015	-	0.00148	-	0.0000136	0.000046	-	0.000010
					PRSD	2	0	1	-	-	-	-	7	-	3	-	-	2
Zone 1b	Z1-5A	WP2318135-001	2-Aug-23	8:05		0.0676	20.0	6.78	<0.00020	<0.000010	0.00016	<0.00010	0.0193	<0.00010	0.000427	0.00197	<0.0030	0.00052
	Z1-5B	WP2318135-006				0.0694	20.0	6.58	<0.00020	<0.000010	0.00016	<0.00010	0.0191	<0.00010	0.000466	0.00192	<0.0030	0.00052
	Z1-5C	WP2318135-007				0.0698	19.8	6.64	<0.00020	<0.000010	0.00016	<0.00010	0.0192	<0.00010	0.000446	0.00194	<0.0030	0.00053
					Mean	0.0689	19.9	6.67	<0.00020	<0.000010	0.00016	<0.00010	0.0192	<0.00010	0.000446	0.00194	<0.0030	0.00052
					SD	0.00117	0.12	0.103	-	-	0.000000	-	0.00010	-	0.0000195	0.000025	-	0.000006
					PRSD	2	1	2	-	-	-	-	1	-	4	-	-	1
Stephens Lake - Far-field	FF-1A	WP2317368-001	28-Jul-23	8:16		0.0777	21.7	7.24	<0.00020	<0.000010	0.00018	<0.00010	0.0180	<0.00010	0.000503	0.00188	<0.0030	0.00057
	FF-1B	WP2317368-006				0.0759	21.6	7.16	<0.00020	<0.000010	0.00015	<0.00010	0.0153	<0.00010	0.000497	0.00184	<0.0030	0.00050
	FF-1C	WP2317368-007				0.0729	21.8	7.15	<0.00020	<0.000010	0.00015	<0.00010	0.0152	<0.00010	0.000550	0.00183	<0.0030	0.00048
					Mean	0.0755	21.7	7.18	<0.00020	<0.000010	0.00016	<0.00010	0.0162	<0.00010	0.000517	0.00185	<0.0030	0.00052
					SD	0.00242	0.10	0.049	-	-	0.000017	-	0.00159	-	0.0000290	0.000027	-	0.000047
					PRSD	3	1	1	-	-	-	-	10	-	6	-	-	9

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time		Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023						**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Zone 1b	Z1-7A	WP2321378-007	28-Aug-23	10:09		0.0812	21.9	7.56	<0.00020	<0.000010	0.00013	<0.00010	0.0126	<0.00010	0.000516	0.00173	<0.0030	0.00048
	Z1-7B	WP2321378-010				0.0790	21.8	7.79	<0.00020	<0.000010	0.00014	<0.00010	0.0134	<0.00010	0.000541	0.00178	<0.0030	0.00046
	Z1-7C	WP2321378-011				0.0779	22.0	7.97	<0.00020	<0.000010	0.00014	<0.00010	0.0146	<0.00010	0.000532	0.00182	<0.0030	0.00046
					Mean	0.0794	21.9	7.77	<0.00020	<0.000010	0.00014	<0.00010	0.0135	<0.00010	0.000530	0.00178	<0.0030	0.00047
					SD	0.00168	0.10	0.206	-	-	0.000006	-	0.00101	-	0.0000127	0.000045	-	0.000012
					PRSD	2	1	3	-	-	-	-	7	-	2	-	-	2
Stephens Lake - Near-field	NF-5A	WP2321410-016	28-Aug-23	17:12		0.0728	21.2	7.24	<0.00020	<0.000010	0.00012	0.00012	0.0110	<0.00010	0.000517	0.00169	<0.0030	0.00045
	NF-5B	WP2321410-017				0.0776	21.0	7.34	<0.00020	<0.000010	0.00013	<0.00010	0.0119	<0.00010	0.000519	0.00168	<0.0030	0.00043
	NF-5C	WP2321410-018				0.0764	21.2	7.37	<0.00020	<0.000010	0.00013	<0.00010	0.0113	<0.00010	0.000525	0.00172	<0.0030	0.00047
					Mean	0.0756	21.1	7.32	<0.00020	<0.000010	0.00013	<0.00010	0.0114	<0.00010	0.000520	0.00170	<0.0030	0.00045
					SD	0.00250	0.12	0.068	-	-	0.000006	-	0.00046	-	0.0000042	0.000021	-	0.000020
					PRSD	3	1	1	-	-	-	-	4	-	1	-	-	4
Zone 8	Z8-1A SURF	WP2324106-001	21-Sep-23	11:40		0.0616	15.9	5.46	<0.00020	<0.000010	<0.00010	<0.00010	0.0030	<0.00010	0.000166	0.00078	<0.0030	<0.00020
	Z8-1B SURF	WP2324106-005				0.0603	15.8	5.05	<0.00020	<0.000010	<0.00010	<0.00010	0.0030	<0.00010	0.000175	0.00076	<0.0030	<0.00020
	Z8-1C SURF	WP2324106-006				0.0622	15.8	5.29	<0.00020	<0.000010	<0.00010	<0.00010	0.0029	<0.00010	0.000168	0.00080	<0.0030	<0.00020
					Mean	0.0614	15.8	5.27	<0.00020	<0.000010	<0.00010	<0.00010	0.00297	<0.00010	0.000170	0.00078	<0.0030	<0.00020
					SD	0.00097	0.06	0.206	-	-	-	-	0.000089	-	0.0000047	0.000002	-	-
					PRSD	2	0	4	-	-	-	-	3	-	3	-	-	-
Stephens Lake - Near-field	NF-2A	WP2324490-002	25-Sep-23	7:41		0.0854	25.2	8.66	<0.00020	<0.000010	0.00013	<0.00010	0.0109	<0.00010	0.000572	0.00170	<0.0030	0.00036
	NF-2B	WP2324490-006				0.0806	25.3	9.24	<0.00020	<0.000010	0.00011	<0.00010	0.0108	<0.00010	0.000637	0.00165	<0.0030	0.00035
	NF-2C	WP2324490-007				0.0827	25.2	9.18	<0.00020	<0.000010	0.00012	<0.00010	0.0114	<0.00010	0.000604	0.00174	<0.0030	0.00038
					Mean	0.0829	25.2	9.03	<0.00020	<0.000010	0.00012	<0.00010	0.0110	<0.00010	0.000604	0.00170	<0.0030	0.00036
					SD	0.00241	0.06	0.319	-	-	0.000010	-	0.00032	-	0.0000325	0.000045	-	0.000015
					PRSD	3	0	4	-	-	-	-	3	-	5	-	-	4

Table A5-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during ice-cover and open-water, 2023. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (DL). PRSD values exceeding 18% are indicated in bold red. Blank values exceeding five times the DL are indicated in bold red (continued).

Sample Location	Sample ID	ALS Sample ID	Sample Date	Sample Time	Strontium (mg/L)	Sulfate (mg/L)	Sulfur (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit 2023					**0.00020**	**0.30**	**0.50**	**0.00020**	**0.000010**	**0.00010**	**0.00010**	**0.00030**	**0.00010**	**0.000010**	**0.00050**	**0.0030**	**0.00020**
Field Blank	FB-1	WP2303626-007	26-Mar-23	11:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	WP2303849-010	29-Mar-23	14:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	WP2313612-005	22-Jun-23	10:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	WP2313575-006	27-Jun-23	12:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	WP2317027-011	25-Jul-23	17:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	WP2318135-012	2-Aug-23	12:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	WP2320368-010	21-Aug-23	13:22	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	WP2321052-004	27-Aug-23	10:15	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-1	WP2323856-011	19-Sep-23	15:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Field Blank	FB-2	WP2324490-014	25-Sep-23	12:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	WP2303626-006	26-Mar-23	11:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	WP2303849-011	29-Mar-23	14:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	WP2313612-006	22-Jun-23	10:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	WP2313575-007	27-Jun-23	12:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	WP2317027-010	25-Jul-23	17:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	WP2318135-013	2-Aug-23	12:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	WP2320368-011	21-Aug-23	13:22	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	WP2321052-003	27-Aug-23	10:15	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-1	WP2323856-010	19-Sep-23	15:00	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020
Trip Blank	TB-2	WP2324490-013	25-Sep-23	12:30	<0.00020	<0.30	<0.50	<0.00020	<0.000010	<0.00010	<0.00010	<0.00030	<0.00010	<0.000010	<0.00050	<0.0030	<0.00020